

INVITATION FOR BID

CITY OF NEW BEDFORD, MASSACHUSETTS DEPARTMENT OF PUBLIC INFRASTRUCTURE

On-Call Paving and Roadway Maintenance Activities

BID #23434112



Bids Due: March 30, 2023 at 2:00 p.m.

Jonathan F. Mitchell
Mayor

Department of Public Infrastructure
1105 Shawmut Ave
New Bedford, MA 02746

**CITY OF NEW BEDFORD
DEPARTMENT OF PUBLIC INFRASTRUCTURE
INVITATION FOR BIDS (IFB)
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
BID NO. 23434112**

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**CITY OF NEW BEDFORD
DEPARTMENT OF PUBLIC INFRASTRUCTURE
INVITATION FOR BIDS (IFB)
BID NO. 23434112**

**ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
INVITATION TO BID**

Sealed Bids for the construction of paving and roadway maintenance activities project will be received by the City of New Bedford, Massachusetts (Owner), acting through its Department of Public Infrastructure, at the office of the Purchasing Department, Room 208, City Hall, 133 William Street, New Bedford, Massachusetts 02740 until 2:00 PM, Thursday, March 30, 2023. Bidders may attend the opening in person or via live stream on ZOOM. All bids must be submitted via receipt acknowledged delivery service, certified mail that must be signed for, or in person drop off. Emailed or faxed bids will not be accepted. On the day of the bid opening, bids must be delivered inside City Hall to the Purchasing Department, Room 208 prior to the bid opening time. If at the time of scheduled bid opening, City Hall is closed due to uncontrolled events such as fire, ice, pandemic, or building evacuation, the bid opening will be postponed to the same time on the next normal business day. Bids will be accepted until that date and time. It is strongly recommended that bids are mailed or delivered in advance of the due date and time. The time clock on the wall above the counter at the Purchasing Department will determine the time of the bid opening and delivery of bids.

The Purchasing Department will post instructions for streaming IFB openings live on the City's website (<https://www.newbedford-ma.gov/purchasing/request-proposals-rfps-invitation-bids-ifbs/>) prior to the bid opening. All bidders must email the Purchasing Department (purchasing@newbedford-ma.gov) to confirm that they have submitted a proposal prior to the bid due date and time. It is the Bidder's responsibility to ensure that the Purchasing Department has received his/her Bid.

The work consists of various paving, roadway reconstruction, sidewalk, roadway preventive maintenance repairs, minor drainage and water system improvements, and roadway safety improvements at various streets in New Bedford. Work may also take place in other City owned property (i.e., parks, parking lots, green space, etc.) and may also include incidental work at locations to be subsequently determined by the Commissioner of the Department of Public Infrastructure.

Contract Documents are available electronically by emailing purchasing@newbedford-ma.gov during normal business hours (8:00 AM to 4:00 PM) or by downloading the documents on the City's website at <https://www.newbedford-ma.gov/purchasing/request-proposals-rfps-invitation-bids-ifbs/> on or after Thursday, March 2, 2023 at 4:00 PM.

A pre-bid conference will be held for this project at the New Bedford Department of Public Infrastructure Conference Room, 1105 Shawmut Avenue, New Bedford, Massachusetts 02740 on Thursday, March 8, 2023 at 10:00 AM.

The award of every such contract in connection with which approval by an officer, board or agency of the Commonwealth of Massachusetts or the Federal Government is required, shall be made within thirty days, Saturdays, Sundays and legal holidays excluded, after such approval; and the award of every contract with which approval by an officer, board or agency of the Federal Government or the Commonwealth of Massachusetts is not required shall be made within thirty days, Saturdays, Sundays and legal holidays excluded, after the opening of the bids. No bidder may withdraw his/her bid for at least thirty days after such approval, where required, has been received by the Awarding Authority.

The Contract Term will commence twenty days following the effective signing date of the agreement and extend through March 31, 2024, with the City retaining the SOLE option for two (2) additional one year renewals. All renewal options will be subject to appropriation. The first renewal year option will commence on April 1, 2024 and extend through March 31, 2025. The second renewal year option will commence on April 1, 2025 and extend through March 31, 2026.

Each Bid shall be submitted in accordance with the Instructions to Bidders and shall be accompanied by a Bid Security in the amount of five percent of the Bid.

Bidders may not withdraw their Bids for a period of forty-five days, excluding Saturdays, Sundays, and legal holidays after the actual date of the opening of the Bids.

The successful Bidder must furnish a 100 percent Performance Bond and a 100 percent Payment Bond with a surety company acceptable to the Owner.

Minimum Wage Rates as determined by the Commissioner of Department of Workforce Development under the provision of the Massachusetts General Laws, Chapter 149, Section 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. Federal Minimum Wage Rates as determined by the United States Department of Labor under the Davis-Bacon Act also apply to this project. Where there are conflicts, the higher rate shall be considered as the minimum rate. It is the responsibility of the Contractor prior to the bid opening to acquire any necessary additional information on Minimum Wage Rates for those trades people who may be employed for the proposed work under this Contract.

Disadvantaged Business Enterprise (DBE) goals of the City of New Bedford are applicable to the total dollars paid to the construction contract. **The City of New Bedford goals for this project are a minimum of 11.00 percent D/MBE participation and 5.00 percent D/WBE participation by certified DBEs.** The MassWorks Infrastructure Program **MBE and WBE goal is 10.4 percent combined MBE/WBE** by State certified MBE and WBE firms. The City of New Bedford goals shall govern since the combined total participation percentage is higher than the Commonwealth of Massachusetts Goals. The City of New Bedford also has minimum goals for employment (workforce utilization) of 18.00% minority and 6.90% female participation. The employment percentages shall apply to the contractor and all subcontractors, regardless of tier, for all on-site work. Bidders shall submit all required completed City of New Bedford forms with their bid. Failure to comply with the requirements of this paragraph may be deemed to render a proposal non-responsive. No waiver of any provision of this section will be granted unless approved by the City of New Bedford, Massachusetts and the MassWorks Infrastructure Grant Program.

The work within this Contract is funded, in part, by “Chapter 90” funds. The MassDOT prequalifies contractors for horizontal construction in accordance with Massachusetts General Law Chapter 81, Section 8B and 700 CMR 14.00. All municipal “Chapter 90” projects are subject to the requirements of Massachusetts General Law Chapter 6C, Section 4(b) whereby each prospective bidder proposing to bid on any work (with an estimated construction value of \$50,000 or more) to be awarded by a municipality must be prequalified by MassDOT prior to bidding. Regardless of the funding source, once a project requiring MassDOT prequalification’s is advertised for Bids, only Contractors that appear on the eligible approved prequalified bidders list for the Class of Work chosen by MassDOT and for the Total Project Value (inclusive of any cost associated with alternates and extensions) may submit a Bid. Because the City of New Bedford is proposing two (2) additional 12-month extensions, the valuation for the purposes of MassDOT prequalification is based on the Contract Value times three (3) at the estimated total

prequalification contract value. Contractors who are NOT prequalified to provide the services listed for the Total Prequalification Contract Value, but meet the single year waiver threshold, without documented poor performance issues, and want to bid, should submit a waiver request at least two (2) weeks prior to the opening of Bids to allow for time to appeal in the event the waiver is not granted. The estimated value in this Invitation to Bid is for one year. Vendors are expected to be able to provide their services for three (3) years at three (3) times the initial estimated value.

For Prequalification purposes, the estimated one year contract value is \$8,163,610.

The bidders shall submit documentation of MassDOT prequalification for the Class of Work to be contemplated with their Bid. No waiver of any provisions of this section will be granted unless approved by the MassDOT. Submittal of the Contractor's prequalification form does not guarantee evidence of current prequalification status. Receipt of a copy of this RFB does not guarantee a contractor's prequalification's. The Bidder must present a "Certificate of Approval Form" from the MassDOT to the City of New Bedford Purchasing Office prior to receiving plans and specifications.

The work within this Contract is funded in part by a MassWorks Infrastructure Grant awarded through the Executive Office of Housing and Economic Development.

The work on this Contract may also be funded through other various grants or loans including but not limited to Community Preservation Act funding, private funding, or Community Development Block Grants (CDBG). CDBG funding is administered through the United States Department of Housing and Urban Development (HUD) for the provisions of Federal financial assistance under Table 1 of the Housing and Community Development Act of 1974, and any amendments or supplements thereto. Bidders must comply with the requirements of that Act and regulations issued by the Secretary of HUD.

The bidding and award of this Contract will be under the provisions of M.G.L. Chapter 30, Section 39M of the General Laws of the Commonwealth of Massachusetts as last revised.

Award of the Contract will be contingent on the City's needs, appropriation, and availability of funds. The Owner reserves the right to waive any informality in or to reject any or all Bids if deemed to be in its best interest.

United States Occupational Safety and Health Administration (OSHA) Construction Training is required for this Contract. As of July 1, 2006, under M.G.L. Chapter 30, Section 39S, any person submitting a bid for, or signing a contract to work on, the construction, reconstruction, alteration, remodeling or repair of any public work by the Commonwealth of Massachusetts and/or City of New Bedford that is estimated by the awarding authority to cost more than \$10,000.00 shall certify on the Bid and Agreement, under penalty of perjury, that all employees to be employed on the Work shall have successfully completed a course in construction safety and health that is approved by OSHA and at least ten hours in duration.

Attention is called to the fact that this project will have a price adjustment clause for Hot Mix Asphalt (HMA), diesel fuel and gasoline, structural steel and reinforcing steel, and Portland Cement concrete mixes. The price adjustment clause will be similar in format to that used by the MassDOT Highway Division.

The Award of this Contract will be contingent upon the City's needs, appropriation, and availability of funds. The Owner reserves the right to waive any informality in or to reject any or all Bids it deems to be in its best interest.

The City encourages D/MBEs and D/WBEs to submit Bids.

MOLLY GILFEATHER
DIRECTOR OF PURCHASING
CITY OF NEW BEDFORD, MASSACHUSETTS

**CITY OF NEW BEDFORD
DEPARTMENT OF PUBLIC INFRASTRUCTURE
INVITATION FOR BIDS (IFB)
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES**

INSTRUCTION TO BIDDERS

ARTICLE 1. QUANTITY OF WORK

1.1 Quantities in the Bid Form are approximate only, being given as a basis for comparison of bids. The City of New Bedford (Owner) does not expressly or by implication agree that the actual amount of Work will correspond therewith, but reserves the right to increase or decrease the amount of any class or portion of the Work, as may be deemed necessary or expedient by the Owner. The Contractor shall only be reimbursed on a unit price basis for the quantities ultimately provided to the Owner; Contractor shall not be entitled to any profit associated with unused quantities nor shall there be any modification of unit prices if lesser or more quantities are utilized.

1.2 The Contract to be awarded hereunder is non-exclusive, and the Owner specifically reserves the right to seek Bids for and/or award contracts, agreements, work orders, and other authorizations, however characterized, to others to perform work of the same type and category as described in this Request for Bids and resulting in contract in whatever quantities it deems to be in the best interest of the Owner.

1.3 Bidders shall submit their Bid upon the express condition that an increase or decrease in the quantity for any item shall not be regarded as cause for an increase or decrease in the Contract unit prices, nor in the time allowed for the completion of the Work, except as provided in the Contract, which shall become part of every Bid received.

ARTICLE 2. PRICE ADJUSTMENTS

2.1 Attention is called to the fact that this project will have a price adjustment clause for Hot Mix Asphalt (HMA), diesel fuel and gasoline, steel and Portland cement concrete. The price adjustment clause will be similar in format to that used by the MassDOT Highway Division.

2.2 All municipalities are required to include price adjustment clauses for diesel fuel, gasoline, liquid asphalt, Portland cement concrete, and steel in the bid documents of all construction contracts to be funded under the program described in Chapter 6C, Section 4 of the Massachusetts General Laws (commonly referred to as the "Chapter 90 Program"). Notwithstanding any general or special law to the contrary, all construction contracts funded in whole or in part by the funds authorized by this Act shall include a price adjustment clause for above described items. A Base Price for each material as of January 2023 shall be set by MassDOT and included in the Bid Documents at the time a project is advertised. Current Base Price information can be found at the following web site:

<https://www.mass.gov/service-details/2019-massdot-contract-price-adjustments>

2.3 The adjustment clause shall be provided for a contract adjustment to be made on a monthly basis when the monthly cost change exceeds +/- five percent. It is the Contractor's responsibility for verifying the correct Base Price and that the correct Base Price is used to determine his/her Bid.

2.4 Price adjustment shall be handled as a change order (either an increase or decrease in the Bid amount). Contractor shall provide on the Bid Form the Base Price used in determining the unit and/or lump sum cost of the appropriate item.

2.5 See Attachment A – Section 00811 for Hot Mix Asphalt Price Adjustment information.

2.6 See Attachment B – Section 00812 for Fuel and Gasoline Price Adjustment information.

2.7 See Attachment C – Section 00813 for Structural Steel and Reinforcing Steel Price Adjustment information.

2.8 See Attachment D – Section 00814 for Portland Cement Concrete Mixes Price Adjustment information.

ARTICLE 3. COPIES OF CONTRACT DOCUMENTS

3.1 Complete sets of Contract Documents shall be used in preparing Bids; Owner does not assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Contract Documents. The following constitutes the Contract Documents:

- Invitation to Bid
- Instruction to Bidders
- Bid Form
- Agreement
- Performance Bond – City Standard Form
- Payment Bond – City Standard Form
- Other Required Bonds
- Standard General Conditions to the Construction Contract – EJCDC C-700, 2007 Edition
- Supplementary Conditions (Part I and Part II)
- Specifications (as listed in Table of Contents)
- Drawings and Figures
- All Contract Addenda
- Any modifications including Change Orders, duly delivered after execution of Agreement
- Certification of Insurance with the coverage described in the General Conditions.

3.2 Owner in making copies of Contract Documents available do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

ARTICLE 4. LOCATION OF WORK

4.1 The work herein specified is located on various roads and lands owned by and located in the City of New Bedford. Work will not take place on roadways under the jurisdiction of the MassDOT. The City of New Bedford contains approximately 300 miles of roadway.

ARTICLE 5. EXAMINATION OF CONTRACT DOCUMENTS AND SITE

5.1 Before submitting a Bid, each prospective bidder shall do the following at his/her own expense:

1. Examine the Contract Documents thoroughly.

2. Visit the site to become familiar with observable conditions that may, in any manner, affect cost, progress, or performance of work.
3. Be familiar with Federal, State, and local laws, ordinances, rules and regulations that may, in any manner affect cost, progress, or performance of the work.
4. Study and correlate information thus determined with the Contract Documents.
5. By submitting a bid, the Bidder represents that every requirement of this Article and all other Articles as applicable, have been complied with and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the work.

5.2 In addition to visiting the site for purposes as specified in Article 4, the Bidders shall, at his or her own expense, visit the site or complete any needed test(s) to ascertain pertinent local conditions readily determined by inspection and inquiry, such as the location, accessibility, traffic conditions and general character of the site, labor conditions, the character and extent of existing work within or adjacent thereto, and any other work being performed.

5.3 The Owner does not guarantee or represent that existing construction or conditions conform to the Drawings and/or Photos. The Bidder shall visit the site and satisfy him/herself as to existing conditions. All necessary information shall be verified in the field before fabrication of new products/materials. No claim for extra cost or time extension will be granted by the OWNER because of the Bidder's unfamiliarity with site conditions.

5.4 On request, Owner will provide each Bidder access to the site to conduct such investigations and tests as each Bidder deems necessary for the submission of a Bid.

ARTICLE 6. QUALIFICATIONS OF BIDDERS

6.1 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 request, written evidence of such information and data necessary to make this determination.

6.2 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. The amount of other work to which the Bidder is committed may also be considered.

6.3 In evaluating Bids, Owner will consider the qualifications of only those Bidders whose Bids are in compliance with the prescribed requirements.

6.4 Owner reserves the right to reject any Bid if the evidence submitted by, or the investigation of, such Bidder fails to satisfy Owner that such Bidder is properly qualified to carry out the obligations of the Contract Documents and to complete the Work contemplated therein.

6.5 Prequalifications prior to requesting proposal forms. Subject to the requirements of Chapter 81, Section 8B of the General Laws, each prospective bidder proposing to bid on any work, to be awarded by the municipality under the provisions of Chapter 90, must be prequalified and certified in accordance with the 700 CMR 14.00 "Prequalification of Contractors", if the amount of his/her proposal added to the value of his/her uncompleted work already under contract with the Department will aggregate to \$50,000 or more. For work aggregating under \$50,000, prequalification is desirable but not required.

6.6 The Massachusetts Department of Transportation Highway Division has determined that pre-qualifications of contractors in accordance with Massachusetts General Law Chapter 81, Section 8B and 700 CMR 14.00 IS required for this contract. The labor category for this project has been determined to be either Highway Construction or Pavement Surfacing.

6.7 The work within this Contract is funded, in part, by “Chapter 90” funds. The MassDOT prequalifies contractors for horizontal construction in accordance with Massachusetts General Law Chapter 81, Section 8B and 700 CMR 14.00. All municipal “Chapter 90” projects are subject to the requirements of Massachusetts General Law Chapter 6C; Section 4(b) whereby each prospective bidder proposing to bid on any work (with an estimated construction value of \$50,000 or more) to be awarded by a municipality must be prequalified by MassDOT prior to bidding. Regardless of the funding source, once a project requiring MassDOT prequalification’s is advertised for Bids, only Contractors that appear on the eligible approved prequalified bidders list for the Class of Work chosen by MassDOT and for the Total Project Value (inclusive of any cost associated with alternates and extensions) may submit a Bid. Because the Owner of New Bedford is proposing two (2) additional 12-month extensions, the valuation for the purposes of MassDOT prequalification is based on the Contract Value times three (3) at the estimated total prequalification contract value. Contractors who are NOT prequalified to provide the services listed for the Total Prequalification Contract Value, but meet the single year waiver threshold, without documented poor performance issues, and want to bid, should submit a waiver request at least two (2) weeks prior to the opening of Bids to allow for time to appeal in the event the waiver is not granted. The estimated value in this Invitation to Bid is for one year. Vendors are expected to be able to provide their services for three (3) years at three (3) times the initial estimated value.

ARTICLE 7. PRE-BID CONFERENCE

7.1 A pre-bid conference will be held for this project at the City of New Bedford Department of Public Infrastructure Conference Room, 1105 Shawmut Avenue, New Bedford MA 02740 on Thursday March 2, 2023 at 10:00 am to discuss the Contract Documents, the Commonwealth of Massachusetts and City of New Bedford Equal Employment Opportunity (EEO) provisions of this Contract and qualifications requirements.

ARTICLE 8. INTERPRETATIONS

8.1 All questions about the meaning or intent of the Contract Documents shall be received in writing by City of New Bedford, Department of Public Infrastructure Attn: Shawn Syde, City Engineer Fax Number (508) 961-3054, e-mail shawn.syde@newbedford-ma.gov and purchasing@newbedford-ma.gov, at least ten days before the date set herein for the opening of bids.

8.2 Written clarifications or interpretations will be issued by Addenda not later than five days before the bid opening date. Only questions answered by formal written Addenda will be binding. Oral and other clarifications or interpretations will be without legal effect. Addenda will be emailed only to those people that are on the certified plan holders list at the Purchasing Department. Addenda will also be posted to the Purchasing Department’s website.

8.3 Bidders are responsible for determining that they have received all Addenda issued. Bidders shall ensure that they are on the list of plan holders.

8.4 All addenda so issued will become part of the Contract Documents.

8.5 Obvious discrepancies in the Contract Documents that are not addressed by a Bidder in accordance with the above procedure will be construed against the successful Bidder should a dispute arise.

ARTICLE 9. PREPARATION OF BIDS

9.1 The Bidder shall submit his/her bid on the Bid Form. **The Bidder shall submit one original and one copy of the Bid.** The Bid Form, the Bid Security/Guaranty, and all other forms provided and other documents, as may be required, shall be executed and submitted by the Bidder with the Bid Form and Bid Guaranty/Security. The Bid Form, the Bid Guaranty/Security, forms, certifications, and documents constitute the Bid.

9.2 All blank spaces for Bid prices in the Bid Form shall be filled in with a unit price or lump sum, as applicable to the item.

9.3 All words and figures shall be in ink, written legibly or typed. Bid prices of each item in the Bid Form shall be stated in words and numbers.

9.4 In case of conflict between written words and numbers, the written words shall govern.

9.5 If unit prices are required on the Bid Form, discrepancies between unit prices and their respective total amounts 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.

9.6 If erasures or changes appear in the Bid Form and the Schedule of Bid Prices, each erasure or change shall be initialed and dated in ink by the individual signing the Bid Form.

9.7 The price for any item, bid and contracted for, unless otherwise noted or specified, shall include full compensation for all products/materials, equipment, tools, labor, testing, and incidental work necessary to complete the item to the satisfaction of the Owner.

9.8 Minimum Wage Rates as determined by the Commissioner of Department of Workforce Development under the provision of the Massachusetts General Laws, Chapter 149, Section 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 tradespeople who may be employed for the proposed work under this Contract. Federal Minimum Wage Rates as determined by the United States Department of Labor under the Davis-Bacon Act also apply to this project. Where there are conflicts, the higher rate shall be considered as the minimum rate. It is the responsibility of the Contractor, before bid opening, to request in necessary, any additional information on minimum wage rates for those trades people who may be employed for the proposed work under this Contract.

9.9 Both federal and state wage rates apply to this Contract. Where rates differ, the higher rate shall be considered as the minimum rate. It is the Contractor's responsibility to ensure that he/she has the most up-to-date wage rates.

9.10 Bidders shall submit all required completed Owner forms with their bid. Failure to comply with the requirements of this paragraph may be deemed to render a proposal non-responsive. No waiver of any provision of this section will be granted unless approved by the Owner.

9.11 The attention of the Bidders is directed to the Massachusetts Sales Tax, Chapter 64H, Section 6 and the Massachusetts Use Tax, Chapter 64I, Section 7, which states that these taxes are not applicable to the

sales of construction materials and supplies incorporated, employed, or expended in construction projects of the Owner. This exemption is also applicable to rental charges for construction vehicles, equipment, and machinery rented, specifically for the use on the site of the Owner's construction projects. Bidders are directed to exclude any allowances for Sales or Use Tax from their Bid Form, and said tax would relate to the foregoing specified categories.

9.11.1 The materials and supplies to be used in the work will be subject to the requirement of Paragraph 6.1 of the Conditions of the Contract as amended by the Supplementary Conditions.

9.12 The Schedule of Bid Prices, included in the Bid Form will be used for indicating the Bid Price information specified above.

9.13 All bid prices submitted in response to this IFB must remain in effect for forty five (45) days following the Bid opening.

9.14 All Bidders must furnish a certified Non-Collusion statement.

9.15 Bidder shall acknowledge receipt of any and all Addenda in writing in the Bid Form by writing the number of Addenda in the Bid Form.

9.16 The following list has been prepared for the convenience of the Bidder. Bidder is responsible for verifying and determining the required forms to be submitted with his/her bid. Bidders shall complete and submit the following attachments with their Bids:

- Form for General Bids
- City of New Bedford Non-Collusion and Tax Compliance Form
- City of New Bedford Vote of Corporation
- OSHA Certification Requirement
- Contractor Certification
- Request for Taxpayer Identification Number and Certification (Form W-9)
- Commonwealth of Massachusetts Corporate Certificate of Tax Compliance
- Commonwealth of Massachusetts Individual Certificate of Tax Compliance
- Bidders Certification of Understanding
- Schedule of Participation – Disadvantage/Minority/Women Business
- Letter of Intent
- Contractor Identification Statement
- Bidders Certification
- Unavailable Certifications
- Request for Waiver (if required)
- Certification Pertaining to Ineligible Contractors
- Federal Bid Submission Certifications
- Bid Security

9.17 Proposals for projects shall be limited to those Bidders who have been prequalified by the MassDOT Prequalification's Committee in the specified Class of Work on or before the time of bid opening, and who have not exceeded the Aggregate Bonding Capacity established by the bidder's surety company, and who have, if applicable, a Single Project Limit in an amount equal to or in excess of the proposed amount, and who are otherwise in compliance with those regulations.

9.18 The bidders shall submit documentation of MassDOT prequalification for the Class of Work to be contemplated with their Bid. No waiver of any provisions of this section will be granted unless approved by the MassDOT. Submittal of the Contractor's prequalification form does not guarantee evidence of current prequalification status. Receipt of a copy of this IFB does not guarantee a contractor's prequalification's.

ARTICLE 10. SIGNATURES OF BIDDERS

10.1 The firm, corporate, or individual name of the Bidder must be signed by the Bidder in the space provided for signatures on the Bid Form.

10.2 Bids by corporations shall be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

10.3 Bids by Limited Liability Companies shall be executed in the Limited Liability name by the Manager (or other Limited Liability Company officer/representative accompanied by evidence of authority to sign.) The Limited Liability Company address and state where the Limited Liability Company was formed shall be shown below the signature.

10.4 Bids by partnerships shall be executed in the partnership name and signed by a partner, whose title shall appear under the signature. The official address of the partnership shall be shown below the signature.

10.5 Bids by individuals, that person's name and post office address shall be stated.

10.6 Bids made by two or more individuals, partnerships or corporations, or any combination thereof, each party joining to make the Bid shall submit, attached to and made part of the Bid, information and signatures in compliance with the foregoing provisions applicable to an individual, firm, partnership corporation. In addition, if any members of the joint venture are a corporation, an attested copy of the Vote of Corporation authorizing such joint venture shall be attached to the Bid.

10.7 All names shall be typed or printed below the signature.

10.8 The address to which communication regarding the Bid are to be directed shall be shown.

ARTICLE 11. DELIVERY OF BIDS

11.1 **One original and one copy** of the Bid shall be delivered to the City of New Bedford Purchasing Department prior to the time set for the opening of Bids.

11.2 If Bid is hand delivered to the City of New Bedford Purchasing Department, it shall be submitted in a sealed opaque envelope that is properly sealed bearing on the outside the Bidder's name, address, the Project Title for which the Bid is submitted, the Bid Number, date and time of Bid Opening. The envelope shall be clearly marked as "BID FOR CITY OF NEW BEDFORD". The Bid Security shall be submitted in a separate envelope from the Bid and attached to the envelope containing the Bid. Bid Security envelope shall be clearly marked as "BID SECURITY". Bid Security envelope shall be clearly marked on the outside the Bidder's name, address, the Project Title for which the Bid is submitted, the Bid Number, date and time of Bid Opening.

11.3 If Bid is mailed, the Bidder shall submit the Bid by registered mail, certified mail with return-receipt requested, or a private delivery service, such as Federal Express or United Parcel, which requires evidence of receipt. The Bid shall be placed in an envelope and placed in the mailing envelope, with both envelopes properly sealed.

11.3.1 The words "BID FOR THE CITY OF NEW BEDFORD", with the Bid No. of the project being bid, shall be written on the mailer envelope. The mailer envelope shall also indicate the Date and Time of the Bid Opening.

11.3.2 The inside envelope containing the Bid shall be labeled and prepared as described above. Bid Security shall also be prepared and submitted as described herein.

11.4 The OWNER may consider informal any Bid not prepared and submitted in accordance with the provisions hereof.

11.5 Bidders are cautioned that it is the responsibility of each individual bidder to assure that their bid is in the possession of the responsible official or the designated alternate prior to the stated time and at the place of the Bid Opening. Owner is not responsible for bids delayed by mail and/or delivery services, of any nature.

11.6 The only acceptable evidence to establish the date and time of receipt of a Bid at the location stated in Invitation to Bid, shall be the date/time stamp of the City of New Bedford's Purchasing Department on the envelope, or other documentary evidence of receipt maintained by the Purchasing Department. The clock in the Purchasing Department shall determine the official date and time.

11.7 Bids received after the stated time for the receipt of bids will not be accepted by the Purchasing Department and will be returned to the Bidder unopened.

ARTICLE 12. DISQUALIFICATION OF BIDDERS

12.1 More than one proposal from an individual, a firm or partnership, a 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 proposal for the work contemplated will cause the rejection of all proposals in which such Bidder is interested.

12.2 Any and all proposals will be rejected if there is a reason for believing that collusion exists among the Bidders, and all participants in such collusion will not be considered in future proposals for the same work.

12.3 Bids may be rejected from any Bidder whose name appears on the US Comptroller General's List of ineligible contractor for federally-financed and assisted construction.

12.4 Bidders are advised that the Bid Form's Schedule of Bid Prices shall include a Bid price for each of the items listed in the Schedule of Bid Prices. The omission of a Bid price for any of the items may be cause for rejection of all Bid prices listed in the Bid and the Bid itself.

12.5 Refer to other Articles in Instructions to Bidders.

ARTICLE 13. MODIFICATION AND WITHDRAWAL OF BIDS

13.1 Bids may be modified only by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.

13.2 Bids may be withdrawn prior to the scheduled time (or authorized postponement thereof) for the opening of Bids.

13.2.1 Request must be made in writing and in the hands of the Purchasing Department prior to the established opening time and date.

13.2.2 If not earlier returned, when any such Bid is reached during the opening of the Bids, it will be returned to the Bidder unread.

13.3 A Bid may be withdrawn or modified in person by a Bidder or the Bidder's Authorized Representative, provided the Bidder's identity is known and the Bidder signs a receipt for the Bid, but only if the modification or withdrawal is made prior to the time set for receipt of Bids.

13.4 Any Bid received after the time and date specified for receipt of bids shall not be considered. No Bid may be withdrawn for a period of thirty (30) days, excluding Saturdays, Sundays, and legal holidays, after the actual date of approval by the officer, board or agency of the Federal Government or of the Commonwealth of Massachusetts or, if no such approval is required, for a period of thirty (30) days excluding Saturdays, Sundays and legal holidays, after the actual date of the opening of the Bids.

ARTICLE 14. PUBLIC OPENING OF BIDS

14.1 Bids will be publicly opened and the total price of each bid read at the time and the location stated in Invitation to Bid. In person attendance at the bid opening is not allowed. Refer to Section 00010 for specific requirements regarding viewing of the bid opening.

14.2 Any person may, at reasonable times, and in the presence of a duly authorized representative of the Owner, examine any or all Bids after they have been opened and read.

ARTICLE 15. SUPERINTENDENCY BY CONTRACTOR

15.1 Except where the Contractor is an individual and gives his personal superintendency to the work, the Contractor shall have a competent superintendent, satisfactory to the Owner, on the work at all times during working hours, with full authority to act for him/her. The Contractor shall also provide an adequate staff for the proper coordination and expedition of the work.

ARTICLE 16. AWARD OF CONTRACT

16.1 The Contract will be awarded to the lowest responsible and eligible bidder (Successful Bidder) conforming to the solicitation, who will be most advantageous to the Owner, considering only price, and any price related factors specified in this solicitation. To be considered responsive, the entire Bid Form must be completed. Such Bidder(s) shall possess the skill, ability, and integrity necessary for the faithful performance of the work. The term "lowest responsible and eligible Bidder" as used herein shall mean the Bidder whose Bid is the lowest of those Bidders possessing the skill, ability and integrity necessary to the faithful performance of the Work.

16.2 All decisions in reference to the bidding and the selection of the Contractor(s) will be made by the City of New Bedford Purchasing Agent or an authorized agent. The Owner reserves the right to reject any and all bids or any portion of any bids, to advertise new bids, or to waive any and all bid formalities if it is in the best interest of the Owner to do so, and the right to disregard all non-conforming, non-responsive or conditional bids.

16.3 The successful Bidder will be notified in writing by email that their Bid has been accepted and the items they have been awarded.

16.4 A Bid which includes for any item a Bid Price that is abnormally low or high may be rejected as unbalanced.

16.5 OWNER also reserves the right to reject the Bid of any Bidder that OWNER considers to be unqualified relative to Article 6 above.

16.6 If the Contract is to be awarded, Owner will give the Successful Bidder a Notice to Proceed within 30 days, excluding Saturdays, Sundays, and legal holidays after the date of approval by the officer, board or agency of the Federal Government or the Commonwealth of Massachusetts or if no such approval is required, after the actual date of the opening of the Bids. All bids shall remain open for forty five days, excluding Saturdays, Sundays, and legal holidays, after the actual date of the opening of the Bids but the Owner may, at Owner's sole discretion, release any Bid and return the Bid Security prior to that date.

16.7 The Owner will not award the Contract until MassDOT has determined that the Bidder was prequalified in the specific Class of Work on or before the time of bid opening, and has not exceeded the Aggregate Bonding Capacity established by the Bidder's surety company, and has, if applicable, a Single Project Limit, in an amount equal to or excess of the Proposed Amount, and is otherwise in compliance with 700 CMR 14.00, "Prequalification of Bidder."

16.8 If Eligible and ineligible items are included in the Bid Form, the unit prices established that appear in both shall be the same.

ARTICLE 17. EXECUTION OF THE CONTRACT

17.1 The successful Bidder shall execute and deliver to the Owner the Contract, Agreement, Purchase Order or Work Order and furnish the required surety, bonds and the certificates of insurance to the Owner within five (5) calendar days after receipt of Notice to Award, Saturdays, Sundays and Legal Holidays excluded.

17.2 All contracts shall be signed by electronic signature via DocuSign. The Successful Bidder shall provide Owner the contact email as to where the Contract should be sent for signature within five (5) calendar days after receipt of Notice to Award, Saturdays, Sundays and Legal Holidays excluded.

17.3 Within five (5) calendar days of receipt of notice by the Owner, the lowest, responsible, and eligible Bidder shall submit to the Owner a list of references. The list of references shall include the following:

17.4 Business Reference – Submit three (3) business references including the following:

- Name and title
- Company name and address

- Telephone number
- Relationship to bidder

17.5 Project References and Project Contacts – Submit three (3) references with the respective project contacts. The projects shall have been completed within the last five (5) years and shall have been of a similar type of work, scope and construction dollar value. The contacts shall have been involved in the project as part of the Owner’s project team and have knowledge of the overall project.

17.6 Project references shall include the following:

- Name and address of the Owner
- Name and address of the project
- Type of Project
- As bid construction contract dollar value and final project cost
- State and end dates of the work

17.7 Project contacts shall include the following information:

- Name and title of contact
- Project responsibility
- Address of contact
- Telephone number

ARTICLE 18. BID SECURITY

18.1 In order to ensure faithful fulfillment of its term, each Bid shall be accompanied by a Bid Guaranty (a.k.a. Bid Deposit or Bid Security) on the amount stated in the Invitation to Bid. The Bid Guaranty shall be in the form of an acceptable bid bond, certified check, treasure’s or cashier’s check, made payable to the City of New Bedford, by a responsible bank or trust company or by a surety or insurance company licensed or authorized by the Massachusetts Division of Insurance to engage in the business of surety in the Commonwealth, and satisfactory to the Owner. The Bid Guaranty shall be enclosed in a sealed envelope and submitted with the Bid Form (Refer to Article 11 of the Instruction to Bidders). The envelope containing the Bid Guaranty shall be clearly marked in ink: Bid Guaranty for City of New Bedford, name of bidder, address of bidder, contact information, and date and time of bid opening.

18.2 All Bid Securities except those of the three lowest responsible and eligible Bidders will be returned within five days, Saturdays, Sundays, and legal holidays excluded, after opening of the Bids. All Bid Securities will be returned upon the execution of the Agreement or if no award is made, within forty five days, excluding Saturdays, Sundays and legal holidays after the actual date of opening of the Bids, unless forfeited under the conditions herein stipulated.

18.3 If a party to whom a Contract is awarded shall fail or neglect to execute the Agreement and furnish the satisfactory bonds within the time specified, Owner may determine that the Bidder has abandoned the Contract, and thereupon the Bid Forms and acceptance shall be null and void and the Bid Security accompanying the Bid Form shall be forfeited to Owner as liquidated damages for such failure or neglect and to indemnify said Owner for any loss which may be sustained by failure of the Bidder to execute the Agreement and furnish the bonds as aforesaid, provided that the amount forfeited to Owner shall not exceed the difference between the Bid Price of said Bidder and that of the next lowest responsible and eligible bidder and provided further that, in case of death, disability, or other unforeseen circumstances

affecting the Bidder, such Bid Security may be returned to the Bidder. After execution of the Agreement and acceptance of the bonds by Owner, the Bid Security accompanying the Bid Form of the Successful Bidder will be returned.

18.4 If after forty five days from the opening of Bids, the Contract is not awarded by the Awarding Authority, any or all of the three lowest, responsible and eligible Bidders may request in writing that their Bid Guaranty be returned. Bidder's whose Bid Guaranty is returned will not be considered for the awarding of the Contract.

ARTICLE 19. LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT

19.1 Refer to Article 18.

19.2 It is agreed that this Article and referenced Articles shall not be construed and treated by the parties to the Contract not as imposing a penalty upon said Bidder for failing to fully execute the Contract as agreed on or before the time state in the Contract Documents, but a liquidated damages to compensate the awarding Authority for all additional costs incurred by the Awarding Authority because of the failure of the Bidder to fully execute the Contract on or before the time specified in the Contract Documents.

ARTICLE 20. CANCELLATION OF AWARD

20.1 The Owner reserves the right to cancel the award of any contract at any time before the execution of the said contract by all parties without any liability against the Owner.

ARTICLE 21. PERFORMANCE, PAYMENT AND OTHER BONDS

21.1 All Bonds required as Contract Security shall be furnished with the executed Agreement.

21.2 The successful bidder must deliver to the Owner an executed Bond as security in the amount of 100-percent of the contract price, as security for the faithful performance of his/her contract and the payment of all persons performing labor and furnishing materials in connection therewith, prepared in the form of a Performance & Payment Bond, and having a surety thereon such surety company or companies are as approved by the Owner, and as are authorized to transact business in the Commonwealth of Massachusetts and must be licensed by the Massachusetts Division of Insurance. Such bond shall acknowledge and permit use and occupancy of the project or any portion thereof prior to formal acceptance by the Owner.

21.3 Attorney In Fact and/or other officer who sign Contract Bonds must file with each Bond a certified copy of their power of attorney to sign said bonds.

21.4 All modifications, extensions of time, extra work and other changes authorized under the Contract Documents may be made without obtaining the consent of the Surety of the Contract Bonds.

21.5 The Performance and Payment Bond shall remain in force until the validity of all claims is determined and if valid, are paid by the Surety.

21.6 Performance, payment and other bonds shall be provided in accordance with Article 5 of the General Conditions of the Contract.

ARTICLE 22. COMMENCEMENT AND COMPLETION OF WORK

22.1 The Contractor shall commence work under this Contract as specified in the Notice to Proceed, Work Order, Purchase Order or Contract at those locations specified by the Owner. The Work shall be completed by the date specified in the Notice to Proceed.

ARTICLE 23. LIQUIDATED DAMAGES FOR FAILURE TO COMPLETE WORK

23.1 The Owner reserves the right to assess liquidated damages depending on the type and classification of work being completed, and losses resulting from delays in completing the project beyond the time set in the Notice to Proceed, Agreement, Work Order, Contract, or Purchase Order.

ARTICLE 24. ASSIGNMENTS

24.1 No assignment by the Contractor of any contract of any part thereof of any monies due or to become due thereunder, may be made without the prior written approval of the Owner, and then only after the surety company has been given due notice in writing of such assignment, and approves in writing.

24.2 Each assignment will be issued to the Contractor in writing. Prior to the starting of an assignment, the Owner may issue to the Contractor a set of preliminary design drawings which will be marked on the cover sheet of the set of design drawings as – “Preliminary Design Drawings – Cost Estimating Purposes Only”. This set may be used by the Contractor to develop an initial estimate to complete the work. The estimate will be provided to the Owner for review and approval prior to starting work.

24.3 Once the estimate and design are approved by the Owner and Contractor jointly in writing (the Owner reserves the right to submit additional design changes to the Contractor for review following submittal of Preliminary Design Drawing – Cost Estimating Purposes Only set), three final sets of design drawings will be issued by the Owner to Contractor marked as “100 Percent Design Submittal” once design is complete. The Contractor shall coordinate with the Owner to start work.

24.4 It is the Contractor’s responsibility to ensure that he/she and any subcontractors employed by the Contractor has the most up to date set of design drawings. The Owner is not responsible for any errors caused during construction or errors in ordering materials as a result of the Contractor utilizing an incorrect set of design drawings. Any errors in materials and/or construction resulting from the use of an incorrect set of drawings shall be repaired and/or replaced at no additional cost to the Owner.

24.5 The Owner may, from time to time, issue work directives to the Contractor without a set of drawings. In this instance, the Engineer and Contractor shall hold a field meeting to review the scope of work and limits of the project. The limits will be marked jointly by the Contractor and Engineer. Contractor shall prepare an estimate for the work which will be reviewed and approved by Engineer prior to the start of work.

24.6 The Owner will make every attempt to maximize the quantity of repairs under a given assignment. There may be instances when the Owner requires the Contractor to complete repairs in smaller quantities than what would normally be expected.

ARTICLE 25. INSURANCE

25.1 The Contractor shall take out and maintain during the life of the contract such Workmen’s Compensation and Comprehensive General Liability Coverage Insurance as shall protect him an any

subcontractor performing work covered by this Contract, from claims and damages for personal injury, including accidental death, as well as from claims for property damage, which may arise from operations under this contract, whether such operations by himself or by any subcontractor or by anyone directly or indirectly employed by either of them. All policies must allow use and occupancy of the Project or any portion thereof prior to formal acceptance by the Owner.

25.2 Minimum insurance requirements are included in the General Conditions to the Contract (Section 00700) and Supplementary Conditions (Section 00800).

ARTICLE 26. SAFETY AND HEALTH REGULATIONS

26.1 As mandated by Chapter 82A of the Massachusetts General Law (MGL) and 520 CMR 7.00, the trench safety regulations, all Contractors, whether public or private, must 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 shall be road plates at least 3/4 –in thick or equivalent; barricades shall be fences at least 6-ft high with no openings greater than 4-in between vertical supports; backfilling shall be sufficient to eliminate the trench. Alternatively, Contractors may choose to attend trenches at all times, for instances by hiring a police detail, security guard or other attendant who shall be present during times when the trench will be unattended by the Contractor. For purposes of this Paragraph, a "trench" shall be defined as an excavation which is narrow in relation to its length, made below the surface ground in excess of 3 feet below grade and the depth of which is, in general, greater than the width, but the width of the trench, as measured at the bottom, is no greater than 15 feet and the words "excavator", "excavation" and "emergency" shall have the same meanings as defined in Section 40 of Chapter 82 of the MGL. The word "excavator" as used in this Paragraph shall also mean "Contractor".

26.2 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" (454 CMR 25.00 et seq.). Contractors shall be familiar with the requirements of these regulations.

26.3 The Successful Bidder shall comply with the Department of Labor Safety and Health Regulations for Construction promulgated under the Occupational Safety and Health Act of 1970 (PL-91-596) and under Section 107 of the Contract Work Hours and Safety Standards Act (PL-91-54).

26.4 The Successful Bidder shall have a competent person or persons, as required under the Occupational Safety and Health Act on the Site to inspect the Work and to supervise the conformance of the Work with the regulations of the Act.

26.5 United States Occupational Safety and Health Administration (OSHA) Construction Training is required for this Contract. As of July 1, 2006, under M.G.L. Chapter 30, Section 39S, any person submitting a bid for, or signing a contract to work on, the construction, reconstruction, alteration, remodeling or repair of any public work by the Commonwealth of Massachusetts and/or City of New Bedford that is estimated by the awarding authority to cost more than \$10,000.00 shall certify on the Bid and Agreement, under penalty of perjury, that all employees to be employed on the work shall have successfully completed a course in Construction Safety and Health that is approved by OSHA and at least 10 hours in duration.

ARTICLE 27. NONDISCRIMINATION IN EMPLOYMENT

27.1 Contracts for work under this proposal will obligate the Contractor and sub-contractor not to discriminate in employment practices.

ARTICLE 28. ALTERNATES, SUBSTITUTIONS AND CONTRACTOR'S OPTIONS

28.1 Whenever in the Plans, Specifications, Work Orders, Contracts, Purchase Orders, Notice to Proceed, any item or equipment or material is designated by reference to a particular brand, manufacturer, or trade name, it is understood that an approved equal product, acceptable to the Owner, may be substituted by the Bidder or the Contractor.

28.2 In the event of acceptance of any alternative or substitution, it shall be the responsibility of the Contractor to coordinate such alternate or substitute items with all other items to be furnished, to assure the proper fitting together of all items. Any additional cost incident to the coordination and/or fitting together with alternate or substitute items shall be borne by the Contractor at no extra cost to the Owner. Similar responsibility applies to items which are left to the Contractor's option.

ARTICLE 29. TECHNICAL SPECIFICATIONS

29.1 The Technical Specifications for this project are, unless otherwise specifically stated, based on the Massachusetts Department of Transportation, Highway Division, Standard Specification for Highways and Bridges, latest edition including any and all addenda, the City of New Bedford Construction Specifications latest edition including all addenda, and any supplemental specifications provided in the Contract Documents. In the event of a conflict, the more stringent specification shall apply unless specifically notified by the Engineer and/or Owner to deviate from a specification. Bidders are required to have a copy of the latest edition thereof, and are responsible for being thoroughly familiar with them.

ARTICLE 30. FEDERAL WAGE RATES

30.1 Davis Bacon (DB) Prevailing Wage Requirements

30.1.1 The following clauses shall apply to any contract in excess of \$2,000 which is entered into for the actual construction, alteration and/or repair, financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1 the following clauses:

(1) Minimum wages.

(A) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1 (b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(G) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in § 5.5(a)(4). Laborers or mechanic's performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (1)(B) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(B) The Owner(s), on behalf of federal agency, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The State award official shall approve a request for an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(B)(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(B)(ii) The classification is utilized in the area by the construction industry; and

(B)(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(C) If the contractor and the laborers and mechanics to be employed in the classification (if known) or their representatives, and the Owner(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), documentation of the action taken and the request, including the local wage determination shall be sent by the Owner(s) to the State award official. The State award official will transmit the request, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210 and to the DB Regional Coordinator of the federal agency involved concurrently. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification request within 30 days of receipt and so advise the State award official or will notify the State award official within the 30-day period that additional time is necessary.

(D) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the Owner(s) do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the request and the local wage determination, including the views of all interested parties and the recommendation of the State award official, to the Administrator for determination. The request shall be sent to the DB Regional Coordinator of the federal agency involved concurrently. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt of the request and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(E) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (1)(C) or (1)(D) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(F) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(G) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The Owner(s) shall, upon written request of the Federal Agency Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(A) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(A)(i) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the Owner, that is, the entity that receives the sub-grant or loan from the State capitalization grant recipient. Such documentation shall be available on request of the State recipient or

Federal Agency. As to each payroll copy received, the Owner shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on the weekly payrolls. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh347.pdf> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the Owner(s) for transmission to the State or Federal Agency if requested by said Federal Agency, the State, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the Owner(s).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(B)(i) That the payroll for the payroll period contains the information required to be provided under § 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(B)(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(B)(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 14.1.1(3)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(E) The contractor or subcontractor shall make the records required under paragraph (3)(A) of this section available for inspection, copying, or transcription by authorized representatives of the State, Federal Agency involved in the project or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency or State may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required

records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees

(A) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(B) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered

program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(C) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the Federal Agency determines may be appropriate, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3 and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and Owner(s), State, Federal Agency involved in the project, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(A) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(11) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(A) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

14.1.2 Contract Provision for Contracts in Excess of \$100,000.

(1) Contract Work Hours and Safety Standards Act. The following clauses set forth in paragraphs (1)(A), (B), (C), and (D) of this section in full shall apply to any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act.

These clauses shall apply in addition to the clauses required by Item 1, above or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(A) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(B) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1)(A) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1)(A) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1)(A) of this section.

(C) Withholding for unpaid wages and liquidated damages. The Owner, upon written request of the Federal Agency involved in the project Award Official or an authorized representative of the Department of Labor, shall withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2)(B) of this section.

(D) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1)(A) through (D) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1)(A) through (D) of this section.

(2) In addition to the clauses contained in Item 1, above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Owner shall insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Owner shall insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

14.1.3 Compliance Verification

(1). The subrecipient shall periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(6), all interviews must be conducted in confidence. The subrecipient must use Standard Form 1445 (SF 1445) or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are available from the Federal Agency involved in the project on request.

(2) The subrecipient shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, the subrecipient should conduct interviews with a representative group of covered employees within two weeks of each contractor or subcontractor's submission of its initial weekly payroll data and two weeks prior to the estimated completion date for the contract or subcontract. Subrecipients must conduct more frequent interviews if the initial interviews or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. Subrecipients shall immediately conduct necessary interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence.

(3). The subrecipient shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The subrecipient shall establish and follow a spot check schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, if practicable the subrecipient should spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract. Subrecipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. In addition, during the examinations the subrecipient shall verify evidence of fringe benefit plans and payments thereunder by contractors and subcontractors who claim credit for fringe benefit contributions.

(4). The subrecipient shall periodically review contractors and subcontractors use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 2 and 3 above.

(5) Subrecipients must immediately report potential violations of the DB prevailing wage requirements to the Federal Agency involved in the project DB contact listed above and to the appropriate DOL Wage and Hour District Office listed at <http://www.dol.gov/esa/contacts/whd/america2.htm>.

30.2 It is the responsibility of the Contractor before the bid opening to request, if necessary, any additional information on Federal Wage Rates for those tradespeople who are not covered by the applicable Federal Wage Determination, but who may be employed for the proposed work under this Contract.

30.3 All construction associated with this contract will be governed by Heavy and Highway Rates.

ARTICLE 31. MANUFACTURER’S EXPERIENCE

31.1 Whenever it is written that an equipment manufacturer must have a specified period of experience with his product, equipment which does not meet the specified experience period can be considered if the equipment supplier or manufacturer is willing to provide an Efficiency Guarantee Bond or cash deposit for the duration of the specified time period which will guarantee replacement of that equipment in the event of failure.

ARTICLE 32. ACCESS TO SITE

32.1 Representatives of the Commonwealth, Owner and any local, state or federal agencies having a direct interest in the Work shall have access to the Work under this contract wherever it is in preparation or progress and the Contractor shall provide proper facilities for such access and inspection.

ARTICLE 33. UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM

33.1 All excavations within public or private ways are subject to the requirements of Massachusetts General Law, Chapter 82, Section 40 included in the Supplementary Conditions (Section 00800).

ARTICLE 34. COMPETITIVE BIDDING

34.1 The bidding and award of the Contract shall be in full compliance with Section 39 M inclusive of Chapter 30 of the General Laws of the Commonwealth of Massachusetts as last revised.

ARTICLE 35. GUARANTEE

35.1 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 three years or such period (longer or shorter) that may be specified in the Contract Documents from and 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 this AGREEMENT titled “Partial Acceptance”, the guarantee for that part of the Work shall be for a minimum period of three years or such period (longer or shorter) that may be specified in the Contract Documents from the date fixed for such acceptance.

35.2 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, corrections or replacements. If the Contractor neglects to commence making such repairs, corrections or replacements to the satisfaction of the Owner within seven (7) 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, corrections or replacements, and charge the costs, including compensation for additional professional services, to the Contractor.

35.3 The Bidder may be required to furnish, at no additional cost to the Owner, a complete statement of the origin, composition, and manufacture of any or all products/materials, proposed to be used in the construction of the Work, together with samples that may be subject for testing, as determined by the Owner, to determine the quality and fitness of the products/materials.

35.4 The mixture shall not be transported such a distance that segregation of the ingredients takes place or that any crust is formed on the surface, bottom, or sides of the mixture which will not crumble or flatten out when the mixture is dumped or shall otherwise be deleterious to the mixture in place of the roadway.

35.5 The Owner reserves the right to complete any tests it deems appropriate and to reject any and all deliveries not meeting any of the required specifications.

ARTICLE 36. FINES, SUSPENSE AND DEBARMENT

36.1 Bidders must fully comply with Subpart C of 2 CFR Part 108 and 2 CFR Part 1532, entitled Responsibilities of Participants Regarding Transactions (Doing Business with Other Persons). Contractors, subcontractors, or suppliers that appear on the Excluded Parties List System at www.sams.gov are not eligible for award of any contracts funded in whole or part by the Commonwealth of Massachusetts or Federal Government.

36.2 Contractor certifies that within the past five (5) years, no officers, directors, employees, agents, or subcontractors of which the Contractor has knowledge, have been the subject of:

- A. an indictment, judgement, conviction, or grant of immunity, including pending actions, for any business related conduct constituting a crime under state or federal law; and
- B. a government suspension or debarment, rejection of any bid or disapproval of any proposed contract subcontract, including pending actions, for lack of responsibility, denial or revocation of prequalification or a voluntary exclusion agreement; or any governmental determination of any public works law or regulations, or labor law or any OSHA violation deemed “serious or willful.”

36.3 Contractor certifies that neither it nor any of its subcontractors are currently debarred or suspended by the federal or state government under any law or regulation including; Executive Order 147, G.L. C. 29 s. 29F ss 39R, G.L. c 149, ss 27C, G.L. c 149 ss 44C, G.L. c 149 ss 148B and G.L. c. 152 s 25C.

36.4 The Contractor understands and agrees that breach of any of the terms and conditions outlined within this Contract during the Contract Period may be regarded as a material breach, subjecting the Contractor to sanctions, including but not limited to monetary penalties, withholding of payments, contract suspension or termination of Contract. Contractor is responsible for payment of any and all fines incurred by Owner resulting from Contractor’s negligence and adherence to Contract.

ARTICLE 37. MASSACHUSETTS GENERAL LAWS AND REGULATIONS

37.1 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.

37.2 All applicable State laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the Project shall apply to the Contract throughout, and they will be deemed to be included in the Contract the same as though herein. Particular reference is made to the Assurances made by the Owner in its application for Community Development Block Grants and

MassWorks Infrastructure Grants and to applicable regulations issued by various Federal and State agencies pursuant to receipt of said Grants, which are hereby incorporated by reference.

37.3 It is not the responsibility of the Contractor to make certain that the Contract Documents are in accordance with applicable laws, statutes, building codes and regulations. If the Contractor observes that any of the Contract Documents are at variance therewith in any respect, it shall promptly notify the Owner in writing, and any necessary changes shall be accomplished by appropriate modification.

37.4 If the Contractor performs any work knowing it is to be contrary to such laws, ordinances, rules and regulations and without such notice to the Engineer, it shall assume full responsibility therefore and shall bear all costs attributed thereto.

ARTICLE 38. MINORITY AND WORKFORCE PARTICIPATION GOALS

38.1 Disadvantaged Business Enterprise (DBE) goals of the Owner are applicable to the total dollars paid to the construction contract. **The Owner's goals for this project are a minimum of 11.00 percent D/MBE participation and 5.00 percent D/WBE participation by certified DBEs.** The MassWorks Infrastructure Program **MBE and WBE goal is 10.4 percent combined MBE/WBE** by State Certified MBE and WBE firms. The City of New Bedford goals shall govern since the combined total participation percentage is higher than the Commonwealth of Massachusetts Goals. The Owner also has minimum goals for employment (workforce utilization) of 18.00% minority and 6.90% female participation. The employment percentages shall apply to the contractor and all subcontractors, regardless of tier, for all on-site work. Bidders shall submit all required completed Owner's forms with their bid. Failure to comply with the requirements of this paragraph may be deemed to render a proposal non-responsive. No waiver of any provision of this section will be granted unless approved by the Owner and the MassWorks Infrastructure Grant Program.

38.2 The Contractor shall not discriminate against or exclude any person from participation herein on grounds of race, religion, color, sex, age, or national origin; and that it shall take affirmative actions to insure that applicants are employed, and that employees are treated during their employment, without regard to race religion, color, sex, age, handicapped status, or national origin.

ARTICLE 39. COMMONWEALTH OF MASSACHUSETTS PROVISIONS

39.1 A portion of this work may be funded through the Massachusetts Office of Housing and/or Economic Development MassWorks Infrastructure Grant Program. Certification forms required with the bid submittal and Contract are included in the Bid Form and Agreement respectively. Failure to include fully completed forms required with the bid may be deemed to render the bid non-responsive. To meet the requirements of the Grant, Contractor shall comply with the following requirements:

- A. Business Ethics and Fraud, Waste and Abuse Prevention – The Contractor certifies that performance under this Contract, in addition to meeting the terms of the Contract, will be made using ethical business standards and good stewardship of taxpayers and other public funding and resources to prevent fraud, waste and abuse.
- B. Collusion – The Contractor certifies that this Contract has been offered in good faith and without collusion, fraud or unfair trade practices with any other person, that any actions to avoid or frustrate fair and open completion are prohibited by law, and shall be grounds for rejection or disqualification of a Response or termination of this Contract.

- C. Public Records and Access – The Contractor shall retain and provide full access to records related to performance and compliance to the Commonwealth and officials listed under Executive Order 195 and G.L. c. 11 s. 12 for a period of seven (7) years beginning on the first day after the final payment under this Contract or such longer period necessary for the resolution of any litigation, claim, negotiation, audit or other inquiry involving this Contract. Access to view Contractor records related to any breach or allegation of fraud, waste, and/or abuse may not be denied and Contractor cannot claim confidentiality or trade secret protections solely for viewing but not retaining documents. Routine Contract performance compliance reports or documents related to any alleged breach or allegation of non-compliance, fraud, waste, or abuse or collusion may be provided electronically and shall be provided at Contractor’s own expense. Reasonable costs for copies of non-routine Contract related records shall not exceed rates for public records under 950 CMR 32.00.
- D. Applicable Laws - The Contractor shall comply with all applicable state laws and regulations including but not limited to applicable Massachusetts General Laws; the Official Code of Massachusetts Regulations; Code of Massachusetts Regulations (unofficial); 801 CMR 21.00 (Procurement of Commodity and Service Procurements, Including Human and Social Services); 815CMR 2.00 (Grants and Subsidies); 808 CMR 1.00 (Compliance, Reporting and Auditing for Human And Social Services); AICPA Standards; confidentiality of Department records under G.L. c. 66A; and the Massachusetts Constitution Article XVIII if applicable.
- E. Tax Law Compliance – The Contractor certifies under the pains and penalties of perjury tax compliance with Federal Tax Laws; State Tax Laws including but not limited to G.L. c. 62C, G.L. c. 62C, s. 49A; compliance with all state tax laws, reporting of employees and contractors, withholding and remitting of tax withholdings and child support and is in good standing with respect to all state taxes and returns due; reporting of employees and contractors und G.L. c62E, withholding and remitting child support including G.L. c. 119A s. 12; TIR 05-11; New Independent Contractor Provision and applicable TIRs.
- F. Bankruptcy, Judgment, Potential Structural Changes, Pending Legal Matters and Conflicts – The Contractor certifies that it has not been in bankruptcy and/or receivership within the last three calendar years, and the Contractor certifies that it will immediately notify the Owner and Commonwealth in writing at least 45 days prior to filing for bankruptcy and/or receivership any potential structural change in its organization, or if there is any risk of solvency of the Contractor that may impact the Contractor’s ability to timely fulfill the terms of this Contract or any Amendments to this Contract. The Contractor certifies that at any time during the period of the Contract, the Contractor is required to affirmatively disclose in writing to the Commonwealth and Owner the details of any judgment, criminal conviction, investigation or litigation pending against the Contractor or any of its officers, directors, employees, agents or subcontractors, including potential conflicts of interest of which the Contractor has knowledge or learns of during the Contract term. Law firms or attorneys providing legal services are required to identify any potential conflicts with representatives of the Department of Housing and Economic Development client in accordance with Massachusetts Board of Bar Overseers (BBO) rules.
- G. Protection of Personal Data and Information – The Contractor certifies that all steps will be taken to ensure the security and confidentiality of all Commonwealth data for which the Contractor becomes a holder, either as part of performance or inadvertently during performance, with special attention to restricting access, use and disbursement of personal data and information under G.L. c93H and c. 66A and Executive Order 504. The Contractor is required to comply with G.L. c93I for the proper disposal of all paper and electronic media, backups or systems containing personal

data and information, provided further that the Contractor is required to ensure that any personal data or information transmitted electronically or through a portable device be properly encrypted using (at a minimum) Information Technology Division (ITD) Protection of Sensitive Information, provided further that any Contractor having access to credit card or banking information of Commonwealth customers certifies that the Contractor is PCI compliant in accordance with the Payment Card Industry Council Standards and shall provide confirmation compliance during the Contract, provide further that the Contractor shall immediately notify the Department in the event of any security breach including the unauthorized access, disbursement, use or disposal of personal data or information and in the event of a security breach, the Contractor shall cooperate fully with the commonwealth and provide access to any information necessary for the Commonwealth to respond to the security breach and shall be full responsible for any damages associated with the Contractor's breach including but not limited to G.L. c. 214 s 3B.

- H. Corporate and Business Filings and Reports – The Contractor certifies compliance with any certification, filing, reporting and service of process requirements of the Secretary of the Commonwealth, the Office of the Attorney General or other Departments as related to its conduct of business in the Commonwealth; and with incorporating state (or foreign entity).
- I. Employer Requirements - Contractors that are employers certify compliance with applicable state and federal employment laws or regulations, including but not limited to minimum wages and prevailing wage programs and payments; unemployment insurance and contributions; workers' compensation and insurance, child labor laws, AGO fair labor practices; G.L. c. 149 (Labor and Industries); G.L. c. 150A (Labor Relations); G.L. c. 151 and 455 CMR 2.00 (Minimum Fair Wages) G.L. c. 151A (Employment and Training); G. L. c. 151B (Unlawful Discrimination); G.L. c. 151E (Business Discrimination); G.L. c. 152 (Workers' Compensation); G.L. c.153 (Liability for Injuries); [G.L. c.175M](#); 29 USC c. 8 (Federal Fair Labor Standards); 29 USC c. 28 and the Federal Family and Medical Leave Act.

Contractors further certify that it employs or are employed on its behalf do not unlawfully misclassify workers as self-employed or as independent contractors, and will certify compliance with applicable state and federal employment laws and regulations, including but not limited to minimum wages, unemployment insurance, workers' compensation, child labor, and the Massachusetts Health Care Reform Law, Chapter 58 of the Acts of 2006, as amended.

- J. Federal And State Laws And Regulations Prohibiting Discrimination including Federal Equal Employment Opportunity (EEO) Laws the Americans with Disabilities Act,; 42 U.S.C Sec. 12,101, et seq., the Rehabilitation Act, 29 USC c. 16 s. 794; 29 USC c. 16. s. 701; 29 USC c. 14, 623; the 42 USC c. 45; (Federal Fair Housing Act); G. L. c. 151B (Unlawful Discrimination); G.L. c. 151E (Business Discrimination); the Public Accommodations Law G.L. c. 272, s. 92A; G.L. c. 272, s. 98 and 98A, Massachusetts Constitution Article CXIV and G.L. c. 93, s. 103; 47 USC c. 5, sc. II, Part II, s. 255 (Telecommunication Act; Chapter 149, Section 105D, G.L. c. 151C, G.L. c. 272, Section 92A, Section 98 and Section 98A, and G.L. c. 111, Section 199A, and Massachusetts Disability-Based Non-Discrimination Standards For Executive Branch Entities, and related Standards and Guidance, authorized under Massachusetts Executive Order or any disability-based protection arising from state or federal law or precedent. See also MCAD and MCAD links and Resources.
- K. Northern Ireland Certification - Pursuant to G.L. c. 7 s. 22C for state agencies, state authorities, the House of Representatives or the state Senate, by signing this Contract the Contractor certifies

that it does not employ ten or more employees in an office or other facility in Northern Ireland and if the Contractor employs ten or more employees in an office or other facility located in Northern Ireland the Contractor certifies that it does not discriminate in employment, compensation, or the terms, conditions and privileges of employment on account of religious or political belief; and it promotes religious tolerance within the work place, and the eradication of any manifestations of religious and other illegal discrimination; and the Contractor is not engaged in the manufacture, distribution or sale of firearms, munitions, including rubber or plastic bullets, tear gas, armored vehicles or military aircraft for use or deployment in any activity in Northern Ireland.

- L. Pandemic, Disaster or Emergency Performance - In the event of a serious emergency, pandemic or disaster outside the control of the Department, the Department may negotiate emergency performance from the Contractor to address the immediate needs of the Commonwealth even if not contemplated under the original Contract or procurement. Payments are subject to appropriation and other payment terms.
- M. Subcontractor Performance - The Contractor certifies full responsibility for Contract performance, including subcontractors, and that comparable Contract terms will be included in subcontracts, and that the Department will not be required to directly or indirectly manage subcontractors or have any payment obligations to subcontractors.
- N. Undocumented Workers – In accordance with Executive Order 481 and under the pains and penalties of perjury, that its Contractors do not knowingly allow the use of undocumented workers in connection with the performance of this contract; that pursuant to federal requirements, the Contractor shall verify the immigration status of all workers assigned to this Contract without engaging in unlawful discrimination; and that it shall not knowingly or recklessly alter, falsify, or accept altered or falsified documents from any such worker(s).

ARTICLE 40. FEDERAL CONTRACT PROVISIONS

40.1 Work assignments to be issued under this Contract may be funded in whole or part with federal funds including but not limited to American Rescue Plan Act (ARPA) or Grant Agreement between the United States Department of Housing and Urban Development, for the provisions of Federal financial assistance under Title 1 of the Housing and Community Development Act of 1974, and any amendments or supplements thereto. Bidders must comply with the requirements of that Act, regulations issued by the Secretary of HUD and those Federal Contract Provisions included in this Contract for federally funded work assignments based on the funding source. Prior to issuance of work assignment, Owner will notify the Contractor of the use of federal funding, the source of the funding, and the requirements to comply with Federal Contract Provisions.

- A. Refer to Part II of the Supplementary Conditions for specific requirements regarding Federal Contract Provisions including appropriate Laws, Executive Orders, Acts, Certifications, and Standards that need to be met as part of federally funded work assignments issued under this Contract.
- B. Certification forms required with the bid submittal and Contract are included in the Bid Form and Agreement respectively. Failure to include fully completed forms required with the bid may be deemed to render the bid non-responsive.

- C. Depending on the dollar value of the work assignment to be issued, additional provisions may apply which the Contractor will need to comply with. Those specific provisions are included in Part II of the Supplementary Conditions. Additional forms above and beyond those included with the Bid may be required to be submitted with the issuance of a work assignment.

ARTICLE 41. EXECUTIVE ORDERS

41.1 For covered Executive state Departments, the Contractor certifies compliance with applicable Executive Orders (see also Massachusetts Executive Orders), including but not limited to the specific orders listed below. A breach during the Contract period may be considered a material breach and subject Contractor to appropriate monetary or Contract sanctions.

- A. Executive Order 481. Prohibiting the Use of Undocumented Workers on State Contracts. For all state agencies in the Executive Branch, including all executive offices, boards, commissions, agencies, Departments, divisions, councils, bureaus, and offices, now existing and hereafter established, by signing this Contract the Contractor certifies under the pains and penalties of perjury that they shall not knowingly use undocumented workers in connection with the performance of this Contract; that, pursuant to federal requirements, shall verify the immigration status of workers assigned to a Contract without engaging in unlawful discrimination; and shall not knowingly or recklessly alter, falsify, or accept altered or falsified documents from any such worker.
- B. Executive Order 130. Anti-Boycott. The Contractor warrants, represents and agrees that during the time this Contract is in effect, neither it nor any affiliated company, as hereafter defined, participates in or cooperates with an international boycott (See IRC § 999(b)(3)-(4), and IRS Audit Guidelines Boycotts) or engages in conduct declared to be unlawful by G.L. c. 151E, s. 2. A breach in the warranty, representation, and agreement contained in this paragraph, without limiting such other rights as it may have, the Commonwealth shall be entitled to rescind this Contract. As used herein, an affiliated company shall be any business entity of which at least 51% of the ownership interests are directly or indirectly owned by the Contractor or by a person or persons or business entity or entities directly or indirectly owning at least 51% of the ownership interests of the Contractor, or which directly or indirectly owns at least 51% of the ownership interests of the Contractor.
- C. Executive Order 346. Hiring of State Employees By State Contractors. Contractor certifies compliance with both the conflict of interest law G.L. c. 268A specifically s. 5 (f) and this order; and includes limitations regarding the hiring of state employees by private companies contracting with the Commonwealth. A privatization contract shall be deemed to include a specific prohibition against the hiring at any time during the term of Contract, and for any position in the Contractor's company, any state management employee who is, was, or will be involved in the preparation of the RFP, the negotiations leading to the awarding of the Contract, the decision to award the Contract, and/or the supervision or oversight of performance under the Contract.
- D. Executive Order 444. Disclosure of Family Relationships With Other State Employees. Each person applying for employment (including Contract work) within the Executive Branch under the Governor must disclose in writing the names of all immediate family related to immediate family by marriage who serve as employees or elected officials of the Commonwealth. All disclosures made by applicants hired by the Executive Branch under the Governor shall be made

available for public inspection to the extent permissible by law by the official with whom such disclosure has been filed.

- E. Executive Order 504. Regarding the Security and Confidentiality of Personal Information. For all Contracts involving the Contractor's access to personal information, as defined in G.L. c. 93H, and personal data, as defined in G.L. c. 66A, owned or controlled by Executive Department agencies, or access to agency systems containing such information or data (herein collectively "personal information"), Contractor certifies under the pains and penalties of perjury that the Contractor (1) has read Commonwealth of Massachusetts Executive Order 504 and agrees to protect any and all personal information; and (2) has reviewed all of the Commonwealth Information Technology Division's Security Policies. Notwithstanding any contractual provision to the contrary, in connection with the Contractor's performance under this Contract, for all state agencies in the Executive Department, including all executive offices, boards, commissions, agencies, departments, divisions, councils, bureaus, and offices, now existing and hereafter established, the Contractor shall: (1) obtain a copy, review, and comply with the contracting agency's Information Security Program (ISP) and any pertinent security guidelines, standards, and policies; (2) comply with all of the Commonwealth of Massachusetts Information Technology Division's "Security Policies" (3) communicate and enforce the contracting agency's ISP and such Security Policies against all employees (whether such employees are direct or contracted) and subcontractors; (4) implement and maintain any other reasonable appropriate security procedures and practices necessary to protect personal information to which the Contractor is given access by the contracting agency from the unauthorized access, destruction, use, modification, disclosure or loss; (5) be responsible for the full or partial breach of any of these terms by its employees (whether such employees are direct or contracted) or subcontractors during or after the term of this Contract, and any breach of these terms may be regarded as a material breach of this Contract; (6) in the event of any unauthorized access, destruction, use, modification, disclosure or loss of the personal information (collectively referred to as the "unauthorized use"): (a) immediately notify the contracting agency if the Contractor becomes aware of the unauthorized use; (b) provide full cooperation and access to information necessary for the contracting agency to determine the scope of the unauthorized use; and (c) provide full cooperation and access to information necessary for the contracting agency and the Contractor to fulfill any notification requirements. Breach of these terms may be regarded as a material breach of this Contract, such that the Commonwealth may exercise any and all contractual rights and remedies, including without limitation indemnification under Section 11 of the Commonwealth's Terms and Conditions, withholding of payments, Contract suspension, or termination. In addition, the Contractor may be subject to applicable statutory or regulatory penalties, including and without limitation, those imposed pursuant to G.L. c. 93H and under G.L. c. 214, § 3B for violations under M.G.L c. 66A.
- F. Executive Orders 523, 524 and 526. Executive Order 526 (Order Regarding Non-Discrimination, Diversity, Equal Opportunity and Affirmative Action which supersedes Executive Order 478). Executive Order 524 (Establishing the Massachusetts Supplier Diversity Program which supersedes Executive Order 390). Executive Order 523 (Establishing the Massachusetts Small Business Purchasing Program.) All programs, activities, and services provided, performed, licensed, chartered, funded, regulated, or contracted for by the state shall be conducted without unlawful discrimination based on race, color, age, gender, ethnicity, sexual orientation, gender identity or expression, religion, creed, ancestry, national origin, disability, veteran's status (including Vietnam-era veterans), or background. The Contractor and any subcontractors may not engage in discriminatory employment practices; and the Contractor certifies compliance with applicable federal and state laws, rules, and regulations governing fair labor and employment

practices; and the Contractor commits to purchase supplies and services from certified minority or women-owned businesses, small businesses, or businesses owned by socially or economically disadvantaged persons or persons with disabilities. These provisions shall be enforced through the contracting agency, OSD, and/or the Massachusetts Commission Against Discrimination. Any breach shall be regarded as a material breach of the contract that may subject the contractor to appropriate sanctions.

ARTICLE 42. CITY OF NEW BEDFORD SUPPLEMENTAL CONDITIONS

42.1 The Contractor shall comply with the City of New Bedford, Massachusetts contract requirements including Instruction to Bidders for Affirmative Action Issues for Public Works and Construction Projects. A copy of these requirements and compliance reporting forms are included in Part II of the Supplementary Conditions. Certification forms required with the bid submittal and Contract are included in the Bid Form and Agreement respectively. Failure to include fully completed forms required with the bid may be deemed to render the bid non-responsive.

MOLLY GILFEATHER
DIRECTOR OF PURCHASING
CITY OF NEW BEDFORD, MASSACHUSETTS

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 23434112

The undersigned declares that the only persons or parties interested in this Bid as principals are as stated; that the Bid is made without any collusion with other persons, firms, or corporations; that all the Contract Documents and information contained within this Request for Bids (RFB) have been carefully examined; that the undersigned is fully informed in regard to all conditions pertaining to the Work and the place where it is to be done, and from them the undersigned makes this Bid. These prices shall cover all expenses incurred in performing the Work required under the Contract Documents, of which this Bid Form is a part.

The Contract will be evaluated and awarded to the responsible Bidder, based on the Total Base Bid whose bid, conforming to the solicitation, will be most advantageous, the lowest responsible bidder, to the City of New Bedford Department of Public Infrastructure, considering only price and any price related factors specified in the solicitation.

Each prospective Bidder proposing to bid on this project must be prequalified by the Massachusetts Department of Transportation (MassDOT) in accordance with 700 CMR 14.00 "Prequalification of Contractors".

The Contract Term will commence twenty days following the effective signing date of the agreement and extend through March 31, 2024, with the City retaining the SOLE option for two (2) additional one year renewals. All renewal options will be subject to appropriation. The first renewal year option will commence on April 1, 2024 and extend through March 31, 2025. The second renewal year option will commence on April 1, 2025 and extend through March 31, 2026.

The time period for holding bids, where Federal approval is not required is forty five (45) days, Saturdays, Sundays and legal holidays excluded, after the opening of bids and where Federal approved is required, the time period for holding bids is forty five days, Saturdays, Sundays and holidays excluded after Federal approval.

The Bid Security accompanying this Bid shall be in the amount of 5 percent of the Bid. The Bid Security/Bid Guarantee amount shall NOT be calculated based on a presumed or assumed contract value or amount that may be anticipated by the City.

If a Notice of Award accompanied by an electronic signature of the Agreement and all other applicable Contract Documents is delivered to the undersigned within thirty (30) days, excluding Saturdays, Sundays, and legal holidays, after the actual date of the opening of the Bids, the undersigned will within five days, excluding Saturdays, Sundays, and legal holidays, after the date of receipt of such notification, execute and return all copies of the Agreement and all other applicable Contract Documents to OWNER. The premiums for all Bonds required shall be paid by CONTRACTOR and shall be included in the Contract Price. The undersigned Bidder further agrees that the Bid Security accompanying this Bid shall become the property of OWNER if the Bidder fails to execute the Agreement as stated above.

The Bid Security shall be sealed in a separate envelope from the Bid and then attached to the envelope containing the Bid. Refer to Instructions to Bidders.

If the Bidder is a foreign corporation, it agrees, in case this Bid is accepted, to comply with the applicable provisions of Massachusetts General Laws, Chapter 156d, before the time for execution of the contract, as hereinafter provided, occurs.

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 23434112

If the Bidder is a foreign corporation, it agrees, in case this Bid is accepted, to comply with the applicable provisions of Massachusetts General Laws, Chapter 156d, before the time for execution of the contract, as hereinafter provided, occurs.

Bidder hereby agrees to commence work under this Contract on or before the date to be specified in the Notice to Proceed and to complete the project before or on the date of the Notice to Proceed. Bidder further acknowledges that the Owner reserves the right to assess liquidated damages depending on the type and classification of work being completed, and losses resulting from delays in completing the project beyond the time set in the Notice to Proceed, Work Order, Contract, or Purchase Order.

The City reserves the right to reject any and all bids and to waive any informalities in the bidding.

The undersigned acknowledges receipt of addenda numbered:

In accordance with the above understanding, the undersigned proposes to perform the Work, furnish all materials and complete the Work in its entirety in the manner and under the conditions required at the prices listed as follows:

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 23434112

Bid Price Notes:

1. All Prices shall be written in ink or types. Unit prices shall be written in words and figures. In the case of discrepancy, the amount in words shall govern.
2. All prices shall include the price of labor, equipment, materials, and incidentals required for carrying out the work in accordance with the Contract Documents unless otherwise noted.
3. Rental rate for equipment shall include equipment delivered to City of New Bedford project site, fuel, operator, and all costs connected with satisfactory operation.
4. Unless otherwise noted, the cost for curbing shall include granite curbing, Type VA-4 (straight, rounded including all radii, transition, curb inlets, and wheelchair ramps) and all other labor, materials, and equipment to install the curbing.
5. The quantities of work as given for each item in the proposal are only approximate and are assumed only for the comparison of proposals.
6. The Contractor shall only be reimbursed on a unit price basis for the quantities ultimately provided to the Owner; Contractor shall not be entitled to any profit associated with unused quantities.
7. Thickness of pavement to be placed shall be as directed by the Owner.
8. HMA is defined as Hot Mix Asphalt
9. FOB shall refer to Free On Board Destination and refers to the fact that the seller retains title and control of the goods until they are delivered. The seller selects the carrier and is responsible for the risk of transportation and filing claims in case of loss or damage. Once delivered and accepted the buyer takes ownership of the goods. All FOB material shall be delivered to a site selected by the Owner in the City of New Bedford.
10. Tack coat for HMA surfaces shall conform to MSSHB material M.3.03. Apply tack coat as specified in subsection 450.43.G of the referenced standard.

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 23434112

Item No.	Estimated Quantity	Brief Description of Items With Unit Price Bid in Words	Unit Bid Price in Figures	Amount in Figures
<u>Bituminous Concrete Pavement</u>				
1a-1	28,000 sq. yds.	Saw cut, remove and dispose of asphalt pavement, including aggregate base (up to 12-in depth)	\$ _____	\$ _____
		_____ per square yard		
1a-2	100 sq. yds.	Saw cut, remove and dispose of asphalt pavement with cobblestones and concrete subbase, including aggregate base (up to 12-in depth)	\$ _____	\$ _____
		_____ per square yard		
1a-3	15,800 sq. yds.	Saw cut, remove and dispose of concrete or bituminous sidewalks, sidewalk ramps, and driveway aprons, including aggregate base (up to 12-in depth)	\$ _____	\$ _____
		_____ per square yard		
1b-1	4,500 tons	HMA Superpave Surface Course 12.5 (SSC-12.5)	\$ _____	\$ _____
		_____ per ton		
1b-2	4,900 tons	HMA Superpave Intermediate Course 19.0 (SIC 19.0)	\$ _____	\$ _____
		_____ per ton		
1c	1,200 sq. yds.	HMA Superpave Surface Course 9.5 (SSC 9.5) for Sidewalk and Driveways (1.5-in)	\$ _____	\$ _____
		_____ per square yard		
Subtotal Page 00300-4			\$ _____	

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 23434112

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Brief Description of Items With Unit Price Bid in Words</u>	<u>Unit Bid Price in Figures</u>	<u>Amount in Figures</u>
1d-1	1,200 sq. yds.	HMA Superpave Intermediate Course 12.5 (SIC-12.5) for Sidewalk (1.5-in) _____ per square yard	\$ _____	\$ _____
1d-2	2,000 sq. yds.	HMA Superpave Intermediate Course 12.5 (SIC-12.5) for Driveways (2.5-in) _____ per square yard	\$ _____	\$ _____
1d-3	20,000 lin. ft.	Winterizing Driveways, Wheelchair Ramps and Cut Pavement Edges _____ per linear foot	\$ _____	\$ _____
1e	2,000 sq. yds.	HMA Patch for Utility Trenches, Roadway Patches, Parking Lot Sections, Park and Cemetery Roads _____ per square yard	\$ _____	\$ _____
1f	7,400 sq. yds	Full Depth Roadway Reclamation _____ per square yard	\$ _____	\$ _____
1g	14,900 sq. yds	Pavement Milling (1.5-in) _____ per square yard	\$ _____	\$ _____
1h	100 ea.	4-in Thermoplastic White "T" and "L" Line Painting _____ per each	\$ _____	\$ _____

Subtotal Page 00300-5 \$ _____

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 23434112

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Brief Description of Items With Unit Price Bid in Words</u>	<u>Unit Bid Price in Figures</u>	<u>Amount in Figures</u>
1i	3,000 lin. ft.	6-in Thermoplastic White and Yellow Line painting _____ per linear foot	\$ _____	\$ _____
1j	1,500 lin. ft.	12-in Thermoplastic White or Yellow Crosswalk and Stop Line Painting _____ per linear foot	\$ _____	\$ _____
1k	300 sq. yds.	Street Print Pavement Texturing _____ per square yard	\$ _____	\$ _____
1l	40 ea.	Furnish and install miscellaneous thermoplastic roadway markings _____ per each	\$ _____	\$ _____
1m	300 sq. yds.	Furnish and install crosswalk infill painting (skid resistant) _____ per square yard	\$ _____	\$ _____
1n	200 cu. yds.	Crushed stone for blending _____ per cubic yard	\$ _____	\$ _____
1o		OMITTED		
1p	300 cu. yds.	Roadway Excavation _____ per cubic yard	\$ _____	\$ _____

Subtotal Page 00300-6 \$ _____

**BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 23434112**

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Brief Description of Items With Unit Price Bid in Words</u>	<u>Unit Bid Price in Figures</u>	<u>Amount in Figures</u>
1q	600 cu. yds.	Subgrade undercut and backfill with reclaimed pavement borrow M1.09.0 _____	\$ _____	\$ _____
		per cubic yard		
1r	4,300 sq. yds	Restoration by Loaming (6" depth) and Hydroseeding _____	\$ _____	\$ _____
		per square yard		

Cement Concrete Sidewalks

2a	3,900 sq. yds	4" Portland Cement Concrete Sidewalk _____	\$ _____	\$ _____
		per square yard		
2b	2,300 sq. yds	6" Portland Cement Concrete Residential Driveway Aprons _____	\$ _____	\$ _____
		per square yard		
2c	1,500 sq. yds	6" Fiber Reinforced Portland Cement Concrete Commercial Driveway Aprons and Wheelchair Ramps _____	\$ _____	\$ _____
		per square yard		
2d	200 sq. yds	4" Portland Cement Concrete Sidewalk (colored concrete) _____	\$ _____	\$ _____
		per square yard		

Subtotal Page 00300-7 \$ _____

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 23434112

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Brief Description of Items With Unit Price Bid in Words</u>	<u>Unit Bid Price in Figures</u>	<u>Amount in Figures</u>
2e	100 sq. yds	6" Portland Cement Concrete Residential Driveway Aprons (colored concrete) _____ per square yard	\$ _____	\$ _____
2f	250 sq. yds	6" Fiber Reinforced Portland Cement Concrete Commercial Driveway Aprons and Wheelchair Ramps (colored concrete) _____ per square yard	\$ _____	\$ _____
2g	170 ea.	Furnishing new yellow ADA detection warning panels _____ per each	\$ _____	\$ _____
<u>Curbing</u>				
3a	2,400 lin. ft.	Furnishing new straight granite curbing (Type VA4) _____ per linear foot	\$ _____	\$ _____
3b	4,200 lin. ft.	Installing granite curbing (including all types and sizes) _____ per linear foot	\$ _____	\$ _____
3c	8,600 lin. ft.	Reset existing granite curbing (including all types and sizes) _____ per linear foot	\$ _____	\$ _____

Subtotal Page 00300-8 \$ _____

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 23434112

Item No.	Estimated Quantity	Brief Description of Items With Unit Price Bid in Words	Unit Bid Price in Figures	Amount in Figures
3d	4,200 lin. ft.	Remove and stack existing granite curbing (all types and sizes) _____ per linear foot	\$ _____	\$ _____
3e	150 lin. ft.	Remove and replace concrete curb – poured in place (all types and sizes) _____ per linear foot	\$ _____	\$ _____
3f	2,300 lin. ft.	HMA “Type A” Cape Cod Berm (106.1.0) _____ per linear foot	\$ _____	\$ _____
3g	1,700 lin. ft.	HMA B Berm Types 1, 2 or 3 (106.2.0) _____ per linear foot	\$ _____	\$ _____

Drain Pipe and Appurtenances

4a	100 lin. ft.	Furnish and install 16-in Class 52 DI drain pipe, including earth excavation and backfill _____ per linear foot	\$ _____	\$ _____
4b	200 lin. ft.	Furnish and install 15-in RC drain pipe, including earth excavation and backfill _____ per linear foot	\$ _____	\$ _____

Subtotal Page 00300-9 \$ _____

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 23434112

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Brief Description of Items With Unit Price Bid in Words</u>	<u>Unit Bid Price in Figures</u>	<u>Amount in Figures</u>
4c	200 lin. ft.	Furnish and install 12-in RC drain pipe, including earth excavation and backfill _____ per linear foot	\$ _____	\$ _____
4d	200 lin. ft.	Furnish and install 12-in Class 52 DI drain pipe, including earth excavation and backfill _____ per linear foot	\$ _____	\$ _____
4e	200 lin. ft.	Furnish and install 12-in PVC drain pipe, including earth excavation and backfill _____ per linear foot	\$ _____	\$ _____
4f	50 lin. ft.	Install 6-in PVC or CL 52 DI private drain lateral pipe to property line _____ per linear foot	\$ _____	\$ _____

Manholes and Catch Basins

5a-1	50 vert. ft.	Furnish and install 4-ft diameter drain manhole with precast or cast-in-place base _____ per vertical foot	\$ _____	\$ _____
5a-2	50 vert. ft.	Furnish and install 4-ft diameter sewer manhole with precast or cast-in-place base _____ per vertical foot	\$ _____	\$ _____

Subtotal Page 00300-10 \$ _____

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 23434112

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Brief Description of Items With Unit Price Bid in Words</u>	<u>Unit Bid Price in Figures</u>	<u>Amount in Figures</u>
5b-1	20 vert. ft.	Furnish and install 5-ft diameter drain manhole with precast or cast-in-place base _____ per vertical foot	\$ _____	\$ _____
5b-2	20 vert. ft.	Furnish and install 5-ft diameter sewer manhole with precast or cast-in-place base _____ per vertical foot	\$ _____	\$ _____
5c	80 vert. ft.	Furnish and install catch basins (all types) with hood _____ per vertical foot	\$ _____	\$ _____
5d	5 ea.	Furnish and install concrete block gutter inlets _____ per each	\$ _____	\$ _____
5e	600 ea.	Adjusting Structures to line and Grade _____ per each	\$ _____	\$ _____
5f	100 ea.	Replace and adjust existing Bradley Head Top Slabs and Wash Stone _____ per each	\$ _____	\$ _____
5g	5 ea.	Change in Structure Type _____ per each	\$ _____	\$ _____

Subtotal Page 00300-11 \$ _____

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 23434112

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Brief Description of Items With Unit Price Bid in Words</u>	<u>Unit Bid Price in Figures</u>	<u>Amount in Figures</u>
5h	100 ea.	Furnish new manhole frames and covers _____ per each	\$ _____	\$ _____
5i	100 ea.	Furnish new catch basin frames and grates _____ per each	\$ _____	\$ _____

Valves, Hydrants and Appurtenances

6		OMITTED		
7a	5 ea.	Removal of existing hydrant and installation of new hydrant _____ per each	\$ _____	\$ _____
7b	5 ea.	Relocation of existing hydrant with new hydrant assembly and anchoring tee _____ per each	\$ _____	\$ _____

8 OMITTED

Utility Relocations

9a	50 lin. ft.	Water main relocations (4", 6", 8", 10" and 12") _____ per linear foot	\$ _____	\$ _____
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Subtotal Page 00300-12 \$ _____

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 23434112

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Brief Description of Items With Unit Price Bid in Words</u>	<u>Unit Bid Price in Figures</u>	<u>Amount in Figures</u>
9b	50 lin. ft.	Install all pipe and appurtenances required to relocate existing domestic water service connections due to direct invert conflict with new drain or sewer _____ per linear foot	\$ _____	\$ _____
9c	50 lin. ft.	Furnish and install all pipe and appurtenances required to relocate existing sewer service connections due to direct invert conflict with new drain, (6" or 8") _____ per linear foot	\$ _____	\$ _____
9d	200 ea.	Complete replacement of water gate box and curb stop box to line and grade _____ per each	\$ _____	\$ _____
9e	600 ea.	Adjusting Top Section of Water Gate Box and Curb Stop Box to Line and Grade _____ per each	\$ _____	\$ _____

Equipment Rental and Labor

10a	100 hrs	Rental rate for air compressor with jack hammer and operator (100 cfm @ 100 psi for compressor) _____ per hour	\$ _____	\$ _____
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Subtotal Page 00300-13 \$ _____

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 23434112

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Brief Description of Items With Unit Price Bid in Words</u>	<u>Unit Bid Price in Figures</u>	<u>Amount in Figures</u>
10b	150 hrs	Rental rate for dump truck with operator (6 cyd body) _____ per hour	\$ _____	\$ _____
10c	10 hrs	Rental rate for dump truck with plow and operator (6 cyd body) _____ per hour	\$ _____	\$ _____
10d	1,000 hrs	Rental rate for dump truck with operator (12 cy yd body) _____ per hour	\$ _____	\$ _____
10e	25 hrs	Rental rate for dump truck with plow and operator (12 cy yd body) _____ per hour	\$ _____	\$ _____
10f	150 hrs	Rental rate for 5-axle tractor dump truck with operator (25 cy yd body) _____ per hour	\$ _____	\$ _____
10g	150 hrs	Rental rate for #12 Caterpillar Grader, or equal with operator _____ per hour	\$ _____	\$ _____

Subtotal Page 00300-14 \$ _____

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 23434112

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Brief Description of Items With Unit Price Bid in Words</u>	<u>Unit Bid Price in Figures</u>	<u>Amount in Figures</u>
10h	100 hrs	Rental rate for front end loader on rubber with 3 cy bucket and operator _____ per hour	\$ _____	\$ _____
10i	100 hrs	Rental rate for D-7 bulldozer or equal with operator _____ per hour	\$ _____	\$ _____
10j	50 hrs	Rental rate for 10-ton tandem roller with operator _____ per hour	\$ _____	\$ _____
10k	50 hrs	Rental rate for 3-5-ton tandem roller with operator _____ per hour	\$ _____	\$ _____
10l	250 hrs	Rental rate for track excavator, minimum size Caterpillar 225 gradeall, or equal with operator _____ per hour	\$ _____	\$ _____
10m	20 hrs	Rental rate for track excavator, minimum size Caterpillar 225 grade-all, or equal with hydraulic hammer and operator _____ per hour	\$ _____	\$ _____

Subtotal Page 00300-15 \$ _____

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 23434112

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Brief Description of Items With Unit Price Bid in Words</u>	<u>Unit Bid Price in Figures</u>	<u>Amount in Figures</u>
10n	275 hrs	Rental rate for Caterpillar 420E Backhoe Loader, or equal with operator _____ per hour	\$ _____	\$ _____
10o	40 hrs	Rental rate for low bed trailer with tractor and operator _____ per hour	\$ _____	\$ _____
11a	1,000 hrs	Rate for laborer including all costs connected with same _____ per hour	\$ _____	\$ _____
11b	1,600 hrs	Rate for foreman including all costs connected with same _____ per hour	\$ _____	\$ _____

Granular Fill Materials

12a	50 cy. yds	1-1/2-in Quarry Stone Delivered to Any Location In City (M2.01.1) _____ per cubic yard	\$ _____	\$ _____
12b	100 cy. yds	3/4-in Quarry Stone Delivered to Any Location In City (M2.01.4) _____ per cubic yard	\$ _____	\$ _____

Subtotal Page 00300-16 \$ _____

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 23434112

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Brief Description of Items With Unit Price Bid in Words</u>	<u>Unit Bid Price in Figures</u>	<u>Amount in Figures</u>
12c	100 cy. yds	1/2-in Quarry Stone Delivered to Any Location In City (M2.01.5) _____ per cubic yard	\$ _____	\$ _____
12d	50 cy. yds	1/4-in Quarry Stone Delivered to Any Location In City (M2.01.6) _____ per cubic yard	\$ _____	\$ _____
12e	300 cy. yds	Gravel Borrow/Bank Run Gravel Delivered to Any Location In City (M1.03 Type "B") _____ per cubic yard	\$ _____	\$ _____
12f	30 cy. yds	Modified Rockfill Delivered to Any Location In City (M2.02.4) _____ per cubic yard	\$ _____	\$ _____
12g	110 cy. yds	Processed Gravel Delivered to Any Location In City (M1.03.1) _____ per cubic yard	\$ _____	\$ _____
12h	250 cy. yds	Stone Dust Delivered to Any Location In City _____ per cubic yard	\$ _____	\$ _____

Subtotal Page 00300-17 \$ _____

**BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 23434112**

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Brief Description of Items With Unit Price Bid in Words</u>	<u>Unit Bid Price in Figures</u>	<u>Amount in Figures</u>
12i	550 cy. yds	Ordinary Borrow Material Delivered to any location in City (M1.01.0) _____	\$ _____	\$ _____
		per cubic yard		
12j	100 cy. yds	CLSM Type 2E delivered to any location in City (M4.08.0) _____	\$ _____	\$ _____
		per cubic yard		
12k	6,600 cy. yds	Reclaimed Pavement Borrow Material Delivered To Any Location in City (M1.09.0) _____	\$ _____	\$ _____
		per cubic yard		
13	60 cy. yds	Earth excavation and refill below normal grade _____	\$ _____	\$ _____
		per cubic yard		
<u>Sedimentation and Erosion Control</u>				
14a	1,000 lin. ft.	Compost Socks _____	\$ _____	\$ _____
		per linear foot		
14b	100 ea.	Catch Basin Filter Traps _____	\$ _____	\$ _____
		per each		

Subtotal Page 00300-18 \$ _____

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
 Bid No. 23434112

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Brief Description of Items With Unit Price Bid in Words</u>	<u>Unit Bid Price in Figures</u>	<u>Amount in Figures</u>
<u>Masonry Work</u>				
15a	500 sq. yds.	Furnishing new brick unit pavers (Boston Pavers)		
		_____	\$ _____	\$ _____
		per square yard		
15b	500 sq. yds.	Installing new brick unit pavers (all types, sizes and patterns) with new concrete base		
		_____	\$ _____	\$ _____
		per square yard		
15c	500 sq. yds.	Resetting existing brick unit pavers with new concrete base (all types, sizes and patterns)		
		_____	\$ _____	\$ _____
		per square yard		
15d	1,000 sq. yds.	Removing and stacking existing brick unit pavers (all types and sizes)		
		_____	\$ _____	\$ _____
		per square yard		
16a	800 sq. yds.	Install Belgian Pavers with concrete base		
		_____	\$ _____	\$ _____
		per square yard		
16b	800 sq. yds.	Removing and stacking existing Belgian Pavers		
		_____	\$ _____	\$ _____
		per square yard		

Subtotal Page 00300-19 \$ _____

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 23434112

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Brief Description of Items With Unit Price Bid in Words</u>	<u>Unit Bid Price in Figures</u>	<u>Amount in Figures</u>
16c	3,500 sq. yds.	Repointing of existing Belgian Pavers with mortar joints _____ per square yard	\$ _____	\$ _____
17a	150 sq. yds.	Remove and stack existing Bluestone (all sizes) _____ per square yard	\$ _____	\$ _____
17b-1	120 sq. yds.	Install new Bluestone (2-in) in sidewalk with concrete base _____ per square yard	\$ _____	\$ _____
17b-2	30 sq. yds.	Install new Bluestone (3-in) in wheelchair ramps, crosswalks and driveway aprons with concrete base _____ per square yard	\$ _____	\$ _____

Rock and Boulder Excavation

18a	50 cu. yds	Rock and boulder excavation _____ <u>Sixty – Five Dollars</u> _____ per cubic yard	\$ <u>65.00</u> _____	\$ <u>3,900</u> _____
18b	50 cu. yds	Additional payment for rock and boulder excavation over the established price _____ per cubic yard	\$ _____	\$ _____

Subtotal Page 00300-20 \$ _____

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 23434112

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Brief Description of Items With Unit Price Bid in Words</u>	<u>Unit Bid Price in Figures</u>	<u>Amount in Figures</u>
<u>Traffic and Street Signs</u>				
19a	112 ea.	Furnish and install new roadway MUTCD street name signs with posts _____	\$ _____	\$ _____
		per each		
19b	10 ea.	Furnish and install new roadway Ornamental street name signs with posts _____	\$ _____	\$ _____
		per each		
<u>Miscellaneous Items</u>				
20	75 cy. yds.	Test Pits _____	\$ _____	\$ _____
		per cubic yard		
<u>Landscaping</u>				
21a	20 ea.	Removal and disposal of existing trees and stumps (1" up to 12" diameter, all species) _____	\$ _____	\$ _____
		per each		
21b	20 ea.	Removal and disposal of existing trees and stumps (greater than 12" diameter, all species) _____	\$ _____	\$ _____
		per each		
21c-1	35 ea.	Installing new street tree Tall Height Species _____	\$ _____	\$ _____
		per each		

Subtotal Page 00300-21 \$ _____

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 23434112

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Brief Description of Items With Unit Price Bid in Words</u>	<u>Unit Bid Price in Figures</u>	<u>Amount in Figures</u>
21c-2	35 ea.	Installing new street tree Medium Height Species	\$ _____	\$ _____
		_____	\$ _____	\$ _____
		per each		
21c-3	35 ea.	Installing new street tree Short Height Species	\$ _____	\$ _____
		_____	\$ _____	\$ _____
		per each		
21d	500 sq. yds.	Furnish and install new pine bark mulch (4-in) (M6.04.5)	\$ _____	\$ _____
		_____	\$ _____	\$ _____
		per square yard		
<u>Electrical Work</u>				
22a	50 ea.	Furnish and Install new street light pole foundations	\$ _____	\$ _____
		_____	\$ _____	\$ _____
		per each		
22b-1	50 ea.	Furnish new street light poles (New Bedford and Washington style)	\$ _____	\$ _____
		_____	\$ _____	\$ _____
		per each		
22b-2	50 ea.	Install new street light poles (New Bedford and Washington style)	\$ _____	\$ _____
		_____	\$ _____	\$ _____
		per each		
22c	50 ea.	Install new street light globes with LED luminaires	\$ _____	\$ _____
		_____	\$ _____	\$ _____
		per each		

Subtotal Page 00300-22 \$ _____

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 23434112

Item No.	Estimated Quantity	Brief Description of Items With Unit Price Bid in Words	Unit Bid Price in Figures	Amount in Figures
22d	2,500 lin ft.	Furnish and Install new 1.5" PVC electric conduit	\$ _____	\$ _____

		per linear foot		
22e	4,000 lin ft.	Furnish and Install new 2" PVC electric conduit	\$ _____	\$ _____

		per linear foot		
22f	1,000 lin ft.	Furnish and Install new 4" PVC electric conduit	\$ _____	\$ _____

		per linear foot		
22g	40 ea.	Furnish and Install new electric hand hole boxes	\$ _____	\$ _____

		per each		
22h	1,700 cu. yds.	Electric Conduit and Handhole Box Excavation	\$ _____	\$ _____

		per cubic yard		
22i	400 hrs	Rate for master electrician including all costs connected with same	\$ _____	\$ _____

		per hour		
22j	400 hrs	Rate for journeyman electrician including all costs connected with same	\$ _____	\$ _____

		per hour		

Subtotal Page 00300-23 \$ _____

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 20434105

Subtotal Page 00300-4	\$ _____
Subtotal Page 00300-5	\$ _____
Subtotal Page 00300-6	\$ _____
Subtotal Page 00300-7	\$ _____
Subtotal Page 00300-8	\$ _____
Subtotal Page 00300-9	\$ _____
Subtotal Page 00300-10	\$ _____
Subtotal Page 00300-11	\$ _____
Subtotal Page 00300-12	\$ _____
Subtotal Page 00300-13	\$ _____
Subtotal Page 00300-14	\$ _____
Subtotal Page 00300-15	\$ _____
Subtotal Page 00300-16	\$ _____
Subtotal Page 00300-17	\$ _____
Subtotal Page 00300-18	\$ _____
Subtotal Page 00300-19	\$ _____
Subtotal Page 00300-20	\$ _____
Subtotal Page 00300-21	\$ _____
Subtotal Page 00300-22	\$ _____
Subtotal Page 00300-23	\$ _____

TOTAL BID PRICE \$ _____

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 20434105

The undersigned agrees that extra work, if any, will be performed in accordance with Article 10 of the Conditions of the Contract and will be paid for in accordance with Article 11 of the Conditions of the Contract.

The bidding and award of this Contract will be in accordance with M.G.L. Chapter 30, Section 39M.

The undersigned must furnish a 100 percent Performance Bond and a 100 percent Payment Bond with a surety company acceptable to OWNER.

Amounts shall be shown in both words and figures, where indicated. In case of discrepancy, the amount shown in words will govern.

The above prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance and incidentals required to complete the Work.

The names and residences of all persons and parties interested in the foregoing Bid as principals are as follows:

(Give first and last names in full. In the case of a corporation, indicated the status of incorporation under the signature and affix the corporate seal, in the case of a limited liability company (LLC), give the name by the Manager and address and state where the Limited Liability Company was formed, in the case of a partnership, give the full names and residential addresses of all partners. Refer to the Instruction to Bidders.)

Pursuant to M.G.L. Ch. 62C, sec. 49A, I certify under the penalties of perjury that I, to my best knowledge and belief, have filed all state tax returns and paid all state taxes required under law.

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee.

The undersigned bidder hereby certifies he/she will comply with the specific affirmative action steps contained in the Equal Employment Opportunity/Affirmative Action (EEO/AA) provisions of this Contract, including compliance with the Disadvantaged Business Enterprise provisions as required under these contract provisions. **The attached DBE Forms (Federal Contract Provisions, Commonwealth of Massachusetts and City of New Bedford) must be completed and submitted as part of the Bid Proposal.** The Contractor receiving the award of the contract shall incorporate the EEO/AA provisions of this contract into all subcontracts and purchase orders so that such provisions will be binding upon each subcontractor or vendor.

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 20434105

The attached City of New Bedford forms must be completed and submitted as part of the Bid Proposal.

Bidders must fully comply with Subpart C of 2 CFR Part 180 and 2 CFR Part 1532, entitled Responsibilities of Participants Regarding Transactions (Doing Business with Other Persons). Contractors, subcontractors, or suppliers that appear on the Excluded Parties List System at www.sam.gov are not eligible for award of any contracts funded by the Commonwealth of Massachusetts.

The undersigned warrants, represents, and agrees that during the time of this Contract is in effect, neither it nor any affiliated company, as hereinafter defined, participates or cooperates with an international boycott, as defined in Section 999(b)(3) and (4) of the Internal Revenue Code of 1954, as amended, or engages in conduct declared to be unlawful by Section 2 of Chapter 151E, Massachusetts General Laws. If there shall be a breach in the nty representation and agreement contained in this paragraph then without limiting such other rights as it may have, the Awarding Authority shall be intitled to rescind this Contract. As used herein, an affiliated company shall be any business entity of which at least 51-percent of the ownership interests are directly or indirectly owned by the Bidder, or which directly or indirectly owns at least 51-percent of the ownership interest of the Contractor.

The Remainder of This Page Intentionally Left Blank

BID FORM TO CITY OF NEW BEDFORD, MASSACHUSETTS
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES
Bid No. 20434105

The undersigned hereby certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this section, the word "person" shall mean any natural person, joint venture, partnership, corporation, limited liability company, or other business or legal entity. The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth under the provisions of Section Twenty-nine F of Chapter Twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or requisition promulgated thereunder; and is not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency.

Social Security Number
or Federal Identification
Number

Signature of Individual or
Corporate Name

By: _____
Corporate Officer (if applicable)

Notice of acceptance should be mailed, faxed, or delivered to the following:

(Name)

By: _____
(Title)

(Business Address)

(City and State)

Date _____

Note: If the Bidder is a corporation, indicate State of incorporation under signature, and affix corporate seal; if a partnership, give full names and residential addresses, if different from business address.

**CITY OF NEW BEDFORD
MASSACHUSETTS**

NON-COLLUSION AND TAX COMPLIANCE FORM

CERTIFICATE OF NON-COLLUSION

The undersigned certified under penalties of perjury that this bid 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 individual submitting bid

Name of business/organization

TAX COMPLIANCE CERTIFICATION

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

Signature of person submitting bid

Name of business

**CITY OF NEW BEDFORD
MASSACHUSETTS**

**VOTE OF CORPORATION AUTHORIZING
EXECUTION OF CORPORATE AGREEMENTS**

At a meeting of the Board of Directors of _____ duly called and held on _____, 20____ at which a quorum was present and acting throughout, the following vote was duly adopted.

VOTED: That _____, the _____ of the corporation, be and hereby is authorized to affix the Corporate Seal, sign and deliver in the name and behalf of the corporation contract documents with the City of New Bedford, the above mentioned documents to include but not be limited to Bids, Proposals, Deeds, Purchase and Sales Agreements, Agreements, Contracts, Leases, Licenses, Releases and Indemnifications; and also to seal and execute, as above, surety company bonds to secure bids and proposals and the performance of said contract and payment for labor and materials, all in such form and on such terms and conditions as he/she, by the execution thereof, shall deem proper. A true copy

ATTEST:

Name (printed)

Signature (Affix Corporate Seal)

Title

Date

OSHA CERTIFICATION REQUIREMENT

Effective **July 1, 2006**, all employees of a contractor to be employed on **public building and public works** worksites must have successfully completed at least a 10 hour course in construction safety and health approved by OSHA at the time the employee begins work.

I, _____, as _____, of the
(Print Name) (Position with the entity submitting bid)

joint venture/corporation/partnership or other legal entity submitting this bid for a public works project falling under §39M of Chapter 30 of the Massachusetts General Laws and Chapter 149 of the same, do hereby certify that any and all employees found on my worksite for this project have, or will have by the start of their work on the project, successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that was at least 10 hours in duration.

A copy of the OSHA completion cards for each employee must be submitted to the City of New Bedford before work on this project is to begin and must be supplemented as new employees are hired or contracted to work on this project.

_____, as
Signature

_____, of
Position

_____, on
Company/Corporation/Joint Venture/Partnership/Etc.

Date

CONTRACTOR CERTIFICATION

As evidenced by the signature of the Contractor's Authorized signatory below, the Contractor certifies under the pains and penalties of perjury that the Contractor shall not knowingly use undocumented workers in connection with the performance of any City contract; that pursuant to federal and state requirements, the Contractor shall verify the immigration status of all workers assigned to such contracts without engaging in unlawful discrimination; and that the Contractor shall not knowingly or recklessly alter, falsify, or accept altered or falsified documents from any such worker(s). The Contractor understands and agrees that breach of any of these terms during the period of each contract may be regarded as a material breach, subjecting the Contractor to sanctions, including but not limited to monetary penalties, withholding of payments, contract suspension or termination.

Contractor Authorized Signature

Printed Name

Date

Title: _____ Telephone: _____

Fax: _____ Email: _____

Request for Taxpayer Identification Number and Certification

Completed form should be given to the requesting department or the department you are currently doing business with.

Name (List legal name, if joint names, list first & circle the name of the person whose TIN you enter in Part I-See Specific instruction on page 2)		
Business name, if different from above. (See Specific instruction on page 2)		
Check the appropriate box: <input type="checkbox"/> Individual/Sole proprietor <input type="checkbox"/> Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Other ▶		
Legal Address: number, street, and apt. or suite no.	Remittance Address: If different from legal address number, street, and apt. or suite no.	
City, state and ZIP code	City, state and ZIP code	
Phone # ()	Fax # ()	Email address:

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instruction on page 2. For other entities, it is your employer identification number (EIN). If you do not have a number, see How to get a TIN on page 2. Note: If the account is in more than one name, see the chart on page 2 for guidelines on whose number to enter.

Social security number

□ □ □ - □ □ - □ □ □ □

OR

Employer identification number

□ □ - □ □ □ □ □ □ □ □

Part II Certification

Under penalties of perjury, I certify that:

- The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
- I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
- I am an U.S. person (including an U.S. resident alien).
- I am currently a Commonwealth of Massachusetts's state employee: (check one): No Yes If yes, attach a copy of the letter from the State Ethics Commission. Individual information, including address will be part of the public record and accessible under Freedom of Information.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply.

Sign Here	Authorized Signature ▶	Date ▶
------------------	-------------------------------	---------------

Purpose of Form

A person who is required to file an information return with the IRS must get your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to give your correct TIN to the person requesting it (the requester) and, when applicable, to:

- Certify the TIN you are giving is correct (or you are waiting for a number to be issued).
- Certify you are not subject to backup withholding

If you are a foreign person, use the appropriate Form W-8. See Pub 515, Withholding of Tax on Nonresident Aliens and Foreign Corporations.

What is backup withholding? Persons making certain payments to you must withhold a designated percentage, currently 29% and pay to the IRS of such payments under certain

conditions. This is called "backup withholding." Payments that may be subject to backup withholding include interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

If you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return, payments you receive will not be subject to backup withholding. Payments you receive will be subject to backup withholding if:

- You do not furnish your TIN to the requester, or
- You do not certify your TIN when required (see the Part II instructions on page 2 for details), or
- The IRS tells the requester that you furnished an incorrect TIN, or
- The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends only), or

5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See the Part II instructions on page 2.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to the requester, you are subject to a penalty of \$50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a \$500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of Federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Name. If you are an individual, you must generally enter the name shown on your social security card. However, if you have changed your last name, for instance, due to marriage without informing the Social Security Administration of the name change, enter your first name, the last name shown on your social security card, and your new last name.

If the account is in joint names, list first and then circle the name of the person or entity whose number you enter in Part I of the form.

Sole proprietor. Enter your individual name as shown on your social security card on the "Name" line. You may enter your business, trade, or "doing business as (DBA)" name on the "Business name" line.

Limited liability company (LLC). If you are a single-member LLC (including a foreign LLC with a domestic owner) that is disregarded as an entity separate from its owner under Treasury regulations section 301.7701-3, enter the owner's name on the "Name" line. Enter the LLC's name on the "Business name" line.

Caution: A disregarded domestic entity that has a foreign owner must use the appropriate Form W-8.

Other entities. Enter your business name as shown on required Federal tax documents on the "Name" line. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on the "Business name" line.

Part I - Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box.

If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see How to get a TIN below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN. However, the IRS prefers that you use your SSN.

If you are an LLC that is disregarded as an entity separate from its owner (see *Limited liability company (LLC)* above), and are owned by an individual, enter your SSN (or "pre-LLC" EIN, if desired). If the owner of a disregarded LLC is a corporation, partnership, etc., enter the owner's EIN.

Note: See the chart on this page for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local Social Security Administration office. Get Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can get Forms W-7 and SS-4 from the IRS by calling 1-800-TAX-FORM (1-800-829-3876) or from the IRS's Internet Web Site www.irs.gov.

If you do not have a TIN, write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments.

The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note: Writing "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Part II - Certification

To establish to the paying agent that your TIN is correct or you are a U.S. person, or resident alien, sign Form W-9.

For a joint account, only the person whose TIN is shown in Part I should sign (when required).

Real estate transactions: You must sign the certification. You may cross out item 2 of the certification.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to give your correct TIN to persons who must file information returns with the IRS to report interest, dividends, and certain other income paid to you, mortgage interest you paid, the acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA or MSA. The IRS uses the numbers for identification purposes and to help verify the accuracy of your tax return. The IRS may also provide this information to the Department of Justice for civil and criminal litigation, and to cities, states, and the District of Columbia to carry out their tax laws.

You must provide your TIN whether or not you are required to file a tax return. Payers must generally withhold a designated percentage, currently 29% of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply.

What Name and Number to Give the Requester

For this type of account:	Give name and SSN of
1. Individual	The individual
2. Two or more individuals (joint account)	The actual owner of the account or, if combined funds, the first individual on the account ¹
3. Custodian account of a minor (Uniform Gift to Minors Act)	The minor ²
4. a. The usual revocable savings trust (grantor is also trustee)	The grantor-trustee ¹
b. So-called trust account that is not a legal or valid trust under state law	The actual owner ¹
5. Sole proprietorship	The owner ³
For this type of account:	Give name and EIN of:
6. Sole proprietorship	The owner ³
7. A valid trust, estate, or pension trust	Legal entity ⁴
8. Corporate	The corporation
9. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
10. Partnership	The partnership
11. A broker or registered nominee	The broker or nominee
12. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity

¹ List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

² Circle the minor's name and furnish the minor's SSN.

³ You must show your individual name, but you may also enter your business or "DBA" name. You may use either your SSN or EIN (if you have one).

⁴ List first and circle the name of the legal trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.)

Note: If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

If you have questions on completing this form, please contact the Office of the State Comptroller. (617) 973-2311 or 973-2655

Upon completion of this form, please send it to the Commonwealth of Massachusetts Department you are doing business with.

COMMONWEALTH OF MASSACHUSETTS
CORPORATE CERTIFICATE OF TAX COMPLIANCE

Pursuant to the requirements of G.L. c. 62C, s. 49A, the undersigned does hereby state the following:

I, _____, as the _____ of _____, whose principal place of business is located at _____ do

hereby certify that the above named firm has complied with all laws of the Commonwealth of Massachusetts relating to taxes and has no outstanding obligation to the Massachusetts Department of Revenue. Signed under the penalties of perjury:

Federal Identification Number Name of Corporation/
Unincorporated Association

Date Signature of President

Date Signature of Treasurer

COMMONWEALTH OF MASSACHUSETTS

On this _____ day of _____, 2007, before me, the undersigned notary public, personally appeared _____,

proved to me through satisfactory evidence of identification, which consisted of _____

_____, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he/she signed it as _____ for _____, a corporation, voluntarily for its stated purpose.

NAME:

Notary Public My commission

expires: _____

COMMONWEALTH OF MASSACHUSETTS
INDIVIDUAL CERTIFICATE OF TAX COMPLIANCE

Pursuant to the requirements of G.L. c. 62C, s. 49A, the undersigned does hereby state the following:

I, _____, certify that I have filed all state tax returns, have paid all state taxes required under law, and have no outstanding obligation or unpaid debt to the Massachusetts Department of Revenue.

Signed under the penalties of perjury:

Date Signature

Social Security Number Typed or Printed Name

COMMONWEALTH OF MASSACHUSETTS

On this _____ day of _____, 2007, before me, the undersigned notary public, personally appeared

_____,
proved to me through satisfactory evidence of identification, which consisted of _____

_____, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he/she signed it voluntarily for its stated purpose.

NAME:
Notary Public
My commission expires: _____

APPENDIX A
BID SUBMISSION DOCUMENTS



Bid Submission Checklist

THE GENERAL BIDDER SHALL SUBMIT ALL THE FOLLOWING FORMS AS A PART OF ITS BID SUBMISSION, AND SHALL SUBMIT A COPY OF SUCH TO:

The City of New Bedford
Office of Equal Opportunity
133 William Street Room 208
New Bedford, MA 02740
ph: 979-1446 / fax: 508-991-6148

- (1) Certificate of Understanding: Certification of Compliance with Executive Order 11246"
- (2) Schedule of Participation for Minority, Woman & Disadvantaged Business Enterprises
- (3) Letter of Intent - for each MBE/WBE/DBE Participation
- (4) MBE/WBE Contractor Identification Statement - for each MBE/WBE/DBE
- (5) Bidder's Certification - must be completed and signed by the General Contractor and all Subcontractors who will work on the project (to include MBE/WBE/DBE **and** non-MBE/WBE/DBEs)
- (6) If applicable, a completed and signed MBE/WBE/DBE Unavailability Certification in the event that the work listed on the Schedule is not sufficient to fulfill the Requirement for MBE/WBE/DBE Participation. This certification must include a statement by the bidder of the reasons why it believes it is in compliance with this Provision, and a list of the names, addresses, telephone numbers and reason given for unavailability of the Minority /Woman/ Disadvantaged Contractor who was contacted by the Bidder with respect to the performance of work under the contract.

NOTE: FAILURE TO FULLY COMPLETE AND/OR TO SUBMIT ANY OF THE ABOVE-REFERENCED DOCUMENTS AT THE TIME OF THE BID SUBMISSION MAY RESULT IN THE BID BEING CONSIDERED NON RESPONSIVE

Commonwealth of Massachusetts

BIDDERS CERTIFICATE OF UNDERSTANDING

Equal Employment Opportunity Provisions

Contractor _____ Project _____

Address _____ Tel. # _____ Project # _____

_____ Fax # _____

I, the undersigned, understand that:

- A. Minority Business Enterprises are to be awarded at least 11% of the total contract amount for construction/public works projects.
- B. Woman Business Enterprises are to be awarded at least 5% of the total contract amount for construction/public works projects.
- C. Disadvantaged Business Enterprises are to be awarded at least 4% of the total contract amount for airport projects.
- D. All required MBE/WBE/DBE forms included in Instructions to Bidders are to be completed and submitted with the bid.
- E. Prior to award of the contract, a pre-construction conference must be held (to be attended by the general contractor and all subcontractors, regardless of tier) at which time the following requirements will be discussed:
 - 1. Weekly Workforce Utilization Reports (Form CAD85) are to be submitted weekly with payroll reports within five (5) days of last payroll;
 - 2. Quarterly Manpower Projection Tables (Form CAD85-1) are to be submitted with the Start of Construction notification;
 - 3. Any project in the amount of \$100,000+ is subject to the New Bedford Resident Hiring and the Responsible Employer Plan ordinances;
 - 4. A minimum goal of 18% minority manpower utilization, in terms of total work hours in the aggregate workforce, in each trade or craft, on each project, will be maintained. The goal for female manpower utilization will be maintained at 6.9% according to regulations;
 - 5. Minority and female work hours are to be uniform in each trade, and minorities and females are to be employed evenly on each project;
 - 6. Minority or female employees are not be transferred from project to project for the purpose of meeting goals;
 - 7. A roster of all minority and/or female applicants for employment must be maintained at each project site (Federal & Non-Federal) in the New Bedford Hometown Plan Area.
- E. The submission of the above reports and adherence to hiring practices and equal opportunity performance of subcontractors is the responsibility of the prime contractor.

The bidder hereby certifies that he/she shall comply with the minority manpower ratio and specific affirmative action steps contained in the EEO above, including compliance with the minority contractor compliance specifications. The Contractor receiving the award of the contract shall be required to obtain from each of its subcontractors, and submit to the contracting or administering agency prior to the performance of any work under said contract, a certification by said sub-contractor, regardless of tier, that it will comply with the minority manpower ratio and specific affirmative action steps contained in this appendix.

Authorized Signature

Date

Name (Please Print or Type)

Title

**SCHEDULE OF PARTICIPATION
DISADVANTAGED/MINORITY / WOMAN BUSINESS ENTERPRISES
*to be completed by the Bidder***

Item I - Minority Or Disadvantaged Business Enterprise Participation

1. Name: _____

Address: _____

Nature of Participation: _____

Dollar Value / % of Bid: _____

2. Name: _____

Address: _____

Nature of Participation: _____

Dollar Value / % of Bid: _____

TOTAL BID PRICE	TOTAL DBE or MBE COMMITMENT	
\$ _____	\$ _____	_____ %

Item II – Woman Or Disadvantaged Business Enterprise Participation

1. Name: _____

Address: _____

Nature of Participation: _____

Dollar Value / % of Bid: _____

2. Name: _____

Address: _____

Nature of Participation: _____

Dollar Value / % of Bid: _____

TOTAL BID PRICE	TOTAL WBE or DBE COMMITMENT	
\$ _____	\$ _____	_____ %

The bidder agrees to furnish implementation reports, as required by the awarding authority, to indicate the MBE/WBE or DBE which it has used or intends to use. Breach of this commitment constitutes a breach of the contract.

General Bidder: _____

Signature: _____ Date: _____

LETTER OF INTENT

to be completed by the DBE/MBE/WBE

This form is to be completed by the DBE or MBE and WBE and must be submitted by the General Bidder as part of the Bid Proposal. A separate form must be completed for each MBE, WBE or DBE involved in the project.

Project Title: _____ Project Location: _____

To: _____
(Name of Bidder)

From: _____ Indicate DBE/MBE/WBE Status
(Name of DBE/MBE/WBE)

I / we intend to perform work in connection with the above project as (Check One)

- an individual
- a partnership
- a corporation
- a joint venture with: _____
- other (explain): _____

It is understood that if you are awarded the contract, you intend to enter into an agreement to perform the activity described below for the prices indicated.

DBE/MBE/WBE PARTICIPATION:

Description of Activity	Project Start Date	\$ Amount	% of Bid Price
_____	_____	_____	_____

The undersigned certify that they will enter into a formal agreement upon execution of the contract for the above-referenced Project

BIDDER		DBE/MBE / WBE	
Authorized Signature	Date	Authorized Signature	Date
_____	_____	_____	_____
Address	_____	Address	_____
_____	_____	_____	_____
Telephone / Fax	_____	Telephone / Fax	_____
_____	_____	_____	_____

MINORITY / WOMAN BUSINESS ENTERPRISE PROGRAM

CONTRACTOR IDENTIFICATION STATEMENT

Project Name: _____ Project #: _____

Total Bid Price: \$ _____ Bid Date: _____

In accordance with the New Bedford Minority Business Enterprise Program, the undersigned bidder certifies that he/she:

1. is a bona fide Minority/Woman/Disadvantaged Business Enterprise currently certified by the State Office of Minority/Woman Business Assistance (SOMWBA); and such SOMWBA certification has not changed; and in the event of said status changing, it will immediately forward written notification to the City of New Bedford and SOMWBA; and
2. intends to perform certain work (specified by formal bid proposal) under a contract in connection with the above-named project, and that work will not be sublet to any company at any tier; and
3. will comply with the minority/woman workforce ratio and specific affirmative action steps contained in the EEO/AA Contract Provisions and shall obtain from each of its subcontractors a copy of the bidder's certification and submit to the administering agency, prior to the award of such subcontract, regardless of tier, that he/she will comply with the minority/woman workforce ratio and specific affirmative action steps contained in these and the EEO/AA Contract Provisions.

SOMWBA CERTIFICATION CATEGORY: _____

CONTRACTORS NAME: _____
{ } MBE { } WBE { } DBE

ADDRESS: _____

TELEPHONE #: _____ FAX #: _____

REPRESENTATIVE NAME & TITLE: _____

AUTHORIZED SIGNATURE: _____

GENERAL BIDDERS NAME: _____

BIDDERS CERTIFICATION

to be completed by General Contractor & each of its Subcontractors (MBE/WBE/DBE and non-MBE/WBE/DBE)

The undersigned bidder hereby certifies that he/she will comply with the Minority/Woman Workforce Ratio and Specific Affirmative Action Steps contained in the EEO/AA Provisions of this contract, including compliance with the Minority/Woman/Disadvantaged Business Enterprise as required under these contract provisions.

The contractor receiving the award of the contract shall be required to obtain, from each of its subcontractors, regardless of tier, a copy of this Bidder's Certification indicating that it will comply with the Minority/Woman Workforce Ratio and Specific Affirmative Action Steps contained in these EEO/AA Contract Provisions, and submit it to the contracting agency prior to the award of such contract and subcontract.

Name of General Contractor

Name of Subcontractor
{ } MBE { } WBE { } DBE { } Non-MBE/WBE

Signature of Authorized Representative

Signature of Authorized Representative

Name & Title (Printed or Typed)

Name & Title (Printed or Typed)

Date

Date

MINORITY / WOMAN BUSINESS ENTERPRISES
UNAVAILABILITY CERTIFICATIONS

to be completed by General Contractor

*(the Bidder shall prepare additional copies of this information form
in the quantity necessary to comply with the bidding requirements)*

I, _____, _____
Name Title

of _____
Contractor Name

certify that on _____, I contacted the below listed MBE/WBE/DBE
Date of Contact
requesting a bid for

Project _____ as an { } MBE, { } WBE or { } DBE for the provision of
{ } Goods & Services or { } Labor to accomplish _____
Subcontract Work Offered to this MBE/WBE/DBE Company

Name of Prospective Sub-Contractor

Address City and State Telephone #

Contact was made by { } Telephone { } In Person

Said sub-contractor was unavailable for work on this project or unable to prepare a bid for the following reason(s):
(check appropriate answer):

{ } MBE/WBE/DBE Firm Declined Job

{ } MBE/WBE/DBE Firm offered to do a job at the price of \$_____, which was not
acceptable because: _____

{ } Other _____

The above information is accurate and complete, to the best of my knowledge and belief. Signed under the pains and
penalties of perjury.

Signature of Authorized Representative, General Contractor Date

MINORITY / WOMAN/DISADVANTAGED BUSINESS ENTERPRISES

REQUEST FOR WAIVER

Upon exhausting all known sources and making every possible effort to meet the minimum requirements for MBE/WBE/DBE participation, the Contractor may seek relief from these requirements by filing this form (completed) NO LATER THAN FIVE (5) working days following the bid opening. Failure to comply with this process shall be cause the bidder to be rejected, thereby rendering the contractor not eligible for award of the contract.

General Information

Project Title: _____ Location: _____

Bid Opening (time/date): _____ Location: _____

Bidder: _____

Mailing Address: _____

Contact Person: _____

Telephone No.: (_____) _____ Ext. _____

Minimum Requirements

The contractor must show that good faith efforts were undertaken to comply with the percentage goals, as specified. The bidder seeking relief must show that such efforts were taken appropriately, in advance of the time set for opening bid proposals, to allow adequate time for response(s) by submitting the following: *(please check all that apply and attach applicable documentation)*

- A. A detailed record of the effort made to contact and negotiate with minority, woman or disadvantaged business enterprises, to include:
- () 1. Names, addresses and telephone numbers of all such companies contacted;
 - () 2. Copies of written notice(s) which were sent to MBE/WBE/DBE potential subcontractors prior to bid opening;
 - () 3. Copies of advertisements prior to bid opening, as appearing in general publications, trade-oriented publications, and applicable minority/women focused media detailing the opportunities for participation.
 - () 4. A detailed statement as to why each subcontractor contacted (a) was not willing to do the job or (b) was not qualified to perform the work as solicited; and
 - () 5. In the case(s) where a negotiated price could not be reached, the bidder should detail what efforts were made to reach an agreement on a competitive price
 - () 6. Contractor certifies that 100% of the project is to be carried out with his/her own workforce. no subcontractors are to be utilized.

- B. The Agency may require the contractor to produce such additional information, as it deems appropriate and may obtain whatever other information it deems necessary to reach a conclusion from any source.
- C. No later than fifteen (15) days after receipt of all necessary information and documentation, a decision will be made in writing to the bidder. If the waiver request is denied, the facts upon which a denial is based will be set forth. A contractor who is dissatisfied with the decision may then appeal that decision to the Equal Opportunity Employment Agency.

Certification

The undersigned herewith certified that the above information and appropriate attachments are true and accurate to the best of my ability, and that I have been authorized to act on behalf of the bidder in this matter.

(authorized original signature)

Date

Submit to: Equal Employment Opportunity
Compliance Officer
133 William Street, Room 208
New Bedford, MA 02740

To be completed by the City of New Bedford's EEO

Bid Date

Date Received by EEO

Initials

CERTIFICATION PERTAINING TO INELIGIBLE CONTRACTORS

Date: 20 _____

A. The _____
(Name and Address of Bidder)

Hereby certifies that it is not included on the Commonwealth of Massachusetts – EOE/DCPO – List of Debarred or Suspended Contractors, or the Concerns on Debarment List from the Massachusetts Attorney General’s Fair Labor and Business Practices Division.

Signature of Authorized Representative of Bidder

Title

B. The _____
(Name and Address of Bidder)

Hereby certifies that it is included on the Commonwealth of Massachusetts – EOE/DCPO – List of Debarred or Suspended Contractors, or the Concerns on Debarment List from the Massachusetts Attorney General’s Fair Labor and Business Practices Division.

Signature of Authorized Representative of Bidder

Title

NOTE: A bidder may not be eligible for award of a contract(s) under this notice to bidders unless such bidder has submitted as part of its bid the following certification pertaining to ineligible contractors which will be deemed a part of the resulting contract(s).

It is a condition of this Bid, and shall be made a condition of each sub-contract entered into pursuant to this Contract, that the Contractor and any subcontractor shall not require any laborer or mechanic employed in performance of the Contract to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his/her health or safety, as determined under construction safety and health regulation (Title 29, Code of Federal Regulations, Part 1518, published in the Federal Register on April 17, 1971.) promulgated by the United States Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act, (83 Stat. 96).

The undersigned hereby certifies that he/she is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work.

Full Name and address of the individual or concern submitting this Bid:

Date: 20 _____

Name of Bidder: _____

Signed: _____

Title: _____

Address: _____

Notice: Bidders must set forth, accurate and complete information as required by this solicitation. Failure to do so may render the offer non-responsive or unacceptable.

FEDERAL BID SUBMISSION CERTIFICATIONS

- 1. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS PRIMARY COVERED TRANSACTIONS**
- 2. EQUAL EMPLOYMENT OPPORTUNITY PROVISIONS**
- 3. MINORITY/WOMAN BUSINESS ENTERPRISE UNAVAILABILITY FORM**
- 4. SCHEDULE OF PARTICIPATION – MINORITY BUSINESS ENTERPRISES/WOMEN BUSINESS ENTERPRISE**
- 5. CERTIFICATION OF CONTRACTOR REGARDING SEGREGATED FACILITIES**
- 6. SECTION 3 AFFIRMATIVE ACTION PLAN**

**CERTIFICATION REGARDING DEBARMENT,
SUSPENSION, AND OTHER RESPONSIBILITY
MATTERS PRIMARY COVERED TRANSACTIONS**

- (1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
 - (b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contact under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery falsification or destruction of records, making false statements, or receiving stolen property;
 - (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1) (b) of this certification; and
 - (d) Within a three-year period preceding this application/proposal, has not had one or more public transactions (Federal, State or local) terminated for cause or default.
- (2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Contractor's Name (printed)

Contractor Name (signature)

Title

License Number

Company Name

Street Address

Mail Address

City, State, Zip Code

City, State, Zip Code

EQUAL EMPLOYMENT OPPORTUNITY PROVISIONS

I, the undersigned, understand that the following is applicable for contracts and sub-contracts that are funded in whole or in part with federal HUD funding:

I. Executive Order 11246: Equal Employment Opportunity

Executive Order 11246, as amended by Executive Order 12066 (41 CFR Chapter 60), and the regulations at 24 CFR Part 130, which provide that no person shall be discriminated against on the basis of race, color, religion, sex or national origin in all phases of employment during the performance of HUD assisted **construction contracts**. Participating contractors and subcontractors must take affirmative action to ensure fair treatment in employment, upgrading, demotion, transfer, recruitment and recruitment advertising; layoff and termination; rates of pay and compensation; and selection for training and apprenticeship. This provision shall apply to all construction contracts of \$10,000.00 or more entered into by the Office of Housing and Community Development or Sub Recipient and specific affirmative actions including:

- A. Posting in a conspicuous place the “Equal Employment Opportunity (EEO) Poster;
- B. stating in all solicitations or advertisements for employees that all qualified applicants will receive consideration for employment without regard to race, creed, color, sex, or national origin;
- C. sending to each labor union or representative of workers with which there is a collective bargaining agreement a copy of the EEO poster for posting; and
- D. placing the “Equal Opportunity Clause” in all subcontracts for any project **which exceeds \$10,000.**

II. Minority Business Enterprises (MBEs) and Women Business Enterprises (WBEs)

The City of New Bedford has established the following goals for MBE and WBE contracts:

- A. Minority Business Enterprises are to be awarded at least 11% of the total contract amount for construction/public works projects.
- B. Women Business Enterprises are to be awarded at least 5% of the total contract amount for construction/public works projects.

The City of New Bedford through the Office of Housing and Community Development encourages contractors to work with the Supplier Diversity Office (SDO), to provide opportunities for participation by minority and women owned businesses in federal HUD funded projects.

The address and telephone number of the Supplier Diversity Office (SDO), The McCormack Building, One Ashburton Place, Room 1017, Boston, MA 02108, Phone - (617) 502-8831

Website: <https://www.mass.gov/orgs/supplier-diversity-office-sdo>

The following are some suggested actions contractors or subcontractors may be able to increase the participation of MBEs and WBEs:

- a) contact the The address and telephone number of the Supplier Diversity Office (SDO), The McCormack Building, One Ashburton Place, Room 1017, Boston, MA 02108, Phone - (617) 502-8831
Website: <https://www.mass.gov/orgs/supplier-diversity-office-sdo>

- b) disseminate information on business opportunities for MBEs and WBEs through announcements in the local media and through local minority, women, business, professional trade groups;

The bidder hereby certifies that he/she shall comply with the Section 3 requirements and MBE/WBE affirmative action steps contained in the above, including submission of required reports with each payment request.

Authorized Signature

Date

Name (Please Print or Type)

Title

**MINORITY/WOMAN BUSINESS ENTERPRISES
UNAVAILABILITY FORM**

To be completed by General Contractor

The undersigned contractor describes below all due diligence requirements known and making every possible effort to meet the minimum requirements for Minority/Women Business Enterprises (MBE/WBE/DBE) participation and said Contractor is seeking relief from these requirements by filing this form. A minimum of 11% of the total construction contract must be awarded to MBEs and a minimum of 5% of the total construction contract must be awarded to WBEs.

The General Contractor shall prepare additional copies of this information form in the quantity necessary to comply with the bidding requirements.

I, _____, _____
Name Title

Of _____, Certify that on _____, I contacted the below listed
General Contractor Name Date

MBE/WBE(s) requesting a bid for Project _____ as an
Project Name

___ MBE or ___ WBE for the provision of ___ Goods & Services or ___ Labor to accomplish:

_____ Sub work offered to this MBE/WBE (plumbing, electrical, carpentry etc...)

_____ Name of Prospective Sub-Contractor Address, City and State

Contact was made by ___ Telephone ___ In Person

Said sub-contractor was unavailable for work on this project or unable to prepare a bid for the following reason(s): (check appropriate answer):

MBW/WBE/DBE Firm Declined Job

MBE/WBE/DBE Firm offered to do a job at the price of \$ _____, which was

not acceptable because: _____.

Other _____

The above information is accurate and complete, to the best of my knowledge and belief. Signed under the pains and penalties of perjury.

Signature of Authorized Representative, General Contractor

Date

CITY OF NEW BEDFORD
SCHEDULE OF PARTICIPATION
MINORITY BUSINESS ENTERPRISES/WOMEN BUSINESS ENTERPRISES

TO BE COMPLETED AND SUBMITTED WITH BID

	MBE or WBE	Race/ Ethnicity	Name of Firm	Trade	Total Contract Award
1					
2					
3					
4					
5					

MBE/WBE CERTIFICATION: The bidder hereby certifies that the above-named Minority Business Enterprise and/or Women’s Business Enterprise is currently certified by the State Office of Minority/Woman Business Assistance (SOMWBA)/ and such SOMWBA certification has not changed; and in the event of said status changing, it will immediately forward written notification to the City of New Bedford.

The bidder further agrees to furnish implementation reports, as required by the awarding authority, to indicate the MBE/WBE, which it has used or intends to use. Breach of this commitment constitutes a breach of the contract.

General Bidder Name:

Authorized Signature: _____ Date: _____

CERTIFICATION OF CONTRACTOR REGARDING
SEGREGATED FACILITIES
(For Prime Contracts Exceeding \$100,000)

Name of Prime Contractor: _____

Project Name and Number: _____

The undersigned hereby certifies that:

- (a) No segregated facilities will be maintained as required by Title VI of the Civil Rights Act of 1964.

Contractor's Name (printed)

Contractor Name (signature)

Title

License Number

Company Name

Street Address

Mail Address

City, State, Zip Code

City, State, Zip Code

SECTION 3 AFFIRMATIVE ACTION PLAN
(Prime Contractor)
[For Projects that exceed \$200,000]

_____, Contractor, agrees to implement the following specific affirmative action steps directed at increasing the utilization of Section 3 Residents' and Section 3 Business Concerns within the City of New Bedford.

- A.** To ascertain from the City the exact boundaries of the Section 3 Covered Project Area and where advantageous, seek the assistance of City of New Bedford in preparing and implementing the affirmative action plan.
- B.** To attempt to recruit from within the City of New Bedford the necessary individuals to fill employment opportunities generated by Section 3 covered assistance through: local advertising media, signs placed at the proposed site for the project, and community organizations and public or private institutions operating within or serving the project area and providing preference for these opportunities in the following order:
 - (i) Section 3 Residents residing in the service area or neighborhood in which the Section 3 covered project is located;
 - (ii) Participants in HLJD Youthbuild Programs, and
 - (iii) Other Section 3 Residents.
- C.** To maintain a list of all lower income area residents who have applied either on their own or on referral from any source, and to employ such persons, if otherwise eligible and a vacancy exists.
- D.** To insert this Section 3 Affirmative Action Plan in all bid documents for contracts over \$200,000, and to require all bidders on subcontracts over \$200,000 to submit a Section 3 Affirmative Action Plan, including utilization goals and the specific steps planned to accomplish these goals.
- E.** To ensure that subcontracts over \$200,000 which are typically let on a negotiated rather than bid basis in areas other than Section 3 covered project areas, are also let on a negotiated basis, whenever feasible, when let in a Section 3 covered project area.
- F.** To formally contact unions, subcontractors and trade associations to secure their cooperation for this program.
- G.** To notify Section 3 residents and Section 3 business concerns about economic opportunities generated by Section 3 covered assistance and to award Section 3 covered contracts, to the greatest extent feasible, to Section 3 business concerns in the following order of preference:
 - (i) Section 3 business concerns that provide economic opportunities for Section 3 residents in the service area or neighborhood in which the Section 3 covered project is located;
 - (ii) Applicants selected to carry out HUD Youthbuild projects;
 - (iii) Other Section 3 business concerns.
- H.** To notify potential contractors about Section 3 requirements of this part and incorporating the Section 3 clause in all solicitations and contracts.

- I.** To facilitate the training and employment of Section 3 residents and the award of contracts to Section 3 business concerns undertaking activities to reach the numerical goal established by HUD.
- J.** To cooperate in obtaining the compliance of contractors and subcontractors with the requirements of Section 3.
- K.** To submit reports to City and HUD on the results of actions taken to provide training, jobs and contracts to Section 3 residents and Section 3 business concerns.
- L.** To appoint an executive official of the company or agency as Equal Employment Opportunity Officer to coordinate the implementation of this Section 3 Affirmative Action Plan.
- M.** To document utilization of Section 3 Employees on the covered project by having existing employees, and new employees, (including those of all subcontractors) from the Section 3 Area, complete the Section 3 Income Worksheet as provided by the City.
- N.** To complete a Section 3 Utilization Report and submit said report to City of New Bedford, or their designee prior to final payment for the covered project; This report will list all Section 3 Employees documented on the Section 3 Income Worksheets and be in the format provided by City.
- O.** To maintain records, including copies of correspondence, income verification memoranda, etc., which document that all levels of the above affirmative action steps have been taken.

CONTRACTOR CERTIFICATION:

As officers and representative of: _____
 (Name of Contractor)

On behalf of the Company, I have read and fully agree to the Section 3 Affirmative Action Plan, and become a party to the full implementation of this program.

 Name and Title of the Authorized Representative (print or type)

 Signature of Authorized Representative

 Date

**CITY OF NEW BEDFORD
DEPARTMENT OF PUBLIC INFRASTRUCTURE
ON CALL PAVING AND ROADWAY MAINTENANCE ACTIVITIES**

AGREEMENT

THIS AGREEMENT made as of the _____ day of _____ in the year 2023 by and between The City of New Bedford, Massachusetts acting through its Department of Public Infrastructure hereinafter called OWNER and _____ with legal address and principal place of business at _____ hereinafter called CONTRACTOR. OWNER and CONTRACTOR in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1. WORK.

1.1 Contractor shall perform the Work as specified or indicated in the Contract Documents. Refer to Instructions to Bidders and Supplementary General Conditions for a description of the process for issuing work directives.

ARTICLE 2. ENGINEER.

2.1 The Project has been designed by City of New Bedford, Department of Public Infrastructure who will act as ENGINEER in connection with completion of the Work in accordance with the Contract Documents.

2.2 If the City of New Bedford Department of Public Infrastructure designates an authorized representative to act on Engineer's behalf for any portion of the work included in the Contract Documents, then the Department of Public Infrastructure will notify the Contractor.

ARTICLE 3. CONTRACT TIME.

3.1 The Contract Term will commence twenty days following the effective signing date of the agreement and extend through March 31, 2023, with the City retaining the SOLE option for two (2) additional one year renewals. All renewal options will be subject to appropriation. The first renewal year option will commence on April 1, 2024 and extend through March 31, 2025. The second renewal year option will commence on April 1, 2025 and extend through March 31, 2026.

3.2 Contractor agrees that the Work shall be prosecuted regularly, diligently and uninterruptedly and at such rate of progress as will insure full completion thereof within the Contract Time stated above. It is expressly understood and agreed, by and between Contractor and Owner that the Contract Time is reasonable for the completion of the Work, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

ARTICLE 4. CONTRACT PRICE.

4.1 Owner will pay Contractor for performance of the Work in accordance with the Contract Documents in current funds at the Contract Price agreed upon in the Contractor's Bid Form attached to this Agreement and incorporated herein. The total Contract Price for Year 1 is \$_____.

4.2 Should the Owner elect to renew the contract, the Contract Price for subsequent years shall be equal to Year 1 amount stipulated above. The Contract Price will be subject to Price Adjustments as specified in Section 00100.

ARTICLE 5. APPLICATIONS FOR PAYMENT

5.1 Contractor shall submit Applications for Payment in accordance with Article 14 of the Conditions of the Contract. Applications for Payment will be processed by Engineer as provided in the Conditions of the Contract attached hereto and incorporated herein.

ARTICLE 6. PROGRESS AND FINAL PAYMENTS

6.1 Owner will make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment as recommended by Engineer, monthly during construction as provided below. All progress payments will be on the basis of the progress of the Work measured by the schedule of values provided for in Paragraph 14.01 of the General Conditions of the Contract.

6.2 Owner will make progress and final payments as provided in Article 14 of the General Conditions of the Contract and in accordance with the applicable Massachusetts General Law.

6.3 Prior to Substantial Completion, Owner shall retain from progress payments five percent of the value of Work completed. Owner shall also retain five percent of the value of stored materials and equipment.

ARTICLE 7. LIQUIDATED DAMAGES

7.1 Owner and Contractor 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 Contract Time specified in Article 3 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions of the Contract. They also recognize the delays, expense and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof Owner and Contractor agree that as liquidated damages for delay (but not as a penalty) Contractor shall pay Owner \$1,500 per day for each calendar day of delay until the Work is complete.

7.1.1 Owner shall recover such liquidated damages by deducting the amount owed from the final payment or any retainage held by Owner.

7.2 Provided, that Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the Work is for reasons included in Paragraph 12.03 of the General Conditions of the Contract.

7.3 Provided, further, that Contractor shall furnish Owner the required notification of such delays in accordance with Paragraph 12.02 of the General Conditions of the Contract.

ARTICLE 8. ASSURANCE

8.1 Contractor has familiarized himself with the nature and extent of the Contract Documents, Work, locality, and with all local conditions and Federal, State and local laws, ordinances, rules and regulations that in any manner may affect cost, progress or performance of the Work.

8.2 Contractor has made or caused to be made examinations, investigations and tests and studies of such reports and related data as Contractor deems necessary for the performance of the Work at the Contract Price within the Contract Time and in accordance with the other terms and conditions of the Contract Documents; and no additional examinations, investigations, tests, reports or similar data are or will be required for such purposes.

8.3 Contractor has correlated the results of all such observations, examinations, investigations, tests, reports and data with the terms and conditions of the Contract Documents.

8.4 Contractor has given Engineer written notice of any conflict, error or discrepancy that Contractor has discovered in the Contract Documents and the written resolution thereof by Engineer is acceptable to Contractor.

8.5 Contractor agrees that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.

ARTICLE 9. CONTRACT DOCUMENTS.

9.1 The Contract Documents which comprise the Contract between Owner and Contractor are attached hereto and made a part hereof and consist of the following:

9.1.1 Invitation To Bid.

9.1.2 Instructions To Bidders.

9.1.3 Bid Form.

9.1.4 This Agreement.

9.1.5 Performance Bond, City Standard, Payment Bond, City Standard and other required Bonds.

9.1.6 General Conditions, EJCDC Document No. C-700, 2007 edition.

9.1.7 Supplementary Conditions Parts I and II.

9.1.8 Specifications (as listed in Table of Contents, the MSSHB, and City of New Bedford Construction Specifications).

9.1.9 Drawings

9.1.10 Addenda numbers _____ to _____, inclusive.

9.1.11 Any modification, including Change Orders, duly delivered after execution of Agreement.

9.1.12 Certificate of Insurance with the coverage described within the General Conditions.

ARTICLE 10. MISCELLANEOUS

10.1 Terms used in this Agreement which are defined in Article 1 of the Conditions of the Contract shall have the meanings assigned in the General Conditions of the Contract.

10.2 Neither Owner nor Contractor shall, without the prior written consent of the other, assign or sublet in whole or in part any interest under any of the Contract Documents; and, specifically but without limitation, Contractor shall not assign any monies due or to become due without the prior written consent of Owner. In case Contractor assigns all or any part of any monies due or to become due under this Contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any monies due or to become due to Contractor shall be subject to prior claims of all persons, firms and corporations for services rendered or materials supplied for the performance of the Work called for in this Contract.

10.3 Owner and Contractor each binds himself, his partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.

10.4 The Contract Documents constitute the entire agreement between Owner and Contractor and may only be altered, amended or repealed by a Modification duly executed in writing by both parties.

10.5 The Contractor agrees that it will fully comply with Subpart C of 2 CFR Part 180 and 2 CFR Part 1532, entitled Responsibilities of Participants Regarding Transactions (Doing Business with Other Persons). The Contractor shall not award any subcontracts or purchase any materials from suppliers that appear on the Excluded Parties List System. The Contractor shall include this requirement in each subcontract and require it to be included in all subcontracts regardless of tier. The Contractor shall maintain reasonable records to demonstrate compliance with these requirements.

10.6 This Project is subject to the Davis Bacon wage rate requirements. Attention is directed to Appendix G and Federal Contract Provisions, included in PART II of the Supplementary Conditions for specific terms and conditions.

10.7 Funding and fiscal year appropriation. Appropriations for expenditures by the City of New Bedford, an authorization to spend for a particular purpose are ordinarily made on a fiscal year basis. The fiscal year for the City of New Bedford begins on July 1 and ends on June 30 of the following year. The obligations of the City of New Bedford under any contract resulting from this contract for any subsequent fiscal year following the fiscal year in which the initial contract is awarded is subject to the appropriations to the City of New Bedford of funds sufficient to discharge its obligations, which accrue in such subsequent fiscal year, and to the authorization to spend such funds for the purposes of the contract shall be terminated immediately without liability for damages, penalties or other charges arising from early termination. Expenditures for contracted services, which will extend beyond a single fiscal year shall not exceed in any fiscal year the amount appropriated and authorized for said fiscal year.

ARTICLE 11. MASSACHUSETTS EQUAL OPPORTUNITY REQUIREMENTS

11.1 Disadvantaged Business Enterprise (DBE) goals of the City of New Bedford are applicable to the total dollars paid to the construction contract. **The City of New Bedford goals for this project are a minimum of 11.00 percent D/MBE participation and 5.00 percent D/WBE participation by certified DBEs.** The MassWorks Infrastructure Program MBE and WBE goal is 10.4 percent combined MBE/WBE by State certified MBE and WBE firms. The City of New Bedford goals shall govern since the combined total participation percentage is higher than the Commonwealth of Massachusetts

Goals. The City of New Bedford also has minimum goals for employment (workforce utilization) of 18.00% minority and 6.90% female participation. The employment percentages shall apply to the contractor and all subcontractors, regardless of tier, for all on-site work. Bidders shall submit all required completed City of New Bedford forms with their bid. Failure to comply with the requirements of this paragraph may be deemed to render a proposal non-responsive. No waiver of any provision of this section will be granted unless approved by the City of New Bedford, Massachusetts and the MassWorks Infrastructure Grant Program.

11.2 Equal Employment Opportunity/Affirmative Action (EEO/AA) Requirements

During the performance of this Contract, the CONTRACTOR agrees as follows:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.
2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.
3. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the Contractor's commitments under Section 202 of Executive Order No. 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
4. The Contractor will comply with all provisions of Executive Order No. 11246 of Sept. 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
5. The Contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders. Comp., p. 684, EO 12086 of Oct. 5, 1978, 43 FR 46501, 3 CFR, 1978 Comp., p. 230.
6. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this Contract or with any of such rules, regulations, or orders, this Contract may be cancelled, terminated, or suspended in whole or in part and the CONTRACTOR may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No. 11246 of Sept. 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

7. The Contractor will include the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or a vendor as a result of such direction, the Contractor may request the United States to enter into such litigation to protect the interests of the United States. Sec. 202 amended by EO 11375 of Oct. 13, 1967, 32 FR 14303, 3 CFR, 1966-1970.

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

IN WITNESS WHEREOF, the parties hereto have signed this Agreement. Electronic copies each have been delivered to Owner and to Contractor for signature via DocuSign. Engineer has received a copy as well. All portions of the Contract Documents have been signed or identified by Owner and Contractor or by Engineer on their behalf.

This Agreement shall become effective on _____, 2023.

<p>_____ Contractor</p> <p>_____ By: Title:</p>	<p>City of New Bedford, Massachusetts Owner</p> <p>_____ By: Jonathan F. Mitchell Title: Mayor</p>
<p>CERTIFIED that funds are available</p> <p>_____ By: Emily Arpke Title: Auditor</p>	<p>Department of Public Infrastructure</p> <p>_____ By: Jamie Ponte Title: Commissioner</p>
<p>APPROVED as to Form and Legality</p> <p>_____ By: Elizabeth McNamara Title: Associate City Solicitor</p>	<p>Chief Financial Office</p> <p>_____ By: Michael Gagne Title: Act Chief Financial Officer</p>
<p>Purchasing Department</p> <p>_____ By: Molly Gilfeather Title: Director of Purchasing</p>	

Note: If Contractor is a corporation, an affidavit giving the principal the right to sign the Agreement must accompany the executed Agreement.

Affix Corporate Seal for Owner and Contractor to this page.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: That we _____
(Name of Contractor)

a _____ hereinafter called "Principal" and
(Corporation, Partnership, Joint Venture or Individual)

_____ of _____, State of _____
(Surety) (City & State)

_____ hereinafter called the "Surety" and licensed by the State Division of Insurance to do business under the laws of the Commonwealth of Massachusetts, are held and firmly bound to the City of New Bedford, Massachusetts, hereinafter called "City", in the penal sum of _____ Dollars (\$ _____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered into a certain contract with the City, dated the _____ day of _____, 20__ (the "Construction Contract"), for the construction described as follows: _____.

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of the Construction Contract during the original term thereof, and any extensions thereof which may be granted by the City, with or without notice to the Surety, and if he shall satisfy all claims and demands incurred under the Construction Contract, and shall fully indemnify and save harmless the City from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the City all outlay and expense which the City may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the Surety's obligation under this Bond shall arise after (1) the City has declared the Principal in default of the Construction Contract or any provision thereof or (2) has declared that the Principal has failed, or is otherwise unable or unwilling, to execute the work consistent with, and in conformance to, the Construction Contract (collectively referred to as a "Contractor Default"). The determination of a Contractor Default shall be made solely by the City. The City need not terminate the Construction Contract to declare a Contractor Default or to invoke its rights under this Bond.

When the Surety's obligation under this Bond arises, the Surety, at its sole expense and at the consent and election of the City, shall promptly take one of the following steps: (1) arrange for the Principal to perform and complete the work of the Construction Contract; (2) arrange for a contractor other than the Principal to perform and complete the work of the Construction Contract; (3) reimburse the City, in a manner and at such time as the City shall decide, for all costs and expenses incurred by the City in performing and completing the work of the Construction Contract. Surety will keep City reasonably informed of the progress, status and results of any investigation of any claim of the City.

If the Surety does not proceed as provided in this Bond with due diligence and all deliberate speed, the Surety shall be deemed to be in default of this Bond, and the City shall be entitled to enforce any remedy available to the City.

After the Surety's obligation under this Bond arises, the Surety is obligated, to the limit of the amounts of this Bond, for (1) the correction of defective work and completion of the Construction Contract; (2) additional design, professional services, and legal costs, including attorneys' fees, resulting from the Contractor Default or from the default of the Surety under this Bond; (3) any additional work beyond the Construction Contract made necessary by the Contractor Default or default of the Surety under this Bond; (4) indemnification obligation of the Principal, if any, as provided in the Construction Contract; and (5) liquidated damages as provided in the Construction Contract, or if none are so specified, actual and foreseeable consequential damages resulting from the Contractor Default or default of the Surety under this Bond.

Any proceeding, legal or equitable, under this Bond shall be instituted in any court of competent jurisdiction in the Commonwealth of Massachusetts.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Construction Contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Construction Contract or to the work or to the specifications.

IN WITNESS WHEREOF, this instrument is executed in ____ () counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20__.

ATTEST:

(Principal Secretary) By _____

(Address-Zip Code)

Witness as to Principal (SEAL)

(Address-Zip Code)

ATTEST:

By _____
(Attorney-in-Fact)

(Address-Zip Code)

Witness as to Surety (SEAL)

(Address-Zip Code)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute Bond.

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: That we _____

_____ a _____
(Name of Contractor) (Corporation, Partnership, Joint Venture or Individual)

hereinafter called "Principal" and _____ of _____,
(Surety)

State of _____ hereinafter called the "Surety" and licensed by the State
(City and State)

Division of Insurance to do business under the laws of the Commonwealth of Massachusetts, are held and firmly bound to the City of New Bedford, Massachusetts, hereinafter called "City", in the penal sum of _____ Dollars

(\$ _____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered into a certain contract with the City, dated the _____ day of _____, 20 __, for the construction described as follows: _____.

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the work provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such work, and all insurance premiums on said work, and for all labor, performed in such work whether by subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of this contract or to the work or to the specifications.

PROVIDED, FURTHER, that no final settlement between the City and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in ____ () counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20__.

ATTEST:

		Surety
_____	By	_____
		(Attorney-in-Fact)

		(Address-Zip Code)
_____	(SEAL)	
Witness as to Surety		

(Address-Zip Code)		

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute Bond.

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

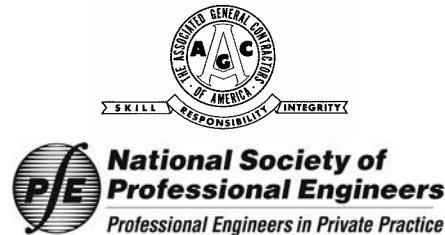
**STANDARD GENERAL CONDITIONS
OF THE CONSTRUCTION CONTRACT**

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by



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A Practice Division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

Endorsed by



CONSTRUCTION SPECIFICATIONS INSTITUTE

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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STANDARD GENERAL CONDITIONS OF THE
CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
 5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 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 submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
 13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
 14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
 15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
 16. *Cost of the Work*—See Paragraph 11.01 for definition.
 17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be

- performed by Contractor. 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.
 22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
 23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
 24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
 25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
 26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.
 27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
 28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
 29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
 30. *PCBs*—Polychlorinated biphenyls.
 31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
 32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
 33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
 34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
 35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
 36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
 37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work

- and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
 39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.
 40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
 41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
 42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
 43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
 44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.
 45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
 46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
 47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
 48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
 49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
 50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
 51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its

effect, if any, on the Contract Price or Contract Times.

test, or approval referred to in the Contract Documents; or

1.02 *Terminology*

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

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).

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

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.

C. *Day:*

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

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,

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; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
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 reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

- A. Standards, Specifications, Codes, Laws, and Regulations
 1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or

employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

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

extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.

- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files 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.

3.04 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
 1. A Field Order;
 2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or
 3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

- A. Contractor and any Subcontractor or Supplier shall not:
 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or
 2. reuse any such Drawings, Specifications, other documents, or copies thereof on

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

4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to

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

- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of

the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

- A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:
1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
 2. is of such a nature as to require a change in the Contract Documents; or
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

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

- B. *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, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or

arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all such information and data;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents;
 - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
 - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

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

- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action,

if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by

Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 *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 list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by

an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.

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

5.02 *Licensed Sureties and Insurers*

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

5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such 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, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
6. include completed operations coverage:
 - a. Such insurance shall remain in effect for two years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a

certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

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, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
 2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
 3. include expenses incurred in the repair or replacement of any insured property

(including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 5. allow for partial utilization of the Work by Owner;
 6. include testing and startup; and
 7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.
- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible

amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

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

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

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

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's

exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party 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.

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

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

- 1) there will be no increase in cost to the Owner or increase in Contract Times; and
- 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

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

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

- a) perform adequately the functions and achieve the results called for by the general design,
- b) be similar in substance to that specified, and
- c) be suited to the same use as that specified;

2) will state:

- a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor’s achievement of Substantial Completion on time,
- b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

- c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
- 3) will identify:
 - a) all variations of the proposed substitute item from that specified, and
 - b) available engineering, sales, maintenance, repair, and replacement services; and
- 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.

B. *Substitute Construction Methods or Procedures:*

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

C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

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

E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

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

6.06 *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 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 a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and

all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

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

and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

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 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, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

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

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.

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.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or

6.13 *Safety and Protection*

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

1. all persons on the Site or who may be affected by the Work;
2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

entity directly or indirectly employed by any of them).

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

6.14 *Safety Representative*

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

6.15 *Hazard Communication Programs*

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

6.16 *Emergencies*

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

6.17 *Shop Drawings and Samples*

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

1. *Shop Drawings:*

- a. Submit number of copies specified in the General Requirements.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:*

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

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

C. *Submittal Procedures:*

- 1. Before submitting each Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials offered with respect to the

indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

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

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

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

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

approval of the assembly in which the item functions.

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

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 officers, directors, members, partners, employees, agents, consultants, and subcontractors 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, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the

Work or anyone for whose acts any of them may be liable .

- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 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, members, partners, employees, agents, consultants and subcontractors arising out of:
1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

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 through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
 1. written notice thereof will be given to Contractor prior to starting any such other work; and
 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

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

7.02 *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.

Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

7.03 *Legal Relationships*

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

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

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

8.06 *Insurance*

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

8.07 *Change Orders*

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

8.08 *Inspections, Tests, and Approvals*

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

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.09 *Limitations on 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.

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.

8.02 *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.

8.10 *Undisclosed Hazardous Environmental Condition*

8.03 *Furnish Data*

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

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

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.

8.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to

8.12 *Compliance with Safety Program*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER’S STATUS DURING CONSTRUCTION

9.01 *Owner’s Representative*

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

9.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor’s executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer’s efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer’s visits and observations are subject to all the limitations on Engineer’s authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer’s visits or observations of Contractor’s Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor’s means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

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 believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show

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

9.09 *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.

9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

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

10.04 *Notification to Surety*

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

10.05 *Claims*

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

- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 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 Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
1. deny the Claim in whole or in part;
 2. approve the Claim; or
 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 Cost of the Work

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and

paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from

subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the 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, as imposed by Laws and Regulations.

- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

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

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, 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.

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 to any other item of Work; and
 - 3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.
- 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 Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 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

**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

- 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 their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

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

13.01 *Notice of Defects*

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

13.02 *Access to Work*

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

13.03 *Tests and Inspections*

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
 - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
 - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
 - 3. as otherwise specifically provided in the Contract Documents.
- 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, Contractor shall, if requested by Engineer, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and

Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop

the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).
- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. repair such defective land or areas; or
 - 2. correct such defective Work; or
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution 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 for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to

Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, 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 of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and

- c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
 4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
 5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the

representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

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

enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

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.

- 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*

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

- 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 remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and

substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
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.6;
 - 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 might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

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

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due:*

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

14.08 *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 repeated 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 the intent to submit the Claim to a court of competent jurisdiction.

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.

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.

17.06 *Headings*

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

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

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SUPPLEMENTARY CONDITIONS

PART I - AMENDMENTS TO STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC Document No. C-700, 2007 edition) (hereinafter referred to as “General Conditions”) 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.

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

SC-1.01A.44.

Insert the following at the beginning of the definition before the words “The time at.....”

The Work required by the Contract has been completed except for work having a Contract Price of less than one per cent of the then adjusted total contract price, or

ARTICLE 2 - PRELIMINARY MATTERS

SC-2.01B.

Delete paragraph 2.01B. of the General Conditions in its entirety and replace with the following:

B. Before any Work at the site is started, Contractor shall deliver to Owner, with copies to Engineer and each additional insured identified in Article 5 of the General Conditions and of the Supplementary Conditions, certificates of insurance (and other evidence requested by Owner) which Contractor and their subcontractors’ are required to purchase and maintain in accordance with the requirements of Article 5.

No work shall be performed under this Contract until and unless the Contractor and Subcontractor(s) have obtained all the insurance required and the Owner has approved such insurance. The insurance require for the Contractor shall the same for all Subcontractors’.

SC-2.02A

Delete “ten” in the first line and replace with “three”.

SC-2.03A.

Delete paragraph 2.03A of the General Conditions in its entirety and replace with the following:

A. The Contract Time will commence to run on the twentieth day following the Effective Date of the Agreement.

SC-2.05.A

Insert the following new paragraphs immediately following Paragraph 2.05.A of the General Conditions which is to read as follows:

B. Before starting construction, the Contractor shall submit to Owner and Engineer such schedules of quantities and costs, progress schedules, payrolls, reports, estimates, records, and other data the Owner may request concerning the work performed or to be performed under this Contract.

C. Work assignments or work directives will be given to the Contractor.

1. Neither Owner nor Contractor shall, without the prior written consent of the other, assign or sublet in whole or in part any interest under any of the Contract Documents; and, specifically but without limitation. Contractor shall not assign any monies due or to become due without the prior written consent of Owner. In case Contractor assigns all or any part of any monies due or to become due under this Contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any monies due or to become due to Contractor shall be subject to prior claims or all persons, firms and corporations for services rendered or materials supplies for the performance of the Work called for in this Contract.
2. Each work assignment or work directive will be issued to the Contractor in writing. Prior to the starting of a work assignment or work directive, the Owner may issue to the Contractor a set of preliminary design drawings which will be marked on the cover sheet of the set of design drawings as – “Preliminary Design Drawings – Cost Estimating Purposes Only”. This set may be used by the Contractor to develop an initial estimate to complete the work. The estimate will be provided to the Owner for review and approval prior to starting work. The “Preliminary Design Drawings” will be issued in both hard copy and electronic copy.
3. Once the estimate and design are approved by the Owner and Contractor jointly in writing (the Owner reserves the right to submit additional design changes to the Contractor for review following submittal of Preliminary Design Drawing – Cost Estimating Purposes Only set), three final sets of design drawings will be issued by the Owner to Contractor marked as “100 Percent Design Submittal” once design is complete. The Contractor shall coordinate with the Owner to start work. The three final sets will be issued in paper form. An electronic set of drawings will also be issued to the Contractor.
4. It is the Contractor’s responsibility to ensure that he/she and any subcontractors employed by the Contractor has the most up to date set of design drawings. The Owner is not responsible for any errors caused during construction or errors in ordering materials as a result of the Contractor utilizing an incorrect set of design drawings. Any errors in materials and/or construction resulting from the use of an incorrect set of drawings shall be repaired and/or replaced by the Contractor at no additional cost to the Owner.
5. The Owner may, from time to time, issue work assignments or work directives to the Contractor without a set of drawings. In this instance, the Engineer and Contractor shall hold a field meeting to review the scope of work and limits of the project. The limits will be marked jointly by the Contractor and Engineer. Contractor shall prepare an estimate for the work which will be reviewed and approved by Engineer prior to the start of work.
6. The Owner will make every attempt to maximize the quantity of repairs under a given assignment. There may be instances when the Owner requires the Contractor to complete repairs in smaller quantities than what would normally be expected.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

SC-3.01C.

Add the following new paragraph immediately after Paragraph 3.01C. of the General Conditions which is to read as follows:

D. 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.

SC-3.03.B

Insert the following new paragraphs immediately following Paragraph 3.03.B of the General Conditions which are to read as follows:

C. Except as may be otherwise specifically stated in the Contract Documents, in the event of conflicts, inconsistencies or discrepancies among or within any of the Contract Documents as to the quality or quantity of work to be performed or to the level of performance required to perform the work, the better quality and/or greater quantity of work, and/or the highest performance requirement shall apply without change in the Contract Price.

1. In the event of such conflicts, inconsistencies or discrepancies which do not relate to the quality or quantity of work, or the level of performance required to perform the work, the Contractor shall request instructions or interpretations from the Engineer who shall issue clarifications and interpretations of the Contract Documents as provided in Article 9 of the General Conditions of the Contract. In resolving conflicts, errors or discrepancies, the Contract Documents shall be given precedence as may be reasonably inferred as being consistent with their overall intent and required to produce the intended result. Subject to such determination by the Engineer, the Contract Documents shall be given precedence in the following order: Change Orders, Owner-Contractor Agreement, Notice to Proceed, Addenda, General Conditions as modified by Supplementary Conditions, Division 1, Technical Specifications (MassDOT MSSHB latest edition including all addenda, City's Standards latest edition, Division 2 through 16 of the Specifications – in the event of a conflict, the more stringent shall apply), Contract Drawings, Advertisement for Bids, Instruction to Bidders, the Form for General Bid signed by the Contractor, Bonds, Insurance Certificates.
2. If the issue of priority involves the Technical Specifications (MassDOT MSSHB latest edition including all addenda, City's Standards latest edition, Division 2 through 16 of the Specifications – in the event of a conflict, the more stringent shall apply) and the Drawings, in all cases, figured dimensions shall govern over scaled dimensions, but work not dimensioned shall be as directed by the Engineer, and work not particularly shown, identified, sized, or located shall be the same as similar parts that are shown or specified. Detail Drawings shall govern over general Drawings, larger scale Drawings take precedence over smaller scale Drawings, Change Order Drawings govern over Contract Drawings, and Contract Drawings govern over Shop Drawings.

D. The Contractor shall not take advantage of any apparent error or omission in the plans, specification or other contract documents, and if any inconsistency, omission or conflict is discovered in the plans, specifications, or other contract documents, or if in any place the meaning of the plans, specifications or other contract documents, is obscure, uncertain or in dispute, the Contractor shall notify the Engineer

immediately shall issue clarifications and interpretations as provided in Article 9 of the General Conditions of the Contract.

E. 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.

SC-3.04.B

Insert the following new paragraphs immediately following Paragraph 3.04.B of the General Conditions which are to read as follows:

C. The Contractor may be furnished with additional information and detailed drawings for specific projects if the Owner deems it necessary. The additional drawings and instructions thus supplied to the Contractor will coordinate with the Contract Documents. The Contractor shall carry out the work in accordance with the additional detail and instructions. The Contractor and the Owner will prepare jointly:

- a. A schedule, fixing the dates at which special detail drawings will be required; such drawings, if any to be furnished by the Owner in accordance with said schedule;
- b. A schedule fixing the respective dates for the submission of shop drawings, the beginning of manufacture testing and installation of materials, supplies and equipment, and the completion of the various parts of the work; and
- c. Each schedule to be subject to change from time to time in accordance with the progress of the work.

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

SC-4.01A.

Add the following new paragraph immediately after paragraph 4.01A. of the General Conditions which is to read as follows:

1. If all lands and rights-of-way are not obtained as herein contemplated before construction begins, Contractor shall begin the Work upon such land and rights-of-way as Owner has previously acquired.

SC-4.01C.

Delete Paragraph 4.01.C in its entirety and insert the following new paragraphs in its place:

C. The City of New Bedford will supply the Contractor with approximately 57,000 square feet of area at the Liberty Street Yard for exclusive use of the Contractor. The Contractor will be responsible for his/her security of materials stored. The Owner is not responsible nor liable for any damages to Contractors stored materials or equipment. Should the Contractor require additional space above and beyond what is available, the Contractor will be responsible for the additional lands and access thereto and all costs associated therewith that may be required for temporary construction facilities or storage of materials and/or equipment.

At the completion of the project, and prior to final payment, Contractor shall remove all of his/her equipment and stored materials and return the site to original condition or better.

SC-4.02A.2

Add the following new paragraph immediately after paragraph 4.02A.2. of the General Conditions which is to read as follows:

a. In the preparation of the Drawings and Specifications, the Engineer has relied upon the following reports and data. Copies are available upon request by making an appointment at the Engineer's office during regular business hours. Such reports and data are not part of the Contract Documents:

- i. StreetScan Sidewalk Condition Data
- ii. City of New Bedford Department of Public Infrastructure Five Year Pavement Maintenance Plan

SC-4.03C.3.

Add the following new paragraph immediately after paragraph 4.03C.3. of the General Conditions which is to read as follows:

D. Adjustments 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.

SC-4.05A.

Add the following new paragraph immediately after paragraph 4.05A of the General Conditions which is to read as follows:

B. Engineer may check the lines, elevations, reference marks, batter boards, etc., set by Contractor, and Contractor shall correct any errors disclosed by such check. Such a check shall not be considered as approval of Contractor's work and shall not relieve Contractor of the responsibility for accurate construction of the entire Work. Contractor shall furnish personnel to assist Engineer in checking lines and grades.

ARTICLE 5 – BONDS AND INSURANCE

SC-5.01A.

Delete the third sentence in paragraph 5.01A of the General Conditions and replace with the following.

Contractor shall also furnish Efficiency Guarantee Bonds in accordance with Article entitled MANUFACTURER'S EXPERIENCE in the Instructions to Bidders and executed on forms approved by the Owner.

SC-5.02.A.

Insert the following new paragraph immediately following Paragraph 5.02.A of the General Conditions which is to read as follows:

B. If at any time the Owner for justifiable cause, shall be or become dissatisfied with the Surety or Sureties for the Performance and/or Payment Bonds, the Contractor shall within five (5) calendar days after notice from the Owner to do so, substitute an acceptable Bond (or Bonds) in such form and sum and signed by such other Surety or Sureties as may be satisfactory to the Owner. The Contractor shall pay for the premiums on such Bond(s). No further payment shall be deemed due nor shall be made by Owner until the new Surety or Sureties shall have furnished such an acceptable Bond to the Owner.

SC-5.03E

Add the following new paragraphs immediately after paragraph 5.03E of the General Conditions which are to read as follows:

F. All insurance Certificates must contain a clause indicating that the certificate holders be given a minimum of 30 days written notice prior to the cancellation of Contractor's insurance, except for non payment. Contractor shall provide evidence of its insurance coverage on the ACORD certificate of insurance form and shall include the following statements in their entirety in the section of the form entitled "Description of Operations/Locations/Vehicles/Special Items".

"The City of New Bedford, Massachusetts and their officers, directors, partners, employees and other consultants and subcontractors are named as additional insureds with respect to the insured's Commercial General Liability and Automobile Liability Insurance Policies. All insurers waive all rights of subrogation against the City of New Bedford, Massachusetts and their officers, directors, partners, employees and other consultants and subcontractors. All insurance is primary for all claims covered thereby. Commercial General Liability Insurance includes contractual liability coverage.

The insurance coverage by this Certificate will not be cancelled or materially changed, except after thirty calendar days written notice has been received by the Owner except for non payment.

Contractor must furnish the certificates referenced to as an express condition precedent to the Contractor's duty to make any progress payments to Contractor pursuant to the Contract."

G. Prior to commencement of this Contract, the Contractor shall obtain at its own cost and expense the required insurance from insurance companies listed in their state, carrying a Best's Financial Rating of "A-" or better, and shall provide evidence of such insurance to the Owner. The policies or certificates thereof shall provide that thirty (30) days prior to cancellation or material change in the policy, notices of same shall be given to the Owner by registered mail, return receipt requested, for all of the following stated insurance policies. All notices shall name the Contractor and identify the Contract.

H. If at any time any of the policies required herein shall be or become unsatisfactory to the Owner as to form or substance, or if any company issuing any such policy shall become unsatisfactory to the Owner, the Contractor shall upon notice to that effect from the Owner, promptly obtain a new policy, submit the same to the Owner for approval, and submit a certificate thereof. Upon failure of the Contractor to furnish, deliver and maintain such insurance, the Contract, at the sole election of the Owner, may be declared suspended, discontinued or terminated. Failure of the Contractor to provide and maintain any of the required insurance shall not relieve the Contractor from any liability under the Contract, nor shall the insurance requirements be construed to conflict with or otherwise limit the contractual obligations on the Contractor concerning indemnification. Prior to Contract award, the Owner may waive the requirement of the coverage type or amount if not reasonably available and if the Owner deems it to be in the Owner's best interest to do so.

I. To the fullest extent permitted by laws, the Contractor hereby acknowledges and agrees that it shall indemnify, hold harmless, and defend the Owner, and any of the officers, directors, employees, agents, affiliates, subsidiaries, and partners of the Owner from and against all claims, damages, losses, and expenses, including but not limited to attorney’s fees, arising out of or resulting from the performance of the Contractor’s work under this Contract, provided that any such clam, damage, loss or expense (1) is attributable to bodily injury, sickness, disease, or death or injury to or destruction of tangible property (other than the Work itself) including loss of use resulting therefrom, and (2) is caused in whole or in part by any acts or omissions of the Contractor, its employees, agents or subcontractors, or anyone directly or indirectly employed by any of them or anyone whose acts any of them may be liable.

J. Contractor hereby acknowledges its obligations in the forgoing to indemnify the Owner against judgments suffered because of the Contractor’s work and to assume the cost of defending the Owner against claims as described in the foregoing paragraph.

K. The Contractor must furnish the Owner with a signed contract agreement and certificate of insurance in compliance with this Contract before the Contract is signed.

SC-5.04A.

Add the following new paragraphs immediately after paragraph 5.04A of the General Conditions which are to read as follows:

Contractor shall maintain Worker’s Compensation, General Liability, Automobile Liability, Umbrella, Pollution Liability and other insurance described herein for the minimum amounts required by this Contract. Insurance coverages and certificates shall be provided and include Owner as an additional insured (at a minimum), on a primary and non-contributory basis, on all liability policies. All such insurance as is required of the Contractor shall be provided by Contractor by or on behalf of all subcontractors to cover subcontractor operations performed. Contractor shall be held responsible for any modifications, deviations, or omissions in the compliance with these requirements by the Subcontractors. The limits of liability for the insurance required by this Paragraph of the General Conditions shall provide coverage for not less than the following amounts or greater where required by law:

For 5.04.A.1 and 5.04.A.2 Workers' Compensation (Coverage “B” on the Workers Compensation Policy)

- | | |
|---|---|
| (1) Worker's Compensation | \$100,000 minimum, in accordance with M.G.L. c.149, Sect. 34A. |
| (2) Employer's Liability | \$500,000 Each Occurrence
\$500,000 Disease per employee
\$500,000 Annual Aggregate |
| (3) Liability Insurance with General Liability Coverage | \$1,000,000 |
| (4) General Aggregate Liability Coverage | \$2,000,000 |
| (5) Certificate of Errors and Omissions Insurance | \$1,000,000 Each Claim |
| (6) Alternate Employer Endorsement is required. | |

For 5.04A.3., 5.04A.4., and 5.04A.5. Commercial General Liability including Premise/Operations; Explosion, Collapse and Underground Property Damage; Products/Completed Operations, Broad Form Contractual, Independent Contractors; Broad Form Property Damage; and Personal Injury liabilities:

(1) Bodily Injury:	\$1,000,000	Each Occurrence
	\$2,000,000	Annual Aggregate
(2) Property Damage:	\$1,000,000	Each Occurrence
	\$2,000,000	Annual Aggregate
(3) Personal Injury:	\$2,000,000	Annual Aggregate
(4) Pollution Liability Insurance	\$1,000,000	Each Occurrence
	\$2,000,000	Annual Aggregate
(5) Products/Completed Operation	\$2,000,000	Annual Aggregate

And for 5.04A.6. Comprehensive Automobile Liability including all owned (private and others), hired and non-owned vehicles:

(1) Bodily Injury	\$1,000,000	Each Person
	\$1,000,000	Each Accident
(2) Property Damage	\$1,000,000	Each Occurrence
(3) MCS90	\$5,000,000	Each Occurrence
(4) Hired/Non Owned Auto	\$1,000,000	Each Occurrence

SC 5.04B.1.

Delete paragraph 5.04B.1. of the General Conditions in its entirety and replace with the following:

1. The insurance required by paragraph 5.04A.3 through 5.04A.6 inclusive will provide primary coverage for all claims covered thereby. With respect to insurance required by Paragraph 5.04.A.6 include as additional insured Owner, 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. The Owner may add additional insured from time to time as additional firms are involved in the development of and completion of contract work.

5.04B.1.a. Include the following additional firms including their officers, directors, partners, employees and other consultants and subcontractors as an additional insured on the insurance required by Paragraph 5.04A.6:

CDM Smith Inc,
The Engineering Corp.
Bell Traffic
Ocean State Signal
Indus, Inc.
K5 Corporation, Inc.

SC-5.04B.6.

Add the following new paragraphs immediately after paragraph 5.04.B.6.b. of the General Conditions which is to read as follows:

7. Contractor may purchase and maintain excess liability insurance in the umbrella form in order to satisfy the minimum amounts required for the insurance to be purchased and maintained in accordance with paragraph 5.04. Evidence of such excess liability insurance shall be delivered to Owner in accordance with paragraph 2.01B. in the form of a certificate indicating the policy numbers and minimum coverage amounts of all underlying insurance. The umbrella liability insurance shall have a combined single limit of not less than \$5,000,000.
8. All policies required by this paragraph 5.04 shall contain provisions to the effect that the insurer(s) waive all right of subrogation against the Owner, Engineer and their officers, directors, partners, employees and other consultants and subcontractors of each and any of them.
9. Contractor is required to provide Contractor's Professional Liability Insurance under this Contract:
 - a. Each Claim - \$1,000,000
 - b. Annual Aggregate - \$2,000,000

SC-5.05A.

Delete paragraph 5.05A. of the General Conditions in its entirety and replace with the following:

A. 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:

5.05A.1. Bodily Injury	\$1,000,000	Each Occurrence
5.05A.2. Property Damage	\$1,000,000	Each Occurrence
	\$1,000,000	Annual Aggregate

SC-5.05A

Add the following new paragraph immediately after paragraph 5.05.A.2 of the General Conditions which is to read as follows:

B. All policies required by this paragraph 5.05 shall contain provisions to the effect that the insurer(s) waive all rights of subrogation against the Owner, Engineer and their officers, directors, partners, employees and other consultants and subcontractors of each and any of them.

SC-5.06A.

Delete paragraphs 5.06A. and A1 thru A7 of the General Conditions in their entirety.

SC-5.06B.

Delete paragraph 5.06B. of the General Conditions in its entirety.

SC-5.06C.

Delete Paragraph 5.06C. of the General Conditions in its entirety.

SC-5.06D.

Delete paragraph 5.06D. of the General Conditions in its entirety.

SC-5.06E.

Delete paragraph 5.06E. of the General Conditions in its entirety.

SC-5.07A.

Delete paragraph 5.07A. of the General Conditions in its entirety and replace with the following.

A. All insurance policies provided by the Contractor shall contain provisions to the effect that the insurer waives all rights of subrogation against any of the insured, loss payee, (and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them) Owner and the Engineer.

SC-5.07B.

Delete paragraph 5.07B. of the General Conditions in its entirety.

SC-5.07C.

Delete paragraph 5.07C. of the General Conditions in its entirety.

SC-5.08A.

Delete paragraph 5.08A. of the General Conditions in its entirety.

SC-5.08B.

Delete paragraph 5.08B. of the General Conditions in its entirety.

SC-5.09A.

Delete paragraph 5.09A. of the General Conditions in its entirety and replace with the following:

A. If Owner has any objection to the coverage afforded by or other provisions of the insurance required to be purchased and maintained by Contractor in accordance with this Article 5 on the basis of its not complying with the Contract Documents, Owner will notify Contractor in writing thereof within ten days of the date of delivery of such certificates to Owner in accordance with paragraph 2.01. Contractor will provide such additional information in respect of insurance provided by Contractor as Owner may reasonably request.

SC-5.10A

Delete “pursuant to Paragraph 5.06” from the first sentence of Paragraph 5.10A.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

SC-6.02

Add the following new paragraphs immediately after paragraph 6.02B. of the General Conditions which are to read as follows:

C. Regular work hours are defined as 8 hours per day. Monday through Friday, excluding state and federal holidays, between the hours of 7:00 AM and 5:00 PM. Requests to work other than regular working hours shall be submitted to the Engineer for review and potential approval by Owner not less than 72 hours prior to any proposed weekend work or scheduled extended work weeks. Occasional unscheduled overtime on weekdays may be permitted provided two hours notice is given to the Engineer.

1. Contractor may be required to work during non-regular working hours (5:00 PM to 7:00 AM). Contractor shall be required to notify the Engineer in writing 72 hours in advance. If the Contractor wishes to work during non-regular work hours, Contractor will only be allowed to work 8 hours during that time frame, or proportion his/her time during regular work hours such that the total time worked on a day does not exceed 8 hours. Should the Contractor wish to exceed 8 hours per day, Contractor will be required to reimburse the Owner for additional overtime as specified in SC-6.02.D.
2. Contractor will be allowed to transport material during non-regular working hours in accordance with all local, state and federal requirements. Contractor shall notify the Engineer 72 hours in advance of such request to transport material during non-regular working hours. Contractor shall not exceed 8 hours per day of work. Compensate Owner for additional overtime costs above and beyond 8-hours as specified in SC 6.02.D below.

D. Contractor shall reimburse the Owner for additional overtime and/or inspection costs incurred as a result of overtime work in excess of the regular working hours stipulated in Article SC 6.02.C. At Owner’s option, overtime costs may either be deducted from the Contractor’s monthly payment requests or deducted from the Contractor’s retention prior to release of the final payment. Overtime costs for the Owner’s personnel shall be based on the individual’s current overtime wage rate. Should the Owner employ a private firm to oversee the work, overtime costs for Owner’s independent testing laboratory or engineer shall be calculated based on the terms of their respective contracts with the Owner. Over time costs for personnel employed by the Owner’s Engineer if an outside firm is used shall be \$120.00 per hour per site worked by the Contractor.

E. A minimum of one (1) excavation crew for cement concrete sidewalks and one (1) excavation crew for bituminous and concrete sidewalk/street patches is to be dedicated full time to DPI at the start of the construction season (March 15) until the DPI Commissioner deems that they are not needed. Crew(s) shall be available within 48-hours of notice from the Owner to complete a required Assignment.

F. This Agreement is subject to the applicable provisions of the Contract Work Hours and Safety Standards Act, Public Law 87-581, as amended. No Contractor or Subcontractor contracting for any part of the Work shall require or permit any laborer or mechanic to be employed on the Work in excess of forty hours in any work week unless such laborer or mechanic receives compensation at a rate not less than one and one-half times that person's basic rate of pay for all hours worked in excess of forty hours in such work week.

G. Contractor shall employ only competent persons to do the work and 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.

H. Contractor and Subcontractors shall, insofar as practicable, give preference in the hiring of workers for the Project to qualified local residents with first preference being given to citizens of the United States who have served in the armed forces of the United States and have been honorably discharged therefrom or released from active duty therein.

I. Contractor and all Subcontractors shall pay to all laborers and mechanics employed for the construction covered by this Contract the minimum rates of pay as determined by the Secretary of Labor in accordance with the Act of March 3, 1931, as amended, known as the Davis-Bacon Act (40 U.S.C. 276a through 276a-7). Furthermore, Contractor and Subcontractors shall adhere to the stipulations and provisions published by the Secretary of Health, Education, and Welfare in "Labor Standards (Federal Water Pollution Control Act)." The Wage Rate Schedule as prepared by the Secretary of Labor and the "Labor Standards" are part of this Contract and are included in PART II of these Supplementary Conditions.

J. Except as may be otherwise required by law, all claims and disputes pertaining to the classification of labor employed on the project under this Contract shall be decided by the governing body having jurisdiction.

K. Contractor and all Subcontractors shall comply with the Regulations of the Secretary of Labor made pursuant to the Anti-Kickback Act of June 30, 1940 (40 U.S.C. 276c) and all amendments or modifications thereto. Contractor and all Subcontractors shall furnish Owner with weekly Statements of Compliance. In case of Subcontracts, Contractor shall cause appropriate provision to be inserted in all subcontracts for the Work which Contractor may let to ensure compliance with said Anti-Kickback Act by all Subcontractors subject thereto, and Contractor shall be responsible for the submission of all Statements of Compliance required of Subcontractors by said Anti-Kickback Act except as the Secretary of Labor may specifically provide for reasonable limitations, variations, and exemptions from the requirements thereof. These Regulations are part of this Contract and are included in PART II of these Supplementary Conditions.

L. Contractor and all subcontractors shall comply with the Massachusetts Prevailing Wage law as contained in M.G.L. chapter 149 sections 26-27 which are included in Part II of these Supplementary Conditions. Refer to Article 17 with these conditions when State and Federal wage rates differ.

SC-6.03.C

Add the following new paragraphs immediately after paragraph 6.03C. of the General Conditions which are to read as follows:

D. No materials or supplies for the work shall be purchased by the Contractor or any subcontractor subject to a chattel mortgage or under a conditional sales contract or other agreement by which an interest is retained by the seller. The Contractor warrants that it has good title to all materials and supplies used by Contractor and Subcontractor in the work, which is free from all liens, claims or encumbrances.

E. The Contractor shall and will, in good workmanlike manner, do and perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, except as herein otherwise expressly specified, necessary or proper to perform and complete all the work required by this Contract, within the

time herein specified, in accordance with the provisions of this Contract and said specifications and in accordance with the plans and drawings covered by this Contract and any and all supplemental plans and drawings, and in accordance with the direction of the Owner as given from time to time during the progress of the work. It shall furnish, erect, maintain and remove such construction plant and such temporary works as may be required. The Contractor shall observe, comply with, and be subject to all terms, conditions, requirements and limitations of the Contract and Specifications, and shall do, carry on and complete the entire work to the satisfaction of the Owner.

SC-6.06A.

Delete Paragraphs 6.06A. and 6.06B. of the General Conditions in their entirety and replace with the following:

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.

B. Not Used.

SC-6.06C.

Add the following new sentence at the end of paragraph 6.06C. of the General Conditions to read as follows:

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-6.06E.

Add the following new sentence at the end of paragraph 6.06E of the General Conditions to read as follows:

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-6.07B

Delete paragraph 6.07B of the General Conditions in its entirety.

SC-6.10A

Add the following new sentences at the end of paragraph 6.10A of the General Conditions to read as follows:

The materials and supplies to be used in the Work of this Contract are exempt from the Sales and Use Tax of the Commonwealth of Massachusetts. Contractor shall obtain the proper certificates, maintain the

necessary records and otherwise comply with the requirements of Chapter 14 of the Acts of 1966 and any amendments thereto.

SC-6.16A.

Delete the last sentence in paragraph 6.16A. of the General Conditions in its entirety and replace with the following:

If Engineer and/or Owner determines that the incident giving rise to the emergency action was not the responsibility of the Contractor and that a change in the Contract Documents is required because of the action taken by the Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

SC-6.17D.1.

Add the following new sentence at the end of paragraph 6.17.D.1 of the General Conditions to read as follows:

Approval of Shop Drawings for equipment requiring Efficiency Guarantee Bonds will be withheld until the receipt of such Bonds.

SC-6.19A.

Add the following new paragraphs immediately after paragraph 6.19A. of the General Conditions which are to read as follow:

B. 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 three years or such period (longer or shorter) that may be specified in the Contract Documents from and 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 this AGREEMENT titled "Partial Acceptance," the guarantee for that part of the Work shall be for a period of three years or such period (longer or shorter) that may be specified from the date fixed for such acceptance.

1. 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 (7) 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 or withhold the amount from any payment owed to the Contractor.

2. The Contractor's guarantee under this clause, 6.19B, is in addition to the Contractor's express or implied warranties under this Agreement and State law and in no way diminish any other rights that the Owner may have against the Contractor.

SC-6.19C. and D.

Renumber 6.19B. and 6.19C. of the General Conditions to read 6.19C. and 6.19D.

SC-6.19D.

Add the following new paragraph immediately after paragraph 6.19D. of the General Conditions which is to read as follows:

E. Manufacturer's Guaranty/Warranty

1. The Contractor shall obtain the following guaranty/warranty from the manufacturer of all major pieces of equipment furnished and installed on this Project. Such guaranty/warranty shall be for the benefit of Owner and be furnished in writing by the manufacturer. The Contractor's and manufacturer's obligations under this provision are in addition to other express or implied warranties under the Contract Documents and under the law and in no way diminish any other right that the Owner may have against the Contractor or manufacturer for faulty material, equipment or work. The warranty period shall not be interpreted as a limitation on the time in which the Owner can enforce such other duties, obligations, rights, or remedies.

2. The manufacturer warrants and guarantees for a period of three years from the date of Substantial Completion, or such period (longer or shorter) that may be specified in the Contract Documents, that all materials and equipment furnished and installed shall be free from flaws, defects in material and workmanship and shall be in conformance with the Contract Documents.

SC-6.20A.

Delete paragraph 6.20A of the General Conditions in its entirety and replace with the following:

A. To the fullest extent permitted by law, the Contractor shall indemnify, hold harmless, and assume the defense of the Owner, its officers, agents or employees, with counsel acceptable to Owner, which acceptance shall not be unreasonably withheld, from all liabilities, suits, claims, losses, and costs or any other damages against them or any of them arising from any act or omission of the Contractor, its agents, officers, employees, or subcontractors in any way connected with performance under this Contract:

1. 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; and

2. is caused in whole or in part by any negligent or willful acts, errors 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, regardless of whether or not caused in part by any negligence or omission of an individual or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws and Regulations regardless of the negligence of any such indemnified party unless caused by the sole negligence of a party indemnified hereunder. If through the negligent or willful acts, error or omissions 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 and/or Engineer, or the officers, directors, members, partners, employees, agents,

consultants and subcontractors of each on account of any damage alleged to have been sustained, Owner shall notify Contractor, who shall defend, indemnify and save harmless Owner, Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each against any such claims.

3. Contractor hereby acknowledges its obligation to indemnify the Owner against judgements suffered because of the Contractor's work and to assume the cost of defending the Owner against claims described in SC 5.03.

SC-6.20C.

Delete paragraphs 6.20C, C.1 and C.2 of the General Conditions in their entirety.

SC-6.21A.

Immediately after the last sentence, insert the following:

All professional engineering services required by the Contractor or his/her sub-contractors as part of this Contract shall be performed by a Registered Professional Engineer in the Commonwealth of Massachusetts. All professional surveying services required by the Contractor or his/her sub-contractors as part of this Contract shall be performed by a Registered Professional Land Surveyor in the Commonwealth of Massachusetts.

SC-6.21E

Delete paragraph 6.21E of the General Conditions in its entirety and replace with the following:

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

SC-6.21E.

Add the following new paragraph immediately after paragraph 6.21E. of the General Conditions which is to read as follows:

SC-6.22 Definitions; Contract Provisions; Management and Financial Statements; Enforcement

A. Contractor shall comply with all applicable provisions of Chapter 30, Section 39R of the Massachusetts General Laws regarding Contractor's records which is included in Part II of the Supplementary Conditions.

ARTICLE 7. OTHER WORK AT THE SITE

SC-7.02B.

Add the following new paragraph immediately after paragraph 7.02B of the General Conditions which is to read as follows:

C. Owner intends to contract with others for the performance of other work on the Project as follows:

1. A portion of the work of this Contract involves the relocation of privately owned utilities. Utility relocation coordination is considered incidental to the cost of the work.

2. A portion of the work of this Contract involves the replacement and/or relocation of City owned utilities. Utility relocation coordination is considered incidental to the cost of the work.
3. A portion of the work involves the installation of new traffic signals by others. Signal contractor coordination is considered incidental to the cost of the work.
4. Line painting and other roadway markings could occur on similar or adjacent streets to the project. Coordinating with the line painting contractor is considered incidental to the cost of the work.
5. Roadway, sidewalk and other rights-of-way improvements in anticipation of the work being completed under this Contract or other contracts. Coordinating with the Owner and Owner's on call sidewalk and roadway patch contractor and Owner's on-call roadway preventive maintenance contractor is considered incidental to the cost of the work.
6. Any other utility or roadway work undertaken simultaneously to be done under separate contract. Coordination is considered incidental to the cost of the work.
7. Town of Dartmouth roadway reconstruction and Contractors working on their projects. Coordinate work with the Town of Dartmouth, Engineer and Town of Dartmouth Contractor

SC-7.03C.

Add the following new paragraphs immediately after paragraph 7.03C. of the General Conditions which are to read as follows:

7.04 Damage to Other Contractor's Property

A. Should Contractor cause damage to the work or property of any separate contractor at the site, or should any claim arising out of Contractor's performance of the Work at the site be made by any separate contractor against Contractor, Owner, Engineer, Engineer's Consultants, the Construction Coordinator or any other person, Contractor shall promptly attempt to settle with such other contractor by agreement, or to otherwise resolve the dispute by arbitration or at law. Contractor shall, to the fullest extent permitted by Laws and Regulations, defend, indemnify and hold Owner, Engineer, Engineer's Consultants and the Construction Coordinator harmless from and against all claims, damages, losses and expenses (including, but not limited to, fees of engineers, architects, attorneys and other professionals, and court and arbitration or mediation costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any separate contractor against Owner, Engineer, Engineer's Consultants or the Construction Coordinator to the extent based on a claim arising out of Contractor's performance of the Work.

B. Should a separate contractor cause damage to the Work or property of Contractor or should the performance of work by any separate contractor at the site give rise to any other claim, Contractor shall not institute any action, legal or equitable, against Owner, Engineer, Engineer's Consultants or the Construction Coordinator or permit any action against any of them to be maintained and continued in its name or for its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from Owner, Engineer, Engineer's Consultants or the Construction Coordinator on account of any such damage or claim.

C. If Contractor is delayed at any time in performing or furnishing Work by any act or neglect of a separate contractor and Owner and Contractor are unable to agree as to the extent of any adjustment in Contract Times attributable thereto, Contractor may make a claim for an extension of times in accordance with Article 12 of the General Conditions. An extension of the Contract Times shall be Contractor's exclusive remedy with respect to Owner, Engineer, Engineer's Consultants and Construction Coordinator for any delay, disruption, interference or hindrance caused by any separate contractor. This paragraph

does not prevent recovery from Owner, Engineer, Engineer's Consultant or Construction Coordinator for activities that are their respective responsibilities.

7.05 Subcontracting

A. The Contractor may utilize the services of subcontractors on those parts of the Work, which, under normal contracting practices, are performed by specialty subcontractors so long as such services are not subject to MGL law and/or policy.

B. The Contractor shall not award any work to any subcontractor without prior written approval of the Owner, which approval will not be given until the Contractor submits to the Owner a written statement concerning the proposed award to the Subcontractor, which statement will contain such information as the Owner may require.

7.06 Mutual Responsibility of Contractors

A. Refer to Paragraph SC 6.20.A.2.

ARTICLE 8. OWNER'S RESPONSIBILITIES

SC-8.06

Delete paragraph 8.06 of the General Conditions in its entirety.

SC-8.08A

Add the following new paragraph immediately after paragraph 8.08A of the General Conditions which is to read as follows:

B. Unless otherwise expressly provided for in this Contract, the Owner or his/her designee for the convenience of the Contractor will furnish to the Contractor survey services necessary for the execution of the work. The Contractor shall comply with all laws, ordinances, rules, orders, and regulations relating to the performance of the work, the protection of adjacent property, and the maintenance of passageways, guard fences and other protective facilities.

1. Should the Owner determine, in Owner's sole discretion, that the Contractor is abusing the use of the survey services and/or Contractor's work being completed in the field is negligent and/or causing excessive damage to in place construction survey materials, information or activities, the Owner reserves the right to charge the Contractor for any and all future survey services. The cost of the services will be at the Owner's standard rate of \$100 dollars per hour for a 2-person survey crew plus the cost of materials. This cost will be deducted from the Contractor's retainage on the project.
2. The Owner may, at his/her sole discretion, revoke the use of survey services based on abuse of such services, Owner work load, or any other reason deemed by the Owner. Owner will provide the Contractor 72-hours notice in writing. Should this occur, Contractor will be required to provide survey services for the Work Assignment(s) noted in the written notice. Contractor shall have no claim for delay or time extension associated with the need to provide survey services. Owner to provide bench marks only in the instance Owner does not provide survey services. Refer to Section 01025 and Item 11b in the Bid Form.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

SC-9.03A.

Add the following new paragraphs immediately after paragraph 9.03A of the General Conditions which are to read as follows:

B. Owner and/or Engineer will furnish a Resident Project Representative and assistants to assist Owner and/or Engineer in observing the performance of the Work. The Owner may act at the Resident Project Representative or he/she may designate an authorized representative to work on his/her behalf. The Owner/Engineer may conduct full time or periodic visits to observe the Work depending on the nature of the activities occurring.

C. The Authorized Representative and agents of the Owner shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records.

SC-9.08.A

Add the following paragraphs immediately after Paragraph 9.08.A of the General Conditions which are to read as follows:

1. In resolving conflicts, error or discrepancies, the Contract Documents shall be given precedence, as may be reasonably inferred as being consistent with their overall intent and required to produce the intended result. Subject to such determination by the Engineer, the Contract Documents shall be given precedence in the following order: Change Orders, Owner-Contractor Agreement, Notice to Proceed, Addenda, General Conditions as modified by Supplementary Conditions, Division 1, Technical Specifications (MassDOT MSSHB latest edition including all addenda, City's Standards latest edition, Division 2 through 16 of the Specifications – in the event of a conflict, the more stringent shall apply), Contract Drawings, Advertisement for Bids, Instruction to Bidders, the Form for General Bid signed by the Contractor, Bonds, Insurance Certificates.

2. If the issue of priority involves the Technical Specifications (MassDOT MSSHB latest edition including all addenda, City's Standards latest edition, Division 2 through 16 of the Specifications – in the event of a conflict, the more stringent shall apply) and the Drawings, in all cases, figured dimensions shall govern over scaled dimensions, but work not dimensioned shall be as directed by the Engineer, and work not particularly shown, identified, sized, or located shall be the same as similar parts that are shown or specified. Detail Drawings shall govern over general Drawings, larger scale Drawings take precedence over smaller scale Drawings, Change Order Drawings govern over Contract Drawings, and Contract Drawings govern over Shop Drawings.

ARTICLE 10 – CLAIMS

SC-10.05.B

Deleted “30 days” in the fourth line and Insert “10 days”. In the tenth line, replace “60 days” with “20 days”.

SC-10.05.E

In the sixth line replace “30 days” with “10 days”.

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

SC-11.01A.1.

Delete the second sentence in paragraph 11.01A.1. of the General Conditions in its entirety and replace with the following:

Such employees shall only include foremen at the site.

SC-11.01A.1.

Add the following new paragraph immediately after paragraph 11.01A.1. of the General Conditions which is to read as follows:

a. Following award and prior to execution of a construction contract Contractor shall establish, in the Agreement, the Direct Labor Cost percentage. This percentage, where approved by Owner, will be used in the determination of the Direct Labor Cost listed in the Change Order Form included in Part II of the Supplementary Conditions. The Direct Labor Costs are defined to include social security contributions, unemployment, excise and payroll taxes, workers' and workmen's compensation, health and retirement benefits, sick leave, vacation and holiday pay, and cost of premiums for all additional insurance required because of changes in the Work.

SC-11.01B.1

Eighth line, insert "superintendent(s)" after the word clerks.

SC-11.02D.

Add the following new paragraph immediately after paragraph 11.02.D of the General Conditions which is to read as follows:

E. For unused work as part of the allowances included with Contract, the Contractor is only eligible for payment on what is actually used. Contractor is not eligible for payment on presumed profit on un-used allowance funds or quantities.

SC-11.03D.

Delete paragraph 11.03D. of the General Conditions in its entirety and replace with the following new paragraphs:

D. The unit price of an item of Unit Price Work shall be subject to re-evaluation and adjustment under the following conditions:

1. if the total cost of a particular item of Unit Price Work amounts to 5 percent or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by Contractor differs by more than 15 percent from the estimated quantity of such item indicated in the Agreement; and
2. if there is no corresponding adjustment with respect to any other item of Work; and

3. if Contractor believes that Contractor has incurred additional expense as a result thereof, or if Owner believes that the quantity variation entitles Owner to an adjustment in the unit price, either Owner or Contractor may make a claim for an adjustment in the Unit Price for that quantity by which is less than 85% of or the actual quantity exceeds 115% of the estimated quantity in accordance with Article 10.05 if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

4. Contractor shall not be entitled to any profit associated with unused quantities.

E. Wherever the estimated quantity of work to be done and materials to be furnished on a unit price basis under this Contract are shown in any of the Contract Documents including the proposal, they are given for use in comparing bids, and the right is expressly reserved by Owner, except as herein otherwise specifically limited, to increase or diminish them as may be deemed reasonably necessary or desirable by the Owner to complete the Work contemplated by this Contract, and such increase or diminution shall in no way vitiate the Contract, nor shall any such increase or diminution give cause for claims or liability for damages.

ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIME

SC-12.01C.2.b.

In the second line of paragraph 12.01C.2.b, before the semicolon add the following words "based on subcontractor's Cost of the Work before subcontractor's fee is added";

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

SC-13.03.B.1

Second line, Delete "13.03.C and".

SC-13.03.C

Delete this Paragraph in its entirety.

SC-13.03.D

Delete this Paragraph in its entirety and inset the following revised Paragraph in its place:

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 equipment and electrical work to be incorporated in the Work; or acceptance of 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.

Contractor shall be responsible for coordinating, implementing and bearing all costs associated with the inspection and testing of all manholes, pipe, fittings, valves, appurtenances, catch basins and all electrical work. Contractor shall supply inspection results to the Owner and Engineer.

SC-13.05A.

Add the following new paragraph immediately after paragraph 13.05A. of the General Conditions to read as follows:

B. If Owner stops Work under Paragraph 13.05A., Contractor shall not be entitled to any extension of Contract Time or increase in Contract Price.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

SC-14.02A.1.

In the first sentence of paragraph 14.02.A.1 of the General Conditions delete the number “20” and replace with the number “ten”.

SC-14.02A.3.

Add the following new paragraph immediately after paragraph 14.02A.3 of the General Conditions which is to read as follows:

4. Contractor shall furnish evidence that payment received on the basis of materials and equipment not incorporated and suitably stored, has in fact been paid to the respective supplier(s) within sixty days of payment by Owner. Failure to provide such evidence of payment may result in the withdrawal of previous approval(s) and removal of the cost of related materials and equipment from the next submitted Application for Payment.

SC-14.02B.1

Delete paragraph 14.02B.1. of the General Condition in its entirety and replace with the following:

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

SC-14.02.B.5

Add the following new paragraphs immediately after paragraph 14.02.B.5.d of the General Conditions to read as follows:

- e. Third party claims were filed or reasonable evidence indicated probable filing of such claims;
- f. Of failure of the Contractor to make payments property to Subcontractors or for labor, materials or equipment.
- g. Reasonable evidence exists that the Work cannot be completed for the unpaid balance of the Contract sum; or
- h. Of damage to the Owner or another Contractor.

SC-14.03A.

Add the following new paragraphs immediately after paragraph 14.03A of the General Conditions which are to read as follows:

B. No materials or supplies for the Work shall be purchased by Contractor or any Subcontractor subject to a chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. The Contractor warrants that it has good title to all materials and supplies used by Contractor and Subcontractor(s) in the Work, free from all liens, claims or encumbrances.

C. Contractor shall defend, indemnify and save Owner and Engineer harmless from all claims growing out of the lawful demands of Subcontractors, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, power tools, and all supplies, including commissary, incurred in the furtherance of the performance of this Contract. Contractor shall at Owner's request, furnish satisfactory evidence that all obligations of the nature hereinabove designated have been paid, discharged, or waived. If Contractor fails to do so, then Owner may, after having served written notice on the said Contractor either pay unpaid bills, of which Owner has written notice, direct, or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to Contractor shall be resumed, in accordance with the terms of this Contract, but in no event shall the provisions of this sentence be construed to impose any obligations upon Owner to either Contractor or Contractor's Surety. In paying any unpaid bills of the Contractor, Owner shall be deemed the agent of Contractor and any payment so made by Owner shall be considered as payment made under the Contract by Owner to Contractor and Owner shall not be liable to Contractor for any such payment made in good faith.

SC-14.07.A.2

Add the following new paragraphs immediately after paragraph 14.07.A.2.d of the General Conditions to read as follows:

e. An affidavit that all payrolls, bill for materials and equipment, and other indebtedness connected with the Work for which the Owner or its property might in any way be responsible, have been paid or otherwise satisfied.

SC-14.07B.1.

Delete paragraph 14.07B.1. of the General Conditions in its entirety and replace with the following:

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 - 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 Engineer's 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 Massachusetts General Law, pay Contractor the amount recommended by Engineer.

SC-14.09A.2.

Add the following new paragraph immediately after paragraph 14.09.A.2 of the General Conditions which is to read as follows:

3. No payment, final or otherwise, shall operate to release the Contractor or its subcontractors from any obligation under this Contract or the Performance and Payment Bond.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

SC-15.01A.

Delete paragraph 15.01A. of the General Conditions in its entirety and replace with the following:

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-15.02A.4.

Add the following new paragraph immediately after paragraph 15.02.A.4 of the General Conditions which is to read as follows:

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 16 - DISPUTE RESOLUTION

SC-16.01A

Delete the paragraph 16.01A of the General Conditions in its entirety and replace with the following:

Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 within 60 days of when 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 this Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract.

SC-16.01C.3.

Add a new paragraph immediately after paragraph 16.01C.3. of the General Conditions which is to read as follows:

D. Contractor shall carry on the Work and maintain the progress schedule during the dispute resolution proceedings, unless otherwise agreed by Contractor and Owner in writing.

ARTICLE 17 - MISCELLANEOUS

SC-17.05.A

Delete paragraph 17.05.A of the General Conditions in its entirety and insert the following in its place:

A. This Agreement shall be governed and constructed in accordance with the laws of the Commonwealth of Massachusetts, unless otherwise specified.

SC-17.06

Add the following new paragraphs immediately after paragraph 17.06 of the General Conditions which are to read as follows:

17.07 Addresses

A. Both the address given in the Bid Form upon which this Agreement is founded, and Contractor's office at or near the site of the Work are hereby designated as places to either of which notices, letters, and other communications to Contractor shall be certified, mailed, or delivered. The delivering at the above named place, or depositing in a postpaid wrapper directed to the first-named place, in any post office box regularly maintained by the post office department, of any notice, letter or other communication to Contractor shall be deemed sufficient service thereof upon Contractor; and the date of said service shall be the date of such delivery or mailing. The first-named address may be changed at any time by an instrument in writing, executed and acknowledged by Contractor, and delivered to Owner and Engineer. Nothing herein contained shall be deemed to preclude or render inoperative the service of any notice, letter, or other communication upon Contractor personally.

17.08 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, after the Notice of Award, it becomes necessary to employ any person in a trade or occupation not classified in the wage determinations, such person shall be paid at not less than such rates as shall be determined by the officials administering the laws mentioned above. Such approved minimum rate shall be retroactive to the time of the initial employment of such person in such trade or occupation. Contractor shall notify Owner of Contractor's intention to employ persons in trades or occupations not classified in sufficient time for Owner to obtain approved rates for such trades or occupations.

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 between Contractor and employees of Contractor in regard to the payment of wages in excess of these 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.

D. Both Federal and State schedules of minimum wage rates are included in PART II of these Supplementary Conditions. Where rates differ, the higher rates shall apply as a minimum for that trade.

17.09 Payment by Contractor

The Contractor shall pay:

- a. For all transportation and utility services not later than the 20th day of the calendar month following that in which services are rendered.
- b. For all materials, tools, and other expandable equipment to the extent of 90-percent of the cost thereof, not later than the 20th day of the calendar month following that in which such materials, tools and equipment are delivered at the site of the Project, and the balance of the cost thereof not later than the 30th day following the completion of that part of the work in or on which such materials, tools, and equipment are incorporated or used, and
- c. To each of its subcontractors, not later than the 5th day following each payment to the Contractor, the respective amounts allowed the Contractor on account of the Work performed by its Subcontractors to the extent each Subcontractor's interest therein.

17.10 Assignments

Neither Owner nor Contractor shall, without the prior written consent of the other, assign or sublet in whole or in part any interest under any of the Contract Documents and, specifically but without limitation, Contractor shall not assign any monies due or to become due without the prior written consent of Owner. In case Contractor assigns all or any part of any monies due or to become due under this Contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any monies due or to become due to Contractor shall be subject to prior claims of all persons, firms, and corporations for services rendered or material supplies for the performance of the Work call for in this Contract.

PART II - FEDERAL STATE AND LOCAL GOVERNMENT PROVISIONS

Federal, State and Local 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 3.01D of the Supplementary Conditions.

1.0. FEDERAL GOVERNMENT PROVISIONS

1.1. Federal Wage Rates

1.2. Federal Contract Provisions

1.3 Davis Bacon Act Requirements (Appendix G). Note – this was obtained from the MassDEP State Revolving Fund (SRF) Low Interest Loan Program. The same provisions contained in Appendix G – Davis Bacon Act Requirements shall apply to this contract and is provided for reference for the Contractor on the specific requirements needed to maintain compliance with Davis Bacon Act.

2.0. COMMONWEALTH OF MASSACHUSETTS PROVISIONS

- 2.1. 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 unless otherwise specified.
- 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 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.
- 2.3. Not used.
- 2.4. Massachusetts General Laws
 - 2.4.1. Chapter 30, Section 39F (4 Pages)
 - 2.4.2. Chapter 30, Section 39G (3 Pages)
 - 2.4.3. Chapter 30, Section 39I (1 Page)
 - 2.4.4. Chapter 30, Section 39J (1 Page)
 - 2.4.5. Chapter 30, Section 39L (1 Page)
 - 2.4.6. Chapter 30, Section 39M (3 Pages)
 - 2.4.7. Chapter 30, Section 39N (1 Page)
 - 2.4.8. Chapter 30, Section 39O (1 Page)
 - 2.4.9. Chapter 30, Section 39P (1 Page)
 - 2.4.10. Chapter 30, Section 39Q (2 Pages)
 - 2.4.11. Chapter 30, Section 39R (4 Pages)
 - 2.4.12. Chapter 30, Section 39S (1 Page)
 - 2.4.13. Chapter 82, Sections 40 and 40A through 40E (7 Pages)
 - 2.4.14. Chapter 82A, Section 1 (1 Page)
 - 2.4.15. Chapter 149, Section 34 (2 Page)
 - 2.4.16. Chapter 149, Section 44J (2 Pages)
 - 2.4.17 Chapter 29, Section 8B (3 Pages)
 - 2.4.18 Chapter 6C, Section 4 (3 Pages)

2.4.19 720 CMR5.00 (15 Pages)

2.5. State Wage Rates

2.6 MassWorks Infrastructure Grant Program Monthly Invoice Form

2.6. MassDOT Chapter 90 Funding Program

a. Application for Contractor Pre-qualifications

d. Chapter 90 Payroll – HED 600 Form

e. Chapter 90 Materials – HED 454 Form

3.0 CITY OF NEW BEDFORD PROVISIONS

3.1 Instructions to Bidders for Affirmative Action Issues for Public Works and Construction Projects.

3.2 Notice Regarding Responsible Employer Ordinance (REO).

3.3 “Attorney General Business and Labor Bureau Bid Protest Decision” Investigation Summary

SECTION 00800
SUPPLEMENTARY CONDITIONS
PART II – FEDERAL, STATE AND LOCAL GOVERNMENT PROVISIONS
1.0 FEDERAL GOVERNMENT PROVISIONS

"General Decision Number: MA20230008 02/03/2023

Superseded General Decision Number: MA20220008

State: Massachusetts

Construction Types: Heavy (Heavy and Marine)

Counties: Barnstable, Bristol, Dukes, Essex, Middlesex, Nantucket, Norfolk, Plymouth and Suffolk Counties in Massachusetts.

HEAVY AND MARINE CONTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

<p>If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:</p>	<ul style="list-style-type: none"> . Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$16.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2023.
<p>If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:</p>	<ul style="list-style-type: none"> . Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$12.15 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2023.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number Publication Date

0	01/06/2023
1	01/27/2023
2	02/03/2023

BOIL0029-001 01/01/2021

	Rates	Fringes
BOILERMAKER.....	\$ 45.87	29.02

BRMA0001-011 08/01/2020

FOXBORO CHAPTER

BRISTOL (Attleboro, Berkley, Dighton, Mansfield, North Attleboro, Norton, Raynham, Rehoboth, Seekonk, Taunton); NORFOLK, (Bellingham, Canton, Dedham, Foxboro, Franklin, Norfolk, Norwood, Plainville, Sharon, Walpole, Westwood, Wrentham); and PLYMOUTH (Lakeville)

	Rates	Fringes
Bricklayer/Cement Mason.....	\$ 53.16	34.95

BRMA0001-012 08/01/2020

LOWELL CHAPTER

MIDDLESEX (Acton, Ashby, Ayer, Bedford, Billerica, Boxboro, Carlisle, Chemsford, Dracut, Dunstabale, Ft Devens, Groton, Littleton, Lowell, North Acton, Pepperell, Shirley, South Acton, Tewksbury, Townsend, Tyngsboro, West Acton, Westford, Wilmington)

	Rates	Fringes
BRICKLAYER.....	\$ 53.16	34.95

BRMA0001-013 08/01/2020

LOWELL CHAPTER

MIDDLESEX (Ashland, Framingham, Holliston, Hopkinton, Hudson, Maynard, Natick, Sherborn, Stow); and NORFOLK (Medfield, Medway, Millis)

	Rates	Fringes
BRICKLAYER.....	\$ 53.16	34.95

BRMA0003-001 02/01/2021

	Rates	Fringes
Marble & Tile Finisher.....	\$ 42.57	32.00
Marble, Tile & Terrazzo Workers.....	\$ 54.69	33.80
TERRAZZO FINISHER.....	\$ 55.77	34.47

BRMA0003-003 02/01/2021

BOSTON CHAPTER

MIDDLESEX (Arlington, Cambridge, Everett, Malden, Medford,

Melrose, Somerville); NORFOLK (Brookline, Milton); and SUFFOLK

	Rates	Fringes
BRICKLAYER.....	\$ 55.75	35.85

BRMA0003-011 02/01/2021		

LYNN CHAPTER

ESSEX (Amesbury, Andover, Beverly, Boxford, Danvers, Essex, Georgetown, Gloucester, Groveland, Hamilton, Haverhill, Ipswich, Lawrence, Lynn, Lynnfield, Manchester, Marblehead, Merrimac, Methuen, Middleton, Nahant, Newbury, Newburyport, North Andover, Peabody, Rockport, Rowley, Salisbury, Salem, Saugus, Swampscott, Topsfield, Wakefield, Wenham, West Newbury); and MIDDLESEX (North Reading, Reading, Wakefield)

	Rates	Fringes
Bricklayer/Cement Mason.....	\$ 55.75	35.85

BRMA0003-012 02/01/2021		

	Rates	Fringes
BRICKLAYER WALTHAM CHAPTER - MIDDLESEX (Belmont, Burlington, Concord, Lexington, Lincoln, Stoneham, Sudbury, Waltham, Watertown, Wayland, Weston, Winchester, Woburn).....	\$ 55.75	35.85

BRMA0003-014 02/01/2021		

QUINCY CHAPTER

PLYMOUTH COUNTY (Abington, Bridgewater, Brockton, Carver, Duxbury, East Bridgewater, Halifax, Hanover, Hanson, Hingham, Hull, Kingston, Marshfield, Middleboro, Norwell, Pembroke, Plymouth, Rockland, Scituate, West Bridgewater, Whitman)

	Rates	Fringes
Bricklayer/Cement Mason.....	\$ 55.75	35.85

BRMA0003-025 02/01/2021		

NEW BEDFORD CHAPTER

BARNSTABLE; BRISTOL (Acushnet, Darmouth, Fairhaven, Fall River, Freetown, New Bedford, Somerset, Swansea, Westport); DUKES; NANTUCKET; PLYMOUTH (Marion, Mattapoisett, Rochester, Wareham)

	Rates	Fringes
Bricklayer/Cement Mason.....	\$ 55.75	35.85

BRMA0003-033 02/01/2021

NEWTON CHAPTER
MIDDLESEX (Newton); NORFOLK (Dover, Needham, Wellesley)

	Rates	Fringes
Bricklayer, Plasterer.....	\$ 55.75	35.85

CARP0056-001 08/01/2022

All of SUFFOLK COUNTY; and those areas of BARNSTABLE, BRISTOL, ESSEX, MIDDLESEX, NORFOLK, and PLYMOUTH COUNTIES situated INSIDE Boston Beltway (I-495) and North of Cape Cod Canal. ALL of DUKES and NANTUCKET COUNTIES

	Rates	Fringes
PILEDRIVERMAN.....	\$ 52.15	34.10

CARP0056-002 08/01/2022

The areas of BARNSTABLE, BRISTOL, PLYMOUTH, and NORFOLK COUNTIES situated OUTSIDE Boston Beltway (I-495) and South of Cape Cod Canal

	Rates	Fringes
PILEDRIVERMAN.....	\$ 48.34	34.10

CARP0056-003 08/01/2022

Those areas of ESSEX and MIDDLESEX COUNTIES situated OUTSIDE Boston Beltway (I-495)

	Rates	Fringes
PILEDRIVERMAN.....	\$ 45.74	34.10

CARP0056-004 08/01/2022

	Rates	Fringes
DIVER TENDER.....	\$ 52.15	34.10
DIVER.....	\$ 68.70	35.57

CARP0327-002 03/01/2022

MIDDLESEX (Belmont, Cambridge, Everett, Malden, Medford, Somerville); NORFOLK (Brookline, Dedham, Milton); AND SUFFOLK COUNTIES

	Rates	Fringes
CARPENTER.....	\$ 53.87	29.62

CARP0339-002 03/01/2022

BRISTOL (Attleborough, North Attleborough); ESSEX; MIDDLESEX (Except Belmont, Cambridge, Everett, Malden, Medford,

Somerville); AND NORFOLK (Bellingham, Braintree, Canton, Cohasset, Foxboro, Franklin, Medfield, Medway, Millis, Needham, Norfolk, Norwood, Plainville, Quincy, Sharon, Walpole, Wellesley, Westwood, Weymouth, Wrentham) COUNTIES

	Rates	Fringes
CARPENTER.....	\$ 44.53	29.52

CARP0346-001 09/01/2021		

NORFOLK (Braintree, Quincy, Cohasset, Weymouth, etc.) PLYMOUTH (Duxbury, Hanover, Hull, Hingham, Marshfield, Norwell, Pembroke Rockland, Scituate)

	Rates	Fringes
CARPENTER.....	\$ 44.18	29.27

CARP0624-002 09/01/2017		

DUKES; NANTUCKET

	Rates	Fringes
CARPENTER.....	\$ 46.43	28.35

CARP0624-006 09/01/2017		

BARNSTABLE; BRISTOL (Except Attleboro & North Attleboro); NORFOLK (Avon, Holbrook, Randolph, Stoughton); PLYMOUTH (Bridgewater, Kingston, Lakeville, Middleboro, Plymouth, S. Hanover, Whitman)

	Rates	Fringes
CARPENTER.....	\$ 39.28	27.90

* CARP1121-001 01/02/2023		

SUFFOLK COUNTY

	Rates	Fringes
MILLWRIGHT.....	\$ 46.29	31.18

* CARP1121-005 01/02/2023		

BARNSTABLE, BRISTOL, DUKES, ESSEX, MIDDLESEX, NANTUCKET, NORFOLK and PLYMOUTH COUNTIES

	Rates	Fringes
MILLWRIGHT.....	\$ 40.94	31.18

ELEC0096-001 09/04/2022		

MIDDLESEX (Ashby, Ashland, Ayer, Ft. Devens, Groton, Hopkinton, Hudson, Marlboro, Pepperell, Shirley, Stow, Townsend)

	Rates	Fringes
ELECTRICIAN.....	\$ 45.59	30.92
Teledata System Installer.....	\$ 34.19	29.33

ELEC0099-001 06/01/2021

BRISTOL (Attleboro, North Attleboro, Seekonk)

	Rates	Fringes
ELECTRICIAN.....	\$ 43.61	54.71%
Teledata System Installer.....	\$ 31.21	13.1%+14.93

ELEC0103-002 09/01/2022

ESSEX (Amesbury, Andover, Boxford, Georgetown, Groveland, Haverhill, Lawrence, Merrimac, Methuen, Newbury, Newburyport, North Andover, Rowley, Salisbury, West Newbury); MIDDLESEX (Bedford, Billerica, Boxboro, Burlington, Carlisle, Chelmsford, Dracut, Dunstable littleton, Lowell, North Reading, Tewksbury, Tyngsboro, Westford, Wilmington)

	Rates	Fringes
ELECTRICIAN.....	\$ 58.28	35.47

ELEC0103-004 09/01/2022

ESSEX (Beverly, Danvers, Essex, Gloucester, Hamilton, Ipswich, Manchester, Marblehead, Middleton, Peabody, Rockport, Salem, Topsfield, Wenham)

	Rates	Fringes
ELECTRICIAN.....	\$ 58.28	35.47

ELEC0103-005 09/01/2022

ESSEX (Lynn, Lynnfield, Nahant, Saugus, Swampscott); MIDDLESEX (Acton, Arlington, Belmont, Cambridge, Concord, Everett, Framingham, Holliston, Lexington, Lincoln, Malden, Maynard, Medford, Melrose, Natick, Newton, Reading, Sherborn, Somerville, Stoneham, Sudbury, Wakefield, Waltham, Watertown, Wayland, Weston, Winchester, Woburn); NORFOLK (Bellingham, Braintree, Brookline, Canton, Cohasset, Dedham, Dover, Foxboro, Franklino, Medfield, Medway, Millis, Milton, Needham, Norfolk, Norwood, Quincy, Sharon, Walpole, Wellesley, Westwood, Weymouth, Wrentham); PLYMOUTH (Hingham and Hull);SUFFOLK

	Rates	Fringes
ELECTRICIAN.....	\$ 58.28	35.47

ELEC0104-001 08/29/2022

	Rates	Fringes
Line Construction:		
Cableman.....	\$ 53.06	28.49+A
Equipment Operator.....	\$ 45.10	25.20+A
Groundman.....	\$ 29.18	12.10+A

Lineman.....\$ 53.06 28.49+A

A. PAID HOLIDAYS: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; Christmas Day and Columbus Day, provided the employee has been employed 5 working days prior to any one of the listed holidays.

ELEC0223-002 09/01/2022

BARNSTABLE, BRISTOL (Except Attleboro, North Attleboro, Seekonk); DUKES; NANTUCKET; PLYMOUTH (Except Hingham and Hull Twps); NORFOLK (Avon, Halbrook, Randolph, Sloughton)

	Rates	Fringes
ELECTRICIAN.....	\$ 46.35	31.18%+14.50

ENGI0004-009 12/01/2021

	Rates	Fringes
Power equipment operators:		
Group 1.....	\$ 51.38	30.10
Group 2.....	\$ 50.83	30.10
Group 3.....	\$ 33.69	30.10
Group 4.....	\$ 41.76	30.10
Group 5.....	\$ 23.48	30.10
Group 6.....	\$ 28.44	30.10

HOURLY PREMIUM FOR BOOM LENGTHS (Including Jib):

Over 150 ft.	+2.18
Over 185 ft.	+3.84
Over 210 ft.	+5.39
Over 250 ft.	+8.16
Over 295 ft.	+11.29
Over 350 ft.	+13.14

FOOTNOTE FOR POWER EQUIPMENT OPERATORS:

A. PAID HOLIDAYS: New Year's Day, Washington,s Birthday, Labor Day, Memorial Day, Independence Day, Patriot's Day, Columbus Day, Veteran's Day, Thanksgiving Day, Christmas Day

POWER EQUIPMENT OPERATORS CLASSIFICATIONS [HEAVY CONSTRUCTION]

GROUP 1: Power shovel; crane; truck crane; derrick; pile driver; trenching machine; mechanical hoist pavement breaker; cement concrete paver; dragline; hoisting engine; three drum machine; pumpcrete machine; loaders; shovel dozer; front end loader; mucking machine; shaft hoist; steam engine; backhoe; gradall; cable way; fork lift; cherry picker; boring machine; rotary drill; post hole hammer; post hole digger; asphalt plant on job site; concrete batching and/or mixing plant on job site; crusher plant on job site; paving concrete mixer; timber jack

GROUP 2: Sonic or vibratory hammer; grader; scraper; tandem scraper; bulldozer; tractor; mechanic - maintenance; York rake; mulching machine; paving screed machine; stationary steam boiler; paving concrete finishing machine; grout pump; portable steam boiler; portable steam generator; roller; spreader; asphalt paver; locomotives or machines used in place thereof; tamper (self propelled or tractor-draw); cal tracks; ballast regulator; rail anchor

machine; switch tamper; tire truck

GROUP 3: Pumps (1-3 grouped); compressor; welding machines (1-3 grouped); generator; sighting plant; heaters (power driven, 1- 5); syphon-pulsometer; concrete mixer; valves controlling permanent plant air steam, conveyor, wellpoint system (operating)

GROUP 4: Assitant engineer (fireman)

GROUP 5: Oiler (other than truck cranes and gradalls)

GROUP 6: Oiler (on truck cranes and gradalls)

IRON0007-001 03/16/2022

AREA 1: BRISTOL (Easton); ESSEX (Beverly,Gloucester,Lynn, Lynnfield, Manchester,Marblehead, Nahant, Rockport, Salem, Saugus, Swampscott); MIDDLESEX (Arlington, Bedford, Belmont, Burlington, Cambridge, Carlisle, Concord, Dunstable, Everett, Framingham, Lexington, Lincoln, Malden, Maynard, Medford, Melrose, Natick, Newton, Reading, Sherborn, Somerville, Stoneham, Sudbury, Wakefield, Waltham, Watertown, Wayland, Weston, Winchester, Woburn); NORFOLK (Except Medway); PLYMOUTH (Abington, Bridgewater, Brocton, Duxbury, East Bridgewater, Halifax, Hanover, Hanson, Hingham, Hull, Kingston, Marshfield, Norwell, Pembroke, Plymouth, Plympton, Rockland, Scituate, West Bridgewater, Whitman); SUFFOLK

AREA 2: ESSEX (Amesbury, Andover, Boxford, Danvers, Essex, Georgetown, Hamilton, Haverhill, Ipswich, Lawrence, Merrimac, Methuen, Newbury, Newburyport, North Andover, Rowley, Salisbury, Topsfield, Wenham, West Newbury); MIDDLESEX (Action,Billerica, Chelmsford, Dracut, Groton, Groveland, Littleton, Lowell, Middleton, North Reading, Pepperell, Tewksbury, Tyngsboro, Westford, Wilminton)

	Rates	Fringes
IRONWORKER		
AREA 1.....	\$ 50.60	34.81
AREA 2.....	\$ 46.19	39.20

IRON0007-010 09/16/2022

MIDDLESEX (Ashby, Ashland, Ayer, Boxboro, Holliston, Hopkinton, Hudson, Marlboro, Shirley, Stow, Townsend); NORFOLK (Medway)

	Rates	Fringes
IRONWORKER.....	\$ 51.29	35.84

IRON0037-002 09/16/2022

BARNSTABLE; BRISTOL (Acushnet, Attleboro, Berkley, Dartmouth, Dighton, Fairhaven, Fall River, Freetown, Mansfield, New Bedford, North Attleboro, Norton, Raynham, Rehoboth, Seekonk, Somerset, Swansea, Taunton, Westport); DUKES; NANTUCKET; NORFOLK (Billingham, Franklin, Plainville, Wrentham); PLYMOUTH (Lakeville, Marion, Mattapoisett, Middleboro, Rochester, Wareham)

	Rates	Fringes
IRONWORKER.....	\$ 39.01	31.58

LABO0022-006 12/01/2021

SUFFOLK COUNTY (Boston, Chelsea, Revere, Winthrop, Deer & Nut Islands); MIDDLESEX COUNTY (Arlington, Belmont, Burlington, Cambridge, Everett, Malden, Medford, Melrose, Reading, Somerville, Stoneham, Wakefield, Winchester, Winthrop and Woburn only); NORFOLK COUNTY (Brookline, Dedham, and Milton only)

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 41.18	27.52
GROUP 2.....	\$ 41.43	27.52
GROUP 3.....	\$ 41.93	27.52
GROUP 4.....	\$ 42.18	27.52
GROUP 5.....	\$ 24.50	27.52
GROUP 6.....	\$ 43.18	27.52

LABORERS CLASSIFICATIONS

GROUP 1: Laborers; carpenter tenders; cement finisher tenders

GROUP 2: Asphalt raker; fence and guard rail erector; laser beam operator; mason tender; pipelayer; pneumatic drill operator; pneumatic tool operator; wagon drill operator

GROUP 3: Air track operator; block paver; rammer; curb setter

GROUP 4: Blaster; powderman

GROUP 5: Flagger

GROUP 6: Asbestos Abatement; Toxic and Hazardous Waste Laborers

LABO0022-012 12/01/2021

Counties of BARNSTABLE; BRISTOL; DUKES; ESSEX; NANTUCKET; PLYMOUTH; MIDDLESEX (With the exception of Arlington, Belmont, Burlington, Cambridge, Everett, Malden, Melrose, Reading, Somerville, Stoneham, Wakefield, Winchester, Winthrop and Woburn); NORFOLK (With the exception of Brookline, Dedham, and Milton)

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 35.41	26.59
GROUP 2.....	\$ 35.66	26.59
GROUP 3.....	\$ 36.16	26.59
GROUP 4.....	\$ 36.41	26.59
GROUP 5.....	\$ 24.50	26.59
GROUP 6.....	\$ 37.41	26.59

LABORERS CLASSIFICATIONS

GROUP 1: Laborers; carpenter tenders; cement finisher tenders

GROUP 2: Asphalt raker; fence and guard rail erector; laser beam operator; mason tender; pipelayer; pneumatic drill operator; pneumatic tool operator; wagon drilloperator

GROUP 3: Air track operator; block paver; rammer; curb setter; hydraulic & similar self powere drills

GROUP 4: Blaster; powderman

GROUP 5: Flagger

GROUP 6: Asbestos Abatement; Toxic and Hazardous Waste Laborers

LABO0022-013 12/01/2021

	Rates	Fringes
Laborers:		
(FREE AIR OPERATION):		
SHIELD DRIVEN AND LINER		
PLATE IN FREE AIR)		
GROUP 1.....	\$ 45.48	28.02
GROUP 2.....	\$ 45.48	28.02
(OPEN AIR CASSONS, UNDERPINNING AND TEST BORING INDUSTRIES):		
TEST BORING & WELL DRILLING		
Driller.....	\$ 42.58	27.67
Laborer.....	\$ 41.18	27.67
(OPEN AIR CASSONS, UNDERPINNING AND TEST BORING INDUSTRIES):		
OPEN AIR CASSON, UNDERPINNING WORK & BORING CREW		
Bottom man.....	\$ 42.33	27.67
Laborers; Top man.....	\$ 41.18	27.67
(TUNNELS, CAISSON & CYLINDER WORK IN COMPRESSED AIR)		
GROUP 1.....	\$ 42.93	28.02
GROUP 2.....	\$ 53.41	28.02
GROUP 3.....	\$ 53.41	28.02
GROUP 4.....	\$ 53.41	28.02
GROUP 5.....	\$ 53.41	28.02
GROUP 6.....	\$ 55.41	28.02
CLEANING CONCRETE AND CAULKING TUNNEL (Both New & Existing)		
GROUP 1.....	\$ 45.48	28.02
GROUP 2.....	\$ 45.48	28.02
ROCK SHAFT, CONCRETE LINING OF SAME AND TUNNEL IN FREE AIR		
GROUP 1.....	\$ 42.93	28.02
GROUP 2.....	\$ 45.48	28.02
GROUP 3.....	\$ 45.48	28.02
GROUP 4.....	\$ 45.48	28.02
GROUP 5.....	\$ 47.48	28.02

LABORERS CLASSIFICATIONS for TUNNELS, CAISSON & CYLINDER WORK
IN COMPRESSED AIR

GROUP 1: Powder watchman; Top man on iron bolt; change house attendant

GROUP 2: Brakeman; trackman; groutman; tunnel laborer; outside lock tender; lock tender; guage tender

GROUP 3: Motorman, miner

GROUP 4: Blaster

GROUP 5: Mucking machine operator

GROUP 6: Hazardous Waste work within the ""HOT"" zone. (A premium of two dollars \$2.00 per hour over the basic wage rate.

LABORERS CLASSIFICATIONS for (FREE AIR OPERATION): SHIELD
DRIVEN AND LINER PLATE IN FREE AIR

GROUP 1: Miner; miner welder; conveyor operator; motorman; mucking machine operator; nozzle man; grout man-; pumps, shaft and tunnel steel and rodman; shield and erector arm operators, mole nipper, outside motorman, burner, TBM operator, safety miner; laborer topside; heading motormen; erecting operators; top signal men

GROUP 2: Brakeman; trackman

LABORERS CLASSIFICATIONS FOR CLEANING CONCRETE AND CAULKING
TUNNEL (Both New & Existing)

GROUP 1: Concrete workers; strippers and form movers (wood & steel), cement finisher

GROUP 2: Form erector (wood & steel and all accessories)

LABORERS CLASSIFICATIONS for ROCK SHAFT, CONCRETE LINING OF
SAME AND TUNNE IN FREE AIR

GROUP 1: Change house attendants

GROUP 2: Laborers, topside, bottom men (when heading is 50 ft. from shaft) and all other laborers

GROUP 3: Brakeman; trackman; tunnel laborers; shaft laborers

GROUP 4: Miner; cage tender; bellman

GROUP 5: Hazardous Waste work within the ""HOT"" zone. (A premium of two dollars \$2.00 per hour over the basic wage rate)

FOOTNOTE FOR LABORERS:

A. PAID HOLIDAYS: New Year's Day, Washington's Birthday, Patriot's Day, Memorial Day, Independence Day, Labor Day,

Columbus Day, Veteran's Day, Thanksgiving Day, and Christmas Day

LAB01421-001 12/01/2021

WRECKING LABORERS:

	Rates	Fringes
Laborers: (Wrecking)		
Group 1.....	\$ 41.33	27.37
Group 2.....	\$ 42.08	27.37
Group 3.....	\$ 42.33	27.37
Group 4.....	\$ 37.33	27.37
Group 5.....	\$ 40.43	27.37
Group 6.....	\$ 41.33	27.37

Group 1: Adzeman, Wrecking Laborer.

Group 2: Burners, Jackhammers.

Group 3: Small Backhoes, Loaders on tracks, Bobcat Type Loaders, Hydraulic ""Brock"" Type Hammer Operators, Concrete Cutting Saws.

Group 4: Yardman (Salvage Yard Only).

Group 5: Yardman, Burners, Sawyers.

Group 6: Asbestos, Lead Paint, Toxic and Hazardous Waste.

PAIN0035-001 07/01/2019

BARNSTABLE BRISTOL; DUKES; ESSEX; NANTUCKET; PLYMOUTH (Remainder of NORFOLK; MIDDLESEX AND SUFFOLK COUNTIES)

	Rates	Fringes
PAINTER		
NEW CONSTRUCTION:		
Bridge.....	\$ 50.36	30.25
Brush, Taper.....	\$ 39.86	30.25
Spray, Sandblast.....	\$ 41.26	30.25
REPAINT:		
Bridge.....	\$ 50.66	30.90
Brush, Taper.....	\$ 37.92	30.25
Spray, Sandblast.....	\$ 39.32	30.25

PAIN0035-015 07/01/2019

MIDDLESEX (Cambridge, Everett, Malden, Medford, Somerville) SUFFOLK COUNTY (Boston, Chelsea) NORFOLK COUNTY (Brookline)

	Rates	Fringes
PAINTER		
NEW CONSTRUCTION:		
Brush, Taper.....	\$ 45.65	30.25
Spray, Sandblast.....	\$ 47.05	30.25
REPAINT:		
Bridge.....	\$ 50.66	30.90
Brush, Taper.....	\$ 43.71	30.25
Spray, Sandblast.....	\$ 45.11	30.25

PLAS0534-001 01/01/2020

ESSEX; MIDDLESEX; NORFOLK AND SUFFOLK COUNTY

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 43.00	37.66

PLUM0004-001 09/01/2022		

MIDDLESEX (Ashby, Ayer-West of Greenville branch of Boston and Maine Railroad, Ft. Devens, Groton, Shirley, Townsend)

	Rates	Fringes
Plumbers and Pipefitters.....	\$ 50.50	27.67

PLUM0012-001 02/27/2022		

ESSEX (Ames, Andover, Beverly, Boxford, Byfield, Danvers, Essex, Georgetown, Gloucester, Groveland, Hamilton, Haverhill, Ipswich, Lawrence,Manchester, Marblehead, Merrimac, Methuem, Middleton, Newbury, Newburyport, North Andover, Peabody, Rockport, Rowley, Salem, Salisbury, Topsfieild, Wenham, West Newbury)

	Rates	Fringes
PLUMBER.....	\$ 63.39	30.83

PLUM0012-003 02/27/2022		

ESSEX (Ames, Andover, Beverly, Boxford, Byfield, Danvers, Essex, Georgetown, Gloucester, Groveland, Hamilton, Haverhill, Ipswich, Lawrence, Manchester, Marblehead, Merrimac, Methuen, Middleton, Newbury, Newburyport, North Andover, Peabody, Rockport, Rowley, Salem, Salisbury, Topsfield, Wenham, West Newbury)

	Rates	Fringes
Plumber, Pipefitter, Steamfitter.....	\$ 63.39	30.83

PLUM0012-006 02/27/2022		

ESSEX (Lynn, Lynnfield, Nahant, Saugus, and Swampscott); MIDDLESEX (Acton, Arlington, Ashland, Ayer - except W. of Greenville Branch of Boston & Maine RR, Bedford, Belmont, Billerica, Boxboro, Burlington, Cambridge, Carlisle, Chelmsford, Concord, Dracut, Dunstable, Everett, Framingham, Hudson, Holliston, Hopkinton, Lexington, Lincoln, Littleton, Lowell, Malden, Marlboro, Maynard, Medford, Melrose, Natick, Newton, North Reading, Pepperell, Reading, Sherborn, Somerville, Stoneham, Stow, Sudbury, Tewksbury, Tyngsboro, Wakefield, Waltham, Watertown, Wayland, Westford, Wilmington, Winchester, Woburn); NORFOLK (Bellingham, Braintree, Brookline, Canton, Cohasset, Dedham, Dover, Foxboro, Franklin, Medfield, Medway, Millis, Milton, Needham, Norfolk, Norwood, Plainville, Quincy, Sharon, Walpole, Wellesley, Westwood, Weymouth, Wrentham); PLYMOUTH (Hingham, Hull, Scituate); SUFFOLK

	Rates	Fringes
PLUMBER.....	\$ 63.39	30.83

PLUM0051-005 09/01/2018		

BARNSTABLE; BRISTOL; DUKES; NANTUCKET; NORFOLK (Avon, Holbrook, Randolph, Stoughton) PLYMOUTH(Remainder of County)

	Rates	Fringes
Plumbers and Pipefitters.....	\$ 42.04	29.91

PLUM0537-001 03/01/2022		

MIDDLESEX (Arlington, Cambridge, Everett, Malden, Medford, Melrose, Reading, Wakefield, Winchester and Woburn); NORFOLK (Bellingham, Braintree, Brookline, Canton Cashasset, Dedham, Foxboro, Franklin, Millis, Milton, Sharon, Walpole, Westwood, and Wrentham); PLYMOUTH (Hingham, Hull, Scituate); ESSEX (Ames, Andover, Beverly, Boxford, Byfield, Danvers, Essex, Georgetown, Gloucester, Groveland, Hamilton, Haverhill, Ipswich, Lawrence, Lynn, Lynnfield, Manchester, Marblehead, Merrimac, Methuen, Middleton, Nahant, Newbury, Newburyport, North Andover, Peabody, Rockport, Rowley, Salem, Salisbury, Saugus, Swampscott, Topsfield, Wenham, West Newbury)

	Rates	Fringes
PIPEFITTER.....	\$ 60.28	32.48

TEAM0379-001 08/01/2022		

	Rates	Fringes
Truck drivers:		
Group 1.....	\$ 34.98	31.36+a+b
Group 2.....	\$ 35.15	31.36+a+b
Group 3.....	\$ 35.22	31.36+a+b
Group 4.....	\$ 34.44	31.36+a+b
Group 5.....	\$ 35.44	31.36+a+b
Group 6.....	\$ 35.73	31.36+a+b
Group 7.....	\$ 36.02	31.36+a+b

POWER TRUCKS \$.25 DIFFERENTIAL BY AXLE
TUNNEL WORK (UNDERGROUND ONLY) \$.40 DIFFERENTIAL BY AXLE
HAZARDOUS MATERIALS (IN HOT ZONE ONLY) \$2.00 PREMIUM

TRUCK DRIVERS CLASSIFICATIONS

Group 1: Station wagons; panel trucks; and pickup trucks

Group 2: Two axle equipment; & forklift operator

Group 3: Three axle equipment and tireman

Group 4: Four and Five Axle equipment

Group 5: Specialized earth moving equipment under 35 tons other than conventional type trucks; low bed; vachual; mechanics, paving restoration equipment

Group 6: Specialized earth moving equipment over 35 tons

Group 7: Trailers for earth moving equipment (double hookup)

FOOTNOTES:

A. PAID HOLIDAYS: New Year's Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Patriot's Day, Columbus Day, Veteran's Day, Thanksgiving Day and Christmas Day

B. PAID VACATION: Employees with 4 months to 1 year of service receive 1/2 day's pay per month; 1 week vacation for 1 - 5 years of service; 2 weeks vacation for 5 - 10 years of service; and 3 weeks vacation for more than 10 years of service

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.
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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed

in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination

- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
 Wage and Hour Division
 U.S. Department of Labor
 200 Constitution Avenue, N.W.
 Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
 U.S. Department of Labor
 200 Constitution Avenue, N.W.
 Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
 U.S. Department of Labor
 200 Constitution Avenue, N.W.
 Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISIO"

"General Decision Number: MA20230017 01/27/2023

Superseded General Decision Number: MA20220017

State: Massachusetts

Construction Type: Highway

County: Bristol County in Massachusetts.

HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

<p>If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:</p>	<ul style="list-style-type: none"> . Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$16.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2023.
<p>If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:</p>	<ul style="list-style-type: none"> . Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$12.15 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2023.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number	Publication Date
0	01/06/2023
1	01/27/2023

ELEC0103-003 09/01/2022

	Rates	Fringes
ELECTRICIAN (Includes Traffic Signalization).....	\$ 58.28	35.47

ENGI0004-021 12/01/2021

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1.....	\$ 51.38	31.10
GROUP 2.....	\$ 50.83	31.10

FOOTNOTE FOR POWER EQUIPMENT OPERATORS:
 A. PAID HOLIDAYS: New Year's Day, Washington's Birthday, Labor Day, Memorial Day, Independence Day, Patriot's Day, Columbus Day, Veteran's Day, Thanksgiving Day, Christmas Day

POWER EQUIPMENT OPERATORS CLASSIFICATIONS
 Group 1: Backhoe/Excavator/Trackhoe; Bobcat/Skid Steer/Skid Loader; Broom/Sweeper; Crane; Gradall; Loader; Paver (Asphalt, Aggregate, and Concrete); Post Driver (Guardrail/Fences)
 Group 2: Bulldozer; Grader/Blade; Milling Machine; Roller

* IRON0007-029 09/16/2022

	Rates	Fringes
IRONWORKER, ORNAMENTAL.....	\$ 51.59	35.84

LABO0133-001 06/01/2022

	Rates	Fringes
LABORER (Concrete Surfacers).....	\$ 36.31	26.64

LABO0385-001 06/01/2018

	Rates	Fringes
LABORER		
Common or General.....	\$ 33.25	22.92
Fence Erection.....	\$ 33.50	22.92

LABO0721-001 06/01/2018

	Rates	Fringes
LABORER (Guardrail Installation).....	\$ 33.50	22.92

LABO0876-002 06/01/2018

	Rates	Fringes
LABORER (Landscape).....	\$ 33.25	22.92

PAIN0035-023 07/01/2019

	Rates	Fringes
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PAINTER (Steel).....	\$ 50.66	30.90
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SUMA2014-007 01/11/2017

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 56.70	21.08
IRONWORKER, REINFORCING.....	\$ 42.13	18.15
IRONWORKER, STRUCTURAL.....	\$ 45.19	17.30
LABORER: Asphalt, Includes Raker, Shoveler, Spreader and Distributor.....	\$ 34.72	16.01
LABORER: Concrete Saw (Hand Held/Walk Behind).....	\$ 44.43	14.18
LABORER: Jack Hammer.....	\$ 35.32	18.48
OPERATOR: Forklift.....	\$ 64.67	0.00
OPERATOR: Mechanic.....	\$ 48.74	11.79
OPERATOR: Piledriver.....	\$ 42.56	17.34
PAINTER: Spray (Linestriping)....	\$ 47.30	6.42
TRAFFIC CONTROL: Flagger.....	\$ 23.00	20.44
TRAFFIC CONTROL: Laborer-Cones/ Barricades/Barrels - Setter/Mover/Sweeper.....	\$ 53.35	12.78
TRUCK DRIVER: Concrete Truck....	\$ 33.69	15.79
TRUCK DRIVER: Dump Truck.....	\$ 39.03	12.89
TRUCK DRIVER: Flatbed Truck.....	\$ 48.53	0.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at

<https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the

classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor

200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISIO"

FEDERAL CONTRACT PROVISIONS

This project is funded by means of a Grant Agreement between the United States Department of Housing and Urban Development (HUD) and the City of New Bedford, for the provision of Federal financial assistance under Title 1 of the Housing and Community Development Act of 1974, and any amendments or supplements thereto, and Bidders must comply with the requirements of that Act and regulations issued by the Secretary of HUD.

CONTENTS:

- ❑ FEDERAL CONTRACT PROVISIONS
- ❑ FEDERAL PREVAILING WAGE RATE PROVISIONS
- ❑ FEDERAL BID SUBMISSION FORMS

FEDERAL CONTRACT PROVISIONS

1. TITLE VI OF THE CIVIL RIGHTS ACT OF 1964

(P.L. 88-352), as amended, (42 USC 2000d) and the requirements imposed by the Regulations of the Department of Commerce (15 CFR Part 8) issued pursuant to that

Title. In accordance, therewith no person in the United States shall, on the grounds of race, handicap, color, sex, national origin or familial status be excluded from participation in, be denied the benefits or be otherwise subjected to discrimination under any program or activity which is paid for with federal funds. The Owner further adds that there shall not be any form of discrimination by any party in any CDBG contract on the basis of familial status, sexual orientation or sex.

2. REHABILITATION ACT OF 1973

29 USC 794, Executive Order 11914, Section 504. No otherwise qualified handicapped individual shall, solely by reason of his/her handicap, be denied the benefits of, be excluded from participation in, or be subjected to discrimination under any program or activity receiving federal financial assistance.

3. SECTION 202 OF EXECUTIVE ORDER 11246

A. Activities and contracts not subject to Section 202(Applicable to Federally assisted construction contracts and related subcontracts of \$10,000 and under.) The City of New Bedford has established a 11% Minority Business Enterprises (MBEs) and 5%Women Business Enterprises (WBEs) goal of the contract's dollar amount which should be subcontracted out to construction firms owned by minorities or women, or by firms serving in the capacity of a supplier, material provider, consultant, architect or engineer. In order to ensure that the contractor and grantee have made a good faith effort to reach these goals, they are required to provide the City of New Bedford's Equal Employment Opportunity Officer documentation of their efforts to meet the goals prior to the start of construction.). Proven documentation of nonavailability of either one of these entities provides that the available businesses may be awarded no less than 16% of the total contract dollar value for most City projects

During the performance of this contract, the contractor agrees as follows:

1. The contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor shall take affirmative action to ensure that applicants for employment are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: employment upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of

Compensation; and selection for training, including apprenticeship.

2. The contractor shall post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Contracting Officer setting forth the provisions of this non-discrimination clause. The Contractor shall state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

3. Contractors shall incorporate foregoing requirements in all subcontracts.

B. Activities and contracts subject to Section 202

Applicable to Federally assisted construction contracts and related subcontracts exceeding \$10,000.

During the performance of this contract, the contractor agrees as follows:

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

(b) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration without regard to race, color, religion, sex, or national origin.

(c) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided by the Contract Compliance Officer advising the said labor union or workers' representative of the contractor's commitment under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(d) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(e) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the Department and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(f) In the event of the contractor's noncompliance with the non-discrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(g) The contractor will include the provisions of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the Department may direct as a means of enforcing such provision, including sanctions for non-compliance. Provided,

however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Department the contractor may request the United States to enter into such litigation to protect the interest of the United States.

2. The applicant hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government or borrowed on -the credit of the Federal Government pursuant to a grant, contract, loan insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee, the following equal opportunity clause:

During the performance of this contract, the contractor agrees as follows:

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

(b) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor; state that all qualified applicants WM receive considerations for employment without regard to race, color, religion, sex, or national origin.

(c) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract of understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and- applicants for employment.

(d) The contractor will comply with all provisions of Executive, Order 11246 of September 24, 1965, and the rules, regulations, and relevant orders of the Secretary of Labor.

(e) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for 'purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(f) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(g) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into -such litigation to protect the interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: Provided, that the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any contract. Or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering agency or the Secretary of labor pursuant to Part IL Subpart D of the Executive order. In addition, the applicant agrees that if it fails or refuses to comply within these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

4. CERTIFICATION OF NONSEGREGATED FACILITIES AS REQUIRED BY THE MAY 19, 1967, ORDER (32 F.R. 74390 ON ELIMINATION OF SEGREGATED FACILITIES, BY THE SECRETARY OF LABOR.

Prior to the award of any construction contract or subcontract exceeding \$10,000, the Contractor shall submit signed Certification of Nonsegregated Facilities Forms for him/herself and all subcontractors.

5. THE AGE DISCRIMINATION ACT OF 1975

No person in the United States shall, on the basis of age, be excluded from participation or be denied the benefits of, or be subjected to discrimination under, any program or activity undertaken with federal funds.

6. SECTION 109 OF THE HOUSING AND COMMUNITY DEVELOPMENT ACT OF 1974

No person in the United States shall on the ground of race, color, national origin, or sex be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity funded in whole or in part with funds made available under Title I of the Housing and Community Development Act of 1974.

7. SECTION 3 OF THE HOUSING AND URBAN DEVELOPMENT ACT OF 1968

Section 3 of the Housing and Urban Development Act of 1968 [12 U.S.C. 1701u and 24 CFR Part 75] is HUD's legislative directive for providing preference to low- and very low-income residents of the local community (regardless of race or gender), and the businesses that substantially employ these persons, for new employment, training, and contracting opportunities resulting from HUD-funded projects.

As a condition of receiving HUD assistance recipients certify that they will comply with the requirements of Section 3 annually pursuant to 24 CFR 570.607(b).

Applicability of Section 3 to Community Planning & Development Assistance:

Contractors or subcontractors on a project in **excess of \$200,000** for Section 3 covered projects are **required to comply** with Section 3. Accordingly, the recipient must attempt to reach the **Section 3 minimum numerical goals** found at 24 CFR Part 75, Subpart C:

- (1) Twenty-five (25) percent or more of the total number of labor hours worked by all workers on a Section 3 project are Section 3 workers;

$$\frac{\text{Section 3 Worker Labor Hours}}{\text{Total Labor Hours}} = 25\%$$

Total Labor Hours

And

- (2) Five (5) percent or more of the total number of labor hours worked by all workers on a Section 3 project are Targeted Section 3 workers, as defined at § 75.21.

$$\frac{\text{Targeted Section 3 Labor Hours}}{\text{Total Labor Hours}} = 5\%$$

Total Labor Hours

Recipients that fail to meet the minimum numerical goals above bear the burden of demonstrating why it was not possible to do so. Such justifications should describe the efforts that were taken, barriers encountered, and other relevant information that will enable the Department to make a compliance determination.

And that this contract, or any subcontracts, must adhere to and contain what is referred to as the Section 3 Clause, and which follows in its entirety:

Section 3 Clause:

A. The work to be performed under this contract, subcontract, memorandum of understanding, cooperative agreement, or similar legally binding agreement, is subject to the requirements of section 3 of the Housing and Urban Development Act of 1968 (Section 3). The purpose of Section 3 is to ensure, to the greatest extent feasible, that training, employment, contracting, and other economic opportunities generated by Section 3 covered financial assistance shall be directed to low- and very low-income residents of the neighborhood where the financial assistance is spent, particularly to those who are recipients of government assistance for housing, and to businesses that are either owned by low- or very low-income residents of the neighborhood where the financial assistance is spent, or substantially employ these persons.

B. The parties to this contract, subcontract, memorandum of understanding, cooperative agreement, or similar legally binding agreement agree to comply with HUD's regulations in 24 CFR Part 75, which implement Section 3. As evidenced by execution of this contract or subcontract memorandum of understanding, cooperative agreement or similar legally binding agreement the parties certify that they are under no contractual or other impediment that would prevent them from complying with the requirements of 24 CFR Part 75.

C. The contractor agrees to identify current employees on its payroll when the contract or subcontract was awarded who will be working on the Section 3 covered project or activity and certify that any vacant employment opportunities, including training positions, that are filled:

1. After the contractor is selected; and
2. With persons other than those that meet the definition of a Section 3 resident, were not filled to circumvent the contractor's Section 3 obligations.

D. The contractor agrees to maintain records documenting Section 3 residents that were hired to work on previous Section 3 covered projects or activities that were retained by the contractor for subsequent Section 3 covered projects or activities.

E. The contractor agrees to post signs advertising new employment, training, or Sub-contracting opportunities that will be available as a result of the Section 3 covered projects and activities in conspicuous places at the work site where potential applicants can review them.

F. The contractor agrees to hire, to the greatest extent feasible, Section 3 residents as new hires, or provide written justification to the recipient that is consistent with 24 CFR Part 75, describing why it was unable to meet minimum numerical hiring goals, despite its efforts to comply with the provisions of this clause.

G. The contractor agrees that in order for a Section 3 resident to be counted as a new hire, the resident must work a minimum of 50 percent of the average staff hours worked for the category of work for which they were hired throughout the duration of time that the category of work is performed on the covered project.

H. The contractor agrees to award, to the greatest extent feasible, 10 percent of the total dollar amount of subsequent subcontracts awarded in connection with the Section 3 covered project or activity to Section 3 businesses, or provide written justification that is consistent with 24 CFR Part 75 describing why it was unable to meet that goal, despite their efforts to comply with the provisions of this clause.

I. The contractor agrees to notify Section 3 residents and businesses about the availability of new employment, training, or contracting opportunities created as a result of the receipt of Section 3 covered financial assistance, as stipulated by the awarding agency.

J. The contractor agrees to verify the eligibility of prospective Section 3 residents and businesses for employment, training, or subcontracting opportunities, in accordance with the recipient's policies and procedures.

K. The contractor agrees to provide priority consideration to eligible residents and businesses in accordance with 24 CFR Part 75, as applicable.

L. The contractor agrees to notify potential bidders on subcontracts that are associated with Section 3 covered projects and activities about the requirements of Section 3 and include this Section 3 clause in its entirety into every subcontract awarded.

M. The contractor agrees to impose sanctions upon any subcontractor that has violated the requirements of this clause in accordance with the awarding agency's Section 3 policies and procedures.

N. The contractor agrees to comply with all monitoring, reporting, recordkeeping, and other procedures specified by the awarding agency.

O. If applicable, the contractor agrees to notify each labor organization or representative of workers with which the recipient, sub-recipient, or contractor has a collective bargaining or similar labor agreement or other understanding, if any, about its obligation to comply with the requirements of Section 3 and ensure that new collective bargaining or similar labor agreements provide employment, registered apprenticeship, training, subcontracting, or other economic opportunities to Section 3 residents and businesses, and to post notices in conspicuous places at the work site advising the labor union, organization, or workers' representative of the contractor's commitments under this part.

P. Failure to comply with this clause shall result in the imposition of sanctions. Appropriate sanctions for noncompliance may include: Requiring additional certifications or assurances of compliance; termination or cancellation of the contract, subcontract, memorandum of understanding, cooperative agreement, or similar legally binding arrangement for default; refraining from entering into subsequent contracts, subcontracts, memoranda of understanding, cooperative agreements, or similar legally binding arrangement; repayment of funds, and withholding a portion of contract awards, subcontracts, memoranda of understanding, cooperative agreements, or similar legally binding arrangements.

8. LABOR STANDARDS

A. Davis-Bacon Act as amended (40 U.S.C 276a - 276a-5.) All laborers and mechanics employed by contractors or subcontractors, including employees of other governments, on construction work assisted under this contract, and subject to the provisions of the federal acts and regulations listed in this paragraph, shall be paid wages at rates not less than those prevailing on similar construction in the locality as determined by the Secretary of Labor in accordance with the Davis-Bacon Act.

B. Contract Work Hours and Safety Standards Act (40 U.S.C. 327-333). All laborers and mechanics employed by contractors or subcontractors shall receive overtime compensation in accordance with and subject to the provisions of the Contract Work Hours and Safety Standards Act, and the contractors and subcontractors shall comply with all regulations issued pursuant to these acts and with other applicable Federal laws and regulations pertaining to labor standards.

C. Copeland Anti-Kickback Act requires that workers be paid at least once a week, and without any deductions or rebates except permissible deductions.

9. TITLE IV OF THE LEAD BASED PAINT POISONING PREVENTION ACT

LEAD-BASED PAINT HAZARDS -The use of lead-based paint, that is any paint containing more than 1%-lead by weight, is strictly prohibited from use on any interior surface or exterior surface in any building being rehabilitated with funding from the Community Development program. Additionally, any evidence of a health hazard, which is, defined as cracking, scaling, peeling and loose lead-based paint must be treated to prevent the ingestion of the contaminated paint. It is further necessary to assume that any of the above conditions constitute an immediate or potential hazard and must be corrected using appropriate methods.

10. THE UNIFORM RELOCATION ASSISTANCE AND REAL PROPERTY ACQUISITION POLICIES ACT OF 1970 (P.L. 91-646 as amended), 15 CFR Part 916 including amendments thereto and regulations there under, as provided by 1. M.R.SA 901 et seq. The Contractor and Grantee will ensure that all work performed under this Agreement will be done in accordance with this act.

11. THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 (P.L. 90-190); THE NATIONAL HISTORIC PRESERVATION ACT OF 1966 (80 Stat 915, 16 USC 470); AND EXECUTIVE ORDER NO. 11593 OF MAY 31, 1971.

The chief executive officer of the Grantee consents to assume the status of a responsible Federal official under the National Environmental Policy Act of 1969 (NEPA) and other provisions of Federal law, as specified in 24 CTR 58, which further the purposes of NEPA in the areas of historic preservation, noise control floodplains, coastal zones and wetlands, air quality, water quality, wildlife, endangered species, solid waste disposal, and environmental effects abroad.

The chief executive officer is authorized and consents on behalf of the Grantee and himself to accept the jurisdiction of the federal courts for the purpose of enforcement of his responsibilities as such an official.

12. THE FLOOD DISASTER PROTECTION ACT OF 1963 (P.L 93-234), AS AMENDED. e Grantee will fulfill any flood insurance requirements under this Act and any regulations issued there under which NOAA may issue.
13. ARCHITECTURAL BARRIERS ACT (P.L 90-480), 42 USC 4151, AS AMENDED, and the regulations issued or to be issued there under, prescribing standards for the design and construction of any building or facility intended to be accessible to the public or which may result in the employment of handicapped persons therein.
14. THE CLEAN AIR ACT AS AMENDED, 42 USC 1857 ED SEQ.9 THE FEDERAL WATER POLLUTION CONTROL ACT, AS AMENDED, 33 USC 1251 et seq. and the regulations of the Environmental Protection Agency with respect thereto, at 40 CFR Part 15, as amended from time to time. In no event shall any amount of the assistance provided under this Agreement be utilized with respect to a facility, which has given rise to a conviction under section 113(c) (1) of the Clean Air Act or section 309(c) of the Federal Water Pollution Control Act.

15. MINORITY BUSINESS ENTERPRISES

Referenced in Executive Order #11625, OMEB Circular A-102 Attachment 0 Procurement Standards. Grantees are to give priority to Minority Business Enterprises in purchase of supplies, equipment, construction, and services.

16. CDBG CERTIFICATION

Grantee shall provide any certification required under Sections 104(b), 106(d)(5) or under any other provision of Title I of the Housing and Community Development Act of

1974 as amended through 1983, including Amendments made by the Housing and Urban Rural Recovery Act of 1983, and shall comply with the terms of such certifications.

17. SECTION 319 OF PUBLIC LAW 101-121

The grantee shall comply with the requirements of Section 319 of Public Law 101-121 regarding government wide restrictions on lobbying.

SPECIAL CONDITIONS PERTAINING TO HAZARDS, SAFETY STANDARDS AND ACCIDENT PREVENTION

A. Lead-Based Paint Hazards

(Applicable to contracts for construction or rehabilitation of residential structures) The construction or rehabilitation of residential structures is subject to the HUD Lead-

Based Paint regulations, 24 CFR Part 35. The contractor and Subcontractors shall comply with the provisions for the elimination of lead-based paint hazards under sub-part B of said regulations. The Owner will be responsible for the inspections and certifications required under Section 35.14(f) thereof.

B. Use of Explosives

When the use of explosives is necessary for the prosecution of the work, the Contractor shall observe all local, state and federal laws in purchasing and handling explosives. The Contractor shall take all necessary precautions to protect completed work, neighboring property, water lines, or other underground structures. Where there is danger to structures or property from blasting, the charges shall be reduced and the material shall be covered with suitable timber, steel or rope mats. The Contractor shall notify all owners of public utility property of intention to use explosives at least eight hours before blasting is done, close to such property. Any supervision or direction of use of explosives by the Engineer does not in any way reduce the responsibility of the Contractor or his Surety for damages that may be caused by such use.

C. Danger Signals and Safely Devices

The Contractor shall make all necessary precautions to guard against damages to property and injury to persons. He shall put up and maintain in good condition, sufficient red or warning lights at night, suitable barricades and other devices necessary to protect the public. In case the Contractor fails or neglects to take such precautions, the Owner may have such lights and barricades installed and charge the cost of this work to the Contractor. Such action by the Owner does not relieve the Contractor of any liability incurred under these specifications or contract.

CITY OF NEW BEDFORD

LABOR STANDARDS PROVISIONS

- A. FEDERAL LABOR STANDARDS PROVISIONS HUD-4010
- B. FEDERAL WAGE RATE DECISION
- C. INSTRUCTIONS FOR COMPLETING WH-347 FORM
- D. PAYROLL FORM WH-347 AND STATEMENT OF COMPLIANCE
- E. EMPLOYEE INTERVIEW FORM-HUD-11
- F. EMPLOYEE RIGHTS POSTER

This project is funded by means of a Grant Agreement between the United States Department of Housing and Urban Development (HUD) and the City of New Bedford, for the provision of Federal financial assistance under Title 1 of the Housing and Community Development Act of 1974, and any amendments or supplements thereto, and Bidders must comply with the requirements of that Act and regulations issued by the Secretary of HUD.

The Project will trigger the Labor Standards provisions regarding conditions of employment, including State Wage Rates, Federal Wage Rates, the Davis-Bacon Act, the Copeland Anti-Kickback Act, and the Contract Work Hours and Safety Standards Act. The required practice of the U.S. Department of Housing and Urban Development is that where the State and Federal Wage Rates differ, the **HIGHER** of the two rates must be used.

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A. 1. (i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section I(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible, place where it can be easily seen by the workers.

(ii) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part

of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been

communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i) except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this subparagraph for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to HUD or its designee. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5 (a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph A.3.(ii)(b).

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under subparagraph A.3.(i) available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) **Apprentices.** Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who

is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) **Trainees.** Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by

the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under 29 CFR Part 5 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in subparagraphs 1 through 11 in this paragraph A and such other clauses as HUD or its designee may by appropriate instructions require, and a copy of the applicable prevailing wage decision, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this paragraph.

7. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (i) Certification of Eligibility. By entering into this contract the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be

awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1 01 0, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Administration..... makes, utters or publishes any statement knowing the same to be false..... shall be fined not more than \$5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. The provisions of this paragraph B are applicable where the amount of the prime contract exceeds \$100,000. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety. The provisions of this paragraph C are applicable where the amount of the prime contract exceeds \$100,000.

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, (Public Law 91-54, 83 Stat 96). 40 USC 3701 et seq.

(3) The contractor shall include the provisions of this paragraph in every subcontract so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontractor as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

WH-347 FORM INSTRUCTIONS

INSTRUCTIONS FOR COMPLETING PAYROLL FORM: WH-347

General: Form WH-347 has been made available for the convenience of contractors and subcontractors required by their Federal or Federally-aided construction-type contracts and subcontracts to submit weekly payrolls. Properly filled out, this form will satisfy the requirements of Regulations, Parts 3 and 5 (29 C.F.R., Subtitle A), as to payrolls submitted in connection with contracts subject to the Davis-Bacon and related Acts.

While completion of Form WH-347 is optional, it is mandatory for covered contractors and subcontractors performing work on Federally financed or assisted construction contracts to respond to the information collection contained in 29 C.F.R. §§ 3.3, 5.5(a). The Copeland Act (40 U.S.C. § 3145) requires contractors and subcontractors performing work on Federally financed or assisted construction contracts to "furnish weekly a statement with respect to the wages paid each employee during the preceding week." U.S. Department of Labor (DOL) Regulations at 29 C.F.R. § 5.5(a)(3)(ii) require contractors to submit weekly a copy of all payrolls to the Federal agency contracting for or financing the construction project, accompanied by a signed "Statement of Compliance" indicating that the payrolls are correct and complete and that each laborer or mechanic has been paid not less than the proper Davis-Bacon prevailing wage rate for the work performed. DOL and federal contracting agencies receiving this information review the information to determine that employees have received legally required wages and fringe benefits.

Under the Davis-Bacon and related Acts, the contractor is required to pay not less than prevailing wage, including fringe benefits, as predetermined by the Department of Labor. The contractor's obligation to pay fringe benefits may be met either by payment of the fringe benefits to bona fide benefit plans, funds or programs or

by making payments to the covered workers (laborers and mechanics) as cash in lieu of fringe benefits.

This payroll provides for the contractor to show on the face of the payroll all monies to each worker, whether as basic rates or as cash in lieu of fringe benefits, and provides for the contractor's representation in the statement of compliance on the payroll (as shown on page 2) that he/she is paying for fringe benefits required by the contract and not paid as cash in lieu of fringe benefits. Detailed instructions concerning the preparation of the payroll follow:

Contractor or Subcontractor: Fill in your firm's name and check appropriate box.

Address: Fill in your firm's address.

Payroll No.: Beginning with the number "1", list the payroll number for the submission.

For Week Ending: List the workweek ending date.

Project and Location: Self-explanatory.

Project or Contract No.: Self-explanatory.

Column 1 - Name and Individual Identifying Number of Worker: Enter each worker's full name and an individual identifying number (e.g., last four digits of worker's social security number) on each weekly payroll submitted.

Column 2 - No. of Withholding Exemptions:

This column is merely inserted for the employer's convenience and is not a requirement of Regulations, Part 3 and 5.

Column 3 - Work Classifications:

List classification descriptive of work actually performed by each laborer or mechanic. Consult classification and minimum wage schedule set

INSTRUCTIONS FOR COMPLETING PAYROLL FORM: WH-347

forth in contract specifications. If additional classifications are deemed necessary, see Contracting Officer or Agency representative. An individual may be shown as having worked in more than one classification provided an accurate breakdown or hours worked in each classification is maintained and shown on the submitted payroll by use of separate entries.

Column 4 - Hours worked: List the day and date and straight time and overtime hours worked in the applicable boxes. On all contracts subject to the Contract Work Hours Standard Act, enter hours worked in excess of 40 hours a week as "overtime".

Column 5 - Total: Self-explanatory

Column 6 - Rate of Pay (Including Fringe Benefits): In the "straight time" box for each worker, list the actual hourly rate paid for straight time worked, plus cash paid in lieu of fringe benefits paid. When recording the straight time hourly rate, any cash paid in lieu of fringe benefits may be shown separately from the basic rate. For example, "\$12.25/.40" would reflect a \$12.25 base hourly rate plus \$0.40 for fringe benefits. This is of assistance in correctly computing overtime. See "Fringe Benefits" below. When overtime is worked, show the overtime hourly rate paid plus any cash in lieu of fringe benefits paid in the "overtime" box for each worker; otherwise, you may skip this box. See "Fringe Benefits" below. Payment of not less than time and one-half the basic or regular rate paid is required for overtime under the Contract Work Hours Standard Act of 1962 if the prime contract exceeds \$100,000. In addition to paying no less than the predetermined rate for the classification which an individual works, the contractor must pay amounts predetermined as fringe benefits in the wage decision made part of the contract to approved fringe benefit plans,

funds or programs or shall pay as cash in lieu of fringe benefits. See "FRINGE BENEFITS" below.

Column 7 - Gross Amount Earned: Enter gross amount earned on this project. If part of a worker's weekly wage was earned on projects other than the project described on this payroll, enter in column 7 first the amount earned on the Federal or Federally assisted project and then the gross amount earned during the week on all projects, thus "\$163.00/\$420.00" would reflect the earnings of a worker who earned \$163.00 on a Federally assisted construction project during a week in which \$420.00 was earned on all work.

Column 8 - Deductions: Five columns are provided for showing deductions made. If more than five deduction are involved, use the first four columns and show the balance deductions under "Other" column; show actual total under "Total Deductions" column; and in the attachment to the payroll describe the deduction(s) contained in the "Other" column. All deductions must be in accordance with the provisions of the Copeland Act Regulations, 29 C.F.R., Part 3. If an individual worked on other jobs in addition to this project, show actual deductions from his/her weekly gross wage, and indicate that deductions are based on his gross wages.

Column 9 - Net Wages Paid for Week:
Self-explanatory.

Totals - Space has been left at the bottom of the columns so that totals may be shown if the contractor so desires.

INSTRUCTIONS FOR COMPLETING PAYROLL FORM: WH-347

STATEMENT OF COMPLIANCE

Statement Required by Regulations, Parts 3 and

5: While the "statement of compliance" need not be notarized, the statement (on page 2 of the payroll form) is subject to the penalties provided by 18 U.S.C. § 1001, namely, a fine, possible imprisonment of not more than 5 years, or both. Accordingly, the party signing this statement should have knowledge of the facts represented as true.

Items 1 and 2: Space has been provided between items (1) and (2) of the statement for describing any deductions made. If all deductions made are adequately described in the "Deductions" column above, state "See Deductions column in this payroll." See "FRINGE BENEFITS" below for instructions concerning filling out paragraph 4 of the statement.

Item 4 FRINGE BENEFITS - Contractors who pay all required fringe benefits: If paying all fringe benefits to approved plans, funds, or programs in amounts not less than were determined in the applicable wage decision of the Secretary of Labor, show the basic cash hourly rate and overtime rate paid to each worker on the face of the payroll and check paragraph 4(a) of the statement on page 2 of the WH-347 payroll form to indicate the payment. Note any exceptions in section 4(c).

Contractors who pay no fringe benefits:

If not paying all fringe benefits to approved plans, funds, or programs in amounts of at least those that were determined in the applicable wage decision of the Secretary of Labor, pay any remaining fringe benefit amount to each laborer and mechanic and insert in the "straight time" of the "Rate of Pay" column of the payroll an amount not less than the predetermined rate for each classification plus the amount of fringe benefits determined for each classification in the

application wage decision. Inasmuch as it is not necessary to pay time and a half on cash paid in lieu of fringe benefits, the overtime rate shall be not less than the sum of the basic predetermined rate, plus the half time premium on basic or regular rate, plus the required cash in lieu of fringe benefits at the straight time rate. In addition, check paragraph 4(b) of the statement on page 2 the payroll form to indicate the payment of fringe benefits in cash directly to the workers. Note any exceptions in section 4(c).

Use of Section 4(c), Exceptions:

Any contractor who is making payment to approved plans, funds, or programs in amounts less than the wage determination requires is obliged to pay the deficiency directly to the covered worker as cash in lieu of fringe benefits. Enter any exceptions to section 4(a) or 4(b) in section 4(c). Enter in the Exception column the craft, and enter in the Explanation column the hourly amount paid each worker as cash in lieu of fringe benefits and the hourly amount paid to plans, funds, or programs as fringe benefits. The contractor must pay an amount not less than the predetermined rate plus cash in lieu of fringe benefits as shown in section 4(c) to each such individual for all hours worked (unless otherwise provided by applicable wage determination) on the Federal or Federally assisted project. Enter the rate paid and amount of cash paid in lieu of fringe benefits per hour in column 6 on the payroll. See paragraph on "Contractors who pay no fringe benefits" for computation of overtime rate.

**WH-347 FORM
AND
STATEMENT OF COMPLIANCE**

PAYROLL

(For Contractor's Optional Use; See Instructions at www.dol.gov/whd/forms/wh347instr.htm)

Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number.



Rev. Dec. 2008

OMB No.: 1235-0008
Expires: 07/31/2024

NAME OF CONTRACTOR	OR SUBCONTRACTOR	ADDRESS
--------------------	------------------	---------

PAYROLL NO.	FOR WEEK ENDING	PROJECT AND LOCATION	PROJECT OR CONTRACT NO.
-------------	-----------------	----------------------	-------------------------

(1) NAME AND INDIVIDUAL IDENTIFYING NUMBER (e.g., LAST FOUR DIGITS OF SOCIAL SECURITY NUMBER) OF WORKER	(2) NO. OF WITHHOLDING EXEMPTIONS	(3) WORK CLASSIFICATION	OT OR ST.	(4) DAY AND DATE							(5) TOTAL HOURS	(6) RATE OF PAY	(7) GROSS AMOUNT EARNED	(8) DEDUCTIONS					(9) NET WAGES PAID FOR WEEK
				HOURS WORKED EACH DAY										FICA	WITH- HOLDING TAX	OTHER	TOTAL DEDUCTIONS		
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While completion of Form WH-347 is optional, it is mandatory for covered contractors and subcontractors performing work on Federally financed or assisted construction contracts to respond to the information collection contained in 29 C.F.R. §§ 3.3, 5.5(a). The Copeland Act (40 U.S.C. § 3145) contractors and subcontractors performing work on Federally financed or assisted construction contracts to "furnish weekly a statement with respect to the wages paid each employee during the preceding week." U.S. Department of Labor (DOL) regulations at 29 C.F.R. § 5.5(a)(3)(ii) require contractors to submit weekly a copy of all payrolls to the Federal agency contracting for or financing the construction project, accompanied by a signed "Statement of Compliance" indicating that the payrolls are correct and complete and that each laborer or mechanic has been paid not less than the proper Davis-Bacon prevailing wage rate for the work performed. DOL and federal contracting agencies receiving this information review the information to determine that employees have received legally required wages and fringe benefits.

Public Burden Statement

We estimate that it will take an average of 55 minutes to complete this collection, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. If you have any comments regarding these estimates or any other aspect of this collection, including suggestions for reducing this burden, send them to the Administrator, Wage and Hour Division, U.S. Department of Labor, Room S3502, 200 Constitution Avenue, N.W. Washington, D.C. 20210

Date _____

I, _____
 (Name of Signatory Party) (Title)

do hereby state:

(1) That I pay or supervise the payment of the persons employed by

_____ on the
 (Contractor or Subcontractor)

_____ ; that during the payroll period commencing on the
 (Building or Work)

_____ day of _____, _____, and ending the _____ day of _____, _____,
 all persons employed on said project have been paid the full weekly wages earned, that no rebates have
 been or will be made either directly or indirectly to or on behalf of said

_____ from the full
 (Contractor or Subcontractor)

weekly wages earned by any person and that no deductions have been made either directly or indirectly
 from the full wages earned by any person, other than permissible deductions as defined in Regulations, Part
 3 (29 C.F.R. Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948,
 63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. § 3145), and described below:

(2) That any payrolls otherwise under this contract required to be submitted for the above period are
 correct and complete; that the wage rates for laborers or mechanics contained therein are not less than the
 applicable wage rates contained in any wage determination incorporated into the contract; that the classifications
 set forth therein for each laborer or mechanic conform with the work he performed.

(3) That any apprentices employed in the above period are duly registered in a bona fide apprenticeship
 program registered with a State apprenticeship agency recognized by the Bureau of Apprenticeship and
 Training, United States Department of Labor, or if no such recognized agency exists in a State, are registered
 with the Bureau of Apprenticeship and Training, United States Department of Labor.

(4) That:

(a) WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS, OR PROGRAMS

— in addition to the basic hourly wage rates paid to each laborer or mechanic listed in
 the above referenced payroll, payments of fringe benefits as listed in the contract
 have been or will be made to appropriate programs for the benefit of such employees,
 except as noted in section 4(c) below.

(b) WHERE FRINGE BENEFITS ARE PAID IN CASH

— Each laborer or mechanic listed in the above referenced payroll has been paid,
 as indicated on the payroll, an amount not less than the sum of the applicable
 basic hourly wage rate plus the amount of the required fringe benefits as listed
 in the contract, except as noted in section 4(c) below.

(c) EXCEPTIONS

EXCEPTION (CRAFT)	EXPLANATION

REMARKS:

NAME AND TITLE	SIGNATURE

THE WILLFUL FALSIFICATION OF ANY OF THE ABOVE STATEMENTS MAY SUBJECT THE CONTRACTOR OR
 SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION. SEE SECTION 1001 OF TITLE 18 AND SECTION 3729 OF
 TITLE 31 OF THE UNITED STATES CODE.

FEDERAL DAVIS-BACON EMPLOYEE NOTICES

**Record of Employee
Interview Instructions****U.S. Department of Housing
and Urban Development
Office of Davis-Bacon and Labor Standards**OMB Approval No. 2501-0009
(exp. 12/31/2024)

InstructionsGeneral:

This form is to be used by HUD and local agency staff for recording information gathered during on-site interviews with laborers and mechanics employed on projects subject to Federal prevailing wage requirements. Typically, the staff that will conduct on-site interviews and use this form are HUD staff and fee construction inspectors, HUD Labor Standards staff, and local agency labor standards contract monitors.

Information recorded on the form HUD-11 is evaluated for general compliance and compared to certified payroll reports submitted by the respective employer. The comparison tests the veracity of the payroll reports and may be critical to the successful conclusion of enforcement actions in the event of labor standards violations. The thoroughness and accuracy of the information gathered during interviews is crucial.

Note that the interview itself and the information collected on the form HUD-11 are considered confidential. Interviews should be conducted individually and privately. All laborers and mechanics employed on the job site must be made available for interview at the interviewer's request. The employee's participation, however, is voluntary. Interviews shall be conducted in a manner and place that are conducive to the purposes of the interview and that cause the least inconvenience to the employer(s) and the employee(s).

Completing the form HUD-11:

Items 1a - 1c: Self-explanatory

Items 2a – 2d: Enter the employee's full name, a telephone number where the employee can be reached, and the employee's home address. Many construction workers use a temporary address in the locality of the project and have a more permanent address elsewhere from which mail may be forwarded to them. Obtain a more permanent address, if available. Ask the employee for a form of identification (e.g., driver's license) to verify their name.

Items 3a – 4c: Enter the employee's responses. Ask the employee whether they have a pay stub with them; if so, determine whether the pay stub is consistent with the information provided by the employee.

Items 5 – 7: Be certain that the employee's responses are specific. For example, job classification (#5) must identify the trade involved (e.g., Carpenter, Electrician, Plumber) – responses such as "journeyman" or "mechanic" are not helpful for our purposes.

Items 8 – 12b: Self-explanatory

Items 13 – 15c: These items represent some of the most important information that can be gathered while conducting on-site interviews. Please be specific about the duties you observed the employee performing. It may be easiest to make these observations before initiating the interview. Please record any comments or remarks that may be helpful. For example, if the employee interviewed was working with a crew, how many workers were in the crew? Was the employee evasive?

The level of specificity that is warranted is directly related to the extent to which interview(s) or other observations indicate that there may be violations present. If interviews indicate that there may be underpayments involving a particular trade(s), the interviewer is encouraged to interview as many workers in that trade(s) that are available.

Items 16 – 17b: The information on the form HUD-11 may be reviewed for general compliance, initially. For example, are the job classification and wage rate stated by the employee compatible with the classifications and wage rates on the applicable wage decision? Are the duties observed by the interviewer consistent with the job classification?

Item 18: Please place here any additional information you may want to document or continuing information from other lines that do not fit in their block space.

Once the corresponding certified payroll reports are received, the information on the HUD-11 shall be compared to the payroll reports. Any discrepancies noted between the HUD-11 information and that on the payroll report shall be noted in Item 16, Remarks. If discrepancies are noted, follow-up actions to resolve the discrepancies must be taken.

Record of Employee Interview

U.S. Department of Housing and Urban Development Office of Davis-Bacon and Labor Standards

OMB Approval No. 2501-0009

(exp. 12/31/2024)

The public reporting burden estimate for this collection of information is 15 minutes per response on average. This includes reviewing instructions, searching existing data sources, gathering, and maintaining the data, and completing the collection of information. This information may not be collected, nor are you required to provide, the information requested unless it displays a currently valid OMB control number. The information collected ensures compliance with the Federal labor standards through recording interviews with construction workers. The information collected assists HUD in compliance monitoring of Federal labor standards. Any information collected is covered by the Privacy Act of 1974 and by 29 CFR 5.6(a)(5). Individuals and agencies collecting this information must maintain these records in a manner that protects the individuals on whom the information is maintained. The information collected herein is voluntary, and any information provided shall be kept confidential, but failure to provide the information collected may delay enforcement of any possible Federal labor standards violations if the information would have identified any. Comments concerning this burden statement, or this collection should be sent to: National Director, Office of Davis-Bacon and Labor Standards, 451 7th Street SW, Room 7108, Washington, DC 20410. When providing comments, please refer to OMB Approval 2501-0009

Pursuant to 5 U.S.C. § 552a(e)(3), this Privacy Act Statement serves to inform you of the following concerning the collection of the information on this form.
A. AUTHORITY: Collection of the information solicited on this form is authorized by the Davis-Bacon Act as promulgated through Department of Labor Regulations under 29 CFR Part 5.
B. PURPOSE: The primary purpose for soliciting this information is to determine if the wages paid by an employer on a project covered by the Davis-Bacon Act are in compliance with federal labor standards.
C. ROUTINE USES: The information collected ensures compliance with the Federal labor standards through recording interviews with construction workers on topics related to wages paid on the project. The information is reviewed by HUD authorized personnel to ensure compliance with Federal labor standards under the Davis-Bacon Act on covered projects. If violations are found, the information collected is used to conduct enforcement actions to ensure restitution is paid to workers of covered projects are paid proper wages under the Davis-Bacon Act.
D. CONSEQUENCES OF FAILURE TO PROVIDE INFORMATION: The information collection is voluntary. Refusing to give information will not impact your status with your employer or the government. Failure to provide the information will limit the ability of HUD to determine if you were paid proper wages under the Davis-Bacon Act, and will limit the ability for HUD to seek restitution for you in the event a violation is found.

1a. Project Name			2a. Employee Name		
1b. Project Number			2b. Employee Phone Number (including area code)		
1c. Contractor or Subcontractor (Employer)			2c. Employee Home Address & Zip Code		
			2d. Verification of identification? Yes No		
3a. How long on this job?	3b. Last date on this job before today?	3c. No. of hours last day on this job?	4a. Hourly rate of pay?	4b. Fringe Benefits? Vacation Yes No Medical Yes No Pension Yes No	4c. Pay stub? Yes No
5. Your job classification(s) (list all) --- continue in block 18 if necessary					
6. Your duties --- continue in block 18 if necessary					
7. Tools or equipment used --- continue in block 18 if necessary					
8. Are you an apprentice or trainee? Yes No		10. Are you paid at least time and ½ for all hours worked in excess of 40 in a week? Yes No			
9. Are you paid for all hours worked? Yes No		11. Have you ever been threatened or coerced into giving up any part of your pay? Yes No			
12a. Employee Signature			12b. Date		
13. Duties observed by the Interviewer (Please be specific.)					
14. Remarks --- continue in block 18 if necessary					
15a. Interviewer Name (Please Print)		15b. Signature of Interviewer		15c. Date of Interview	
Payroll Examination					
16. Remarks --- continue in block 18 if necessary					
17a. Signature of Payroll Examiner			17b. Date		

**Record of Employee
Interview**

**U.S. Department of Housing and Urban Development
Office of Davis-Bacon and Labor Standards**

OMB Approval No. 2501-0009
(exp. 12/31/2024)

18. Additional Remarks

CONFIDENTIAL

EMPLOYEE RIGHTS

UNDER THE DAVIS-BACON ACT

FOR LABORERS AND MECHANICS EMPLOYED ON FEDERAL OR FEDERALLY ASSISTED CONSTRUCTION PROJECTS

PREVAILING WAGES

You must be paid not less than the wage rate listed in the Davis-Bacon Wage Decision posted with this Notice for the work you perform.

OVERTIME

You must be paid not less than one and one-half times your basic rate of pay for all hours worked over 40 in a work week. There are few exceptions.

ENFORCEMENT

Contract payments can be withheld to ensure workers receive wages and overtime pay due, and liquidated damages may apply if overtime pay requirements are not met. Davis-Bacon contract clauses allow contract termination and debarment of contractors from future federal contracts for up to three years. A contractor who falsifies certified payroll records or induces wage kickbacks may be subject to civil or criminal prosecution, fines and/or imprisonment.

APPRENTICES

Apprentice rates apply only to apprentices properly registered under approved Federal or State apprenticeship programs.

PROPER PAY

If you do not receive proper pay, or require further information on the applicable wages, contact the Contracting Officer listed below:

or contact the U.S. Department of Labor's Wage and Hour Division.



WAGE AND HOUR DIVISION
UNITED STATES DEPARTMENT OF LABOR

1-866-487-9243
TTY: 1-877-889-5627
www.dol.gov/whd



DERECHOS DEL EMPLEADO BAJO LA LEY DAVIS-BACON

PARA OBREROS Y MECÁNICOS EMPLEADOS EN PROYECTOS DE CONSTRUCCIÓN FEDERAL O CON ASISTENCIA FEDERAL

SALARIOS PREVALECIENTES

No se le puede pagar menos de la tasa de pago indicada en la Decisión de Salarios Davis-Bacon fijada con este Aviso para el trabajo que Ud. desempeña.

SOBRETIEMPO

Se le ha de pagar no menos de tiempo y medio de su tasa básica de pago por todas las horas trabajadas en exceso de 40 en una semana laboral. Existen pocas excepciones.

CUMPLIMIENTO

Se pueden retener pagos por contratos para asegurarse que los obreros reciban los salarios y el pago de sobretiempo debidos, y se podría aplicar daños y perjuicios si no se cumple con las exigencias del pago de sobretiempo. Las cláusulas contractuales de Davis-Bacon permiten la terminación y exclusión de contratistas para efectuar futuros contratos federales hasta tres años. El contratista que falsifique los registros certificados de las nóminas de pago o induzca devoluciones de salarios puede ser sujeto a procesamiento civil o criminal, multas y/o encarcelamiento.

APRENDICES

Las tasas de aprendices sólo se aplican a aprendices correctamente inscritos bajo programas federales o estatales aprobados.

PAGO APROPIADO

Si Ud. no recibe el pago apropiado, o precisa de información adicional sobre los salarios aplicables, póngase en contacto con el Contratista Oficial que aparece abajo:

o póngase en contacto con la División de Horas y Salarios del Departamento de Trabajo de los EE.UU.



DIVISIÓN DE HORAS Y SALARIOS
DEPARTAMENTO DE TRABAJO DE LOS EE.UU.

1-866-487-9243
TTY: 1-877-889-5627
www.dol.gov/whd



FEDERAL BID SUBMISSION CERTIFICATIONS



City of New Bedford

Office of Housing & Community Development

608 Pleasant St, New Bedford, Massachusetts 02740

Telephone: (508) 979.1500 Facsimile: (508) 979.1575

JOSHUA D. AMARAL
DIRECTOR

FEDERAL BID SUBMISSION CERTIFICATIONS

For Contracts between \$10,000 - \$100,000

- 1. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER MATTERS**
- 2. CERTIFICATION OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY AND MBE/WBE PARTICIPATION**

For Contracts Exceeding \$100,000

- 1. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER MATTERS**
- 2. CERTIFICATION OF CONTRACTOR REGARDING SEGREGATED FACILITIES**
- 3. CERTIFICATION OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY AND MBE/WBE PARTICIPATION**

For Contracts Exceeding \$200,000

- 1. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER MATTERS**
- 2. CERTIFICATION OF CONTRACTOR REGARDING SEGREGATED FACILITIES**
- 3. CERTIFICATION OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY AND MBE/WBE PARTICIPATION**
- 4. SECTION 3 FPRMS**

EQUAL EMPLOYMENT OPPORTUNITY PROVISIONS

I, the undersigned, understand that the following is applicable for contracts and sub-contracts that are funded in whole or in part with federal HUD funding:

I. Executive Order 11246: Equal Employment Opportunity

Executive Order 11246, as amended by Executive Order 12066 (41 CFR Chapter 60), and the regulations at 24 CFR Part 130, which provide that no person shall be discriminated against on the basis of race, color, religion, sex or national origin in all phases of employment during the performance of HUD assisted **construction contracts**. Participating contractors and subcontractors must take affirmative action to ensure fair treatment in employment, upgrading, demotion, transfer, recruitment and recruitment advertising; layoff and termination; rates of pay and compensation; and selection for training and apprenticeship. This provision shall apply to all construction contracts of \$10,000.00 or more entered into by the Office of Housing and Community Development or Sub Recipient and specific affirmative actions including:

- A. Posting in a conspicuous place the “Equal Employment Opportunity (EEO) Poster;
- B. stating in all solicitations or advertisements for employees that all qualified applicants will receive consideration for employment without regard to race, creed, color, sex, or national origin;
- C. sending to each labor union or representative of workers with which there is a collective bargaining agreement a copy of the EEO poster for posting; and
- D. placing the “Equal Opportunity Clause” in all subcontracts for any project **which exceeds \$10,000.**

II. Minority Business Enterprises (MBEs) and Women Business Enterprises (WBEs)

The City of New Bedford has established the following goals for MBE and WBE contracts:

- A. Minority Business Enterprises are to be awarded at least 11% of the total contract amount for construction/public works projects.
- B. Women Business Enterprises are to be awarded at least 5% of the total contract amount for construction/public works projects.

The City of New Bedford through the Office of Housing and Community Development encourages contractors to work with the Supplier Diversity Office (SDO), to provide opportunities for participation by minority and women owned businesses in federal HUD funded projects.

The address and telephone number of the Supplier Diversity Office (SDO), The McCormack Building, One Ashburton Place, Room 1017, Boston, MA 02108, Phone - (617) 502-8831

Website: <https://www.mass.gov/orgs/supplier-diversity-office-sdo>

The following are some suggested actions contractors or subcontractors may be able to increase the participation of MBEs and WBEs:

- a) contact the The address and telephone number of the Supplier Diversity Office (SDO), The McCormack Building, One Ashburton Place, Room 1017, Boston, MA 02108, Phone - (617) 502-8831
Website: <https://www.mass.gov/orgs/supplier-diversity-office-sdo>

- b) disseminate information on business opportunities for MBEs and WBEs through announcements in the local media and through local minority, women, business, professional trade groups;

The bidder hereby certifies that he/she shall comply with the Section 3 requirements and MBE/WBE affirmative action steps contained in the above, including submission of required reports with each payment request.

Authorized Signature

Date

Name (Please Print or Type)

Title

**MINORITY/WOMAN BUSINESS ENTERPRISES
UNAVAILABILITY FORM**

To be completed by General Contractor

The undersigned contractor describes below all due diligence requirements known and making every possible effort to meet the minimum requirements for Minority/Women Business Enterprises (MBE/WBE/DBE) participation and said Contractor is seeking relief from these requirements by filing this form. A minimum of 11% of the total construction contract must be awarded to MBEs and a minimum of 5% of the total construction contract must be awarded to WBEs.

The General Contractor shall prepare additional copies of this information form in the quantity necessary to comply with the bidding requirements.

I, _____, _____
Name Title
Of _____ . Certify that on _____, I contacted the below listed
General Contractor Name Date

MBE/WBE(s) requesting a bid for Project _____ as an
Project Name

___ MBE or ___ WBE for the provision of ___ Goods & Services or ___ Labor to accomplish:

_____ Sub work offered to this MBE/WBE (plumbing, electrical, carpentry etc...)

_____ Name of Prospective Sub-Contractor _____ Address, City and State

Contact was made by ___ Telephone ___ In Person

Said sub-contractor was unavailable for work on this project or unable to prepare a bid for the following reason(s): (check appropriate answer):

MBW/WBE/DBE Firm Declined Job

MBE/WBE/DBE Firm offered to do a job at the price of \$ _____, which was not acceptable because: _____.

Other _____

The above information is accurate and complete, to the best of my knowledge and belief. Signed under the pains and penalties of perjury.

Signature of Authorized Representative, General Contractor

Date

CITY OF NEW BEDFORD
SCHEDULE OF PARTICIPATION
MINORITY BUSINESS ENTERPRISES/WOMEN BUSINESS ENTERPRISES

TO BE COMPLETED AND SUBMITTED WITH BID

	MBE or WBE	Race/ Ethnicity	Name of Firm	Trade	Total Contract Award
1					
2					
3					
4					
5					

MBE/WBE CERTIFICATION: The bidder hereby certifies that the above-named Minority Business Enterprise and/or Women’s Business Enterprise is currently certified by the State Office of Minority/Woman Business Assistance (SOMWBA)/ and such SOMWBA certification has not changed; and in the event of said status changing, it will immediately forward written notification to the City of New Bedford.

The bidder further agrees to furnish implementation reports, as required by the awarding authority, to indicate the MBE/WBE, which it has used or intends to use. Breach of this commitment constitutes a breach of the contract.

General Bidder Name:

Authorized Signature: _____ Date: _____

CERTIFICATION OF CONTRACTOR REGARDING
SEGREGATED FACILITIES
(For Prime Contracts Exceeding \$100,000)

Name of Prime Contractor: _____

Project Name and Number: _____

The undersigned hereby certifies that:

- (a) No segregated facilities will be maintained as required by Title VI of the Civil Rights Act of 1964.

Contractor's Name (printed)

Contractor Name (signature)

Title

License Number

Company Name

Street Address

Mail Address

City, State, Zip Code

City, State, Zip Code

SECTION 3 FEDERAL REQUIREMENTS

For Contracts Exceeding \$200,000

- 1. SECTION 3 AFFIRMATIVE REQUIREMENTS**
- 2. SECTION # CLAUSE**
- 3. SECTION 3 AFFIRMATIVE ACTION PLAN**
- 4. SECTION 3 CERTIFICATION FOR BUSINESS CONCERNS**
- 5. SECTION 3 INCOME CERTIFICATION FORM**
- 6. SECTION 3 UTILIZATION REPORT (SUBMITTAL REQUIRED PRIOR TO FINAL PAYMENT)**

SECTION 3 AFFIRMATIVE REQUIREMENT

[For Prime and Subcontracts that exceed \$200,000]

Section 3 of the Housing and Urban Development Act of 1968 [12 U.S.C. 1701u and 24 CFR Part 75] is HUD's legislative directive for providing preference to low- and very low-income residents of the local community (regardless of race or gender), and the businesses that substantially employ these persons, for new employment, training, and contracting opportunities resulting from HUD-funded projects. As a condition of receiving HUD assistance recipients certify that they will comply with the requirements of Section 3 annually pursuant to 24 CFR 570.607(b).

Section 3 projects are those where HUD program assistance is used for housing rehabilitation, housing construction and other public construction projects that generally exceed a \$200,000 project threshold or any Section 3 project funding from HUD's Lead Hazard Control and Healthy Homes programs.

Applicability of Section 3 to Community Planning & Development Assistance:

Contractors or subcontractors on a project in excess of **\$200,000** for Section 3 covered projects are **required to comply** with Section 3. Accordingly, the recipient must attempt to reach the **Section 3 minimum numerical goals** found at 24 CFR Part 75, Subpart C:

- (1) Twenty-five (25) percent or more of the total number of labor hours worked by all workers on a Section 3 project are Section 3 workers;

$$\frac{\text{Section 3 Worker Labor Hours}}{\text{Total Labor Hours}} = 25\%$$

And

- (2) Five (5) percent or more of the total number of labor hours worked by all workers on a Section 3 project are Targeted Section 3 workers, as defined at § 75.21.

$$\frac{\text{Targeted Section 3 Labor Hours}}{\text{Total Labor Hours}} = 5\%$$

Recipients that fail to meet the minimum numerical goals above bear the burden of demonstrating why it was not possible to do so. Such justifications should describe the efforts that were taken, barriers encountered, and other relevant information that will enable the Department to make a compliance determination.

Contractor Responsibilities Pursuant to Section 3

- The Prime Contractor (Over \$200,000) must submit a Section 3 plan (attached) to the Sub-Recipient outlining Section 3 hiring and employment opportunities.
- The Prime Contractor must notify all sub-contractors (Over \$200,000) of their responsibilities under Section 3
- The Prime Contractor must provide a permeant workforce breakdown of all current employees and identify those Section 3 workers that were hired within the last five years.

- The Prime Contractor must provide an estimated breakdown of potential hires for the awarded project and timeline of anticipated hiring
- Maintain records that document a **good faith effort** to utilize Section 3 workers and Target Section 3 workers as trainees and employees. (Required of both contractor and sub- contractor.) and any other qualitative efforts to comply with Section 3.

Section 3 Workers are:

HUD defines a Section 3 worker for both public housing financial assistance and Section 3 projects as a worker that meets one of the following requirements:

- The worker's income is below the income limit established by HUD for the project area.
- The worker is employed by a Section 3 business concern.
- The worker is a YouthBuild participant.

For § 75.21, Section 3 projects, a Targeted Section 3 worker includes any worker who is employed by a Section 3 business concern or is a Section 3 worker who is:

- Living within the service area or neighborhood of the project; or
- A YouthBuild participant.

Section 3 Businesses are:

HUD defines a Section 3 business concern as a business concern that meets one of the following requirements:

- It is at least 51 percent owned by low- or very low-income persons;
- Over 75 percent of the labor hours performed for the business are performed by low- or very low-income persons; or
- It is a business at least 51 percent owned by current public housing residents or residents who currently live in Section 8-assisted housing.

Some examples include: proof of residency in a public housing authority; proof of federal subsidies for housing, food stamps, or unemployment benefits; and payroll data or other relevant business information.

For additional information, please visit the Section 3 website at: www.hud.gov/section3.

SECTION 3 CLAUSE

All Section 3 covered contracts shall include the following clause (referred to as the “Section 3 Clause”):

A. The work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

B. The parties to this contract agree to comply with HUD's regulations in 24 CFR Part 75, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 75 regulations.

C. The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

D. The contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR Part 75, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR Part 75. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR Part 75.

E. The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected by before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR Part 75 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR Part 75.

F. Noncompliance with HUD's regulations in 24 CFR Part 75 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

SECTION 3 AFFIRMATIVE ACTION PLAN
(Prime Contractor)
[For Projects that exceed \$200,000]

_____, Contractor, agrees to implement the following specific affirmative action steps directed at increasing the utilization of Section 3 Residents' and Section 3 Business Concerns within the City of New Bedford.

- A.** To ascertain from the City the exact boundaries of the Section 3 Covered Project Area and where advantageous, seek the assistance of City of New Bedford in preparing and implementing the affirmative action plan.
- B.** To attempt to recruit from within the City of New Bedford the necessary individuals to fill employment opportunities generated by Section 3 covered assistance through: local advertising media, signs placed at the proposed site for the project, and community organizations and public or private institutions operating within or serving the project area and providing preference for these opportunities in the following order:
 - (i) Section 3 Residents residing in the service area or neighborhood in which the Section 3 covered project is located;
 - (ii) Participants in HLJD Youthbuild Programs, and
 - (iii) Other Section 3 Residents.
- C.** To maintain a list of all lower income area residents who have applied either on their own or on referral from any source, and to employ such persons, if otherwise eligible and a vacancy exists.
- D.** To insert this Section 3 Affirmative Action Plan in all bid documents for contracts over \$200,000, and to require all bidders on subcontracts over \$200,000 to submit a Section 3 Affirmative Action Plan, including utilization goals and the specific steps planned to accomplish these goals.
- E.** To ensure that subcontracts over \$200,000 which are typically let on a negotiated rather than bid basis in areas other than Section 3 covered project areas, are also let on a negotiated basis, whenever feasible, when let in a Section 3 covered project area.
- F.** To formally contact unions, subcontractors and trade associations to secure their cooperation for this program.
- G.** To notify Section 3 residents and Section 3 business concerns about economic opportunities generated by Section 3 covered assistance and to award Section 3 covered contracts, to the greatest extent feasible, to Section 3 business concerns in the following order of preference:
 - (i) Section 3 business concerns that provide economic opportunities for Section 3 residents in the service area or neighborhood in which the Section 3 covered project is located;
 - (ii) Applicants selected to carry out HUD Youthbuild projects;
 - (iii) Other Section 3 business concerns.
- H.** To notify potential contractors about Section 3 requirements of this part and incorporating the Section 3 clause in all solicitations and contracts.

- I.** To facilitate the training and employment of Section 3 residents and the award of contracts to Section 3 business concerns undertaking activities to reach the numerical goal established by HUD.
- J.** To cooperate in obtaining the compliance of contractors and subcontractors with the requirements of Section 3.
- K.** To submit reports to City and HUD on the results of actions taken to provide training, jobs and contracts to Section 3 residents and Section 3 business concerns.
- L.** To appoint an executive official of the company or agency as Equal Employment Opportunity Officer to coordinate the implementation of this Section 3 Affirmative Action Plan.
- M.** To document utilization of Section 3 Employees on the covered project by having existing employees, and new employees, (including those of all subcontractors) from the Section 3 Area, complete the Section 3 Income Worksheet as provided by the City.
- N.** To complete a Section 3 Utilization Report and submit said report to City of New Bedford, or their designee prior to final payment for the covered project; This report will list all Section 3 Employees documented on the Section 3 Income Worksheets and be in the format provided by City.
- O.** To maintain records, including copies of correspondence, income verification memoranda, etc., which document that all levels of the above affirmative action steps have been taken.

CONTRACTOR CERTIFICATION:

As officers and representative of: _____
 (Name of Contractor)

On behalf of the Company, I have read and fully agree to the Section 3 Affirmative Action Plan, and become a party to the full implementation of this program.

 Name and Title of the Authorized Representative (print or type)

 Signature of Authorized Representative Date

SECTION 3 BUSINESS SELF-CERTIFICATION

Section 3 Business Category	Additional Required Information	Place X
It is at least 51 percent owned by low- or very low-income persons;	Proof of ownership showing all owners and their percentages and a completed Section 3 Individual Self-Certification form for all low- and very low- income owners	
Over 75 percent of the labor hours performed for the business are performed by low- or very low-income persons; or	Provide the last 90 days full payrolls for the entire company, make a list of the names from the payrolls of the Section 3 workers, and provide a completed Section 3 Individual Self-Certification for all low- and very low-income workers you list	
It is a business at least 51 percent owned by current public housing residents or residents who currently live in Section 8-assisted housing.	Proof of ownership showing all owners and their percentages and a Section 3 Individual Self- Certification form for all public housing and/or Section 8 owners	

I hereby certify to the US Department of Housing and Urban Development (HUD) that all of the information on this form is true and correct. I attest under penalty of perjury that my business meets the elected definition and understand proof of this information may be requested. If found to be inaccurate, I understand that I may be disqualified as a certified Section 3 business.

Signature		Date Signed	
Printed Name		Title	
Company Name			
Company Address			

SECTION 3 INCOME CERTIFICATION FORM

To be completed by ALL NEW employees for the Project. Completion of this form is solely to determine if there is utilization of Section 3 employees on this construction project and should not be considered a condition of employment.

Income limits by U.S. Department of Housing and Urban Development. Please check the appropriate box next to family size and income of weather above or below that income level.

FAMILY SIZE	INCOME	ABOVE INCOME (X)	BELOW INCOME (X)
1	\$47,150		
2	\$53,850		
3	\$60,600		
4	\$67,300		
5	\$72,700		
6	\$78,100		
7	\$83,500		
8	\$88,850		

Applicant's Signature

Typed or Printed Name

I certify, under the penalties of law, that this income information is correct and I understand that the information I have provided on my family income is subject to verification by authorized representatives of the City of New Bedford's Office of Housing & Community Development and the U.S. Department of Housing & Urban Development.

This information will be kept confidential and used for HUD monitoring purposes, only.

SECTION 3 UTILIZATION REPORT

(To be Completed by contractors and subs for all Projects at or Exceeding \$200,000)

A. SECTION 3 EMPLOYEE LABOR INFORMATION
--

Name of Contractor: _____

Name of Project: _____

Total number of Labor Hours on the project _____

Total number of Section 3 Labor Hours on the project _____ = _____% of total labor hours.

Number of Section 3 Employees Utilized on Project by Prime Contractor: _____

Number of Section 3 Employees Utilized on Project by Subcontractors: _____

Total Number of Section 3 Employees Utilized on Project: _____

B. CERTIFICATION OF PRIME CONTRACTOR

As officer and representative of: _____
Name of Prime Contractor

Address: _____

Telephone Number: _____

On behalf of the Company, I hereby certify that the above information is true and accurate and is reported fully as required by the Section 3 Affirmative Action Plan as part of the contract for this CDBG assisted construction project. It is further understood that final payment from the City of New Bedford for this project cannot be made until this Report is submitted to the City.

Name and Title of Authorized Representative (print or type)

Signature of Authorized Representative

Date

**DIRECTIONS FOR COMPLETION OF
SECTION 3 UTILIZATION REPORT
(For Projects at or Exceeding \$200,000)**

1. Determine the level Section 3 participation in the construction project.
 - a. All employees of the General Contractor and all employees of any and all subs must fill out the one-page Section 3 Income Worksheet and return it to you. If you hire new employees who reside in the county where the construction is taking place to work on the CDBG project, have them complete the one-page Section 3 Income Worksheet and return it to you. Compare the Worksheet to the Section 3 Income Schedule provided you at the pre-construction conference to determine if the employee is Section 3 eligible.
 - b. Distribute copies of the Section 3 Income Worksheet to all subcontractors you engage for the project. All employees of any and all subs must fill out the one-page Section 3 Income Worksheet and return it to you. Instruct all subs to have any new employees they hire who reside in the county where the construction is taking place complete the worksheet and have the subcontractors return the forms to you. Compare as in (a.), above to determine Section 3 eligibility.
2. Retain all Section 3 Income Worksheets with your project records.
3. Complete (A) Section 3 Employee Information area of the report.
 - a. Enter name of the Contractor.
 - b. Enter project name.
 - c. Enter the total number of labor hours on the project.
 - e. Enter the number of Section 3 labor hours on the project and calculate what percentage it is of the total labor hours on the project (using the number entered in d)
 - f. Enter number of Section 3 Employees you utilized on project.
 - g. Enter number of Section 3 Employees utilized by subcontractors on project
 - h. Enter total number (f + g) of Section 3 Employees utilized on project
4. Complete (B) Certification by Prime Contractor area of Report
 - a. List your name, address and telephone number of your company.
 - b. Print or type name and title of authorized company representative.
 - c. Have authorized representative sign and date Report.

APPENDIX G

Davis Bacon Act Requirements

All construction projects are subject to the Davis Bacon wage rate requirements and must include the appropriate sections of the following document in its entirety in the contract documents.

The vast majority of SRF projects will be bid by Governmental Entities (i.e., Cities, Towns, Authorities, Water Districts, Wastewater Districts). These projects must include the following language in construction contracts:

I.3. Contract and Subcontract Provisions

I.4. Contract Provisions for Contracts in Excess of \$100,000 (if applicable)

I.5. Compliance Verification

This language may be found on pages DB-3-DB-11.

In certain cases, SRF projects may be bid by non-Governmental Entities (i.e., private water companies, private PWSs, etc.). These projects must include the following language in construction contracts:

II.3. Contract and Subcontract Provisions

II.4. Contract Provisions for Contracts in Excess of \$100,000 (if applicable)

II.5. Compliance Verification

This language may be found on pages DB-11-DB-21

Preamble

With respect to the Clean Water and Safe Drinking Water State revolving Funds, EPA provides capitalization grants to each State which in turn provides subgrants or loans to eligible entities within the State. Typically, the subrecipients are municipal or other local governmental entities that manage the funds. For these types of recipients, the provisions set forth under Roman Numeral I, below, shall apply. Although EPA and the State remain responsible for ensuring subrecipients' compliance with the wage rate requirements set forth herein, those subrecipients shall have the primary responsibility to maintain payroll records as described in Section 3(ii)(A), below and for compliance as described in Section I-5.

Occasionally, the subrecipient may be a private for profit or not for profit entity. For these types of recipients, the provisions set forth in Roman Numeral II, below, shall apply. Although EPA and the State remain responsible for ensuring subrecipients' compliance with the wage rate requirements set forth herein, those subrecipients shall have the primary responsibility to maintain payroll records as described in Section II-3(ii)(A), below and for compliance as described in Section II-5.

I. Requirements For Subrecipients That Are Governmental Entities:

The following terms and conditions specify how recipients will assist EPA in meeting its Davis-Bacon (DB) responsibilities when DB applies to EPA awards of financial assistance with respect to State recipients and subrecipients that are governmental entities. If a subrecipient has

questions regarding when DB applies, obtaining the correct DB wage determinations, DB provisions, or compliance monitoring, it may contact the State recipient. If a State recipient needs guidance, the recipient may contact Valerie Marshall at EPA Region 1 (617-918-1674) for guidance. The recipient or subrecipient may also obtain additional guidance from DOL's web site at <https://www.dol.gov/whd/govcontracts/dbra.htm>

1. Applicability of the Davis- Bacon (DB) prevailing wage requirements.

DB prevailing wage requirements apply to the construction, alteration, and repair of treatment works carried out in whole or in part with assistance made available by a State water pollution control revolving fund and to any construction project carried out in whole or in part by assistance made available by a drinking water treatment revolving loan fund. If a subrecipient encounters a unique situation at a site that presents uncertainties regarding DB applicability, the subrecipient must discuss the situation with the recipient State before authorizing work on that site.

2. Obtaining Wage Determinations.

(a) Subrecipients shall obtain the wage determination for the locality in which a covered activity subject to DB will take place prior to issuing requests for bids, proposals, quotes or other methods for soliciting contracts (solicitation) for activities subject to DB. These wage determinations shall be incorporated into solicitations and any subsequent contracts. Prime contracts must contain a provision requiring that subcontractors follow the wage determination incorporated into the prime contract.

(i) While the solicitation remains open, the subrecipient shall monitor www.wdol.gov weekly to ensure that the wage determination contained in the solicitation remains current. The subrecipients shall amend the solicitation if DOL issues a modification more than 10 days prior to the closing date (i.e. bid opening) for the solicitation. If DOL modifies or supersedes the applicable wage determination less than 10 days prior to the closing date, the subrecipients may request a finding from the State recipient that there is not a reasonable time to notify interested contractors of the modification of the wage determination. The State recipient will provide a report of its findings to the subrecipient.

(ii) If the subrecipient does not award the contract within 90 days of the closure of the solicitation, any modifications or supersedes DOL makes to the wage determination contained in the solicitation shall be effective unless the State recipient, at the request of the subrecipient, obtains an extension of the 90 day period from DOL pursuant to 29 CFR 1.6(c)(3)(iv). The subrecipient shall monitor www.wdol.gov on a weekly basis if it does not award the contract within 90 days of closure of the solicitation to ensure that wage determinations contained in the solicitation remain current.

(b) If the subrecipient carries out activity subject to DB by issuing a task order, work assignment or similar instrument to an existing contractor (ordering instrument) rather than by publishing a solicitation, the subrecipient shall insert the appropriate DOL wage determination from www.wdol.gov into the ordering instrument.

(c) Subrecipients shall review all subcontracts subject to DB entered into by prime contractors to verify that the prime contractor has required its subcontractors to include the applicable wage determinations.

(d) As provided in 29 CFR 1.6(f), DOL may issue a revised wage determination applicable to a subrecipient's contract after the award of a contract or the issuance of an ordering instrument if DOL determines that the subrecipient has failed to incorporate a wage determination or has used a wage determination that clearly does not apply to the contract or ordering instrument. If this occurs, the subrecipient shall either terminate the contract or ordering instrument and issue a revised solicitation or ordering instrument or incorporate DOL's wage determination retroactive to the beginning of the contract or ordering instrument by change order. The subrecipient's contractor must be compensated for any increases in wages resulting from the use of DOL's revised wage determination.

3. Contract and Subcontract provisions.

(a) The Recipient shall insure that the subrecipient(s) shall insert in full in any contract in excess of \$2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a treatment work under the CWSRF or a construction project under the DWSRF financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1 or the FY 2012 Appropriations Act, the following clauses:

(1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in §5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein:

Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. Subrecipients may obtain wage determinations from the U.S. Department of Labor's web site, www.dol.gov.

(ii)(A) The subrecipient(s), on behalf of EPA, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The State award official shall approve a request for an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

- (1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
- (2) The classification is utilized in the area by the construction industry; and
- (3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the subrecipient(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), documentation of the action taken and the request, including the local wage determination shall be sent by the subrecipient (s) to the State award official. The State award official will transmit the request, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210 and to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification request within 30 days of receipt and so advise the State award official or will notify the State award official within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the subrecipient(s) do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the request and the local wage determination, including the views of all interested parties and the recommendation of the State award official, to the Administrator for determination. The request shall be sent to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt of the request and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The subrecipient(s), shall upon written request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the subrecipient, that is, the entity that receives the sub-grant or loan from the State capitalization grant recipient. Such documentation shall be available on request of the State recipient or EPA. As to each payroll copy received, the subrecipient shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on the weekly payrolls. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <https://www.dol.gov/whd/forms/wh347.pdf> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the subrecipient(s) for transmission to the State or EPA if requested by EPA, the State, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the subrecipient(s).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under § 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the State, EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency or State may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees--

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA determines may be appropriate, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29

CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and Subrecipient(s), State, EPA, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

4. Contract Provision for Contracts in Excess of \$100,000.

(a) Contract Work Hours and Safety Standards Act. The subrecipient shall insert the following clauses set forth in paragraphs (a)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by Item 3, above or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (a)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (a)(1) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (a)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The subrecipient, upon written request of the EPA Award Official or an authorized representative of the Department of Labor, shall withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other

Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (a)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (a)(1) through (4) of this section.

(b) In addition to the clauses contained in Item 3, above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Subrecipient shall insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Subrecipient shall insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

5. Compliance Verification

(a) The subrecipient shall periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(6), all interviews must be conducted in confidence. The subrecipient must use Standard Form 1445 (SF 1445) or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are available from EPA on request.

(b) The subrecipient shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, the subrecipient should conduct interviews with a representative group of covered employees within two weeks of each contractor or subcontractor's submission of its initial weekly payroll data and two weeks prior to the estimated completion date for the contract or subcontract. Subrecipients must conduct more frequent interviews if the initial interviews or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. Subrecipients shall immediately conduct necessary interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence.

(c) The subrecipient shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The subrecipient shall establish and follow a spot check schedule based on its

assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, if practicable, the subrecipient should spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract. Subrecipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. In addition, during the examinations the subrecipient shall verify evidence of fringe benefit plans and payments thereunder by contractors and subcontractors who claim credit for fringe benefit contributions.

(d) The subrecipient shall periodically review contractors and subcontractors use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 5(b) and (c) above.

(e) Subrecipients must immediately report potential violations of the DB prevailing wage requirements to the EPA DB contact listed above and to the appropriate DOL Wage and Hour District Office listed at https://www.dol.gov/whd/whd_district_offices.pdf.

II. Requirements For Subrecipients That Are Not Governmental Entities

The following terms and conditions specify how recipients will assist EPA in meeting its DB responsibilities when DB applies to EPA awards of financial assistance with respect to subrecipients that are not governmental entities. If a subrecipient has questions regarding when DB applies, obtaining the correct DB wage determinations, DB provisions, or compliance monitoring, it may contact the State recipient for guidance. If a State recipient needs guidance, the recipient may contact Valerie Marshall at EPA Region 1 (617-918-1674) for guidance. The recipient or subrecipient may also obtain additional guidance from DOL's web site at <https://www.dol.gov/whd/govcontracts/dbra.htm>

Under these terms and conditions, the subrecipient must submit its proposed DB wage determinations to the State recipient for approval prior to including the wage determination in any solicitation, contract task orders, work assignments, or similar instruments to existing contractors.

1. Applicability of the Davis- Bacon (DB) prevailing wage requirements.

DB prevailing wage requirements apply to the construction, alteration, and repair of treatment works carried out in whole or in part with assistance made available by a State water pollution control revolving fund and to any construction project carried out in whole or in part by assistance made available by a drinking water treatment revolving loan fund. If a subrecipient encounters a unique situation at a site that presents uncertainties regarding DB applicability, the subrecipient must discuss the situation with the recipient State before authorizing work on that site.

2. Obtaining Wage Determinations.

(a) Subrecipients must obtain proposed wage determinations for specific localities at www.wdol.gov. After the Subrecipient obtains its proposed wage determination, it must submit the wage determination to (insert contact information for State recipient DB point of contact for wage determination) for approval prior to inserting the wage determination into a solicitation, contract or issuing task orders, work assignments or similar instruments to existing contractors (ordering instruments unless subsequently directed otherwise by the State recipient Award Official).

(b) Subrecipients shall obtain the wage determination for the locality in which a covered activity subject to DB will take place prior to issuing requests for bids, proposals, quotes or other methods for soliciting contracts (solicitation) for activities subject to DB. These wage determinations shall be incorporated into solicitations and any subsequent contracts. Prime contracts must contain a provision requiring that subcontractors follow the wage determination incorporated into the prime contract.

(i) While the solicitation remains open, the subrecipient shall monitor www.wdol.gov on a weekly basis to ensure that the wage determination contained in the solicitation remains current. The subrecipients shall amend the solicitation if DOL issues a modification more than 10 days prior to the closing date (i.e. bid opening) for the solicitation. If DOL modifies or supersedes the applicable wage determination less than 10 days prior to the closing date, the subrecipients may request a finding from the State recipient that there is not a reasonable time to notify interested contractors of the modification of the wage determination. The State recipient will provide a report of its findings to the subrecipient.

(ii) If the subrecipient does not award the contract within 90 days of the closure of the solicitation, any modifications or supersedes DOL makes to the wage determination contained in the solicitation shall be effective unless the State recipient, at the request of the subrecipient, obtains an extension of the 90 day period from DOL pursuant to 29 CFR 1.6(c)(3)(iv). The subrecipient shall monitor www.wdol.gov on a weekly basis if it does not award the contract within 90 days of closure of the solicitation to ensure that wage determinations contained in the solicitation remain current.

(c) If the subrecipient carries out activity subject to DB by issuing a task order, work assignment or similar instrument to an existing contractor (ordering instrument) rather than by publishing a solicitation, the subrecipient shall insert the appropriate DOL wage determination from www.wdol.gov into the ordering instrument.

(d) Subrecipients shall review all subcontracts subject to DB entered into by prime contractors to verify that the prime contractor has required its subcontractors to include the applicable wage determinations.

(e) As provided in 29 CFR 1.6(f), DOL may issue a revised wage determination applicable to a subrecipient's contract after the award of a contract or the issuance of an ordering instrument if DOL determines that the subrecipient has failed to incorporate a wage determination or has used a wage determination that clearly does not apply to the contract or ordering instrument. If this occurs, the subrecipient shall either terminate the contract or ordering instrument and issue a revised solicitation or ordering instrument or incorporate DOL's wage determination retroactive to the beginning of the contract or ordering instrument by change order. The subrecipient's contractor must be compensated for any increases in wages resulting from the use of DOL's revised wage determination.

3. Contract and Subcontract provisions.

(a) The Recipient shall insure that the subrecipient(s) shall insert in full in any contract in excess of \$2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a treatment work under the CWSRF or a construction project under the DWSRF financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1 or the FY 2011 Full-Year Continuing Appropriation, the following clauses:

(1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in §5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. Subrecipients may obtain wage determinations from the U.S. Department of Labor's web site, www.dol.gov.

(ii)(A) The subrecipient(s), on behalf of EPA, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The State award official shall approve a request for an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the subrecipient(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), documentation of the action taken and the request, including the local wage determination shall be sent by the subrecipient(s) to the State award official. The State award official will transmit the report, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210 and to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification request within 30 days of receipt and so advise the State award official or will notify the State award official within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the and the subrecipient(s) do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the request, and the local wage determination, including the views of all interested parties and the recommendation of the State award official, to the Administrator for determination. The request shall be sent to the EPA Regional Coordinator concurrently. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt of the request and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The subrecipient(s) shall upon written request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the subrecipient, that is, the entity that receives the sub-grant or loan from the State capitalization grant recipient. Such documentation shall be available on request of the State recipient or EPA. As to each payroll copy received, the subrecipient shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on the weekly payrolls. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is

available for this purpose from the Wage and Hour Division Web site at <https://www.dol.gov/whd/forms/wh347.pdf> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the subrecipient(s) for transmission to the State or EPA if requested by EPA, the State, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the subrecipient(s).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

- (1) That the payroll for the payroll period contains the information required to be provided under § 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;
- (2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;
- (3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the State, EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency or State may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees--

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of

fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA determines may be appropriate, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and Subrecipient(s), State, EPA, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

4. Contract Provision for Contracts in Excess of \$100,000.

(a) Contract Work Hours and Safety Standards Act. The subrecipient shall insert the following clauses set forth in paragraphs (a)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by Item 3, above or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The subrecipient shall upon the request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

(c) In addition to the clauses contained in Item 3, above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Subrecipient shall insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Subrecipient shall insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

5. Compliance Verification

(a). The subrecipient shall periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(6), all interviews must be conducted in confidence. The subrecipient must use Standard Form 1445 (SF 1445) or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are available from EPA on request.

(b) The subrecipient shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, the subrecipient should conduct interviews with a representative group of covered employees within two weeks of each contractor or subcontractor's submission of its initial weekly payroll data and two weeks prior to the estimated completion date for the contract or subcontract. Subrecipients must conduct more frequent interviews if the initial interviews or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. Subrecipients shall immediately conduct necessary interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence.

(c). The subrecipient shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The subrecipient shall establish and follow a spot check schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, if practicable the subrecipient should spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract. Subrecipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB . In addition, during the examinations the subrecipient shall verify evidence of fringe benefit plans and payments thereunder by contractors and subcontractors who claim credit for fringe benefit contributions.

(d). The subrecipient shall periodically review contractors and subcontractors use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 5(b) and (c) above.

(e) Subrecipients must immediately report potential violations of the DB prevailing wage requirements to the EPA DB contact listed above and to the appropriate DOL Wage and Hour District Office listed at https://www.dol.gov/whd/whd_district_offices.pdf.

SECTION 00800
SUPPLEMENTARY CONDITIONS
PART II – FEDERAL, STATE AND LOCAL GOVERNMENT PROVISIONS
2.0 COMMONWEALTH OF MASSACHUSETTS PROVISIONS



PART I ADMINISTRATION OF THE GOVERNMENT
(Chapters 1 through 182)

TITLE III LAWS RELATING TO STATE OFFICERS

CHAPTER 30 GENERAL PROVISIONS RELATIVE TO STATE DEPARTMENTS, COMMISSIONS, OFFICERS AND EMPLOYEES

Section 39F Construction contracts; assignment and subrogation; subcontractor defined; enforcement of claim for direct payment; deposit, reduction of disputed amounts

[Text of section applicable as provided by 2009, 30, Secs. 15 and 46.]

Section 39F. (1) Every contract awarded pursuant to sections forty-four A to L, inclusive, of chapter one hundred and forty-nine shall contain the following subparagraphs (a) through (i) and every contract awarded pursuant to section thirty-nine M of chapter thirty shall contain the following subparagraphs (a) through (h) and in each case those subparagraphs shall be binding between the general contractor and each subcontractor.

(a) Forthwith after the general contractor receives payment on account of a periodic estimate, the general contractor shall pay to each subcontractor the amount paid for the labor performed and the materials furnished by that subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.

(b) Not later than the sixty-fifth day after each subcontractor substantially completes his work in accordance with the plans and specifications, the entire balance due under the subcontract less amounts retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the subcontractor; and the awarding authority shall pay that amount to the general contractor. The general contractor shall forthwith pay to the subcontractor the full amount received from the awarding authority less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.

(c) Each payment made by the awarding authority to the general contractor pursuant to subparagraphs (a) and (b) of this paragraph for the labor performed and the materials furnished by a subcontractor shall be made to the general contractor for the account of that subcontractor; and the awarding authority shall take reasonable steps to compel the general contractor to make each such payment to each such subcontractor. If the awarding authority has received a demand for direct payment from a subcontractor for any amount which has already been included in a payment to the general contractor or which is to be included in a payment to the general contractor for payment to the subcontractor as provided in subparagraphs (a) and (b), the awarding authority shall act upon the demand as provided in this section.

(d) If, within seventy days after the subcontractor has substantially completed the subcontract work, the subcontractor has not received from the general contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, the subcontractor may demand direct payment of that balance from the awarding authority. The demand shall be by a sworn statement delivered to or sent by certified mail to the awarding authority, and a copy shall be delivered to or sent by certified mail to the general contractor at the same time. The demand shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of completion of the subcontract work. Any demand made after substantial completion of the subcontract work shall be valid even if delivered or mailed prior to the seventieth day after the subcontractor has substantially completed the subcontract work. Within ten days after the subcontractor has delivered or so mailed the demand to the awarding authority and delivered or so mailed a copy to the general contractor, the general contractor may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the awarding authority and a copy shall be delivered to or sent by certified mail to the subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor and of the amount due for each claim made by the general contractor against the subcontractor.

(e) Within fifteen days after receipt of the demand by the awarding authority, but in no event prior to the seventieth day after substantial completion of the subcontract work, the awarding authority shall make direct payment to the subcontractor of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount (i) retained by the awarding authority as the estimated cost of completing the incomplete or unsatisfactory items of work, (ii) specified in any court proceedings barring such payment, or (iii) disputed by the general contractor in the sworn reply; provided, that the awarding authority shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (d). The awarding authority shall make further direct payments to the subcontractor forthwith after the removal of the basis for deductions from direct payments made as provided in parts (i) and (ii) of this subparagraph.

(f) The awarding authority shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (e) in an interest-bearing joint account in the names of the general contractor and the subcontractor in a bank in Massachusetts selected by the awarding authority or agreed upon by the general contractor and the subcontractor and shall notify the general contractor and the subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the general contractor and the subcontractor or as determined by decree of a court of competent jurisdiction.

(g) All direct payments and all deductions from demands for direct payments deposited in an

interest-bearing account or accounts in a bank pursuant to subparagraph (f) shall be made out of amounts payable to the general contractor at the time of receipt of a demand for direct payment from a subcontractor and out of amounts which later become payable to the general contractor and in the order of receipt of such demands from subcontractors. All direct payments shall discharge the obligation of the awarding authority to the general contractor to the extent of such payment.

(h) The awarding authority shall deduct from payments to a general contractor amounts which, together with the deposits in interest-bearing accounts pursuant to subparagraph (f), are sufficient to satisfy all unpaid balances of demands for direct payment received from subcontractors. All such amounts shall be earmarked for such direct payments, and the subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the general contractor.

(i) If the subcontractor does not receive payment as provided in subparagraph (a) or if the general contractor does not submit a periodic estimate for the value of the labor or materials performed or furnished by the subcontractor and the subcontractor does not receive payment for same when due less the deductions provided for in subparagraph (a), the subcontractor may demand direct payment by following the procedure in subparagraph (d) and the general contractor may file a sworn reply as provided in that same subparagraph. A demand made after the first day of the month following that for which the subcontractor performed or furnished the labor and materials for which the subcontractor seeks payment shall be valid even if delivered or mailed prior to the time payment was due on a periodic estimate from the general contractor. Thereafter the awarding authority shall proceed as provided in subparagraph (e), (f), (g) and (h).

(2) Any assignment by a subcontractor of the rights under this section to a surety company furnishing a bond under the provisions of section twenty-nine of chapter one hundred forty-nine shall be invalid. The assignment and subrogation rights of the surety to amounts included in a demand for direct payment which are in the possession of the awarding authority or which are on deposit pursuant to subparagraph (f) of paragraph (1) shall be subordinate to the rights of all subcontractors who are entitled to be paid under this section and who have not been paid in full.

(3) "Subcontractor" as used in this section (i) for contracts awarded as provided in sections forty-four A to forty-four H, inclusive, of chapter one hundred forty-nine shall mean a person who files a sub-bid and receives a subcontract as a result of that filed sub-bid or who is approved by the awarding authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the general contractor, (ii) for contracts awarded as provided in paragraph (a) of section thirty-nine M of chapter thirty shall mean a person approved by the awarding authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the general contractor, and (iii) for contracts with the commonwealth not awarded as provided in forty-four A to forty-four H, inclusive, of chapter one hundred forty-nine shall also mean a person contracting with the general contractor to supply materials used or employed in a public works project for a price in

excess of five thousand dollars.

(4) A general contractor or a subcontractor shall enforce a claim to any portion of the amount of a demand for direct payment deposited as provided in subparagraph (f) of paragraph 1 by a petition in equity in the superior court against the other and the bank shall not be a necessary party. A subcontractor shall enforce a claim for direct payment or a right to require a deposit as provided in subparagraph (f) of paragraph 1 by a petition in equity in the superior court against the awarding authority and the general contractor shall not be a necessary party. Upon motion of any party the court shall advance for speedy trial any petition filed as provided in this paragraph. Sections fifty-nine and fifty-nine B of chapter two hundred thirty-one shall apply to such petitions. The court shall enter an interlocutory decree upon which execution shall issue for any part of a claim found due pursuant to sections fifty-nine and fifty-nine B and, upon motion of any party, shall advance for speedy trial the petition to collect the remainder of the claim. Any party aggrieved by such interlocutory decree shall have the right to appeal therefrom as from a final decree. The court shall not consolidate for trial the petition of any subcontractor with the petition of one or more subcontractors or the same general contract unless the court finds that a substantial portion of the evidence of the same events during the course of construction (other than the fact that the claims sought to be consolidated arise under the same general contract) is applicable to the petitions sought to be consolidated and that such consolidation will prevent unnecessary duplication of evidence. A decree in any such proceeding shall not include interest on the disputed amount deposited in excess of the interest earned for the period of any such deposit. No person except a subcontractor filing a demand for direct payment for which no funds due the general contractor are available for direct payment shall have a right to file a petition in court of equity against the awarding authority claiming a demand for direct payment is premature and such subcontractor must file the petition before the awarding authority has made a direct payment to the subcontractor and has made a deposit of the disputed portion as provided in part (iii) of subparagraph (e) and in subparagraph (f) of paragraph (1).

(5) In any petition to collect any claim for which a subcontractor has filed a demand for direct payment the court shall, upon motion of the general contractor, reduce by the amount of any deposit of a disputed amount by the awarding authority as provided in part (iii) of subparagraph (e) and in subparagraph (f) of paragraph (1) any amount held under a trustee writ or pursuant to a restraining order or injunction.



PART I ADMINISTRATION OF THE GOVERNMENT
(Chapters 1 through 182)

TITLE III LAWS RELATING TO STATE OFFICERS

CHAPTER 30 GENERAL PROVISIONS RELATIVE TO STATE DEPARTMENTS, COMMISSIONS, OFFICERS AND EMPLOYEES

Section 39G Completion of public works; semi-final and final estimates; payments; extra work; disputed items

[Text of section applicable as provided by 2009, 30, Secs. 15, and 46.]

Section 39G. Upon substantial completion of the work required by a contract with the commonwealth, or any agency or political subdivision thereof, for the construction, reconstruction, alteration, remodeling, repair or improvement of public ways, including bridges and other highway structures, sewers and, water mains, airports and other public works, the contractor shall present in writing to the awarding authority its certification that the work has been substantially completed. Within twenty-one days thereafter, the awarding authority shall present to the contractor either a written declaration that the work has been substantially completed or an itemized list of incomplete or unsatisfactory work items required by the contract sufficient to demonstrate that the work has not been substantially completed. The awarding authority may include with such list a notice setting forth a reasonable time, which shall not in any event be prior to the contract completion date, within which the contractor must achieve substantial completion of the work. In the event that the awarding authority fails to respond, by presentation of a written declaration or itemized list as aforesaid, to the contractor's certification within the twenty-one day period, the contractor's certification shall take effect as the awarding authority's declaration that the work has been substantially completed.

Within sixty-five days after the effective date of a declaration of a substantial completion, the awarding authority shall prepare and forthwith send to the contractor for acceptance a substantial completion estimate for the quantity and price of the work done and all but one per cent retainage on that work, including the quantity, price and all but one per cent retainage for the undisputed part of each work item and extra work item in dispute but excluding the disputed part thereof, less the estimated cost of completing all incomplete and unsatisfactory work items and less the total periodic payments made to date for the work. The awarding authority also shall deduct from the substantial completion estimate an amount equal to the sum of all demands for direct payment filed by subcontractors and not yet paid to subcontractors or deposited in joint accounts pursuant to section thirty-nine F, but no contract subject to said section thirty-nine F shall contain any other provision authorizing the awarding authority to deduct any amount by virtue of claims asserted against the contract by subcontractors, material suppliers or others.

If the awarding authority fails to prepare and send to the contractor any substantial completion estimate required by this section on or before the date herein above set forth, the awarding

authority shall pay to the contractor interest on the amount which would have been due to the contractor pursuant to such substantial completion estimate at the rate of three percentage points above the rediscount rate then charged by the Federal Reserve Bank of Boston from such date to the date on which the awarding authority sends that substantial completion estimate to the contractor for acceptance or to the date of payment therefor, whichever occurs first. The awarding authority shall include the amount of such interest in the substantial completion estimate.

Within fifteen days after the effective date of the declaration of substantial completion, the awarding authority shall send to the contractor by certified mail, return receipt requested, a complete list of all incomplete or unsatisfactory work items, and, unless delayed by causes beyond his control, the contractor shall complete all such work items within forty-five days after the receipt of such list or before the then contract completion date, whichever is later. If the contractor fails to complete such work within such time, the awarding authority may, subsequent to seven days' written notice to the contractor by certified mail, return receipt requested, terminate the contract and complete the incomplete or unsatisfactory work items and charge the cost of same to the contractor.

Within thirty days after receipt by the awarding authority of a notice from the contractor stating that all of the work required by the contract has been completed, the awarding authority shall prepare and forthwith send to the contractor for acceptance a final estimate for the quantity and price of the work done and all retainage on that work less all payments made to date, unless the awarding authority's inspection shows that work items required by the contract remain incomplete or unsatisfactory, or that documentation required by the contract has not been completed. If the awarding authority fails to prepare and send to the contractor the final estimate within thirty days after receipt of notice of completion, the awarding authority shall pay to the contractor interest on the amount which would have been due to the contractor pursuant to such final estimate at the rate hereinabove provided from the thirtieth day after such completion until the date on which the awarding authority sends the final estimate to the contractor for acceptance or the date of payment therefor, whichever occurs first, provided that the awarding authority's inspection shows that no work items required by the contract remain incomplete or unsatisfactory. Interest shall not be paid hereunder on amounts for which interest is required to be paid in connection with the substantial completion estimate as hereinabove provided. The awarding authority shall include the amount of the interest required to be paid hereunder in the final estimate.

The awarding authority shall pay the amount due pursuant to any substantial completion or final estimate within thirty-five days after receipt of written acceptance for such estimate from the contractor and shall pay interest on the amount due pursuant to such estimate at the rate hereinabove provided from that thirty-fifth day to the date of payment. Within 15 days, 30 days in the case of the commonwealth, after receipt from the contractor, at the place designated by the awarding authority, if such place is so designated, of a periodic estimate requesting payment of the amount due for the preceding periodic estimate period, the awarding authority shall make a periodic payment to the contractor for the work performed during the preceding periodic estimate period and for the materials not incorporated in the work but delivered and suitably stored at the

site, or at some location agreed upon in writing, to which the contractor has title or to which a subcontractor has title and has authorized the contractor to transfer title to the awarding authority, upon certification by the contractor that he is the lawful owner and that the materials are free from all encumbrances. The awarding authority shall include with each such payment interest on the amount due pursuant to such periodic estimate at the rate herein above provided from the due date. In the case of periodic payments, the contracting authority may deduct from its payment a retention based on its estimate of the fair value of its claims against the contractor, a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, and a retention to secure satisfactory performance of the contractual work not exceeding five per cent of the approved amount of any periodic payment, and the same right to retention shall apply to bonded subcontractors entitled to direct payment under section thirty-nine F of chapter thirty; provided, that a five per cent value of all items that are planted in the ground shall be deducted from the periodic payments until final acceptance.

No periodic, substantial completion or final estimate or acceptance or payment thereof shall bar a contractor from reserving all rights to dispute the quantity and amount of, or the failure of the awarding authority to approve a quantity and amount of, all or part of any work item or extra work item.

Substantial completion, for the purposes of this section, shall mean either that the work required by the contract has been completed except for work having a contract price of less than one per cent of the then adjusted total contract price, or substantially all of the work has been completed and opened to public use except for minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the work required by the contract.



PART I ADMINISTRATION OF THE GOVERNMENT
(Chapters 1 through 182)

TITLE III LAWS RELATING TO STATE OFFICERS

CHAPTER 30 GENERAL PROVISIONS RELATIVE TO STATE DEPARTMENTS, COMMISSIONS, OFFICERS AND EMPLOYEES

Section 39I Deviations from plans and specifications

Section 39I. Every contractor having a contract for the construction, alteration, maintenance, repair or demolition of, or addition to, any public building or public works for the commonwealth, or of any political subdivision thereof, shall perform all the work required by such contract in conformity with the plans and specifications contained therein. No wilful and substantial deviation from said plans and specifications shall be made unless authorized in writing by the awarding authority or by the engineer or architect in charge of the work who is duly authorized by the awarding authority to approve such deviations. In order to avoid delays in the prosecution of the work required by such contract such deviation from the plans or specifications may be authorized by a written order of the awarding authority or such engineer or architect so authorized to approve such deviation. Within thirty days thereafter, such written order shall be confirmed by a certificate of the awarding authority stating: (1) If such deviation involves any substitution or elimination of materials, fixtures or equipment, the reasons why such materials, fixtures or equipment were included in the first instance and the reasons for substitution or elimination, and, if the deviation is of any other nature, the reasons for such deviation, giving justification therefor; (2) that the specified deviation does not materially injure the project as a whole; (3) that either the work substituted for the work specified is of the same cost and quality, or that an equitable adjustment has been agreed upon between the contracting agency and the contractor and the amount in dollars of said adjustment; and (4) that the deviation is in the best interest of the contracting authority.

Such certificate shall be signed under the penalties of perjury and shall be a permanent part of the file record of the work contracted for.

Whoever violates any provision of this section wilfully and with intent to defraud shall be punished by a fine of not more than five thousand dollars or by imprisonment for not more than six months, or both.



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TITLE III LAWS RELATING TO STATE OFFICERS

CHAPTER 30 GENERAL PROVISIONS RELATIVE TO STATE DEPARTMENTS, COMMISSIONS, OFFICERS AND EMPLOYEES

Section 39J Public construction contracts; effect of decisions of contracting body or administrative board

[Text of section applicable as provided by 2009, 30, Secs. 15 and 46.]

Section 39J. Notwithstanding any contrary provision of any contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building or public works by the commonwealth, or by any county, city, town, district, board, commission or other public body, when the amount of the contract is more than five thousand dollars in the case of the commonwealth and more than two thousand dollars in the case of any county, city, town, district, board, commission or other public body, a decision, by the contracting body or by any administrative board, official or agency, or by any architect or engineer, on a dispute, whether of fact or of law, arising under said contract shall not be final or conclusive if such decision is made in bad faith, fraudulently, capriciously, or arbitrarily is unsupported by substantial evidence, or is based upon error of law.



PART I ADMINISTRATION OF THE GOVERNMENT
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TITLE III LAWS RELATING TO STATE OFFICERS

CHAPTER 30 GENERAL PROVISIONS RELATIVE TO STATE DEPARTMENTS, COMMISSIONS, OFFICERS AND EMPLOYEES

Section 39L Public construction work by foreign corporations; restrictions and reports

Section 39L. The commonwealth and every county, city, town, district, board, commission or other public body which, as the awarding authority, requests proposals, bids or sub-bids for any work in the construction, reconstruction, alteration, remodeling, repair or demolition of any public building or other public works (1) shall not enter into a contract for the work with, and shall not approve as a subcontractor furnishing labor and materials for a part of the work, a foreign corporation which has not filed with the awarding authority a certificate of the state secretary stating that the corporation has complied with requirements of section 15.03 of subdivision A of Part 15 of chapter 156D and the date of compliance, and further has filed all annual reports required by section 16.22 of subdivision B of Part 16 of said chapter 156D, and (2) shall report to the state secretary and to the department of corporations and taxation any foreign corporation performing work under such contract or subcontract, and any person, other than a corporation, performing work under such contract or subcontract, and residing or having a principal place of business outside the commonwealth.



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TITLE III LAWS RELATING TO STATE OFFICERS

CHAPTER 30 GENERAL PROVISIONS RELATIVE TO STATE DEPARTMENTS, COMMISSIONS, OFFICERS AND EMPLOYEES

Section 39M Contracts for construction and materials; manner of awarding

[Text of section applicable as provided by 2009, 30, Secs. 14, 15 and 46.]

Section 39M. (a) Every contract for the construction, reconstruction, alteration, remodeling or repair of any public work, or for the purchase of any material, as hereinafter defined, by the commonwealth, or political subdivision thereof, or by any county, city, town, district, or housing authority, and estimated by the awarding authority to cost more than ten thousand dollars, and every contract for the construction, reconstruction, installation, demolition, maintenance or repair of any building by a public agency, as defined by subsection one of section forty-four A of chapter one hundred and forty-nine, estimated to cost more than \$25,000 but not more than \$100,000, shall be awarded to the lowest responsible and eligible bidder on the basis of competitive bids publicly opened and read by such awarding authority forthwith upon expiration of the time for the filing thereof; provided, however, that such awarding authority may reject any and all bids, if it is in the public interest to do so. Every bid for such contract shall be accompanied by a bid deposit in the form of a bid bond, or cash, or a certified check on, or a treasurer's or cashier's check issued by, a responsible bank or trust company, payable to the awarding authority. The amount of such bid deposit shall be five per cent of the value of the bid. Any person submitting a bid under this section shall, on such bid, certify as follows:

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

(Name of person signing bid)

(Company)

This paragraph shall not apply to the award of any contract subject to the provisions of sections forty-four A to forty-four J, inclusive, of chapter one hundred and forty-nine and every such contract shall continue to be awarded as provided therein. In cases of extreme emergency caused by enemy attack, sabotage or other such hostile actions or resulting from an imminent security threat explosion, fire, flood, earthquake, hurricane, tornado or other such catastrophe, an awarding authority may, without competitive bids and notwithstanding any general or specific law, award

contracts otherwise subject to this paragraph to perform work and to purchase or rent materials and equipment, all as may be necessary for temporary repair and restoration to service of any and all public work in order to preserve the health and safety of persons or property; provided, that this exception shall not apply to any permanent reconstruction, alteration, remodeling or repair of any public work.

(b) Specifications for such contracts, and specifications for contracts awarded pursuant to the provisions of said sections forty-four A to forty-four L of said chapter one hundred and forty-nine, shall be written to provide for full competition for each item of material to be furnished under the contract; except, however, that said specifications may be otherwise written for sound reasons in the public interest stated in writing in the public records of the awarding authority or promptly given in writing by the awarding authority to anyone making a written request therefor, in either instance such writing to be prepared after reasonable investigation. Every such contract shall provide that an item equal to that named or described in the said specifications may be furnished; and an item shall be considered equal to the item so named or described if, in the opinion of the awarding authority: (1) it is at least equal in quality, durability, appearance, strength and design, (2) it will perform at least equally the function imposed by the general design for the public work being contracted for or the material being purchased, and (3) it conforms substantially, even with deviations, to the detailed requirements for the item in the said specifications. For each item of material the specifications shall provide for either a minimum of three named brands of material or a description of material which can be met by a minimum of three manufacturers or producers, and for the equal of any one of said name or described materials.

(c) The term "lowest responsible and eligible bidder" shall mean the bidder: (1) whose bid is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the work; (2) who shall certify, that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (3) who shall certify that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; (4) who, where the provisions of section 8B of chapter 29 apply, shall have been determined to be qualified thereunder; and (5) who obtains within 10 days of the notification of contract award the security by bond required under section 29 of chapter 149; provided that for the purposes of this section the term "security by bond" shall mean the bond of a surety company qualified to do business under the laws of the commonwealth and satisfactory to the awarding authority; provided further, that if there is more than 1 surety company, the surety companies shall be jointly and severally liable.

(d) The provisions of this section shall not apply (1) to the extent that they prevent the approval of such specifications by any contributing federal agency, (2) to materials purchased under specifications of the state department of highways at prices established by the said department pursuant to advertisement and bidding in connection with work to be performed under the

provisions of chapter eighty-one or chapter ninety, (3) to any transaction between the commonwealth and any of its political subdivisions or between the commonwealth and any public service corporation, and (4) to any contract of not more than twenty-five thousand dollars awarded by a governmental body, as defined by section two of chapter thirty B, in accordance with the provisions of section five of said chapter thirty B; and (5) to any contract solely for the purchase of material awarded by a governmental body, as defined by section 2 of chapter 30B, in accordance with section 5 of said chapter 30B.

(e) The word "material" as used in this section shall mean and include any article, assembly, system, or any component part thereof.



PART I ADMINISTRATION OF THE GOVERNMENT
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TITLE III LAWS RELATING TO STATE OFFICERS

CHAPTER 30 GENERAL PROVISIONS RELATIVE TO STATE DEPARTMENTS, COMMISSIONS, OFFICERS AND EMPLOYEES

Section 39N Construction contracts; equitable adjustment in contract price for differing subsurface or latent physical conditions

[Text of section applicable as provided by 2009, 30, Secs. 15 and 46.]

Section 39N. Every contract subject to section forty-four A of chapter one hundred and forty-nine or subject to section thirty-nine M of chapter thirty shall contain the following paragraph in its entirety and an awarding authority may adopt reasonable rules or regulations in conformity with that paragraph concerning the filing, investigation and settlement of such claims:

If, during the progress of the work, the contractor or the awarding authority discovers that the actual subsurface or latent physical conditions encountered at the site differ substantially or materially from those shown on the plans or indicated in the contract documents either the contractor or the contracting authority may request an equitable adjustment in the contract price of the contract applying to work affected by the differing site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such claim to the other party as soon as possible after such conditions are discovered. Upon receipt of such a claim from a contractor, or upon its own initiative, the contracting authority shall make an investigation of such physical conditions, and, if they differ substantially or materially from those shown on the plans or indicated in the contract documents or from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the plans and contract documents and are of such a nature as to cause an increase or decrease in the cost of performance of the work or a change in the construction methods required for the performance of the work which results in an increase or decrease in the cost of the work, the contracting authority shall make an equitable adjustment in the contract price and the contract shall be modified in writing accordingly.



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TITLE III LAWS RELATING TO STATE OFFICERS

CHAPTER 30 GENERAL PROVISIONS RELATIVE TO STATE DEPARTMENTS, COMMISSIONS, OFFICERS AND EMPLOYEES

Section 39O Contracts for construction and materials; suspension, delay or interruption due to order of awarding authority; adjustment in contract price; written claim

[Text of section applicable as provided by 2009, 30, Secs. 15 and 46.]

Section 39O. Every contract subject to the provisions of section thirty-nine M of this chapter or subject to section forty-four A of chapter one hundred forty-nine shall contain the following provisions (a) and (b) in their entirety and, in the event a suspension, delay, interruption or failure to act of the awarding authority increases the cost of performance to any subcontractor, that subcontractor shall have the same rights against the general contractor for payment for an increase in the cost of his performance as provisions (a) and (b) give the general contractor against the awarding authority, but nothing in provisions (a) and (b) shall in any way change, modify or alter any other rights which the general contractor or the subcontractor may have against each other.

(a) The awarding authority may order the general contractor in writing to suspend, delay, or interrupt all or any part of the work for such period of time as it may determine to be appropriate for the convenience of the awarding authority; provided however, that if there is a suspension, delay or interruption for fifteen days or more or due to a failure of the awarding authority to act within the time specified in this contract, the awarding authority shall make an adjustment in the contract price for any increase in the cost of performance of this contract but shall not include any profit to the general contractor on such increase; and provided further, that the awarding authority shall not make any adjustment in the contract price under this provision for any suspension, delay, interruption or failure to act to the extent that such is due to any cause for which this contract provides for an equitable adjustment of the contract price under any other contract provisions.

(b) The general contractor must submit the amount of a claim under provision (a) to the awarding authority in writing as soon as practicable after the end of the suspension, delay, interruption or failure to act and, in any event, not later than the date of final payment under this contract and, except for costs due to a suspension order, the awarding authority shall not approve any costs in the claim incurred more than twenty days before the general contractor notified the awarding authority in writing of the act or failure to act involved in the claim.



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CHAPTER 30 GENERAL PROVISIONS RELATIVE TO STATE DEPARTMENTS, COMMISSIONS, OFFICERS AND EMPLOYEES

Section 39P Contracts for construction and materials; awarding authority's decisions on interpretation of specifications, etc.; time limit; notice

[Text of section applicable as provided by 2009, 30, Secs. 15 and 46.]

Section 39P. Every contract subject to section thirty-nine M of this chapter or section forty-four A of chapter one hundred forty-nine which requires the awarding authority, any official, its architect or engineer to make a decision on interpretation of the specifications, approval of equipment, material or any other approval, or progress of the work, shall require that the decision be made promptly and, in any event, no later than thirty days after the written submission for decision; but if such decision requires extended investigation and study, the awarding authority, the official, architect or engineer shall, within thirty days after the receipt of the submission, give the party making the submission written notice of the reasons why the decision cannot be made within the thirty day period and the date by which the decision will be made.



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TITLE III LAWS RELATING TO STATE OFFICERS

CHAPTER 30 GENERAL PROVISIONS RELATIVE TO STATE DEPARTMENTS, COMMISSIONS, OFFICERS AND EMPLOYEES

Section 39Q Contracts for capital facility construction; contents; annual claims report

Section 39Q. (1) Every contract awarded by any state agency as defined by section thirty-nine A of chapter seven for the construction, reconstruction, alteration, remodeling, repair or demolition of any capital facility as defined by the aforesaid section thirty-nine A shall contain the following subparagraphs (a) through (d) in their entirety:

(a) Disputes regarding changes in and interpretations of the terms or scope of the contract and denials of or failures to act upon claims for payment for extra work or materials shall be resolved according to the following procedures, which shall constitute the exclusive method for resolving such disputes. Written notice of the matter in dispute shall be submitted promptly by the claimant to the chief executive official of the state agency which awarded the contract or his designee. No person or business entity having a contract with a state agency shall delay, suspend, or curtail performance under that contract as a result of any dispute subject to this section. Any disputed order, decision or action by the agency or its authorized representative shall be fully performed or complied with pending resolution of the dispute.

(b) Within thirty days of submission of the dispute to the chief executive official of the state agency or his designee, he shall issue a written decision stating the reasons therefor, and shall notify the parties of their right of appeal under this section. If the official or his designee is unable to issue a decision within thirty days, he shall notify the parties to the dispute in writing of the reasons why a decision cannot be issued within thirty days and of the date by which the decision shall issue. Failure to issue a decision within the thirty-day period or within the additional time period specified in such written notice shall be deemed to constitute a denial of the claim and shall authorize resort to the appeal procedure described below. The decision of the chief executive official or his designee shall be final and conclusive unless an appeal is taken as provided below.

(c) Within twenty-one calendar days of the receipt of a written decision or of the failure to issue a decision as stated in the preceding subparagraph, any aggrieved party may file a notice of claim for an adjudicatory hearing with the division of hearing officers or the aggrieved party may file an action directly in a court of competent jurisdiction and shall serve copies thereof upon all other parties in the form and manner prescribed by the rules governing the conduct of adjudicatory proceedings of the division of hearing officers. In the event an aggrieved party exercises his option to file an action directly in court as provided in the previous sentence, the twenty-one day period shall not apply to such filing and the period of filing such action shall be the same period otherwise

applicable for filing a civil action in superior court. The appeal shall be referred to a hearing officer experienced in construction law and shall be prosecuted in accordance with the formal rules of procedure for the conduct of adjudicatory hearings of the division of hearing officers, except as provided below. The hearing officer shall issue a final decision as expeditiously as possible, but in no event more than one hundred and twenty calendar days after conclusion of the adjudicatory hearing, unless the decision is delayed by a request for extension of time for filing post-hearing briefs or other submissions assented to by all parties. Whenever, because an extension of time has been granted, the hearing officer is unable to issue a decision within one hundred and twenty days, he shall notify all parties of the reasons for the delay and the date when the decision will issue. Failure to issue a decision within the one hundred and twenty-day period or within the additional period specified in such written notice shall give the petitioner the right to pursue any legal remedies available to him without further delay.

(d) When the amount in dispute is less than ten thousand dollars, a contractor who is party to the dispute may elect to submit the appeal to a hearing officer experienced in construction law for expedited hearing in accordance with the informal rules of practice and procedure of the division of hearing officers. An expedited hearing under this subparagraph shall be available at the sole option of the contractor. The hearing officer shall issue a decision no later than sixty days following the conclusion of any hearing conducted pursuant to this subparagraph. The hearing officer's decision shall be final and conclusive, and shall not be set aside except in cases of fraud.

(2) The commissioner of administration shall require the division of hearings officers to prepare annually a report concerning the construction contract claims submitted to the division during the preceding twelve months, in such form as the commissioner shall prescribe. The report shall contain, at a minimum, the following information: the number of claims submitted; the names of all parties to each such claim; a brief description of the claim; the date of submission and of disposition of the claim; its disposition, whether by settlement, withdrawal, default or written decision; and the number of claims currently pending. The original of the report shall be submitted to the commissioner of administration by January fifteenth, and a copy shall be filed with the state librarian and shall be a public document.



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CHAPTER 30 GENERAL PROVISIONS RELATIVE TO STATE DEPARTMENTS, COMMISSIONS, OFFICERS AND EMPLOYEES

Section 39R Definitions; contract provisions; management and financial statements; enforcement

[Text of section applicable as provided by 2009, 30, Secs. 15 and 46.]

Section 39R. (a) The words defined herein shall have the meaning stated below whenever they appear in this section:

(1) "Contractor" means any person, corporation, partnership, joint venture, sole proprietorship, or other entity awarded a contract pursuant to sections thirty-eight A 1/2 to thirty-eight O, inclusive, of chapter seven and any contract awarded or executed pursuant to section eleven C of chapter twenty-five A, section thirty-nine M of chapter thirty, or sections forty-four A to forty-four H, inclusive, of chapter one hundred and forty-nine, which is for an amount or estimated amount greater than one hundred thousand dollars.

(2) "Contract" means any contract awarded or executed pursuant to sections thirty-eight A 1/2 to thirty-eight O, inclusive, of chapter seven and any contract awarded or executed pursuant to section eleven C of chapter twenty-five A, section thirty-nine M of chapter thirty, or sections forty-four A through forty-four H, inclusive, of chapter one hundred and forty-nine, which is for amount or estimated amount greater than one hundred thousand dollars.

(3) "Records" means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, computer printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.

(4) "Independent Certified Public Accountant" means a person duly registered in good standing and entitled to practice as a certified public accountant under the laws of the place of his residence or principal office and who is in fact independent. In determining whether an accountant is independent with respect to a particular person, appropriate consideration should be given to all relationships between the accountant and that person or any affiliate thereof. Determination of an accountant's independence shall not be confined to the relationships existing in connection with the filing of reports with the awarding authority.

(5) "Audit", when used in regard to financial statements, means an examination of records by an independent certified public accountant in accordance with generally accepted accounting principles and auditing standards for the purpose of expressing a *certified* opinion thereon, or, in

the alternative, a qualified opinion or a declination to express an opinion for stated reasons.

(6) "Accountant's Report", when used in regard to financial statements, means a document in which an independent certified public accountant indicates the scope of the audit which he has made and sets forth his opinion regarding the financial statements taken as a whole with a listing of noted exceptions and qualifications, or an assertion to the effect that an overall opinion cannot be expressed. When an overall opinion cannot be expressed the reason therefor shall be stated. An accountant's report shall include as a part thereof a signed statement by the responsible corporate officer attesting that management has fully disclosed all material facts to the independent certified public accountant, and that the audited financial statement is a true and complete statement of the financial condition of the contractor.

(7) "Management", when used herein, means the chief executive officers, partners, principals or other person or persons primarily responsible for the financial and operational policies and practices of the contractor.

(8) Accounting terms, unless otherwise defined herein, shall have a meaning in accordance with generally accepted accounting principles and auditing standards.

(b) Subsection (a)(2) hereof notwithstanding, every agreement or contract awarded or executed pursuant to sections thirty-eight A 1/2 to thirty-eight O, inclusive, of chapter seven, or eleven C of chapter twenty-five A, and pursuant to section thirty-nine M of chapter thirty or to section forty-four A through H, inclusive, of chapter one hundred and forty-nine, shall provide that:

(1) The contractor shall make, and keep for at least six years after final payment, books, records, and accounts which in reasonable detail accurately and fairly reflect the transactions and dispositions of the contractor, and

(2) until the expiration of six years after final payment, the office of inspector general, and the commissioner of capital asset management and maintenance shall have the right to examine any books, documents, papers or records of the contractor or of his subcontractors that directly pertain to, and involve transactions relating to, the contractor or his subcontractors, and

(3) if the agreement is a contract as defined herein, the contractor shall describe any change in the method of maintaining records or recording transactions which materially affect any statements filed with the awarding authority, including in his description the date of the change and reasons therefor, and shall accompany said description with a letter from the contractor's independent certified public accountant approving or otherwise commenting on the changes, and

(4) if the agreement is a contract as defined herein, the contractor has filed a statement of management on internal accounting controls as set forth in paragraph (c) below prior to the execution of the contract, and

(5) if the agreement is a contract as defined herein, the contractor has filed prior to the execution of the contracts and will continue to file annually, an audited financial statement for the most recent completed fiscal year as set forth in paragraph (d) below.

(c) Every contractor awarded a contract shall file with the awarding authority a statement of management as to whether the system of internal accounting controls of the contractor and its subsidiaries reasonably assures that:

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

(2) transactions are recorded as necessary

i. to permit preparation of financial statements in conformity with generally accepted accounting principles, and

ii. to maintain accountability for assets;

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

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

Every contractor awarded a contract shall also file with the awarding authority a statement prepared and signed by an independent certified public accountant, stating that he has examined the statement of management on internal accounting controls, and expressing an opinion as to

(1) whether the representations of management in response to this paragraph and paragraph (b) above are consistent with the result of management's evaluation of the system of internal accounting controls; and

(2) whether such representations of management are, in addition, reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the applicant's financial statements.

(d) Every contractor awarded a contract by the commonwealth or by any political subdivision thereof shall annually file with the commissioner of capital asset management and maintenance during the term of the contract a financial statement prepared by an independent certified public accountant on the basis of an audit by such accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant's report. Such statements shall be made available to the awarding authority upon request.

(e) The office of inspector general, the commissioner of capital asset management and maintenance and any other awarding authority shall enforce the provisions of this section. The commissioner of capital asset management and maintenance may after providing an opportunity for the inspector general and other interested parties to comment, promulgate pursuant to the provisions of chapter thirty A such rules, regulations and guidelines as are necessary to effectuate the purposes of this section. Such rules, regulations and guidelines may be applicable to all awarding authorities. A contractor's failure to satisfy any of the requirements of this section may be grounds for debarment pursuant to section forty-four C of chapter one hundred and forty-nine.

(f) Records and statements required to be made, kept or filed under the provisions of this section shall not be public records as defined in section seven of chapter four and shall not be open to public inspection; provided, however, that such records and statements shall be made available pursuant to the provisions of clause (2) of paragraph (b).



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TITLE III LAWS RELATING TO STATE OFFICERS

CHAPTER 30 GENERAL PROVISIONS RELATIVE TO STATE DEPARTMENTS, COMMISSIONS, OFFICERS AND EMPLOYEES

Section 39S Contracts for construction; requirements

Section 39S. (a) As used in this section the word "person" shall mean any natural person, joint venture, partnership corporation or other business or legal entity. Any person submitting a bid for, or signing a contract to work on, the construction, reconstruction, alteration, remodeling or repair of any public work by the commonwealth, or political subdivision thereof, or by any county, city, town, district, or housing authority, and estimated by the awarding authority to cost more than \$10,000, and any person submitting a bid for, or signing a contract to work on, the construction, reconstruction, installation, demolition, maintenance or repair of any building by a public agency, estimated to cost more than \$10,000, shall certify on the bid, or contract, under penalties of perjury, as follows:

(1) that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (2) that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and (3) that all employees to be employed in the work subject to this bid have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration.

(b) Any employee found on a worksite subject to this section without documentation of successful completion of a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration shall be subject to immediate removal.

(c) The attorney general, or his designee, shall have the power to enforce this section including the power to institute and prosecute proceedings in the superior court to restrain the award of contracts and the performance of contracts in all cases where, after investigation of the facts, he has made a finding that the award or performance has resulted in violation, directly or indirectly, of subsection (b), and he shall not be required to pay to the clerk of the court an entry fee in connection with the institution of the proceeding.



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TITLE XIV PUBLIC WAYS AND WORKS

CHAPTER 82 THE LAYING OUT, ALTERATION, RELOCATION AND DISCONTINUANCE OF PUBLIC WAYS, AND SPECIFIC REPAIRS THEREON

Section 40 Definitions

Section 40. The following words, as used in this section and sections 40A to 40E, inclusive, shall have the following meanings:—

“Company”, natural gas pipeline company, petroleum or petroleum products pipeline company, public utility company, cable television company, and municipal utility company or department that supply gas, electricity, telephone, communication or cable television services or private water companies within the city or town where such excavation is to be made.

“Description of excavation location”, such description shall include the name of the city or town, street, way, or route number where appropriate, the name of the streets at the nearest intersection to the excavation, the number of the buildings closest to the excavation or any other description, including landmarks, utility pole numbers or other information which will accurately define the location of the excavation.

“Emergency”, a condition in which the safety of the public is in imminent danger, such as a threat to life or health or where immediate correction is required to maintain or restore essential public utility service.

“Excavation”, an operation for the purpose of movement or removal of earth, rock or the materials in the ground including, but not limited to, digging, blasting, augering, backfilling, test boring, drilling, pile driving, grading, plowing in, hammering, pulling in, jacking in, trenching, tunneling and demolition of structures, excluding excavation by tools manipulated only by human power for gardening purposes and use of blasting for quarrying purposes.

“Excavator”, any entity including, but not limited to, a person, partnership, joint venture, trust, corporation, association, public utility, company or state or local government body which performs excavation operations.

“Premark”, to delineate the general scope of the excavation or boring on the paved surface of the ground using white paint, or stakes or other suitable white markings on nonpaved surfaces. No premarking shall be acceptable if such marks can reasonably interfere with traffic or pedestrian control or are misleading to the general public. Premarking shall not be required of any continuous excavation that is over 500 feet in length.

“Safety zone”, a zone designated on the surface by the use of standard color-coded markings which contains the width of the facilities plus not more than 18 inches on each side.

“Standard color-coded markings”, red - electric power lines, cables, conduit or light cables; yellow - gas, oil, street petroleum, or other gaseous materials; orange - communications cables or conduit, alarm or signal lines; blue - water, irrigation and slurry lines; green - sewer and drain lines; white - premark of proposed excavation.

“System”, the underground plant damage prevention system as defined in section 76D of chapter 164.



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CHAPTER 82 THE LAYING OUT, ALTERATION, RELOCATION AND DISCONTINUANCE OF PUBLIC WAYS, AND SPECIFIC REPAIRS THEREON

Section 40A Excavations; notice

Section 40A. No excavator installing a new facility or an addition to an existing facility or the relay or repair of an existing facility shall, except in an emergency, make an excavation, in any public or private way, any company right-of-way or easement or any public or privately owned land or way, unless at least 72 hours, exclusive of Saturdays, Sundays and legal holidays but not more than 30 days before the proposed excavation is to be made, such excavator has premarked not more than 500 feet of the proposed excavation and given an initial notice to the system. Such initial notice shall set forth a description of the excavation location in the manner as herein defined. In addition, such initial notice shall indicate whether any such excavation will involve blasting and, if so, the date and the location at which such blasting is to occur.

The notice requirements shall be waived in an emergency as defined herein; provided, however, that before such excavation begins or during a life-threatening emergency, notification shall be given to the system and the initial point of boring or excavation shall be premarked. The excavator shall ensure that the underground facilities of the utilities in the area of such excavation shall not be damaged or jeopardized.

In no event shall any excavation by blasting take place unless notice thereof, either in the initial notice or a subsequent notice accurately specifying the date and location of such blasting shall have been given and received at least 72 hours in advance, except in the case of an unanticipated obstruction requiring blasting when such notice shall be not less than four hours prior to such blasting. If any such notice cannot be given as aforesaid because of an emergency requiring blasting, it shall be given as soon as may be practicable but before any explosives are discharged.



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CHAPTER 82 THE LAYING OUT, ALTERATION, RELOCATION AND DISCONTINUANCE OF PUBLIC WAYS, AND SPECIFIC REPAIRS THEREON

Section 40B Designation of location of underground facilities

Section 40B. Within 72 hours, exclusive of Saturdays, Sundays and legal holidays, from the time the initial notice is received by the system or at such time as the company and the excavator agree, such company shall respond to the initial notice or subsequent notice by designating the location of the underground facilities within 15 feet in any direction of the premarking so that the existing facilities are to be found within a safety zone. Such safety zone shall be so designated by the use of standard color-coded markings. The providing of such designation by the company shall constitute prima facie evidence of an exercise of reasonable precaution by the company as required by this section; provided, however, that in the event that the excavator has given notice as aforesaid at a location at which because of the length of excavation the company cannot reasonably designate the entire location of its facilities within such 72 hour period, then such excavator shall identify for the company that portion of the excavation which is to be first made and the company shall designate the location of its facilities in such portion within 72 hours and shall designate the location of its facilities in the remaining portion of the location within a reasonable time thereafter. When an emergency notification has been given to the system, the company shall make every attempt to designate its facilities as promptly as possible.



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CHAPTER 82 THE LAYING OUT, ALTERATION, RELOCATION AND DISCONTINUANCE OF PUBLIC WAYS, AND SPECIFIC REPAIRS THEREON

Section 40C Excavator's responsibility to maintain designation markings; damage caused by excavator

Section 40C. After a company has designated the location of its facilities at the location in accordance with section 40B, the excavator shall be responsible for maintaining the designation markings at such locations, unless such excavator requests remarking at the location due to the obliteration, destruction or other removal of such markings. The company shall then remark such location within 24 hours following receipt of such request.

When excavating in close proximity to the underground facilities of any company when such facilities are to be exposed, non-mechanical means shall be employed, as necessary, to avoid damage in locating such facility and any further excavation shall be performed employing reasonable precautions to avoid damage to any underground facilities including, but not limited to, any substantial weakening of structural or lateral support of such facilities, penetration or destruction of any pipe, main, wire or conduit or the protective coating thereof, or damage to any pipe, main, wire or conduit.

If any damage to such pipe, main, wire or conduit or its protective coating occurs, the company shall be notified immediately by the excavator responsible for causing such damage.

The making of an excavation without providing the notice required by section 40A with respect to any proposed excavation which results in any damage to a pipe, main, wire or conduit, or its protective coating, shall be prima facie evidence in any legal or administrative proceeding that such damage was caused by the negligence of such person.



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TITLE XIV PUBLIC WAYS AND WORKS

CHAPTER 82 THE LAYING OUT, ALTERATION, RELOCATION AND DISCONTINUANCE OF PUBLIC WAYS, AND SPECIFIC REPAIRS THEREON

Section 40D Local laws requiring excavation permits; public ways

Section 40D. Nothing in this section shall affect or impair local ordinances or by-laws requiring a permit to be obtained before excavation in a public way or on private property; but notwithstanding any general or special law, ordinance or by-law to the contrary, to the extent that any permit issued under the provisions of the state building code or state fire code requires excavation by an excavator on a public way or on private property, the permit shall not be valid unless the excavator notifies the system as required pursuant to sections 40 and 40A, before the commencement of the excavation, and has complied with the permitting requirements of chapter 82A.



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TITLE XIV PUBLIC WAYS AND WORKS

CHAPTER 82 THE LAYING OUT, ALTERATION, RELOCATION AND DISCONTINUANCE OF PUBLIC WAYS, AND SPECIFIC REPAIRS THEREON

Section 40E Violations of Secs. 40A to 40E; punishment

Section 40E. Any person or company found by the department of telecommunications and energy, after a hearing, to have violated any provision of sections 40A to 40E, inclusive, shall be fined \$1,000 for the first offense and not less than \$5,000 nor more than \$10,000 for any subsequent offense within 12 consecutive months as set forth by the rules of said department; provided, however, that nothing herein shall be construed to require forfeiture of any penal sum by a state or local government body for violation of section 40A or 40C; and provided, further, that nothing herein shall be construed to require the forfeiture of any penal sum by a residential property owner for the failure to premark for an excavation on such person's residential property.



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TITLE XIV PUBLIC WAYS AND WORKS

CHAPTER 82A EXCAVATION AND TRENCH SAFETY

Section 1 Unattended open trenches; safety hazards; rules and regulations; fines

Section 1. An excavator shall not leave an open trench unattended without first making reasonable effort to eliminate any recognized safety hazard that may exist as a result of leaving the open trench unattended. The commissioner of public safety, in conjunction with the director of labor and workforce development, or his designee, shall promulgate rules and regulations governing all construction related excavations and trench safety. The rules and regulations shall include, but not be limited to, a description of recognized safety hazards that may exist as a result of leaving open trenches or excavations unattended, a description of the procedures required or recommended by the department to eliminate safety hazards which may include covering, barricading or otherwise protecting open trenches from accidental entry, and a penalty structure for each violation of the proposed rules and regulations to be imposed by the department empowered with ensuring compliance with the rules and regulations. This penalty structure shall include the imposition of a fine for each violation of the regulations promulgated pursuant to this section. Any such fines collected by the department of public safety or the department of labor and workforce development shall be available for expenditure, without further appropriation, by those departments in an amount not to exceed \$100,000 during each fiscal year for the sole purpose of providing construction safety training for licensed operators of hoisting equipment, police department officials, fire department officials and building officials. Those departments may also charge a reasonable fee to help defray the costs associated with said training. Any monies collected from the imposition of these fines in excess of \$100,000 shall be transmitted monthly by those departments to the state treasurer who shall then deposit the excess funds into the General Fund. The department of public safety, in conjunction with the department of labor and workforce development, shall file a report detailing the amount of fines imposed, collected and expended pursuant to this section with the house and senate committees on ways and means and with the joint committee on public safety not later than August 15 of each year. The rules and regulations shall not be effective until the department of public safety has received a formal determination from the United States Secretary of Labor that the proposed rules or regulations do not seek to assume responsibility for development and enforcement therein of occupational safety and health standards relating to any occupational safety or health issue with respect to which a federal standard has already been promulgated under 29 U.S.C. section 667 or until the rules and regulations are approved by the United States Secretary of Labor as a state plan for the development of the standards and their enforcement pursuant to 29 U.S.C. section 667(c).



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TITLE XXI LABOR AND INDUSTRIES

CHAPTER 149 LABOR AND INDUSTRIES

Section 34 Public contracts; stipulation as to hours and days of work; void contracts

[Text of section effective until March 27, 2011. For text effective March 27, 2011, see below.]

Section 34. Every contract, except for the purchase of material or supplies, involving the employment of laborers, workmen, mechanics, foremen or inspectors, to which the commonwealth or any county or any town, subject to section thirty, is a party, shall contain a stipulation that no laborer, workman, mechanic, foreman or inspector working within the commonwealth, in the employ of the contractor, sub-contractor or other person doing or contracting to do the whole or a part of the work contemplated by the contract, shall be required or permitted to work more than eight hours in any one day or more than forty-eight hours in any one week, or more than six days in any one week, except in cases of emergency, or, in case any town subject to section thirty-one is a party to such a contract, more than eight hours in any one day, except as aforesaid; provided, that in contracts entered into by the department of highways for the construction or reconstruction of highways there may be inserted in said stipulation a provision that said department, or any contractor or sub-contractor for said department, may employ laborers, workmen, mechanics, foremen and inspectors for more than eight hours in any one day in such construction or reconstruction when, in the opinion of the commissioner of labor and industries, public necessity so requires. Every such contract not containing the aforesaid stipulation shall be null and void.

Chapter 149: Section 34. Public contracts; stipulation as to hours and days of work; void contracts

[Text of section as amended by 2011, 3, Sec. 129 effective March 27, 2011. For text effective until March 27, 2011, see above.]

Section 34. Every contract, except for the purchase of material or supplies, involving the employment of laborers, workmen, mechanics, foremen or inspectors, to which the commonwealth or any county or any town, subject to section thirty, is a party, shall contain a stipulation that no laborer, workman, mechanic, foreman or inspector working within the commonwealth, in the employ of the contractor, sub-contractor or other person doing or contracting to do the whole or a part of the work contemplated by the contract, shall be required or permitted to work more than eight hours in any one day or more than forty-eight hours in any one week, or more than six days in any one week, except in cases of emergency, or, in case any town subject to section thirty-one is a party to such a contract, more than eight hours in any one day, except as aforesaid; provided, that in contracts entered into by the department of highways for the construction or reconstruction of

highways there may be inserted in said stipulation a provision that said department, or any contractor or sub-contractor for said department, may employ laborers, workmen, mechanics, foremen and inspectors for more than eight hours in any one day in such construction or reconstruction when, in the opinion of the commissioner, public necessity so requires. Every such contract not containing the aforesaid stipulation shall be null and void.



PART I ADMINISTRATION OF THE GOVERNMENT
(Chapters 1 through 182)

TITLE XXI LABOR AND INDUSTRIES

CHAPTER 149 LABOR AND INDUSTRIES

Section 44J Invitations to bid; notice; contents; violations; penalty

[Subsection (1) applicable as provided by 2009, 30, Secs. 23 and 46.]

Section 44J. (1) No public agency or authority of the commonwealth or any political subdivision thereof shall award any contract for which competitive bids are required pursuant to section forty-four A of this chapter or section thirty-nine M of chapter thirty, or for which competitive proposals are required pursuant to subsection (4) of section forty-four E of this chapter or section eleven C of chapter twenty-five A, unless a notice inviting bids or proposals therefor shall have been posted no less than one week prior to the time specified in such notice for the receipt of said bids or proposals in a conspicuous place in or near the offices of the awarding authority, and shall have remained posted until the time so specified, and unless such notice shall also have been published at least once not less than two weeks prior to the time so specified in the central register published by the secretary of state pursuant to section twenty A of chapter nine and in a newspaper of general circulation in the locality of the proposed project. Said notice shall also be published at such other times and in such other newspapers or trade periodicals as the commissioner of capital asset management and maintenance may require, having regard to the locality of the work involved.

(2) Said notice shall specify the time and place where plans and specifications of the proposed work may be had; the time and place of submission of general bids; and the time and place for opening of the general bids. For contracts subject to the provisions of sections forty-four A to H, inclusive, of this chapter, said notice shall also specify the time and place for submission of filed sub-bids, where required pursuant to section forty-four F; and the time and place for opening of said filed sub-bids.

Said notice shall also provide sufficient facts concerning the nature and scope of such project, the type and elements of construction, and such other information as will assist applicants in deciding to bid on such contract.

(3) No contract or preliminary plans and specifications shall be split or divided for the purpose of evading the provisions of this section.

(4) General bids and filed sub-bids for any contract subject to this section shall be in writing and shall be opened in public at the time and place specified in the posted or published notice, and after being so opened shall be open to public inspection.

(5) The provisions of this section shall not apply to any transaction between the commonwealth and any public service corporation.

(6) The provisions of this section may be waived in cases of extreme emergency involving the health and safety of the people and their property, upon the written approval of said commissioner. The written approval shall contain a description of the circumstances and the reasons for the commissioner's determination.

(7) Whoever violates any provision of this section shall be punished by a fine of not more than ten thousand dollars or by imprisonment in the state prison for not more than three years or in a jail or house of correction for not more than two and one-half years, or by both said fine and imprisonment; and in the event of final conviction, said person shall be incapable of holding any office of honor, trust or profit under the commonwealth or under any county, district of municipal agency.

Each and every person who shall cause or conspire to cause any contract or preliminary plans and specifications to be split or divided for the purpose of evading the provisions of this section shall forfeit and pay to the commonwealth, a political subdivision thereof or other awarding authority subject to this section, the sum of not more than five thousand dollars and, in addition, such person or persons shall pay, apportioned among them, double the amount of damages which the commonwealth or political subdivision thereof or other awarding authority may have sustained by reason of the doing of such act, together with the costs of the action.

(8) If an awarding authority rejects all general bids or does not receive any general bids, and advertises for a second opening of general bids with the original filed sub-bids as set forth in subsection (1) of section forty-four E the notice for receipt of such general bids may be published in the central register and elsewhere as required not less than one week prior to the time specified for such second opening of general bids.

(9) No request for proposals or invitation for bids issued under sections 38A1/2 to 38O, inclusive, of chapter 7, section 11C of chapter 25A, section 39M of chapter 30, this section and sections 44A to 44H, inclusive, shall be advertised if the awarding authority's cost estimate is greater than 1 year old.



PART I ADMINISTRATION OF THE GOVERNMENT
(Chapters 1 through 182)

TITLE III LAWS RELATING TO STATE OFFICERS

CHAPTER 29 STATE FINANCE

Section 8B Bidders on work other than building construction or repair; statements; qualification for classes of work; hearings

Section 8B. The commissioner of highways or the commissioner of the metropolitan district commission shall require that any person proposing to bid on any work, excepting the construction, reconstruction, repair or alteration of buildings, to be awarded by the department of highways or by the metropolitan district commission, respectively, and the commissioner of highways shall require that any person proposing to bid on any such work to be awarded by a municipality under section thirty-four of chapter ninety, submit a statement under the penalties of perjury setting forth his qualifications to perform such work. Such statement shall be in such detail and form and shall be submitted at such times as such commissioner may prescribe under rules promulgated by said department or commission, respectively, subject to the requirements of chapter thirty A. Such rules may require such information as may be necessary to implement this section and may establish a basis for the classification and maximum capacity rating of bidders which shall determine the class and aggregate amount of work such bidders are qualified to perform. The statement shall set forth, among other matters that may be prescribed by the rules, the proposed bidder's financial resources, his current bonding capacity, his experience, the number and kinds of equipment which he has for use on such work, and the number, size and completion dates of other construction jobs, whether in this state or another state, which he has under contract. The information contained within such statement, together with other relevant available information and the proposed bidder's past performance on work of a similar nature, may be considered by said department or commission in determining whether or not the proposed bidder is qualified to perform any specific work for which proposals to bid are invited.

Based on information received and available and on past performance of the prospective bidder on work of a similar nature, each such commissioner, acting through a prequalification committee consisting of engineering personnel of said department or commission, respectively, to be appointed by him, shall determine the class and aggregate amount of work that a prospective bidder is qualified to perform, and shall limit a proposed bidder to such class and aggregate amount of work as he may be qualified to perform. Said aggregate amount of work shall not be less than the amount of the bidder's current bonding capacity, as verified to the commissioner's satisfaction, by a surety company incorporated pursuant to section one hundred and five of chapter one hundred and seventy-five, or authorized to do business in the commonwealth under section one hundred and six of said chapter one hundred and seventy-five, and satisfactory to the commissioner; provided, however, that if there is more than 1 surety company, the surety companies shall be jointly and severally liable. Said department or commission shall limit the bid

proposals to be furnished to a prospective bidder to such bidders as are determined by its commissioner to have the classification and capacity rating to perform the work required.

Any such statement filed with either such commissioner by a prospective bidder shall be confidential, and shall be used only by the department of highways or the metropolitan district commission, as the case may be, in determining the qualifications of such prospective bidder to perform work for said department or commission, or for a municipality under the provisions of said section thirty-four. No information contained in such statement shall be imparted to any other person without the written consent of said bidder.

If any prospective bidder fails to file the statement required by this section, or if, in the judgment of the commissioner, the prospective bidder is not qualified to carry out the work required under a contract which is proposed to be awarded, the commissioner shall refuse to furnish such prospective bidder with bid proposals for such work and shall reject any bid by such prospective bidder for such work.

Only persons filing the statement required herein shall be authorized as prime contractors and then only as to the class and aggregate amount of work which their qualifications warrant.

Any bidder qualified as authorized herein shall be promptly notified by the commissioner.

Any prospective bidder who is aggrieved by any decision or determination of the prequalification committee or the commissioner which affects his right to bid may file a new application for qualification at any time, or within fifteen days after receiving notice of such decision the applicant may request in writing a hearing before an appeal board to reconsider his application or qualifications. The appeal board in the department of highways shall consist of the commissioner, the associate commissioners and the chief engineer of highways, or their designees, and the appeal board in the metropolitan district commission shall consist of the commissioner, the associate commissioners, and the director or chief engineer of the division involved, or their designees.

Any bidder or prospective bidder who so requests shall be granted a hearing by such appeal board at which he may submit any and all additional information or evidence bearing upon his finances, current bonding capacity, experience or other qualifications which may be relevant thereto. Such hearing shall be held without delay and the board shall promptly render its decision after taking into consideration all relevant information or evidence submitted relating to the bidder's qualifications. The appeal board may modify, amend or reverse any previous decision of the prequalification committee or the commissioner with respect to the qualification of the applicant or may sustain such previous decision. Such hearing shall be deemed to be an adjudicatory proceeding, and any bidder or prospective bidder who is aggrieved by the decision of the appeal board shall have a right to judicial review under the applicable provisions of said chapter thirty A.

The commissioner of highways or the commissioner of the metropolitan district commission shall not consider any bid filed with him by any person for any contract to be awarded by said department or commission, respectively, who has not been qualified as required by the rules promulgated by said department or commission, and any such bid of any unqualified bidder may be rejected without being opened. No contract shall be awarded to any bidder not qualified to bid thereon at the time fixed for receiving bids.

Any person, firm or corporation who knowingly and willfully makes, or causes to be made, any false or fraudulent statement in any application for qualification filed with such department or commission as required herein shall, upon final conviction, be disqualified from submitting bids on contracts advertised by the department or commission for a period of one year following the date of said conviction.

This section shall not apply to any prospective bidder the aggregate amount of whose work with said department of highways or with said metropolitan district commission, including the amount of his proposal, is less than fifty thousand dollars.



PART I ADMINISTRATION OF THE GOVERNMENT
(Chapters 1 through 182)

TITLE II EXECUTIVE AND ADMINISTRATIVE OFFICERS OF THE
COMMONWEALTH

CHAPTER 6C MASSACHUSETTS DEPARTMENT OF TRANSPORTATION

Section 4 Massachusetts Transportation Trust Fund

Section 4. There shall be established and placed within the department a separate fund to be known as the Massachusetts Transportation Trust Fund which shall be used for financing transportation-related purposes of the Massachusetts Department of Transportation. The secretary shall be authorized to enter into agreements with the Massachusetts Bay Transportation Authority, the Massachusetts Port Authority, the regional transit authorities and, for so long as it shall continue to exist, the Massachusetts Turnpike Authority to commit any funds generated from fares, fees, tolls or any other revenue sources including, but not limited to, from federal sources of these authorities to the fund. There shall be credited to the fund all turnpike revenues and other toll and non-toll revenue collected by the department after assumption of the assets, obligations and liabilities of the Massachusetts Turnpike Authority, all tolls collected by the department after transfer of the Maurice J. Tobin Memorial Bridge by the Massachusetts Port Authority to the department, all refunds and rebates made on account of expenditures on ways by the department, any revenues from appropriations or other monies authorized by the general court and specifically designated to be credited to the fund, any gifts, grants, private contributions, investment income earned on the fund's assets, all monies received by the department for the sale or lease of property, all monies received by the department in satisfaction of claims by the department for damage to highway and bridge safety signs, signals, guardrails, curbing and other highway and bridge related facilities, and other receipts of the department. Money remaining in the fund at the end of the year shall not revert to the General Fund.

The fund, which shall be under the control of the department and not subject to appropriation, shall be used as follows:

- (a) for expenditures to meet any debt obligations of the department following the dissolution of the Massachusetts Turnpike Authority and assumption of assets, obligations and liabilities by the department;
- (b) for expenditure by the department for maintaining, repairing, improving and constructing municipal ways and bridges, sidewalks adjacent to such ways and bridges, bikeways and other projects eligible for funding as a transportation enhancement project as described in the Intermodal Surface Transportation Efficiency Act of 1991, P.L. 102-240, salt storage sheds, bikeways and public use off-street parking facilities related to mass transportation, for engineering services and expenses related to highway transportation enhancement and mass transportation purposes, for

care, repair, storage, replacement, purchase and long-term leasing of road building machinery, equipment and tools, for the erection and maintenance of direction signs and warning signs and for necessary or beneficial improvements to unpaved municipal ways together with any money which any municipality may appropriate for such purposes to be used on the same ways, sheds, bikeways, bridges, machinery, equipment, tools and facilities. Such engineering services, including surveying services, shall only be performed by architectural, engineering or surveying firms prequalified by the department; provided, however, that a municipality may seek a waiver of this requirement from the department if the municipality demonstrates to the satisfaction of the department that it is cost prohibitive to use a prequalified firm. Such ways, sheds, bikeways, bridges, machinery, equipment, tools and facilities shall remain municipal ways, sheds, bikeways, bridges, machinery, equipment, tools and facilities. The department shall withhold or withdraw the unexpended balance of any funds assigned by it under this clause if the municipality fails to comply with the official standards for traffic control established by the department or with any provision of a traffic control agreement negotiated between the department and the municipality, as required by the United States Secretary of Commerce under section 109 of Title 23 of the United States Code;

(c) for expenditure by the department for maintaining, repairing and improving state highways and bridges in the state highway system designated parkways and for the turnpike and the metropolitan highway system managed by the Massachusetts Turnpike Authority until its dissolution ;

(d) for expenditure by the department, in addition to federal aid payments received under section 30 of chapter 81, for construction of state highways;

(e) for expenditure by the department for engineering services and expenses, for care, repair, storage, replacement and purchase of road building machinery and tools, for snow removal, for the erection and maintenance of direction signs and warning signs, for the care of shrubs and trees on state highways and for expenses incidental to the foregoing or incidental to the purposes specified in clause (b), (c) or (d);

(f) for expenditure for the operations of the department and any divisions thereof;

(g) for expenditure by the department for infrastructure improvements to transportation facilities throughout the commonwealth;

(h) for regional expenditure by the department for highway division projects in the 5 geographic regions of the commonwealth consistent with the boundaries of the 5 highway division districts as existing on July 1, 2009;

(i) for expenditure for highway field services and transportation support programs including, but not limited to, state police highway patrols and accident teams; and

(j) for any other expense of the department necessary to carry out its purposes.

720 CMR: DEPARTMENT OF HIGHWAYS

720 CMR 5.00: PREQUALIFICATION OF CONTRACTORS AND PROSPECTIVE BIDDERS FOR STATEWIDE ENGINEERING FIELD SURVEY SERVICES

Section

- 5.01: Definitions
- 5.02: Application for Prequalification of Contractors
- 5.03: Aggregate Bonding Capacity and Single Contract Limits for Contractors
- 5.04: Proposal Forms and Limitation of Proposals for Contractors
- 5.05: Revocation or Revision of Prequalification Certification
- 5.06: Rejection of Bids
- 5.07: Review of Prequalification Committee Decisions for Contractors
- 5.08: Miscellaneous for Contractors
- 5.09: Application for Prequalification of Prospective Bidders for Statewide Engineering Field Survey Services
- 5.10: Ratings for Prequalification of Prospective Bidders for Statewide Engineering Field Survey Services
- 5.11: Proposal Books for Prospective Bidders for Statewide Engineering Field Survey Services
- 5.12: Bidding for Statewide Engineering Field Survey Services
- 5.13: Appeal Rights for Prospective Bidders for Statewide Engineering Field Survey Services

5.01: Definitions

(1) Applicable to 720 CMR 5.00 et seq.:

Commissioner, shall mean the Commissioner of the Department. The Commissioner shall from time to time issue necessary rules and directives to carry out the intent of M.G.L. c. 29, § 8B.

Department, shall mean the Department of Highways, established under M.G.L. c. 16, § 1 *et seq.*

Highway Commission, shall mean the Commission of the Department, as constituted under M.G.L. c. 16, § 1 *et seq.*

Prequalification Appeal Board, shall consist of the Commissioner, the Associate Commissioners and the Chief Engineer, or their designee(s).

5.01: continued

(2) Applicable to 720 CMR 5.02 Through 5.08 Inclusive:

Application for Prequalification, shall mean the Contractor's statement, on forms provided by the Department, setting forth its Aggregate and Single Bonding Capacity, financial resources, adequacy of plant and equipment, organization, experience and other pertinent facts, and any other statement or information provided by the Contractor in connection therewith.

Aggregate Bonding Capacity, shall be the highest total dollar amount of Performance and Labor and Material bonds a surety will provide to the Contractor.

Contractor or Bidder, shall include individuals, partnerships, associations, corporations, joint ventures, or other enterprises, and their representatives, trustees, or receivers appointed by any court of competent jurisdiction.

Experience, shall mean the number of years of relevant experience of the Contractor or the Contractor's employees in one or more of the categories of work established by the Prequalification Committee.

Informational Proposal Book, shall mean the proposal and specifications provided solely for the purpose of an informal evaluation of a project. A bid will not be accepted based upon an Informational Proposal Book.

Official Proposal Book, shall mean the proposal and specifications provided to a Prequalified Contractor. A bid will only be accepted based upon an Official Proposal Book. Official Proposal Books are not transferable.

Prequalification Committee, shall mean a committee established within the Department in accordance with the provisions of M.G.L. c. 29, § 813, consisting of three members of the engineering staff designated by the Commissioner.

Prequalified Contractor, shall mean a firm which has been prequalified by the Prequalification Committee, authorized to receive an Official Proposal Book, and authorized to submit a bid.

Project Value, shall mean the dollar value of the work under the contract as estimated by the awarding authority.

Single Contract Limit, shall be the total dollar amount a Contractor may bid on an individual contract within a particular class of work.

Uncompleted Work, shall mean all incomplete current work of any type under contract or subcontract whether public or private.

5.01: continued

Update Statement, shall be the form prescribed by the Commissioner, setting forth a non-Prequalified Contractor's Uncompleted Work with the Department and such other information as required.

(3) Applicable to 720 CMR 5.09 through 5.13 Inclusive:

Experience, shall mean the number of years engaged in performing public or private sector survey work.

Maximum Capacity Rating, shall be the total number of survey parties approved for bid on Department work, subject to the inclusion of sufficient acceptable vehicle, instrument, equipment and personnel resources as part of the bid submitted.

Surveyors Prequalification Committee, shall mean a committee within the Department consisting of three members of the engineering staff as designated by the Commissioner.

Surveyor or Prospective Bidder, shall include individuals, partnerships, corporations, or other entities and their representatives, trustees, or receivers appointed by any court of competent jurisdiction.

5.02: Application for Prequalification of Contractors

(1) General. Any Contractor proposing to bid on work under the direction of the Department, and or city or town for which prequalification is required, must furnish for approval by the Prequalification Committee a statement on forms provided by the Department setting forth its Aggregate Bonding and Single Bonding Capacity, financial information, adequacy of plant and equipment, organization, experience and any other pertinent facts as required. The Application for Prequalification form may be obtained from the Department through its Construction and Contracts Engineer, Massachusetts Highway Department, Ten Park Plaza, Boston, MA 02116-3973 (Tel. No. (617) 973-7620).

(2) Confidentiality. All information furnished in any statement or Application for Prequalification by a Contractor shall be held in strict confidence by the Department and its agents, and shall be used only to determine the Contractor's Aggregate Bonding Capacity, Single Contract Limit(s) and the class(es) of work it shall be entitled to undertake in accordance with 720 CMR 5.00. No information contained in any such statement or Application for Prequalification shall be imparted or disclosed to any other person without the written consent of the Contractor.

(3) "Out of State" Contractors. All out-of-state Contractors must show proof of registration with the Secretary of State by submitting a Certificate of Good Standing (Foreign Corporate Certificate) to do business in Massachusetts.

(4) Joint Ventures.

(a) Subject to the following provisions, two or more Contractors (Joint Ventures) may combine for occasional bidding purposes, by submitting a joint bid:

1. All Joint Ventures must be prequalified.
2. At least one of the Joint Venturers must be Prequalified in the class of work specified in the contract documents.
3. The Single Contract Limit of each Joint Venturer may be combined to establish the Single Contract Limit of the Joint Venture. The Single Contract Limits can only be combined when they are in the same class of work.
4. The Aggregate Bonding Capacity of each Joint Venturer may be combined to establish the Aggregate Bonding Capacity of the Joint Venture. Aggregate capacities can only be combined when they are in the same class of work.
5. The Department may require submission of a copy of the Joint Venture agreement or other information deemed necessary.

(b) If continuous joint venture bidding is desired, a combined Application for Prequalification may be submitted. The Joint Venture shall be considered in effect until one of the Contractors notifies the Department in writing that the Joint Venture is concluded.

(5) Submitting an Application for Prequalification. A request for Prequalification will not be considered until a completed Application has been submitted. Applications for Prequalification shall be submitted at least 14 calendar days preceding the day set for opening of bids for work upon which a Contractor intends to bid. Completed applications for prequalification submitted less than 14 days preceding the date which is set for bids to be opened may not be executed or acted upon prior to the bid opening date. A Contractor may file a new Application for Prequalification at any time.

(6) Class of Work Desired. Each Contractor shall indicate, in the place provided in the Application for Prequalification, the particular class or classes of work upon which it desires to be prequalified for bidding purposes; but such indication shall not be binding upon the Prequalification Committee in classifying a Contractor.

(7) Equipment. Contractors must show that they have appropriate and sufficient equipment available to satisfactorily perform the contemplated class or classes of

work. In lieu of actual equipment on hand, the Contractor may show financial resources sufficient to provide the necessary equipment, and may show that it will have sole jurisdiction over the equipment for a period of not less than 12 months from the date of application. In addition to a complete description, a statement as to the condition of each piece of equipment may be required. The Department shall have the right to inspect all equipment in order to determine its operating condition.

(8) Sureties. Contractor's Surety must be authorized to do business in the Commonwealth of Massachusetts and satisfactory to the Department. "Satisfactory", for the purposes of 720 CMR 5.02(8), shall mean rated B+ or better by A.M. Best Company or such other evaluation as may be designated by the Department from time to time. The Contractor shall present, along with its Application for Prequalification, a letter from an authorized representative of the Surety setting forth the Contractor's Aggregate Bonding Capacity and Single Contract Limit and any limitations imposed thereon by the Surety. Signing authorization such as Power of Attorney or Attorney-in-Fact must accompany such letter.

(9) Action on Requests for Prequalification. Each Contractor's Application for Prequalification shall be reviewed by the Prequalification Committee. The Committee shall analyze each statement, verify, to the extent necessary, the information set forth therein, including the Contractor's Aggregate Bonding Capacity, and establish the Single Project Limit(s) of the Contractor and the class(es) of work the Contractor shall be entitled to undertake. Whenever the Committee is not satisfied with the sufficiency of the information contained in any Application for Prequalification it may require the Contractor to submit additional information and, pending the filing of such additional information, the Committee may refuse to allow the Contractor to bid on any work. The Committee may require a personal interview with principals and key employees of a Contractor when considering its qualifications. After receipt of a Contractor' Application for Prequalification and such other information as has been requested by the Prequalification Committee, the Prequalification Committee shall render its determination. This determination shall consist of either a Prequalification Certificate setting forth the Contractor's Aggregate Bonding Capacity, Single Contract Project Limit(s) and class(es), or a written determination denying all or part of Contractor's Application for Prequalification. The determination of the Prequalification Committee shall be subject to the Contractor's right of appeal as set forth in 720 CMR 5.07.

5.03: Aggregate Bonding Capacity and Single Contract Limits for Contractors

- (1) Aggregate and Single Bonding Capacity. The Prequalification Committee shall verify the Contractor's Aggregate and Single Bonding Capacity, as is evidenced by a letter from the Surety's authorized representative in accordance with 720 CMR 5.02(8). Unlimited Aggregate Bonding Capacities shall not be allowed.
- (2) Classes of Work. The Prequalification Committee shall prequalify Contractors in one or more of the classes of work as indicated on the Prequalification Application and Prequalification Certificate. The Prequalification Committee may also establish additional classes of work for specialized contracts. Contractors shall be notified of such special classes of work in the Notice to Contractors or Advertisement for Bids for the particular project and may apply for Prequalification in such special classes of work in accordance with 720 CMR 5.03(4)(d).
- (3) Single Contract Limit. The Prequalification Committee may establish a Single Contract Limit for the Contractor in any classes of work for which the Contractor has been Prequalified. A Single Contract Limit may be established, if, in the opinion of the Prequalification Committee, the Contractor does not have adequate experience, responsibility, competency, or equipment necessary to undertake an individual contract valued at the Contractor's Single Bonding Capacity within that class of work. In establishing Single Contract Limits, the Prequalification Committee shall consider, but shall not be limited to considering, the Contractor's competency and responsibility, the amount and condition of its equipment, the experience of its principal or key personnel, its history of payment to subcontractors and material suppliers, and previous work experience.
- (4) Duration of Prequalification Status.
 - (a) Prequalification certification shall remain in effect for a duration of time stipulated in the Prequalification Certificate with a maximum of 24 months as indicated in the Prequalification Certificate.
 - (b) Notwithstanding the previous 720 CMR 5.03(4)(a), if a material change has occurred in the Contractor's bonding capacity surety, financial condition or if the Contractor has undergone any change in the name or structure of the firm, its officers, or ownership, written notice shall be given to the Prequalification Committee by the Contractor, whereupon a new Application for Prequalification or letter verifying Contractor's Aggregate and Single Bonding Capacity shall be required and Contractor's Prequalification status and Single Contract Limit(s) may be revised. Should the issuance of a performance bond alter the current aggregate or single bond capacity of a Contractor, a letter from the surety stating this fact must be submitted to the Prequalification Committee.

5.03: continued

(c) The Prequalification Committee may at any time request, in writing, that the Contractor furnish additional information relative to its Prequalification status and Single Contract Limit(s). Such request shall set forth the reason such information is required. If the requested information is not filed within 30 days from date of notice, the Contractor's Prequalification Certificate may be revoked, and, if revoked, bids from the Contractor shall not be accepted.

(d) Requests by Contractors for the revision of Aggregate and Single Bonding Capacity, Single Contract Limits or for additional classes of work may be considered by the Prequalification Committee at any time. Unless otherwise approved by the Prequalification Committee, such requests must be submitted at least 14 calendar days prior to a bid opening in order to receive consideration for that bid opening.

(e) A Prequalification Certificate may be modified upon receipt of a *Record of Contractor's Performance*. This modification will be based on the Department's evaluation of the quality of the Contractor's performance, whether as a general contractor or subcontractor, in accordance with the *Record of Contractor's Performance*. (Form CSD-680).

5.04: Proposal Forms and Limitation of Proposals for Contractors

(1) Plans and Specifications. The Notice To Contractors or Advertisement For Bids shall specify the location where plans and specifications may be purchased, usually either the Department's offices, or the offices of a municipality advertising work under the provisions of M.G.L. c. 90, § 34.

(2) Limitation of Proposals. Except for projects for which Prequalification is not required under 720 CMR 5.04(2), an Official Proposal with a project value greater than or equal to \$50,000 shall only be issued to Contractors that have been prequalified by the Prequalification Committee prior to the time of the bid opening. Prequalification must be in the specified class of work for said proposal and any Single Contract Limit in that specified class of work must be in an amount greater than or equal to the project value of the proposal. The project value for the proposal when added to the Contractor's uncompleted work as certified by the Contractor at the time of the purchase of the proposal, must not exceed the Aggregate Bonding Capacity established by the bidder's surety company and the Contractor must otherwise be in compliance with 720 CMR 5.00.

(3) An Official Proposal with a project value amount less than \$50,000 may be issued to non-prequalified Contractors. Such Contractors must complete, prior to purchasing the Official Proposal, and Update Statement establishing that any uncompleted work under contract with the Department, when added to the project value of the proposal, equals less than \$50,000.

5.05: Revocation or Revision of Prequalification Certification

- (1) Procedure. The Prequalification Committee may modify or revoke the Contractor's Prequalification certification if the Prequalification Committee determines that:
 - (a) the Contractor is presently debarred from performing work of any kind under the provisions of M.G.L. c. 29, § 29F, or any other applicable debarment provisions of the Massachusetts General Laws or any rule or regulation promulgated there under; or
 - (b) the Contractor is presently debarred from performing work of any kind under the laws of any state other than the Commonwealth of Massachusetts, or by any Federal agency or authority; or
 - (c) there is reason to believe that the condition of the Contractor's firm is materially less favorable than at the time of its last Application for Prequalification; or
 - (d) the Contractor does not have sufficient equipment, or sufficient assets to provide necessary equipment either through purchase or lease agreements; or
 - (e) the Contractor's performance on past or current work with the Department or other awarding authorities is or has been unsatisfactory; or
 - (f) on current projects of the Department or other public authorities the Contractor frequently fails or has failed to pay its subcontractors or material suppliers in a timely manner; or
 - (g) three or more subcontractors of the Contractor for any projects currently under construction have, within any 12 month period, filed demands for direct payment with the Department in accordance with M.G.L. c. 30, § 39F and the claims have been voted on and approved by the Board of Commissioners; or
 - (h) the Contractor is not otherwise an eligible and responsible bidder capable of performing the work.

- (2) Notice of Determination. In the event that the Prequalification Committee determines that it will modify or revoke the Contractor's Prequalification Certification for a reason or reasons noted in 720 CMR 5.05(1), the Contractor shall be notified in writing by certified mail, following the determination of the Prequalification Committee. The determination of the Prequalification Committee shall be subject to the Contractor's right of review as set forth in 720 CMR 5.07.

5.06: Rejection of Bids

(1) Procedure. The Prequalification Committee may recommend that the Highway Commission reject the Contractor's bid if the Prequalification Committee determines that:

- (a) Award of the contract would result in the Contractor exceeding the Bond Capacity established by its Surety Company, or the Contractor's bid exceeds its Single Contract Limit. In such circumstances, the Contractor's bid shall be rejected, but its prequalification status shall not be otherwise modified or revoked; or
- (b) The Contractor is presently debarred from performing work of any kind under the provisions of M.G.L. c. 29, § 29F, or any other applicable debarment provisions of the Massachusetts General Laws, or any rule or regulation promulgated there under; or
- (c) The Contractor is presently debarred from performing work of any kind under laws of any state other than the Commonwealth of Massachusetts, or by any Federal agency or authority; or
- (d) The Contractor's performance on past or current work with the Department or any other awarding authorities is or has been unsatisfactory; or
- (e) On current projects of the Department or other public authorities the Contractor fails to pay its subcontractors or material suppliers in a timely manner; or
- (f) Three or more subcontractors of the Contractor for any projects currently under construction have, within any 12 month period, filed demands for direct payment with the Department in accordance with M.G.L. c. 30, § 39F and the claims have been voted on and approved by the Board of Commissioners; or
- (g) The Contractor is not otherwise an eligible and responsible bidder capable of performing the work.

(2) Notice of Determination. In the event that the Prequalification Committee determines that it will recommend that the Highway Commission reject the Contractor's bid for a reason or reasons noted in 720 CMR 5.06(1), the Contractor shall be notified in writing. The determination of the Prequalification Committee shall be subject to the Contractor's right of review as set forth in 720 CMR 5.07.

(3) Right to Reject Bids is Reserved. The Highway Commission reserves the right to reject any and all bids, or waive any informality, when deemed to be in the public interest. Nothing in 720 CMR 5.00 shall be interpreted as depriving the Highway Commission of the right to reject any bid when such bid does not fully comply with the specifications for the project or the applicable public bidding law or regulations, or the Contractor is otherwise not eligible or responsible to receive award of the contract.

5.07: Review of Prequalification Committee Decisions for Contractors

- (1) Review of Determination of the Prequalification Committee. A Contractor or prospective bidder who is aggrieved by a decision or determination of the Prequalification Committee may make a written request for informal review or a formal hearing by the Prequalification Appeal Board.
- (2) Informal Review. A Contractor may request an informal review by the Prequalification Committee. In such request, the Contractor shall state its arguments for a review of the decision. The Contractor's right to an informal review shall be in addition to its right to a formal hearing.
- (3) Formal Hearing. A request for a formal hearing before the Prequalification Appeal Board shall be filed in writing, by certified mail. The Prequalification Appeal Board, or its designee, shall conduct a hearing without delay and render a decision. The decision or determination of the Prequalification Committee shall remain in effect until the Prequalification Appeal Board renders a decision in writing on the appeal. The decision of the Prequalification Appeal Board shall be final and binding, subject to the right of the Contractor to a judicial review under the applicable provisions of M.G.L. c. 30A.

5.08: Miscellaneous for Contractors

- (1) Proposals With Project Values Under \$50,000.
 - (a) If a multiple bid proposal contains projects with project values less than \$50,000, but totaling more than \$50,000, only prequalified contractors can purchase the proposal.
 - (b) A non-prequalified contractor must submit a current Update Statement prior to purchasing an Official Proposal in order to be considered for bidding purposes.
- (2) Contractor's Performance. The Contractor should be on notice that its conduct, not only as to the workmanship on the project, but also towards the traveling public and abutters alike may affect its prequalification status. The Contractor is directed to take special note of the Standard Specifications for Highways and Bridges; in particular 720 CMR 7.01 and 7.14, as well as, M.G.L. c. 81, § 18. The Contractor is reminded that respect towards the public during Department sponsored project is to be maintained at all times.
- (3) Scope of Regulations. 720 CMR 5.00 shall not be construed as extending to decisions or actions of the Department not pertaining to the Contractor's requalification status and competence to perform the work. Furthermore, 720 CMR 5.00 is not intended to set forth or create a regulatory or appeal mechanism concerning:

5.08: continued

- (a) the rejection by the Highway Commission of Proposals which contain informalities or otherwise fail to comply with the public bidding laws;
- (b) the Highway Commission's decision to reject all bids and re-advertise a project;
- (c) any other decision of the Department not directly related to the Contractor's Prequalification status or competence to perform the work.

(4) Severability. If any provision of 720 CMR 5.00 shall be held invalid in any circumstance, such invalidity shall not affect any other provisions and shall be severable.

5.09: Application for Prequalification of Prospective Bidders for Statewide Engineering Field Survey Services

(1) General. Any Surveyor proposing to bid on Department survey work must furnish a statement on forms provided by the Department, setting forth its financial resources, vehicle, instrument, equipment and personnel resources, its organization, its experience; and other pertinent facts. The financial data shall be as of a date within one month prior to filing. The Department reserves the right to demand additional information at any time. All information furnished in any application by a prospective bidder shall be held in strict confidence by the Department and its agents, and shall be used only to determine the prospective bidder's Maximum Capacity Rating of work that the bidder shall be entitled to undertake in accordance with 720 CMR 5.00. No information contained in any such statement shall be imparted to any other person without the written consent of the prospective bidder. The Contractor must have appropriate and sufficient vehicles, instruments and equipment available to satisfactorily perform the contemplated work during the period of any contract which the contractor may be awarded, or show current assets sufficient to provide them. The Department shall have the right to inspect all required vehicles, instruments and equipment in order to determine compliance with proposed contract provisions.

(2) Time Limitation in Submitting Application for Prequalification. A request for prequalification will not be considered until a properly completed application has been submitted. Application for prequalification shall be submitted at least 12 calendar days preceding the day set for opening of bids for work upon which a contractor intends to bid.

(3) Action on Requests for Prequalification. Each Prequalification Application shall be reviewed by the Surveyors Prequalification Committee. The Committee shall analyze and verify as it deems necessary the information set forth therein, and determine the number of survey parties the prospective bidder shall be

5.09: continued

entitled to propose. Whenever the Committee is not satisfied with the sufficiency of the information provided, it may require the Surveyor to submit additional information, and pending the filing of such additional information, the Department may refuse to furnish such Surveyor with an official proposal book for survey work. The Committee may require a personal interview with a prospective bidder when considering its qualifications for a Rating. On or before the tenth calendar day after receipt of a prospective bidder's Prequalification Application by the Surveyors Prequalification Committee, the Department shall give the applicant written notice of its determination of the applicant's "Maximum Capacity Rating" for the number of survey parties it shall be entitled to bid, and such determination shall be subject to the applicant's right of appeal as set forth in 720 CMR 5.13.

5.10: Ratings for Prequalification of Prospective Bidders for Statewide Engineering Field Survey Services

(1) General. Ratings shall be basically determined upon the Surveyor's financial resources, and upon its competency and responsibility as indicated by the vehicles, instruments, equipment and personnel available to the Surveyor, and by the prior experience of the Surveyor with this and other public or private clients. Unlimited Maximum Capacity Ratings shall not be allowed.

(2) Duration of Prequalification Ratings. Prequalification Ratings shall remain in effect for not more than 12 months following the date of prequalification.

(3) Revision of Prequalification Ratings. Whenever the Department has substantial reason to believe that the condition of a firm previously prequalified is less favorable than at the time of its last application, a new Prequalification Application shall be requested in writing stating the reason therefore. If the requested statement is not filed within 30 days from date of notice, the current rating shall be considered forfeited, and the party concerned will not be permitted to bid until a new Prequalification Application has been received and acted upon by the Department. A prequalification rating shall be modified whenever it is determined that the Surveyor does not have sufficient vehicle, instrument, equipment, personnel or other resources to satisfactorily perform the required survey work, or to provide the number of survey parties for which the Surveyor may have been qualified. A Surveyor's request for revision of a prequalification rating will be considered by the Department at any time provided a new Prequalification Application is submitted. If at any time subsequent to filing of the Prequalification Application any significant change occurs in the financial condition of the Surveyor, or in the status of its vehicles, instruments equipment or personnel that would materially affect the Surveyor's ability to provide the number of survey parties for which it is prequalified, and/or any change occurs in the name of structure of the firm, officers, or ownership, the Surveyors shall give written notice to the Department, Whereupon the Department may require the Surveyor to submit a new application for prequalification.

5.11: Proposal Books for Prospective Bidders for Statewide Engineering Field Survey Services

(1) Proposal Book. Prior to the bidding period, a proposal book will be sent by the Department to each prequalified prospective bidder. Each proposal book shall have an identifying number and shall be non-transferable. A bid submitted in a proposal book issued to another Surveyor shall be rejected.

(2) Non-Issuance of Proposal Books. A proposal book shall not be issued to a prospective bidder:

(a) if the prospective bidder has not been prequalified when the value of the work on which it is bidding added to the value of its uncompleted work already under contract with the Department will aggregate \$50,000 or more.

(b) if the prospective bidder has been established as being unacceptable for employment under administrative action taken in instances of irregularities as set forth in Federal Regulations, Title 23 CFR c. 1 part 2, "Statement of policy as to administrative action to be taken by the Federal Highway Administrator in instances of irregularities." The time period during which a proposal form will not be issued in this instance shall be during that period in which the prospective bidder is considered unacceptable by the Federal Highway Administrator.

(c) if the Prequalification Committee determines that:

The prospective bidder is making unsatisfactory progress or performing work which is substantially unsatisfactory on current contract(s), or

The prospective bidder has performed unsatisfactory work on prior contract(s).

A prospective bidder shall be notified in writing of the refusal by the Department to issue a proposal book within three days, excluding Saturdays, Sundays, and holidays, of the date that such decision is made.

(3) Appeal from Refusal to Issue a Proposal Book. After receiving notification of refusal to issue a proposal book the prospective bidder may make written request for a review or hearing by the Prequalification Appeal Board of the decision of the Surveyors Prequalification Committee. A request for a review shall set forth the prospective bidder's arguments for revision of the decision. In the event the prospective bidder requests a hearing, the Prequalification Appeal Board shall hold a hearing a written decision thereon, within ten calendar days of the prospective bidder's request. Where a review only is requested, the prequalification Appeal Board shall give a written decision within seven calendar days of receipt of the prospective bidder's request. In either case, the decision shall be final and binding subject to the right of the prospective bidder to a judicial review under the application provisions of M.G.L. c. 30A.

5.12: Bidding for Statewide Engineering Field Survey Services

- (1) General. A bid shall be accepted only from a prospective bidder who has been prequalified, when the value of the work on which it is bidding, added to the value of its uncompleted work already under contract with the Department, will total \$50,000 or more.
- (2) Bid Opening. Bids shall be opened and read in ascending order of proposal book number.
- (3) Successful Bidders. The Department will establish a list of successful bidders, in ascending order from the lowest proposed per diem rate, sufficient to provide the number of survey parties desired by the Department.
- (4) Right to Reject Bids. Nothing in 720 CMR 5.00 shall be construed as depriving the Department of the right to reject that portion of any bid found to be in excess of the bidder's Maximum Capacity Rating (i.e., the total number of parties approved for bid by the Department) or the entire bid, when in the opinion of the Department circumstances and developments have changed the qualifications or responsibility of the bidder to satisfactorily perform the work.

5.13: Appeal Rights for Prospective Bidders for Statewide Engineering Field Survey Services

A Surveyor or prospective bidder who is aggrieved by a decision or determination of the Department may make written request for a hearing before the Prequalification Appeal Board, who shall conduct a hearing without delay and render a decision within 15 days following receipt of the request. The previous rating or decision shall remain in effect until the Prequalification Appeal Board renders a decision in writing on the appeal. A Surveyor or prospective bidder who is aggrieved by a decision of the Prequalification Appeal Board shall have a right to judicial review under the applicable provisions of M.G.L. c. 30A.



MAURA HEALEY
Governor

KIM DRISCOLL
Lt. Governor

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

Prevailing Wage Rates

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

LAUREN JONES
Secretary

MICHAEL FLANAGAN
Director

Awarding Authority: City of New Bedford Purchasing Department
Contract Number: 23434112 **City/Town:** NEW BEDFORD
Description of Work: Various paving, roadway construction, sidewalk, roadway preventive service repairs, minor drainage and water system improvements and roadway safety improvements at various streets in New Bedford
Job Location: New Bedford

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	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>	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>	12/01/2021	\$36.14	\$13.41	\$16.01	\$0.00	\$65.56
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 2)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2022	\$37.91	\$9.10	\$16.64	\$0.00	\$63.65
	06/01/2023	\$38.81	\$9.10	\$16.64	\$0.00	\$64.55
	12/01/2023	\$39.71	\$9.10	\$16.64	\$0.00	\$65.45
For apprentice rates see "Apprentice- LABORER"						
AIR TRACK OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2022	\$37.31	\$9.35	\$16.89	\$0.00	\$63.55
	06/01/2023	\$38.21	\$9.35	\$16.89	\$0.00	\$64.45
	12/01/2023	\$39.11	\$9.35	\$16.89	\$0.00	\$65.35
	06/01/2024	\$40.44	\$9.35	\$16.89	\$0.00	\$66.68
	12/01/2024	\$41.77	\$9.35	\$16.89	\$0.00	\$68.01
	06/01/2025	\$43.16	\$9.35	\$16.89	\$0.00	\$69.40
	12/01/2025	\$44.54	\$9.35	\$16.89	\$0.00	\$70.78
	06/01/2026	\$45.98	\$9.35	\$16.89	\$0.00	\$72.22
	12/01/2026	\$47.42	\$9.35	\$16.89	\$0.00	\$73.66
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
ASBESTOS WORKER (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (SOUTHERN MASS)</i>	12/01/2020	\$38.10	\$12.80	\$9.45	\$0.00	\$60.35
ASPHALT RAKER <i>LABORERS - ZONE 2</i>	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
ASPHALT RAKER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2022	\$36.81	\$9.35	\$16.89	\$0.00	\$63.05
	06/01/2023	\$37.71	\$9.35	\$16.89	\$0.00	\$63.95
	12/01/2023	\$38.61	\$9.35	\$16.89	\$0.00	\$64.85
	06/01/2024	\$39.94	\$9.35	\$16.89	\$0.00	\$66.18
	12/01/2024	\$41.27	\$9.35	\$16.89	\$0.00	\$67.51
	06/01/2025	\$42.66	\$9.35	\$16.89	\$0.00	\$68.90
	12/01/2025	\$44.04	\$9.35	\$16.89	\$0.00	\$70.28
	06/01/2026	\$45.48	\$9.35	\$16.89	\$0.00	\$71.72
	12/01/2026	\$46.92	\$9.35	\$16.89	\$0.00	\$73.16
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2022	\$53.63	\$14.25	\$16.05	\$0.00	\$83.93
	06/01/2023	\$54.88	\$14.25	\$16.05	\$0.00	\$85.18
	12/01/2023	\$56.13	\$14.25	\$16.05	\$0.00	\$86.43
	06/01/2024	\$57.43	\$14.25	\$16.05	\$0.00	\$87.73
	12/01/2024	\$58.88	\$14.25	\$16.05	\$0.00	\$89.18
	06/01/2025	\$60.18	\$14.25	\$16.05	\$0.00	\$90.48
	12/01/2025	\$61.63	\$14.25	\$16.05	\$0.00	\$91.93
	06/01/2026	\$62.93	\$14.25	\$16.05	\$0.00	\$93.23
	12/01/2026	\$64.38	\$14.25	\$16.05	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2022	\$53.63	\$14.25	\$16.05	\$0.00	\$83.93
	06/01/2023	\$54.88	\$14.25	\$16.05	\$0.00	\$85.18
	12/01/2023	\$56.13	\$14.25	\$16.05	\$0.00	\$86.43
	06/01/2024	\$57.43	\$14.25	\$16.05	\$0.00	\$87.73
	12/01/2024	\$58.88	\$14.25	\$16.05	\$0.00	\$89.18
	06/01/2025	\$60.18	\$14.25	\$16.05	\$0.00	\$90.48
	12/01/2025	\$61.63	\$14.25	\$16.05	\$0.00	\$91.93
	06/01/2026	\$62.93	\$14.25	\$16.05	\$0.00	\$93.23
	12/01/2026	\$64.38	\$14.25	\$16.05	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 2</i>	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 2</i>	12/01/2022	\$37.91	\$9.10	\$16.64	\$0.00	\$63.65
	06/01/2023	\$38.81	\$9.10	\$16.64	\$0.00	\$64.55
	12/01/2023	\$39.71	\$9.10	\$16.64	\$0.00	\$65.45
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2022	\$37.31	\$9.35	\$16.89	\$0.00	\$63.55
	06/01/2023	\$38.21	\$9.35	\$16.89	\$0.00	\$64.45
	12/01/2023	\$39.11	\$9.35	\$16.89	\$0.00	\$65.35
	06/01/2024	\$40.44	\$9.35	\$16.89	\$0.00	\$66.68
	12/01/2024	\$41.77	\$9.35	\$16.89	\$0.00	\$68.01
	06/01/2025	\$43.16	\$9.35	\$16.89	\$0.00	\$69.40
	12/01/2025	\$44.54	\$9.35	\$16.89	\$0.00	\$70.78
	06/01/2026	\$45.98	\$9.35	\$16.89	\$0.00	\$72.22
	12/01/2026	\$47.42	\$9.35	\$16.89	\$0.00	\$73.66
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	01/01/2023	\$47.37	\$7.07	\$20.31	\$0.00	\$74.75
	01/01/2024	\$48.12	\$7.07	\$20.60	\$0.00	\$75.79

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - BOILERMAKER - Local 29

Effective Date - 01/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$30.79	\$7.07	\$13.22	\$0.00	\$51.08
2	65	\$30.79	\$7.07	\$13.22	\$0.00	\$51.08
3	70	\$33.16	\$7.07	\$14.23	\$0.00	\$54.46
4	75	\$35.53	\$7.07	\$15.24	\$0.00	\$57.84
5	80	\$37.90	\$7.07	\$16.25	\$0.00	\$61.22
6	85	\$40.26	\$7.07	\$17.28	\$0.00	\$64.61
7	90	\$42.63	\$7.07	\$18.28	\$0.00	\$67.98
8	95	\$45.00	\$7.07	\$19.32	\$0.00	\$71.39

Effective Date - 01/01/2024

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

Notes:

Apprentice to Journeyworker Ratio:1:4

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	02/01/2023	\$60.35	\$11.49	\$22.34	\$0.00	\$94.18
BRICKLAYERS LOCAL 3 (NEW BEDFORD)	08/01/2023	\$62.40	\$11.49	\$22.34	\$0.00	\$96.23
	02/01/2024	\$63.65	\$11.49	\$22.34	\$0.00	\$97.48
	08/01/2024	\$65.75	\$11.49	\$22.34	\$0.00	\$99.58
	02/01/2025	\$67.05	\$11.49	\$22.34	\$0.00	\$100.88
	08/01/2025	\$69.20	\$11.49	\$22.34	\$0.00	\$103.03
	02/01/2026	\$70.55	\$11.49	\$22.34	\$0.00	\$104.38
	08/01/2026	\$72.75	\$11.49	\$22.34	\$0.00	\$106.58
	02/01/2027	\$74.15	\$11.49	\$22.34	\$0.00	\$107.98

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 New Bedford

Effective Date - 02/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$30.18	\$11.49	\$22.34	\$0.00	\$64.01
2	60	\$36.21	\$11.49	\$22.34	\$0.00	\$70.04
3	70	\$42.25	\$11.49	\$22.34	\$0.00	\$76.08
4	80	\$48.28	\$11.49	\$22.34	\$0.00	\$82.11
5	90	\$54.32	\$11.49	\$22.34	\$0.00	\$88.15

Effective Date - 08/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$31.20	\$11.49	\$22.34	\$0.00	\$65.03
2	60	\$37.44	\$11.49	\$22.34	\$0.00	\$71.27
3	70	\$43.68	\$11.49	\$22.34	\$0.00	\$77.51
4	80	\$49.92	\$11.49	\$22.34	\$0.00	\$83.75
5	90	\$56.16	\$11.49	\$22.34	\$0.00	\$89.99

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER	12/01/2022	\$53.05	\$14.25	\$16.05	\$0.00	\$83.35
<i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$54.29	\$14.25	\$16.05	\$0.00	\$84.59
	12/01/2023	\$55.53	\$14.25	\$16.05	\$0.00	\$85.83
	06/01/2024	\$56.81	\$14.25	\$16.05	\$0.00	\$87.11
	12/01/2024	\$58.25	\$14.25	\$16.05	\$0.00	\$88.55
	06/01/2025	\$59.53	\$14.25	\$16.05	\$0.00	\$89.83
	12/01/2025	\$60.97	\$14.25	\$16.05	\$0.00	\$91.27
	06/01/2026	\$62.25	\$14.25	\$16.05	\$0.00	\$92.55
	12/01/2026	\$63.69	\$14.25	\$16.05	\$0.00	\$93.99

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

CAISSON & UNDERPINNING BOTTOM MAN	12/01/2022	\$43.73	\$9.35	\$17.97	\$0.00	\$71.05
<i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2023	\$44.73	\$9.35	\$17.97	\$0.00	\$72.05
	12/01/2023	\$45.98	\$9.35	\$17.97	\$0.00	\$73.30
	06/01/2024	\$47.46	\$9.35	\$17.97	\$0.00	\$74.78
	12/01/2024	\$48.93	\$9.35	\$17.97	\$0.00	\$76.25
	06/01/2025	\$50.43	\$9.35	\$17.97	\$0.00	\$77.75
	12/01/2025	\$51.93	\$9.35	\$17.97	\$0.00	\$79.25
	06/01/2026	\$53.48	\$9.35	\$17.97	\$0.00	\$80.80
	12/01/2026	\$54.98	\$9.35	\$17.97	\$0.00	\$82.30

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CAISSON & UNDERPINNING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2022	\$42.58	\$9.35	\$17.97	\$0.00	\$69.90
	06/01/2023	\$43.58	\$9.35	\$17.97	\$0.00	\$70.90
	12/01/2023	\$44.83	\$9.35	\$17.97	\$0.00	\$72.15
	06/01/2024	\$46.31	\$9.35	\$17.97	\$0.00	\$73.63
	12/01/2024	\$47.78	\$9.35	\$17.97	\$0.00	\$75.10
	06/01/2025	\$49.28	\$9.35	\$17.97	\$0.00	\$76.60
	12/01/2025	\$50.78	\$9.35	\$17.97	\$0.00	\$78.10
	06/01/2026	\$52.33	\$9.35	\$17.97	\$0.00	\$79.65
	12/01/2026	\$53.83	\$9.35	\$17.97	\$0.00	\$81.15
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2022	\$42.58	\$9.35	\$17.97	\$0.00	\$69.90
	06/01/2023	\$43.58	\$9.35	\$17.97	\$0.00	\$70.90
	12/01/2023	\$44.83	\$9.35	\$17.97	\$0.00	\$72.15
	06/01/2024	\$46.31	\$9.35	\$17.97	\$0.00	\$73.63
	12/01/2024	\$47.78	\$9.35	\$17.97	\$0.00	\$75.10
	06/01/2025	\$49.28	\$9.35	\$17.97	\$0.00	\$76.60
	12/01/2025	\$50.78	\$9.35	\$17.97	\$0.00	\$78.10
	06/01/2026	\$52.33	\$9.35	\$17.97	\$0.00	\$79.65
	12/01/2026	\$53.83	\$9.35	\$17.97	\$0.00	\$81.15
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
CARPENTER <i>CARPENTERS -ZONE 2 (Eastern Massachusetts)</i>	09/01/2022	\$45.18	\$8.68	\$19.97	\$0.00	\$73.83
	03/01/2023	\$45.78	\$8.68	\$19.97	\$0.00	\$74.43

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - CARPENTER - Zone 2 Eastern MA

Effective Date - 09/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.59	\$8.68	\$1.73	\$0.00	\$33.00
2	60	\$27.11	\$8.68	\$1.73	\$0.00	\$37.52
3	70	\$31.63	\$8.68	\$14.78	\$0.00	\$55.09
4	75	\$33.89	\$8.68	\$14.78	\$0.00	\$57.35
5	80	\$36.14	\$8.68	\$16.51	\$0.00	\$61.33
6	80	\$36.14	\$8.68	\$16.51	\$0.00	\$61.33
7	90	\$40.66	\$8.68	\$18.24	\$0.00	\$67.58
8	90	\$40.66	\$8.68	\$18.24	\$0.00	\$67.58

Effective Date - 03/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.89	\$8.68	\$1.73	\$0.00	\$33.30
2	60	\$27.47	\$8.68	\$1.73	\$0.00	\$37.88
3	70	\$32.05	\$8.68	\$14.78	\$0.00	\$55.51
4	75	\$34.34	\$8.68	\$14.78	\$0.00	\$57.80
5	80	\$36.62	\$8.68	\$16.51	\$0.00	\$61.81
6	80	\$36.62	\$8.68	\$16.51	\$0.00	\$61.81
7	90	\$41.20	\$8.68	\$18.24	\$0.00	\$68.12
8	90	\$41.20	\$8.68	\$18.24	\$0.00	\$68.12

Notes:
 % Indentured After 10/1/17; 45/45/55/55/70/70/80/80
 Step 1&2 \$30.71/ 3&4 \$36.93/ 5&6 \$56.82/ 7&8 \$63.06

Apprentice to Journeyworker Ratio:1:5

CARPENTER WOOD FRAME	04/01/2022	\$23.66	\$7.21	\$4.80	\$0.00	\$35.67
CARPENTERS-ZONE 3 (Wood Frame)	04/01/2023	\$24.16	\$7.21	\$4.80	\$0.00	\$36.17

All Aspects of New Wood Frame Work

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - CARPENTER (Wood Frame) - Zone 3

Effective Date - 04/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$14.20	\$7.21	\$0.00	\$0.00	\$21.41
2	60	\$14.20	\$7.21	\$0.00	\$0.00	\$21.41
3	65	\$15.38	\$7.21	\$0.00	\$0.00	\$22.59
4	70	\$16.56	\$7.21	\$0.00	\$0.00	\$23.77
5	75	\$17.75	\$7.21	\$3.80	\$0.00	\$28.76
6	80	\$18.93	\$7.21	\$3.80	\$0.00	\$29.94
7	85	\$20.11	\$7.21	\$3.80	\$0.00	\$31.12
8	90	\$21.29	\$7.21	\$3.80	\$0.00	\$32.30

Effective Date - 04/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$14.50	\$7.21	\$0.00	\$0.00	\$21.71
2	60	\$14.50	\$7.21	\$0.00	\$0.00	\$21.71
3	65	\$15.70	\$7.21	\$0.00	\$0.00	\$22.91
4	70	\$16.91	\$7.21	\$0.00	\$0.00	\$24.12
5	75	\$18.12	\$7.21	\$3.80	\$0.00	\$29.13
6	80	\$19.33	\$7.21	\$3.80	\$0.00	\$30.34
7	85	\$20.54	\$7.21	\$3.80	\$0.00	\$31.55
8	90	\$21.74	\$7.21	\$3.80	\$0.00	\$32.75

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
 Step 1&2 \$17.86/ 3&4 \$20.22/ 5&6 \$27.57/ 7&8 \$29.94

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING	01/01/2023	\$49.45	\$12.75	\$22.74	\$0.87	\$85.81
BRICKLAYERS LOCAL 3 (NEW BEDFORD)	07/01/2023	\$50.59	\$12.75	\$22.74	\$0.87	\$86.95
	01/01/2024	\$51.73	\$12.75	\$22.74	\$0.87	\$88.09

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - CEMENT MASONRY/PLASTERING - Eastern Mass (New Bedford)

Effective Date - 01/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.73	\$12.75	\$15.49	\$0.00	\$52.97
2	60	\$29.67	\$12.75	\$22.74	\$0.87	\$66.03
3	65	\$32.14	\$12.75	\$22.74	\$0.87	\$68.50
4	70	\$34.62	\$12.75	\$22.74	\$0.87	\$70.98
5	75	\$37.09	\$12.75	\$22.74	\$0.87	\$73.45
6	80	\$39.56	\$12.75	\$22.74	\$0.87	\$75.92
7	90	\$44.51	\$12.75	\$22.74	\$0.87	\$80.87

Effective Date - 07/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.30	\$12.75	\$15.49	\$0.00	\$53.54
2	60	\$30.35	\$12.75	\$22.74	\$0.87	\$66.71
3	65	\$32.88	\$12.75	\$22.74	\$0.87	\$69.24
4	70	\$35.41	\$12.75	\$22.74	\$0.87	\$71.77
5	75	\$37.94	\$12.75	\$22.74	\$0.87	\$74.30
6	80	\$40.47	\$12.75	\$22.74	\$0.87	\$76.83
7	90	\$45.53	\$12.75	\$22.74	\$0.87	\$81.89

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

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR LABORERS - ZONE 2	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95

For apprentice rates see "Apprentice- LABORER"

CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES OPERATING ENGINEERS LOCAL 4	12/01/2022	\$54.68	\$14.25	\$16.05	\$0.00	\$84.98
	06/01/2023	\$55.95	\$14.25	\$16.05	\$0.00	\$86.25
	12/01/2023	\$57.23	\$14.25	\$16.05	\$0.00	\$87.53
	06/01/2024	\$58.55	\$14.25	\$16.05	\$0.00	\$88.85
	12/01/2024	\$60.03	\$14.25	\$16.05	\$0.00	\$90.33
	06/01/2025	\$61.36	\$14.25	\$16.05	\$0.00	\$91.66
	12/01/2025	\$62.83	\$14.25	\$16.05	\$0.00	\$93.13
	06/01/2026	\$64.16	\$14.25	\$16.05	\$0.00	\$94.46
	12/01/2026	\$65.64	\$14.25	\$16.05	\$0.00	\$95.94

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
COMPRESSOR OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2022	\$35.08	\$14.25	\$16.05	\$0.00	\$65.38
	06/01/2023	\$35.90	\$14.25	\$16.05	\$0.00	\$66.20
	12/01/2023	\$36.72	\$14.25	\$16.05	\$0.00	\$67.02
	06/01/2024	\$37.57	\$14.25	\$16.05	\$0.00	\$67.87
	12/01/2024	\$38.52	\$14.25	\$16.05	\$0.00	\$68.82
	06/01/2025	\$39.37	\$14.25	\$16.05	\$0.00	\$69.67
	12/01/2025	\$40.32	\$14.25	\$16.05	\$0.00	\$70.62
	06/01/2026	\$41.18	\$14.25	\$16.05	\$0.00	\$71.48
	12/01/2026	\$42.13	\$14.25	\$16.05	\$0.00	\$72.43

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

DELEADER (BRIDGE) <i>PAINTERS LOCAL 35 - ZONE 2</i>	01/01/2023	\$56.06	\$8.65	\$23.05	\$0.00	\$87.76
	07/01/2023	\$57.26	\$8.65	\$23.05	\$0.00	\$88.96
	01/01/2024	\$58.46	\$8.65	\$23.05	\$0.00	\$90.16
	07/01/2024	\$59.66	\$8.65	\$23.05	\$0.00	\$91.36
	01/01/2025	\$60.86	\$8.65	\$23.05	\$0.00	\$92.56

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 01/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.03	\$8.65	\$0.00	\$0.00	\$36.68
2	55	\$30.83	\$8.65	\$6.27	\$0.00	\$45.75
3	60	\$33.64	\$8.65	\$6.84	\$0.00	\$49.13
4	65	\$36.44	\$8.65	\$7.41	\$0.00	\$52.50
5	70	\$39.24	\$8.65	\$19.63	\$0.00	\$67.52
6	75	\$42.05	\$8.65	\$20.20	\$0.00	\$70.90
7	80	\$44.85	\$8.65	\$20.77	\$0.00	\$74.27
8	90	\$50.45	\$8.65	\$21.91	\$0.00	\$81.01

Effective Date - 07/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.63	\$8.65	\$0.00	\$0.00	\$37.28
2	55	\$31.49	\$8.65	\$6.27	\$0.00	\$46.41
3	60	\$34.36	\$8.65	\$6.84	\$0.00	\$49.85
4	65	\$37.22	\$8.65	\$7.41	\$0.00	\$53.28
5	70	\$40.08	\$8.65	\$19.63	\$0.00	\$68.36
6	75	\$42.95	\$8.65	\$20.20	\$0.00	\$71.80
7	80	\$45.81	\$8.65	\$20.77	\$0.00	\$75.23
8	90	\$51.53	\$8.65	\$21.91	\$0.00	\$82.09

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN <i>LABORERS - ZONE 2</i>	12/01/2022	\$43.33	\$9.10	\$17.57	\$0.00	\$70.00
	06/01/2023	\$44.33	\$9.10	\$17.57	\$0.00	\$71.00
	12/01/2023	\$45.58	\$9.10	\$17.57	\$0.00	\$72.25

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2022	\$44.33	\$9.10	\$17.57	\$0.00	\$71.00
	06/01/2023	\$45.33	\$9.10	\$17.57	\$0.00	\$72.00
	12/01/2023	\$46.58	\$9.10	\$17.57	\$0.00	\$73.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS <i>LABORERS - ZONE 2</i>	12/01/2022	\$44.08	\$9.10	\$17.57	\$0.00	\$70.75
	06/01/2023	\$45.08	\$9.10	\$17.57	\$0.00	\$71.75
	12/01/2023	\$46.33	\$9.10	\$17.57	\$0.00	\$73.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: CONCRETE CUTTER/SAWYER <i>LABORERS - ZONE 2</i>	12/01/2022	\$44.33	\$9.10	\$17.57	\$0.00	\$71.00
	06/01/2023	\$45.33	\$9.10	\$17.57	\$0.00	\$72.00
	12/01/2023	\$46.58	\$9.10	\$17.57	\$0.00	\$73.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2022	\$44.08	\$9.10	\$17.57	\$0.00	\$70.75
	06/01/2023	\$45.08	\$9.10	\$17.57	\$0.00	\$71.75
	12/01/2023	\$46.33	\$9.10	\$17.57	\$0.00	\$73.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER <i>LABORERS - ZONE 2</i>	12/01/2022	\$43.33	\$9.10	\$17.57	\$0.00	\$70.00
	06/01/2023	\$44.33	\$9.10	\$17.57	\$0.00	\$71.00
	12/01/2023	\$45.58	\$9.10	\$17.57	\$0.00	\$72.25
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2022	\$53.05	\$14.25	\$16.05	\$0.00	\$83.35
	06/01/2023	\$54.29	\$14.25	\$16.05	\$0.00	\$84.59
	12/01/2023	\$55.53	\$14.25	\$16.05	\$0.00	\$85.83
	06/01/2024	\$56.81	\$14.25	\$16.05	\$0.00	\$87.11
	12/01/2024	\$58.25	\$14.25	\$16.05	\$0.00	\$88.55
	06/01/2025	\$59.53	\$14.25	\$16.05	\$0.00	\$89.83
	12/01/2025	\$60.97	\$14.25	\$16.05	\$0.00	\$91.27
	06/01/2026	\$62.25	\$14.25	\$16.05	\$0.00	\$92.55
	12/01/2026	\$63.69	\$14.25	\$16.05	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 2)</i>	08/01/2020	\$68.70	\$9.40	\$23.12	\$0.00	\$101.22
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 2)</i>	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 2)</i>	08/01/2020	\$73.60	\$9.40	\$23.12	\$0.00	\$106.12
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 2)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction) <i>DRAWBRIDGE - SEIU LOCAL 888</i>	07/01/2020	\$26.77	\$6.67	\$3.93	\$0.16	\$37.53
ELECTRICIAN <i>ELECTRICIANS LOCAL 223</i>	09/01/2022	\$46.35	\$11.50	\$16.18	\$0.00	\$74.03
	09/01/2023	\$47.87	\$11.75	\$16.86	\$0.00	\$76.48

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ELECTRICIAN - Local 223

Effective Date - 09/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$18.54	\$11.50	\$0.56	\$0.00	\$30.60
2	45	\$20.86	\$11.50	\$0.63	\$0.00	\$32.99
3	50	\$23.18	\$11.50	\$0.70	\$0.00	\$35.38
4	55	\$25.49	\$11.50	\$7.35	\$0.00	\$44.34
5	60	\$27.81	\$11.50	\$7.86	\$0.00	\$47.17
6	65	\$30.13	\$11.50	\$8.37	\$0.00	\$50.00
7	70	\$32.45	\$11.50	\$8.89	\$0.00	\$52.84
8	75	\$34.76	\$11.50	\$9.40	\$0.00	\$55.66

Effective Date - 09/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.15	\$11.75	\$0.57	\$0.00	\$31.47
2	45	\$21.54	\$11.75	\$0.65	\$0.00	\$33.94
3	50	\$23.94	\$11.75	\$0.72	\$0.00	\$36.41
4	55	\$26.33	\$11.75	\$7.79	\$0.00	\$45.87
5	60	\$28.72	\$11.75	\$8.31	\$0.00	\$48.78
6	65	\$31.12	\$11.75	\$8.65	\$0.00	\$51.52
7	70	\$33.51	\$11.75	\$9.38	\$0.00	\$54.64
8	75	\$35.90	\$11.75	\$9.90	\$0.00	\$57.55

Notes:

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR ELEVATOR CONSTRUCTORS LOCAL 4	01/01/2022	\$65.62	\$16.03	\$20.21	\$0.00	\$101.86
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Apprentice - ELEVATOR CONSTRUCTOR - Local 4

Effective Date - 01/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$32.81	\$16.03	\$0.00	\$0.00	\$48.84
2	55	\$36.09	\$16.03	\$20.21	\$0.00	\$72.33
3	65	\$42.65	\$16.03	\$20.21	\$0.00	\$78.89
4	70	\$45.93	\$16.03	\$20.21	\$0.00	\$82.17
5	80	\$52.50	\$16.03	\$20.21	\$0.00	\$88.74

Notes:

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

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER ELEVATOR CONSTRUCTORS LOCAL 4	01/01/2022	\$45.93	\$16.03	\$20.21	\$0.00	\$82.17
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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2022	\$36.81	\$9.35	\$16.89	\$0.00	\$63.05
	06/01/2023	\$37.71	\$9.35	\$16.89	\$0.00	\$63.95
	12/01/2023	\$38.61	\$9.35	\$16.89	\$0.00	\$64.85
	06/01/2024	\$39.94	\$9.35	\$16.89	\$0.00	\$66.18
	12/01/2024	\$41.27	\$9.35	\$16.89	\$0.00	\$67.51
	06/01/2025	\$42.66	\$9.35	\$16.89	\$0.00	\$68.90
	12/01/2025	\$44.04	\$9.35	\$16.89	\$0.00	\$70.28
	06/01/2026	\$45.48	\$9.35	\$16.89	\$0.00	\$71.72
	12/01/2026	\$46.92	\$9.35	\$16.89	\$0.00	\$73.16
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/05/2022	\$48.67	\$14.25	\$16.05	\$0.00	\$78.97
	05/01/2023	\$49.91	\$14.25	\$16.05	\$0.00	\$80.21
	11/01/2023	\$51.15	\$14.25	\$16.05	\$0.00	\$81.45
	05/01/2024	\$52.39	\$14.25	\$16.05	\$0.00	\$82.69
	11/01/2024	\$53.68	\$14.25	\$16.05	\$0.00	\$83.98
	05/01/2025	\$55.12	\$14.25	\$16.05	\$0.00	\$85.42
	11/01/2025	\$56.41	\$14.25	\$16.05	\$0.00	\$86.71
	05/01/2026	\$57.85	\$14.25	\$16.05	\$0.00	\$88.15
	11/01/2026	\$59.14	\$14.25	\$16.05	\$0.00	\$89.44
	05/01/2027	\$60.57	\$14.25	\$16.05	\$0.00	\$90.87
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2022	\$50.22	\$14.25	\$16.05	\$0.00	\$80.52
	05/01/2023	\$51.47	\$14.25	\$16.05	\$0.00	\$81.77
	11/01/2023	\$52.72	\$14.25	\$16.05	\$0.00	\$83.02
	05/01/2024	\$53.97	\$14.25	\$16.05	\$0.00	\$84.27
	11/01/2024	\$55.27	\$14.25	\$16.05	\$0.00	\$85.57
	05/01/2025	\$56.72	\$14.25	\$16.05	\$0.00	\$87.02
	11/01/2025	\$58.02	\$14.25	\$16.05	\$0.00	\$88.32
	05/01/2026	\$59.47	\$14.25	\$16.05	\$0.00	\$89.77
	11/01/2026	\$60.77	\$14.25	\$16.05	\$0.00	\$91.07
	05/01/2027	\$62.22	\$14.25	\$16.05	\$0.00	\$92.52
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2022	\$24.31	\$14.25	\$16.05	\$0.00	\$54.61
	05/01/2023	\$25.05	\$14.25	\$16.05	\$0.00	\$55.35
	11/01/2023	\$25.78	\$14.25	\$16.05	\$0.00	\$56.08
	05/01/2024	\$26.51	\$14.25	\$16.05	\$0.00	\$56.81
	11/01/2024	\$27.27	\$14.25	\$16.05	\$0.00	\$57.57
	05/01/2025	\$28.12	\$14.25	\$16.05	\$0.00	\$58.42
	11/01/2025	\$28.88	\$14.25	\$16.05	\$0.00	\$59.18
	05/01/2026	\$29.73	\$14.25	\$16.05	\$0.00	\$60.03
	11/01/2026	\$30.49	\$14.25	\$16.05	\$0.00	\$60.79
	05/01/2027	\$31.34	\$14.25	\$16.05	\$0.00	\$61.64
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 223</i>	09/01/2020	\$43.66	\$10.90	\$14.66	\$0.00	\$69.22
For apprentice rates see "Apprentice- ELECTRICIAN"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING <i>ELECTRICIANS</i>	09/01/2020	\$36.86	\$10.90	\$12.45	\$0.00	\$60.21
<i>LOCAL 223</i>						
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2022	\$43.54	\$14.25	\$16.05	\$0.00	\$73.84
	06/01/2023	\$44.56	\$14.25	\$16.05	\$0.00	\$74.86
	12/01/2023	\$45.57	\$14.25	\$16.05	\$0.00	\$75.87
	06/01/2024	\$46.63	\$14.25	\$16.05	\$0.00	\$76.93
	12/01/2024	\$47.81	\$14.25	\$16.05	\$0.00	\$78.11
	06/01/2025	\$48.87	\$14.25	\$16.05	\$0.00	\$79.17
	12/01/2025	\$50.04	\$14.25	\$16.05	\$0.00	\$80.34
	06/01/2026	\$51.10	\$14.25	\$16.05	\$0.00	\$81.40
	12/01/2026	\$52.28	\$14.25	\$16.05	\$0.00	\$82.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2022	\$25.23	\$9.35	\$16.89	\$0.00	\$51.47
	06/01/2023	\$25.98	\$9.35	\$16.89	\$0.00	\$52.22
	12/01/2023	\$25.98	\$9.35	\$16.89	\$0.00	\$52.22
	06/01/2024	\$27.01	\$9.35	\$16.89	\$0.00	\$53.25
	12/01/2024	\$27.01	\$9.35	\$16.89	\$0.00	\$53.25
	06/01/2025	\$28.09	\$9.35	\$16.89	\$0.00	\$54.33
	12/01/2025	\$28.09	\$9.35	\$16.89	\$0.00	\$54.33
	06/01/2026	\$29.21	\$9.35	\$16.89	\$0.00	\$55.45
	12/01/2026	\$29.21	\$9.35	\$16.89	\$0.00	\$55.45
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE 1</i>	03/01/2022	\$49.93	\$8.68	\$20.27	\$0.00	\$78.88

Apprentice - FLOORCOVERER - Local 2168 Zone 1

Effective Date - 03/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.97	\$8.68	\$1.79	\$0.00	\$35.44
2	55	\$27.46	\$8.68	\$1.79	\$0.00	\$37.93
3	60	\$29.96	\$8.68	\$14.90	\$0.00	\$53.54
4	65	\$32.45	\$8.68	\$14.90	\$0.00	\$56.03
5	70	\$34.95	\$8.68	\$16.69	\$0.00	\$60.32
6	75	\$37.45	\$8.68	\$16.69	\$0.00	\$62.82
7	80	\$39.94	\$8.68	\$18.48	\$0.00	\$67.10
8	85	\$42.44	\$8.68	\$18.48	\$0.00	\$69.60

Notes: Steps are 750 hrs.
% After 10/1/17; 45/45/55/55/70/70/80/80 (1500hr Steps)
Step 1&2 \$32.94/ 3&4 \$39.66/ 5&6 \$60.32/ 7&8 \$67.10

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FORK LIFT/CHERRY PICKER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2022	\$53.63	\$14.25	\$16.05	\$0.00	\$83.93
	06/01/2023	\$54.88	\$14.25	\$16.05	\$0.00	\$85.18
	12/01/2023	\$56.13	\$14.25	\$16.05	\$0.00	\$86.43
	06/01/2024	\$57.43	\$14.25	\$16.05	\$0.00	\$87.73
	12/01/2024	\$58.88	\$14.25	\$16.05	\$0.00	\$89.18
	06/01/2025	\$60.18	\$14.25	\$16.05	\$0.00	\$90.48
	12/01/2025	\$61.63	\$14.25	\$16.05	\$0.00	\$91.93
	06/01/2026	\$62.93	\$14.25	\$16.05	\$0.00	\$93.23
	12/01/2026	\$64.38	\$14.25	\$16.05	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2022	\$35.08	\$14.25	\$16.05	\$0.00	\$65.38
	06/01/2023	\$35.90	\$14.25	\$16.05	\$0.00	\$66.20
	12/01/2023	\$36.72	\$14.25	\$16.05	\$0.00	\$67.02
	06/01/2024	\$37.57	\$14.25	\$16.05	\$0.00	\$67.87
	12/01/2024	\$38.52	\$14.25	\$16.05	\$0.00	\$68.82
	06/01/2025	\$39.37	\$14.25	\$16.05	\$0.00	\$69.67
	12/01/2025	\$40.32	\$14.25	\$16.05	\$0.00	\$70.62
	06/01/2026	\$41.18	\$14.25	\$16.05	\$0.00	\$71.48
	12/01/2026	\$42.13	\$14.25	\$16.05	\$0.00	\$72.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) <i>GLAZIERS LOCAL 1333</i>	06/01/2020	\$39.18	\$10.80	\$10.45	\$0.00	\$60.43

Apprentice - GLAZIER - Local 1333

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HOISTING ENGINEER/CRANES/GRADALLS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2022	\$53.63	\$14.25	\$16.05	\$0.00	\$83.93
	06/01/2023	\$54.88	\$14.25	\$16.05	\$0.00	\$85.18
	12/01/2023	\$56.13	\$14.25	\$16.05	\$0.00	\$86.43
	06/01/2024	\$57.43	\$14.25	\$16.05	\$0.00	\$87.73
	12/01/2024	\$58.88	\$14.25	\$16.05	\$0.00	\$89.18
	06/01/2025	\$60.18	\$14.25	\$16.05	\$0.00	\$90.48
	12/01/2025	\$61.63	\$14.25	\$16.05	\$0.00	\$91.93
	06/01/2026	\$62.93	\$14.25	\$16.05	\$0.00	\$93.23
	12/01/2026	\$64.38	\$14.25	\$16.05	\$0.00	\$94.68

Apprentice - OPERATING ENGINEERS - Local 4

Effective Date - 12/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$29.50	\$14.25	\$0.00	\$0.00	\$43.75
2	60	\$32.18	\$14.25	\$16.05	\$0.00	\$62.48
3	65	\$34.86	\$14.25	\$16.05	\$0.00	\$65.16
4	70	\$37.54	\$14.25	\$16.05	\$0.00	\$67.84
5	75	\$40.22	\$14.25	\$16.05	\$0.00	\$70.52
6	80	\$42.90	\$14.25	\$16.05	\$0.00	\$73.20
7	85	\$45.59	\$14.25	\$16.05	\$0.00	\$75.89
8	90	\$48.27	\$14.25	\$16.05	\$0.00	\$78.57

Effective Date - 06/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$30.18	\$14.25	\$0.00	\$0.00	\$44.43
2	60	\$32.93	\$14.25	\$16.05	\$0.00	\$63.23
3	65	\$35.67	\$14.25	\$16.05	\$0.00	\$65.97
4	70	\$38.42	\$14.25	\$16.05	\$0.00	\$68.72
5	75	\$41.16	\$14.25	\$16.05	\$0.00	\$71.46
6	80	\$43.90	\$14.25	\$16.05	\$0.00	\$74.20
7	85	\$46.65	\$14.25	\$16.05	\$0.00	\$76.95
8	90	\$49.39	\$14.25	\$16.05	\$0.00	\$79.69

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) <i>SHEETMETAL WORKERS LOCAL 17 - B</i>	04/01/2022	\$38.91	\$13.65	\$17.15	\$2.09	\$71.80
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For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (ELECTRICAL CONTROLS) <i>ELECTRICIANS LOCAL 223</i>	09/01/2020	\$43.66	\$10.90	\$14.66	\$0.00	\$69.22
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For apprentice rates see "Apprentice- ELECTRICIAN"

HVAC (TESTING AND BALANCING - AIR) <i>SHEETMETAL WORKERS LOCAL 17 - B</i>	04/01/2022	\$38.91	\$13.65	\$17.15	\$2.09	\$71.80
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For apprentice rates see "Apprentice- SHEET METAL WORKER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC (TESTING AND BALANCING -WATER) <i>PLUMBERS & PIPEFITTERS LOCAL 51</i>	08/30/2021	\$46.49	\$10.15	\$19.95	\$0.00	\$76.59
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC <i>PLUMBERS & PIPEFITTERS LOCAL 51</i>	08/30/2021	\$46.49	\$10.15	\$19.95	\$0.00	\$76.59
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS <i>LABORERS - ZONE 2</i>	12/01/2022	\$37.91	\$9.10	\$16.64	\$0.00	\$63.65
	06/01/2023	\$38.81	\$9.10	\$16.64	\$0.00	\$64.55
	12/01/2023	\$39.71	\$9.10	\$16.64	\$0.00	\$65.45
For apprentice rates see "Apprentice- LABORER"						
HYDRAULIC DRILLS (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2022	\$37.31	\$9.35	\$16.89	\$0.00	\$63.55
	06/01/2023	\$38.21	\$9.35	\$16.89	\$0.00	\$64.45
	12/01/2023	\$39.11	\$9.35	\$16.89	\$0.00	\$65.35
	06/01/2024	\$40.44	\$9.35	\$16.89	\$0.00	\$66.68
	12/01/2024	\$41.77	\$9.35	\$16.89	\$0.00	\$68.01
	06/01/2025	\$43.16	\$9.35	\$16.89	\$0.00	\$69.40
	12/01/2025	\$44.54	\$9.35	\$16.89	\$0.00	\$70.78
	06/01/2026	\$45.98	\$9.35	\$16.89	\$0.00	\$72.22
12/01/2026	\$47.42	\$9.35	\$16.89	\$0.00	\$73.66	
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
INSULATOR (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (SOUTHERN MASS)</i>	09/01/2022	\$48.95	\$13.80	\$17.14	\$0.00	\$79.89

Apprentice - ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Southern MA

Effective Date - 09/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.48	\$13.80	\$12.42	\$0.00	\$50.70
2	60	\$29.37	\$13.80	\$13.36	\$0.00	\$56.53
3	70	\$34.27	\$13.80	\$14.31	\$0.00	\$62.38
4	80	\$39.16	\$13.80	\$15.25	\$0.00	\$68.21

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER <i>IRONWORKERS LOCAL 37</i>	03/16/2021	\$42.46	\$7.70	\$17.10	\$0.00	\$67.26
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Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - IRONWORKER - Local 37

Effective Date - 03/16/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	70	\$29.72	\$7.70	\$17.10	\$0.00	\$54.52
2	75	\$31.85	\$7.70	\$17.10	\$0.00	\$56.65
3	80	\$33.97	\$7.70	\$17.10	\$0.00	\$58.77
4	85	\$36.09	\$7.70	\$17.10	\$0.00	\$60.89
5	90	\$38.21	\$7.70	\$17.10	\$0.00	\$63.01
6	95	\$40.34	\$7.70	\$17.10	\$0.00	\$65.14

Notes:

Apprentice to Journeyworker Ratio:1:4

JACKHAMMER & PAVING BREAKER OPERATOR LABORERS - ZONE 2	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95

For apprentice rates see "Apprentice- LABORER"

LABORER LABORERS - ZONE 2	12/01/2022	\$37.16	\$9.10	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.06	\$9.10	\$16.64	\$0.00	\$63.80
	12/01/2023	\$38.96	\$9.10	\$16.64	\$0.00	\$64.70

Apprentice - LABORER - Zone 2

Effective Date - 12/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$22.30	\$9.10	\$16.64	\$0.00	\$48.04
2	70	\$26.01	\$9.10	\$16.64	\$0.00	\$51.75
3	80	\$29.73	\$9.10	\$16.64	\$0.00	\$55.47
4	90	\$33.44	\$9.10	\$16.64	\$0.00	\$59.18

Effective Date - 06/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$22.84	\$9.10	\$16.64	\$0.00	\$48.58
2	70	\$26.64	\$9.10	\$16.64	\$0.00	\$52.38
3	80	\$30.45	\$9.10	\$16.64	\$0.00	\$56.19
4	90	\$34.25	\$9.10	\$16.64	\$0.00	\$59.99

Notes:

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER (HEAVY & HIGHWAY) LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/01/2022	\$36.56	\$9.35	\$16.89	\$0.00	\$62.80
	06/01/2023	\$37.46	\$9.35	\$16.89	\$0.00	\$63.70
	12/01/2023	\$38.36	\$9.35	\$16.89	\$0.00	\$64.60
	06/01/2024	\$39.69	\$9.35	\$16.89	\$0.00	\$65.93
	12/01/2024	\$41.02	\$9.35	\$16.89	\$0.00	\$67.26
	06/01/2025	\$42.41	\$9.35	\$16.89	\$0.00	\$68.65
	12/01/2025	\$43.79	\$9.35	\$16.89	\$0.00	\$70.03
	06/01/2026	\$45.23	\$9.35	\$16.89	\$0.00	\$71.47
	12/01/2026	\$46.67	\$9.35	\$16.89	\$0.00	\$72.91

Apprentice - LABORER (Heavy & Highway) - Zone 2

Effective Date - 12/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.94	\$9.35	\$16.89	\$0.00	\$48.18
2	70	\$25.59	\$9.35	\$16.89	\$0.00	\$51.83
3	80	\$29.25	\$9.35	\$16.89	\$0.00	\$55.49
4	90	\$32.90	\$9.35	\$16.89	\$0.00	\$59.14

Effective Date - 06/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$22.48	\$9.35	\$16.89	\$0.00	\$48.72
2	70	\$26.22	\$9.35	\$16.89	\$0.00	\$52.46
3	80	\$29.97	\$9.35	\$16.89	\$0.00	\$56.21
4	90	\$33.71	\$9.35	\$16.89	\$0.00	\$59.95

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER: CARPENTER TENDER LABORERS - ZONE 2	12/01/2022	\$37.16	\$9.10	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.06	\$9.10	\$16.64	\$0.00	\$63.80
	12/01/2023	\$38.96	\$9.10	\$16.64	\$0.00	\$64.70

For apprentice rates see "Apprentice- LABORER"

LABORER: CEMENT FINISHER TENDER LABORERS - ZONE 2	12/01/2022	\$37.16	\$9.10	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.06	\$9.10	\$16.64	\$0.00	\$63.80
	12/01/2023	\$38.96	\$9.10	\$16.64	\$0.00	\$64.70

For apprentice rates see "Apprentice- LABORER"

LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER LABORERS - ZONE 2	12/01/2022	\$37.25	\$9.10	\$16.70	\$0.00	\$63.05
	06/01/2023	\$38.15	\$9.10	\$16.70	\$0.00	\$63.95
	12/01/2023	\$39.05	\$9.10	\$16.70	\$0.00	\$64.85

For apprentice rates see "Apprentice- LABORER"

LABORER: MASON TENDER LABORERS - ZONE 2	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: MASON TENDER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2022	\$36.81	\$9.35	\$16.89	\$0.00	\$63.05
	06/01/2023	\$37.71	\$9.35	\$16.89	\$0.00	\$63.95
	12/01/2023	\$38.61	\$9.35	\$16.89	\$0.00	\$64.85
	06/01/2024	\$39.94	\$9.35	\$16.89	\$0.00	\$66.18
	12/01/2024	\$41.27	\$9.35	\$16.89	\$0.00	\$67.51
	06/01/2025	\$42.66	\$9.35	\$16.89	\$0.00	\$68.90
	12/01/2025	\$44.04	\$9.35	\$16.89	\$0.00	\$70.28
	06/01/2026	\$45.48	\$9.35	\$16.89	\$0.00	\$71.72
	12/01/2026	\$46.92	\$9.35	\$16.89	\$0.00	\$73.16
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 2</i>	12/01/2022	\$37.16	\$9.10	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.06	\$9.10	\$16.64	\$0.00	\$63.80
	12/01/2023	\$38.96	\$9.10	\$16.64	\$0.00	\$64.70
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 2</i>	12/01/2022	\$37.16	\$9.10	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.06	\$9.10	\$16.64	\$0.00	\$63.80
	12/01/2023	\$38.96	\$9.10	\$16.64	\$0.00	\$64.70
This classification applies to the removal of standing trees, and the trimming and removal of branches and limbs when related to public works construction or site clearance incidental to construction . For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2022	\$36.81	\$9.35	\$16.89	\$0.00	\$63.05
	06/01/2023	\$37.71	\$9.35	\$16.89	\$0.00	\$63.95
	12/01/2023	\$38.61	\$9.35	\$16.89	\$0.00	\$64.85
	06/01/2024	\$39.94	\$9.35	\$16.89	\$0.00	\$66.18
	12/01/2024	\$41.27	\$9.35	\$16.89	\$0.00	\$67.51
	06/01/2025	\$42.66	\$9.35	\$16.89	\$0.00	\$68.90
	12/01/2025	\$44.04	\$9.35	\$16.89	\$0.00	\$70.28
	06/01/2026	\$45.48	\$9.35	\$16.89	\$0.00	\$71.72
	12/01/2026	\$46.92	\$9.35	\$16.89	\$0.00	\$73.16
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	02/01/2023	\$46.25	\$11.49	\$20.37	\$0.00	\$78.11
	08/01/2023	\$47.89	\$11.49	\$20.37	\$0.00	\$79.75
	02/01/2024	\$48.89	\$11.49	\$20.37	\$0.00	\$80.75
	08/01/2024	\$50.57	\$11.49	\$20.37	\$0.00	\$82.43
	02/01/2025	\$51.61	\$11.49	\$20.37	\$0.00	\$83.47
	08/01/2025	\$53.33	\$11.49	\$20.37	\$0.00	\$85.19
	02/01/2026	\$54.41	\$11.49	\$20.37	\$0.00	\$86.27
	08/01/2026	\$56.17	\$11.49	\$20.37	\$0.00	\$88.03
	02/01/2027	\$57.29	\$11.49	\$20.37	\$0.00	\$89.15

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 02/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.13	\$11.49	\$20.37	\$0.00	\$54.99
2	60	\$27.75	\$11.49	\$20.37	\$0.00	\$59.61
3	70	\$32.38	\$11.49	\$20.37	\$0.00	\$64.24
4	80	\$37.00	\$11.49	\$20.37	\$0.00	\$68.86
5	90	\$41.63	\$11.49	\$20.37	\$0.00	\$73.49

Effective Date - 08/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.95	\$11.49	\$20.37	\$0.00	\$55.81
2	60	\$28.73	\$11.49	\$20.37	\$0.00	\$60.59
3	70	\$33.52	\$11.49	\$20.37	\$0.00	\$65.38
4	80	\$38.31	\$11.49	\$20.37	\$0.00	\$70.17
5	90	\$43.10	\$11.49	\$20.37	\$0.00	\$74.96

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS, TILELAYERS & TERRAZZO MECH	02/01/2023	\$60.37	\$11.49	\$22.31	\$0.00	\$94.17
BRICKLAYERS LOCAL 3 - MARBLE & TILE	08/01/2023	\$62.42	\$11.49	\$22.31	\$0.00	\$96.22
	02/01/2024	\$63.67	\$11.49	\$22.31	\$0.00	\$97.47
	08/01/2024	\$65.77	\$11.49	\$22.31	\$0.00	\$99.57
	02/01/2025	\$67.07	\$11.49	\$22.31	\$0.00	\$100.87
	08/01/2025	\$69.22	\$11.49	\$22.31	\$0.00	\$103.02
	02/01/2026	\$70.57	\$11.49	\$22.31	\$0.00	\$104.37
	08/01/2026	\$72.77	\$11.49	\$22.31	\$0.00	\$106.57
	02/01/2027	\$74.17	\$11.49	\$22.31	\$0.00	\$107.97

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 02/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$30.19	\$11.49	\$22.31	\$0.00	\$63.99
2	60	\$36.22	\$11.49	\$22.31	\$0.00	\$70.02
3	70	\$42.26	\$11.49	\$22.31	\$0.00	\$76.06
4	80	\$48.30	\$11.49	\$22.31	\$0.00	\$82.10
5	90	\$54.33	\$11.49	\$22.31	\$0.00	\$88.13

Effective Date - 08/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$31.21	\$11.49	\$22.31	\$0.00	\$65.01
2	60	\$37.45	\$11.49	\$22.31	\$0.00	\$71.25
3	70	\$43.69	\$11.49	\$22.31	\$0.00	\$77.49
4	80	\$49.94	\$11.49	\$22.31	\$0.00	\$83.74
5	90	\$56.18	\$11.49	\$22.31	\$0.00	\$89.98

Notes:

Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2022	\$53.05	\$14.25	\$16.05	\$0.00	\$83.35
	06/01/2023	\$54.29	\$14.25	\$16.05	\$0.00	\$84.59
	12/01/2023	\$55.53	\$14.25	\$16.05	\$0.00	\$85.83
	06/01/2024	\$56.81	\$14.25	\$16.05	\$0.00	\$87.11
	12/01/2024	\$58.25	\$14.25	\$16.05	\$0.00	\$88.55
	06/01/2025	\$59.53	\$14.25	\$16.05	\$0.00	\$89.83
	12/01/2025	\$60.97	\$14.25	\$16.05	\$0.00	\$91.27
	06/01/2026	\$62.25	\$14.25	\$16.05	\$0.00	\$92.55
	12/01/2026	\$63.69	\$14.25	\$16.05	\$0.00	\$93.99

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MECHANICS MAINTENANCE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2022	\$53.05	\$14.25	\$16.05	\$0.00	\$83.35
	06/01/2023	\$54.29	\$14.25	\$16.05	\$0.00	\$84.59
	12/01/2023	\$55.53	\$14.25	\$16.05	\$0.00	\$85.83
	06/01/2024	\$56.81	\$14.25	\$16.05	\$0.00	\$87.11
	12/01/2024	\$58.25	\$14.25	\$16.05	\$0.00	\$88.55
	06/01/2025	\$59.53	\$14.25	\$16.05	\$0.00	\$89.83
	12/01/2025	\$60.97	\$14.25	\$16.05	\$0.00	\$91.27
	06/01/2026	\$62.25	\$14.25	\$16.05	\$0.00	\$92.55
	12/01/2026	\$63.69	\$14.25	\$16.05	\$0.00	\$93.99

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MILLWRIGHT (Zone 2) <i>MILLWRIGHTS LOCAL 1121 - Zone 2</i>	01/02/2023	\$41.92	\$8.58	\$21.57	\$0.00	\$72.07
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Apprentice - MILLWRIGHT - Local 1121 Zone 2

Effective Date - 01/02/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$23.06	\$8.58	\$5.72	\$0.00	\$37.36
2	65	\$27.25	\$8.58	\$17.93	\$0.00	\$53.76
3	75	\$31.44	\$8.58	\$18.98	\$0.00	\$59.00
4	85	\$35.63	\$8.58	\$20.01	\$0.00	\$64.22

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

Apprentice to Journeyworker Ratio:1:4

MORTAR MIXER	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
<i>LABORERS - ZONE 2</i>	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95

For apprentice rates see "Apprentice- LABORER"

OILER (OTHER THAN TRUCK CRANES,GRADALLS)	12/01/2022	\$24.37	\$14.25	\$16.05	\$0.00	\$54.67
<i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$24.94	\$14.25	\$16.05	\$0.00	\$55.24
	12/01/2023	\$25.51	\$14.25	\$16.05	\$0.00	\$55.81
	06/01/2024	\$26.11	\$14.25	\$16.05	\$0.00	\$56.41
	12/01/2024	\$26.77	\$14.25	\$16.05	\$0.00	\$57.07
	06/01/2025	\$27.37	\$14.25	\$16.05	\$0.00	\$57.67
	12/01/2025	\$28.03	\$14.25	\$16.05	\$0.00	\$58.33
	06/01/2026	\$28.62	\$14.25	\$16.05	\$0.00	\$58.92
	12/01/2026	\$29.29	\$14.25	\$16.05	\$0.00	\$59.59

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

OILER (TRUCK CRANES, GRADALLS)	12/01/2022	\$29.57	\$14.25	\$16.05	\$0.00	\$59.87
<i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$30.27	\$14.25	\$16.05	\$0.00	\$60.57
	12/01/2023	\$30.96	\$14.25	\$16.05	\$0.00	\$61.26
	06/01/2024	\$31.68	\$14.25	\$16.05	\$0.00	\$61.98
	12/01/2024	\$32.48	\$14.25	\$16.05	\$0.00	\$62.78
	06/01/2025	\$33.20	\$14.25	\$16.05	\$0.00	\$63.50
	12/01/2025	\$34.00	\$14.25	\$16.05	\$0.00	\$64.30
	06/01/2026	\$34.72	\$14.25	\$16.05	\$0.00	\$65.02
	12/01/2026	\$35.52	\$14.25	\$16.05	\$0.00	\$65.82

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

OTHER POWER DRIVEN EQUIPMENT - CLASS II	12/01/2022	\$53.05	\$14.25	\$16.05	\$0.00	\$83.35
<i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$54.29	\$14.25	\$16.05	\$0.00	\$84.59
	12/01/2023	\$55.53	\$14.25	\$16.05	\$0.00	\$85.83
	06/01/2024	\$56.81	\$14.25	\$16.05	\$0.00	\$87.11
	12/01/2024	\$58.25	\$14.25	\$16.05	\$0.00	\$88.55
	06/01/2025	\$59.53	\$14.25	\$16.05	\$0.00	\$89.83
	12/01/2025	\$60.97	\$14.25	\$16.05	\$0.00	\$91.27
	06/01/2026	\$62.25	\$14.25	\$16.05	\$0.00	\$92.55
	12/01/2026	\$63.69	\$14.25	\$16.05	\$0.00	\$93.99

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS) <i>PAINTERS LOCAL 35 - ZONE 2</i>	01/01/2023	\$56.06	\$8.65	\$23.05	\$0.00	\$87.76
	07/01/2023	\$57.26	\$8.65	\$23.05	\$0.00	\$88.96
	01/01/2024	\$58.46	\$8.65	\$23.05	\$0.00	\$90.16
	07/01/2024	\$59.66	\$8.65	\$23.05	\$0.00	\$91.36
	01/01/2025	\$60.86	\$8.65	\$23.05	\$0.00	\$92.56

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 01/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.03	\$8.65	\$0.00	\$0.00	\$36.68
2	55	\$30.83	\$8.65	\$6.27	\$0.00	\$45.75
3	60	\$33.64	\$8.65	\$6.84	\$0.00	\$49.13
4	65	\$36.44	\$8.65	\$7.41	\$0.00	\$52.50
5	70	\$39.24	\$8.65	\$19.63	\$0.00	\$67.52
6	75	\$42.05	\$8.65	\$20.20	\$0.00	\$70.90
7	80	\$44.85	\$8.65	\$20.77	\$0.00	\$74.27
8	90	\$50.45	\$8.65	\$21.91	\$0.00	\$81.01

Effective Date - 07/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.63	\$8.65	\$0.00	\$0.00	\$37.28
2	55	\$31.49	\$8.65	\$6.27	\$0.00	\$46.41
3	60	\$34.36	\$8.65	\$6.84	\$0.00	\$49.85
4	65	\$37.22	\$8.65	\$7.41	\$0.00	\$53.28
5	70	\$40.08	\$8.65	\$19.63	\$0.00	\$68.36
6	75	\$42.95	\$8.65	\$20.20	\$0.00	\$71.80
7	80	\$45.81	\$8.65	\$20.77	\$0.00	\$75.23
8	90	\$51.53	\$8.65	\$21.91	\$0.00	\$82.09

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) *	01/01/2023	\$46.96	\$8.65	\$23.05	\$0.00	\$78.66
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. <i>PAINTERS LOCAL 35 - ZONE 2</i>	07/01/2023	\$48.16	\$8.65	\$23.05	\$0.00	\$79.86
	01/01/2024	\$49.36	\$8.65	\$23.05	\$0.00	\$81.06
	07/01/2024	\$50.56	\$8.65	\$23.05	\$0.00	\$82.26
	01/01/2025	\$51.76	\$8.65	\$23.05	\$0.00	\$83.46

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 01/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.48	\$8.65	\$0.00	\$0.00	\$32.13
2	55	\$25.83	\$8.65	\$6.27	\$0.00	\$40.75
3	60	\$28.18	\$8.65	\$6.84	\$0.00	\$43.67
4	65	\$30.52	\$8.65	\$7.41	\$0.00	\$46.58
5	70	\$32.87	\$8.65	\$19.63	\$0.00	\$61.15
6	75	\$35.22	\$8.65	\$20.20	\$0.00	\$64.07
7	80	\$37.57	\$8.65	\$20.77	\$0.00	\$66.99
8	90	\$42.26	\$8.65	\$21.91	\$0.00	\$72.82

Effective Date - 07/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.08	\$8.65	\$0.00	\$0.00	\$32.73
2	55	\$26.49	\$8.65	\$6.27	\$0.00	\$41.41
3	60	\$28.90	\$8.65	\$6.84	\$0.00	\$44.39
4	65	\$31.30	\$8.65	\$7.41	\$0.00	\$47.36
5	70	\$33.71	\$8.65	\$19.63	\$0.00	\$61.99
6	75	\$36.12	\$8.65	\$20.20	\$0.00	\$64.97
7	80	\$38.53	\$8.65	\$20.77	\$0.00	\$67.95
8	90	\$43.34	\$8.65	\$21.91	\$0.00	\$73.90

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)	01/01/2023	\$45.02	\$8.65	\$23.05	\$0.00	\$76.72
PAINTERS LOCAL 35 - ZONE 2	07/01/2023	\$46.22	\$8.65	\$23.05	\$0.00	\$77.92
	01/01/2024	\$47.42	\$8.65	\$23.05	\$0.00	\$79.12
	07/01/2024	\$48.62	\$8.65	\$23.05	\$0.00	\$80.32
	01/01/2025	\$49.82	\$8.65	\$23.05	\$0.00	\$81.52

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 01/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.51	\$8.65	\$0.00	\$0.00	\$31.16
2	55	\$24.76	\$8.65	\$6.27	\$0.00	\$39.68
3	60	\$27.01	\$8.65	\$6.84	\$0.00	\$42.50
4	65	\$29.26	\$8.65	\$7.41	\$0.00	\$45.32
5	70	\$31.51	\$8.65	\$19.63	\$0.00	\$59.79
6	75	\$33.77	\$8.65	\$20.20	\$0.00	\$62.62
7	80	\$36.02	\$8.65	\$20.77	\$0.00	\$65.44
8	90	\$40.52	\$8.65	\$21.91	\$0.00	\$71.08

Effective Date - 07/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.11	\$8.65	\$0.00	\$0.00	\$31.76
2	55	\$25.42	\$8.65	\$6.27	\$0.00	\$40.34
3	60	\$27.73	\$8.65	\$6.84	\$0.00	\$43.22
4	65	\$30.04	\$8.65	\$19.06	\$0.00	\$57.75
5	70	\$32.35	\$8.65	\$19.63	\$0.00	\$60.63
6	75	\$34.67	\$8.65	\$20.20	\$0.00	\$63.52
7	80	\$36.98	\$8.65	\$20.77	\$0.00	\$66.40
8	90	\$41.60	\$8.65	\$21.91	\$0.00	\$72.16

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, NEW) *	01/01/2023	\$45.56	\$8.65	\$23.05	\$0.00	\$77.26
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2	07/01/2023	\$46.76	\$8.65	\$23.05	\$0.00	\$78.46
	01/01/2024	\$47.96	\$8.65	\$23.05	\$0.00	\$79.66
	07/01/2024	\$49.16	\$8.65	\$23.05	\$0.00	\$80.86
	01/01/2025	\$50.36	\$8.65	\$23.05	\$0.00	\$82.06

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER - Local 35 Zone 2 - BRUSH NEW

Effective Date - 01/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.78	\$8.65	\$0.00	\$0.00	\$31.43
2	55	\$25.06	\$8.65	\$6.27	\$0.00	\$39.98
3	60	\$27.34	\$8.65	\$6.84	\$0.00	\$42.83
4	65	\$29.61	\$8.65	\$7.41	\$0.00	\$45.67
5	70	\$31.89	\$8.65	\$19.63	\$0.00	\$60.17
6	75	\$34.17	\$8.65	\$20.20	\$0.00	\$63.02
7	80	\$36.45	\$8.65	\$20.77	\$0.00	\$65.87
8	90	\$41.00	\$8.65	\$21.91	\$0.00	\$71.56

Effective Date - 07/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.38	\$8.65	\$0.00	\$0.00	\$32.03
2	55	\$25.72	\$8.65	\$6.27	\$0.00	\$40.64
3	60	\$28.06	\$8.65	\$6.84	\$0.00	\$43.55
4	65	\$30.39	\$8.65	\$7.41	\$0.00	\$46.45
5	70	\$32.73	\$8.65	\$19.63	\$0.00	\$61.01
6	75	\$35.07	\$8.65	\$20.20	\$0.00	\$63.92
7	80	\$37.41	\$8.65	\$20.77	\$0.00	\$66.83
8	90	\$42.08	\$8.65	\$21.91	\$0.00	\$72.64

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT)	01/01/2023	\$43.62	\$8.65	\$23.05	\$0.00	\$75.32
PAINTERS LOCAL 35 - ZONE 2	07/01/2023	\$44.82	\$8.65	\$23.05	\$0.00	\$76.52
	01/01/2024	\$46.02	\$8.65	\$23.05	\$0.00	\$77.72
	07/01/2024	\$47.22	\$8.65	\$23.05	\$0.00	\$78.92
	01/01/2025	\$48.42	\$8.65	\$23.05	\$0.00	\$80.12

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT

Effective Date - 01/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.81	\$8.65	\$0.00	\$0.00	\$30.46
2	55	\$23.99	\$8.65	\$6.27	\$0.00	\$38.91
3	60	\$26.17	\$8.65	\$6.84	\$0.00	\$41.66
4	65	\$28.35	\$8.65	\$7.41	\$0.00	\$44.41
5	70	\$30.53	\$8.65	\$19.63	\$0.00	\$58.81
6	75	\$32.72	\$8.65	\$20.20	\$0.00	\$61.57
7	80	\$34.90	\$8.65	\$20.77	\$0.00	\$64.32
8	90	\$39.26	\$8.65	\$21.91	\$0.00	\$69.82

Effective Date - 07/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.41	\$8.65	\$0.00	\$0.00	\$31.06
2	55	\$24.65	\$8.65	\$6.27	\$0.00	\$39.57
3	60	\$26.89	\$8.65	\$6.84	\$0.00	\$42.38
4	65	\$29.13	\$8.65	\$7.41	\$0.00	\$45.19
5	70	\$31.37	\$8.65	\$19.63	\$0.00	\$59.65
6	75	\$33.62	\$8.65	\$20.20	\$0.00	\$62.47
7	80	\$35.86	\$8.65	\$20.77	\$0.00	\$65.28
8	90	\$40.34	\$8.65	\$21.91	\$0.00	\$70.90

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY)	12/01/2022	\$36.56	\$9.35	\$16.89	\$0.00	\$62.80
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	06/01/2023	\$37.46	\$9.35	\$16.89	\$0.00	\$63.70
	12/01/2023	\$38.36	\$9.35	\$16.89	\$0.00	\$64.60
	06/01/2024	\$39.69	\$9.35	\$16.89	\$0.00	\$65.93
	12/01/2024	\$41.02	\$9.35	\$16.89	\$0.00	\$67.26
	06/01/2025	\$42.41	\$9.35	\$16.89	\$0.00	\$68.65
	12/01/2025	\$43.79	\$9.35	\$16.89	\$0.00	\$70.03
	06/01/2026	\$45.23	\$9.35	\$16.89	\$0.00	\$71.47
	12/01/2026	\$46.67	\$9.35	\$16.89	\$0.00	\$72.91

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

PANEL & PICKUP TRUCKS DRIVER	12/01/2021	\$35.78	\$13.41	\$16.01	\$0.00	\$65.20
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B						

PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)	08/01/2020	\$46.11	\$9.40	\$23.12	\$0.00	\$78.63
PILE DRIVER LOCAL 56 (ZONE 2)						

For apprentice rates see "Apprentice- PILE DRIVER"

PILE DRIVER	08/01/2020	\$46.11	\$9.40	\$23.12	\$0.00	\$78.63
PILE DRIVER LOCAL 56 (ZONE 2)						

Apprentice - PILE DRIVER - Local 56 Zone 2

Effective Date - 08/01/2020

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

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

Apprentice to Journeyworker Ratio:1:5

PIPELAYER <i>LABORERS - ZONE 2</i>	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95

For apprentice rates see "Apprentice- LABORER"

PIPELAYER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2022	\$36.81	\$9.35	\$16.89	\$0.00	\$63.05
	06/01/2023	\$37.71	\$9.35	\$16.89	\$0.00	\$63.95
	12/01/2023	\$38.61	\$9.35	\$16.89	\$0.00	\$64.85
	06/01/2024	\$39.94	\$9.35	\$16.89	\$0.00	\$66.18
	12/01/2024	\$41.27	\$9.35	\$16.89	\$0.00	\$67.51
	06/01/2025	\$42.66	\$9.35	\$16.89	\$0.00	\$68.90
	12/01/2025	\$44.04	\$9.35	\$16.89	\$0.00	\$70.28
	06/01/2026	\$45.48	\$9.35	\$16.89	\$0.00	\$71.72
	12/01/2026	\$46.92	\$9.35	\$16.89	\$0.00	\$73.16

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

PLUMBER & PIPEFITTER <i>PLUMBERS & PIPEFITTERS LOCAL 51</i>	08/30/2021	\$46.49	\$10.15	\$19.95	\$0.00	\$76.59
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Apprentice - PLUMBER/PIPEFITTER - Local 51

Effective Date - 08/30/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$18.60	\$10.15	\$2.50	\$0.00	\$31.25
2	50	\$23.25	\$10.15	\$2.50	\$0.00	\$35.90
3	60	\$27.89	\$10.15	\$8.80	\$0.00	\$46.84
4	70	\$32.54	\$10.15	\$14.08	\$0.00	\$56.77
5	80	\$37.19	\$10.15	\$17.60	\$0.00	\$64.94

Notes:
 Steps 2000hrs. Prior 9/1/05; 40/40/45/50/55/60/65/75/80/85

Apprentice to Journeyworker Ratio:1:3

PNEUMATIC CONTROLS (TEMP.) <i>PLUMBERS & PIPEFITTERS LOCAL 51</i>	08/30/2021	\$46.49	\$10.15	\$19.95	\$0.00	\$76.59
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For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"

PNEUMATIC DRILL/TOOL OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2022	\$36.81	\$9.35	\$16.89	\$0.00	\$63.05
	06/01/2023	\$37.71	\$9.35	\$16.89	\$0.00	\$63.95
	12/01/2023	\$38.61	\$9.35	\$16.89	\$0.00	\$64.85
	06/01/2024	\$39.94	\$9.35	\$16.89	\$0.00	\$66.18
	12/01/2024	\$41.27	\$9.35	\$16.89	\$0.00	\$67.51
	06/01/2025	\$42.66	\$9.35	\$16.89	\$0.00	\$68.90
	12/01/2025	\$44.04	\$9.35	\$16.89	\$0.00	\$70.28
	06/01/2026	\$45.48	\$9.35	\$16.89	\$0.00	\$71.72
	12/01/2026	\$46.92	\$9.35	\$16.89	\$0.00	\$73.16
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
POWDERMAN & BLASTER <i>LABORERS - ZONE 2</i>	12/01/2022	\$38.16	\$9.10	\$16.64	\$0.00	\$63.90
	06/01/2023	\$39.06	\$9.10	\$16.64	\$0.00	\$64.80
	12/01/2023	\$39.96	\$9.10	\$16.64	\$0.00	\$65.70
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2022	\$37.56	\$9.35	\$16.89	\$0.00	\$63.80
	06/01/2023	\$38.46	\$9.35	\$16.89	\$0.00	\$64.70
	12/01/2023	\$39.36	\$9.35	\$16.89	\$0.00	\$65.60
	06/01/2024	\$40.69	\$9.35	\$16.89	\$0.00	\$66.93
	12/01/2024	\$42.02	\$9.35	\$16.89	\$0.00	\$68.26
	06/01/2025	\$43.41	\$9.35	\$16.89	\$0.00	\$69.65
	12/01/2025	\$44.79	\$9.35	\$16.89	\$0.00	\$71.03
	06/01/2026	\$46.23	\$9.35	\$16.89	\$0.00	\$72.47
	12/01/2026	\$47.67	\$9.35	\$16.89	\$0.00	\$73.91
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
POWER SHOVEL/DERRICK/TRENCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2022	\$53.63	\$14.25	\$16.05	\$0.00	\$83.93
	06/01/2023	\$54.88	\$14.25	\$16.05	\$0.00	\$85.18
	12/01/2023	\$56.13	\$14.25	\$16.05	\$0.00	\$86.43
	06/01/2024	\$57.43	\$14.25	\$16.05	\$0.00	\$87.73
	12/01/2024	\$58.88	\$14.25	\$16.05	\$0.00	\$89.18
	06/01/2025	\$60.18	\$14.25	\$16.05	\$0.00	\$90.48
	12/01/2025	\$61.63	\$14.25	\$16.05	\$0.00	\$91.93
	06/01/2026	\$62.93	\$14.25	\$16.05	\$0.00	\$93.23
	12/01/2026	\$64.38	\$14.25	\$16.05	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2022	\$53.63	\$14.25	\$16.05	\$0.00	\$83.93
	06/01/2023	\$54.88	\$14.25	\$16.05	\$0.00	\$85.18
	12/01/2023	\$56.13	\$14.25	\$16.05	\$0.00	\$86.43
	06/01/2024	\$57.43	\$14.25	\$16.05	\$0.00	\$87.73
	12/01/2024	\$58.88	\$14.25	\$16.05	\$0.00	\$89.18
	06/01/2025	\$60.18	\$14.25	\$16.05	\$0.00	\$90.48
	12/01/2025	\$61.63	\$14.25	\$16.05	\$0.00	\$91.93
	06/01/2026	\$62.93	\$14.25	\$16.05	\$0.00	\$93.23
	12/01/2026	\$64.38	\$14.25	\$16.05	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2022	\$35.08	\$14.25	\$16.05	\$0.00	\$65.38
	06/01/2023	\$35.90	\$14.25	\$16.05	\$0.00	\$66.20
	12/01/2023	\$36.72	\$14.25	\$16.05	\$0.00	\$67.02
	06/01/2024	\$37.57	\$14.25	\$16.05	\$0.00	\$67.87
	12/01/2024	\$38.52	\$14.25	\$16.05	\$0.00	\$68.82
	06/01/2025	\$39.37	\$14.25	\$16.05	\$0.00	\$69.67
	12/01/2025	\$40.32	\$14.25	\$16.05	\$0.00	\$70.62
	06/01/2026	\$41.18	\$14.25	\$16.05	\$0.00	\$71.48
	12/01/2026	\$42.13	\$14.25	\$16.05	\$0.00	\$72.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER <i>TEAMSTERS 170 - Dauphinis (Bellingham)</i>	01/01/2023	\$26.40	\$10.26	\$4.75	\$0.00	\$41.41
	12/01/2023	\$27.00	\$10.76	\$5.45	\$0.00	\$43.21
	01/01/2024	\$27.00	\$10.76	\$5.45	\$0.00	\$43.21
	12/01/2024	\$27.60	\$11.26	\$6.15	\$0.00	\$45.01
	01/01/2025	\$27.60	\$11.26	\$6.15	\$0.00	\$45.01
RECLAIMERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2022	\$53.05	\$14.25	\$16.05	\$0.00	\$83.35
	06/01/2023	\$54.29	\$14.25	\$16.05	\$0.00	\$84.59
	12/01/2023	\$55.53	\$14.25	\$16.05	\$0.00	\$85.83
	06/01/2024	\$56.81	\$14.25	\$16.05	\$0.00	\$87.11
	12/01/2024	\$58.25	\$14.25	\$16.05	\$0.00	\$88.55
	06/01/2025	\$59.53	\$14.25	\$16.05	\$0.00	\$89.83
	12/01/2025	\$60.97	\$14.25	\$16.05	\$0.00	\$91.27
	06/01/2026	\$62.25	\$14.25	\$16.05	\$0.00	\$92.55
	12/01/2026	\$63.69	\$14.25	\$16.05	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2022	\$53.05	\$14.25	\$16.05	\$0.00	\$83.35
	06/01/2023	\$54.29	\$14.25	\$16.05	\$0.00	\$84.59
	12/01/2023	\$55.53	\$14.25	\$16.05	\$0.00	\$85.83
	06/01/2024	\$56.81	\$14.25	\$16.05	\$0.00	\$87.11
	12/01/2024	\$58.25	\$14.25	\$16.05	\$0.00	\$88.55
	06/01/2025	\$59.53	\$14.25	\$16.05	\$0.00	\$89.83
	12/01/2025	\$60.97	\$14.25	\$16.05	\$0.00	\$91.27
	06/01/2026	\$62.25	\$14.25	\$16.05	\$0.00	\$92.55
	12/01/2026	\$63.69	\$14.25	\$16.05	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofer Waterproofing &Roofer Damproofg) <i>ROOFERS LOCAL 33</i>	02/01/2023	\$49.78	\$12.28	\$19.45	\$0.00	\$81.51
	08/01/2023	\$51.28	\$12.28	\$19.45	\$0.00	\$83.01
	02/01/2024	\$52.53	\$12.28	\$19.45	\$0.00	\$84.26
	08/01/2024	\$54.03	\$12.28	\$19.45	\$0.00	\$85.76
	02/01/2025	\$55.28	\$12.28	\$19.45	\$0.00	\$87.01
	08/01/2025	\$56.78	\$12.28	\$19.45	\$0.00	\$88.51
	02/01/2026	\$58.03	\$12.28	\$19.45	\$0.00	\$89.76

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ROOFER - Local 33

Effective Date - 02/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.89	\$12.28	\$5.21	\$0.00	\$42.38
2	60	\$29.87	\$12.28	\$19.45	\$0.00	\$61.60
3	65	\$32.36	\$12.28	\$19.45	\$0.00	\$64.09
4	75	\$37.34	\$12.28	\$19.45	\$0.00	\$69.07
5	85	\$42.31	\$12.28	\$19.45	\$0.00	\$74.04

Effective Date - 08/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.64	\$12.28	\$5.21	\$0.00	\$43.13
2	60	\$30.77	\$12.28	\$19.45	\$0.00	\$62.50
3	65	\$33.33	\$12.28	\$19.45	\$0.00	\$65.06
4	75	\$38.46	\$12.28	\$19.45	\$0.00	\$70.19
5	85	\$43.59	\$12.28	\$19.45	\$0.00	\$75.32

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

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE	02/01/2023	\$50.03	\$12.28	\$19.45	\$0.00	\$81.76
ROOFERS LOCAL 33	08/01/2023	\$51.53	\$12.28	\$19.45	\$0.00	\$83.26
	02/01/2024	\$52.78	\$12.28	\$19.45	\$0.00	\$84.51
	08/01/2024	\$54.28	\$12.28	\$19.45	\$0.00	\$86.01
	02/01/2025	\$55.53	\$12.28	\$19.45	\$0.00	\$87.26
	08/01/2025	\$57.03	\$12.28	\$19.45	\$0.00	\$88.76
	02/01/2026	\$58.28	\$12.28	\$19.45	\$0.00	\$90.01

For apprentice rates see "Apprentice- ROOFER"

SHEETMETAL WORKER	04/01/2022	\$37.41	\$13.95	\$17.85	\$2.08	\$71.29
SHEETMETAL WORKERS LOCAL 17 - B						

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - SHEET METAL WORKER - Local 17-B

Effective Date - 04/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$14.96	\$13.95	\$4.10	\$1.02	\$34.03
2	45	\$16.83	\$13.95	\$4.61	\$1.09	\$36.48
3	50	\$18.71	\$13.95	\$11.26	\$1.35	\$45.27
4	55	\$20.58	\$13.95	\$11.26	\$1.41	\$47.20
5	60	\$22.45	\$13.95	\$14.60	\$1.53	\$52.53
6	65	\$24.32	\$13.95	\$14.88	\$1.59	\$54.74
7	70	\$26.19	\$13.95	\$15.16	\$1.66	\$56.96
8	75	\$28.06	\$13.95	\$15.44	\$1.72	\$59.17
9	80	\$29.93	\$13.95	\$15.72	\$1.79	\$61.39
10	85	\$31.80	\$13.95	\$15.57	\$1.85	\$63.17

Notes:

Apprentice to Journeyworker Ratio:1:3

SPECIALIZED EARTH MOVING EQUIP < 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2021	\$36.24	\$13.41	\$16.01	\$0.00	\$65.66
SPECIALIZED EARTH MOVING EQUIP > 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2021	\$36.53	\$13.41	\$16.01	\$0.00	\$65.95
SPRINKLER FITTER <i>SPRINKLER FITTERS LOCAL 550 - (Section B) Zone 2</i>	10/01/2022	\$59.00	\$10.44	\$22.60	\$0.00	\$92.04
	03/01/2023	\$60.53	\$10.44	\$22.60	\$0.00	\$93.57
	10/01/2023	\$62.11	\$10.44	\$22.60	\$0.00	\$95.15
	03/01/2024	\$63.73	\$10.44	\$22.60	\$0.00	\$96.77
	10/01/2024	\$65.35	\$10.44	\$22.60	\$0.00	\$98.39
	03/01/2025	\$66.97	\$10.44	\$22.60	\$0.00	\$100.01

Apprentice - SPRINKLER FITTER - Local 550 (Section B) Zone 2

Effective Date - 10/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$20.65	\$10.44	\$9.10	\$0.00	\$40.19
2	40	\$23.60	\$10.44	\$9.10	\$0.00	\$43.14
3	45	\$26.55	\$10.44	\$9.10	\$0.00	\$46.09
4	50	\$29.50	\$10.44	\$9.10	\$0.00	\$49.04
5	55	\$32.45	\$10.44	\$9.10	\$0.00	\$51.99
6	60	\$35.40	\$10.44	\$11.10	\$0.00	\$56.94
7	65	\$38.35	\$10.44	\$11.10	\$0.00	\$59.89
8	70	\$41.30	\$10.44	\$11.10	\$0.00	\$62.84
9	75	\$44.25	\$10.44	\$11.10	\$0.00	\$65.79
10	80	\$47.20	\$10.44	\$11.10	\$0.00	\$68.74

Effective Date - 03/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$21.19	\$10.44	\$9.10	\$0.00	\$40.73
2	40	\$24.21	\$10.44	\$9.10	\$0.00	\$43.75
3	45	\$27.24	\$10.44	\$9.10	\$0.00	\$46.78
4	50	\$30.27	\$10.44	\$9.10	\$0.00	\$49.81
5	55	\$33.29	\$10.44	\$9.10	\$0.00	\$52.83
6	60	\$36.32	\$10.44	\$11.10	\$0.00	\$57.86
7	65	\$39.34	\$10.44	\$11.10	\$0.00	\$60.88
8	70	\$42.37	\$10.44	\$11.10	\$0.00	\$63.91
9	75	\$45.40	\$10.44	\$11.10	\$0.00	\$66.94
10	80	\$48.42	\$10.44	\$11.10	\$0.00	\$69.96

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

Apprentice to Journeyworker Ratio:1:3

STEAM BOILER OPERATOR	12/01/2022	\$53.05	\$14.25	\$16.05	\$0.00	\$83.35
OPERATING ENGINEERS LOCAL 4	06/01/2023	\$54.29	\$14.25	\$16.05	\$0.00	\$84.59
	12/01/2023	\$55.53	\$14.25	\$16.05	\$0.00	\$85.83
	06/01/2024	\$56.81	\$14.25	\$16.05	\$0.00	\$87.11
	12/01/2024	\$58.25	\$14.25	\$16.05	\$0.00	\$88.55
	06/01/2025	\$59.53	\$14.25	\$16.05	\$0.00	\$89.83
	12/01/2025	\$60.97	\$14.25	\$16.05	\$0.00	\$91.27
	06/01/2026	\$62.25	\$14.25	\$16.05	\$0.00	\$92.55
	12/01/2026	\$63.69	\$14.25	\$16.05	\$0.00	\$93.99

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2022	\$53.05	\$14.25	\$16.05	\$0.00	\$83.35
	06/01/2023	\$54.29	\$14.25	\$16.05	\$0.00	\$84.59
	12/01/2023	\$55.53	\$14.25	\$16.05	\$0.00	\$85.83
	06/01/2024	\$56.81	\$14.25	\$16.05	\$0.00	\$87.11
	12/01/2024	\$58.25	\$14.25	\$16.05	\$0.00	\$88.55
	06/01/2025	\$59.53	\$14.25	\$16.05	\$0.00	\$89.83
	12/01/2025	\$60.97	\$14.25	\$16.05	\$0.00	\$91.27
	06/01/2026	\$62.25	\$14.25	\$16.05	\$0.00	\$92.55
	12/01/2026	\$63.69	\$14.25	\$16.05	\$0.00	\$93.99

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

TELECOMMUNICATION TECHNICIAN <i>ELECTRICIANS LOCAL 223</i>	09/01/2022	\$38.16	\$11.25	\$13.31	\$0.00	\$62.72
	09/01/2023	\$39.40	\$11.50	\$13.91	\$0.00	\$64.81
	09/01/2024	\$40.69	\$11.75	\$14.53	\$0.00	\$66.97

Apprentice - TELECOMMUNICATION TECHNICIAN - Local 223

Effective Date - 09/01/2022

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

Notes: See Electrician Apprentice Wages

Telecom Apprentice Wages shall be the same as the Electrician Apprentice Wages

Apprentice to Journeyworker Ratio:2:3***

TERRAZZO FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	02/01/2023	\$59.29	\$11.49	\$22.34	\$0.00	\$93.12
	08/01/2023	\$61.34	\$11.49	\$22.34	\$0.00	\$95.17
	02/01/2024	\$62.59	\$11.49	\$22.34	\$0.00	\$96.42
	08/01/2024	\$64.69	\$11.49	\$22.34	\$0.00	\$98.52
	02/01/2025	\$65.99	\$11.49	\$22.34	\$0.00	\$99.82
	08/01/2025	\$68.14	\$11.49	\$22.34	\$0.00	\$101.97
	02/01/2026	\$69.49	\$11.49	\$22.34	\$0.00	\$103.32
	08/01/2026	\$71.69	\$11.49	\$22.34	\$0.00	\$105.52
	02/01/2027	\$73.09	\$11.49	\$22.34	\$0.00	\$106.92

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile

Effective Date - 02/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$29.65	\$11.49	\$22.34	\$0.00	\$63.48
2	60	\$35.57	\$11.49	\$22.34	\$0.00	\$69.40
3	70	\$41.50	\$11.49	\$22.34	\$0.00	\$75.33
4	80	\$47.43	\$11.49	\$22.34	\$0.00	\$81.26
5	90	\$53.36	\$11.49	\$22.34	\$0.00	\$87.19

Effective Date - 08/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$30.67	\$11.49	\$22.34	\$0.00	\$64.50
2	60	\$36.80	\$11.49	\$22.34	\$0.00	\$70.63
3	70	\$42.94	\$11.49	\$22.34	\$0.00	\$76.77
4	80	\$49.07	\$11.49	\$22.34	\$0.00	\$82.90
5	90	\$55.21	\$11.49	\$22.34	\$0.00	\$89.04

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2022	\$46.58	\$9.35	\$17.97	\$0.00	\$73.90
	06/01/2023	\$47.58	\$9.35	\$17.97	\$0.00	\$74.90
	12/01/2023	\$48.83	\$9.35	\$17.97	\$0.00	\$76.15
	06/01/2024	\$50.31	\$9.35	\$17.97	\$0.00	\$77.63
	12/01/2024	\$51.78	\$9.35	\$17.97	\$0.00	\$79.10
	06/01/2025	\$53.28	\$9.35	\$17.97	\$0.00	\$80.60
	12/01/2025	\$54.78	\$9.35	\$17.97	\$0.00	\$82.10
	06/01/2026	\$56.33	\$9.35	\$17.97	\$0.00	\$83.65
	12/01/2026	\$57.83	\$9.35	\$17.97	\$0.00	\$85.15

For apprentice rates see "Apprentice- LABORER"

TEST BORING DRILLER HELPER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2022	\$42.70	\$9.35	\$17.97	\$0.00	\$70.02
	06/01/2023	\$43.70	\$9.35	\$17.97	\$0.00	\$71.02
	12/01/2023	\$44.95	\$9.35	\$17.97	\$0.00	\$72.27
	06/01/2024	\$46.43	\$9.35	\$17.97	\$0.00	\$73.75
	12/01/2024	\$47.90	\$9.35	\$17.97	\$0.00	\$75.22
	06/01/2025	\$49.40	\$9.35	\$17.97	\$0.00	\$76.72
	12/01/2025	\$50.90	\$9.35	\$17.97	\$0.00	\$78.22
	06/01/2026	\$52.45	\$9.35	\$17.97	\$0.00	\$79.77
	12/01/2026	\$53.95	\$9.35	\$17.97	\$0.00	\$81.27

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>	12/01/2022	\$42.58	\$9.35	\$17.97	\$0.00	\$69.90
	06/01/2023	\$43.58	\$9.35	\$17.97	\$0.00	\$70.90
	12/01/2023	\$44.83	\$9.35	\$17.97	\$0.00	\$72.15
	06/01/2024	\$46.31	\$9.35	\$17.97	\$0.00	\$73.63
	12/01/2024	\$47.78	\$9.35	\$17.97	\$0.00	\$75.10
	06/01/2025	\$49.28	\$9.35	\$17.97	\$0.00	\$76.60
	12/01/2025	\$50.78	\$9.35	\$17.97	\$0.00	\$78.10
	06/01/2026	\$52.33	\$9.35	\$17.97	\$0.00	\$79.65
	12/01/2026	\$53.83	\$9.35	\$17.97	\$0.00	\$81.15
For apprentice rates see "Apprentice- LABORER"						
TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2022	\$53.05	\$14.25	\$16.05	\$0.00	\$83.35
	06/01/2023	\$54.29	\$14.25	\$16.05	\$0.00	\$84.59
	12/01/2023	\$55.53	\$14.25	\$16.05	\$0.00	\$85.83
	06/01/2024	\$56.81	\$14.25	\$16.05	\$0.00	\$87.11
	12/01/2024	\$58.25	\$14.25	\$16.05	\$0.00	\$88.55
	06/01/2025	\$59.53	\$14.25	\$16.05	\$0.00	\$89.83
	12/01/2025	\$60.97	\$14.25	\$16.05	\$0.00	\$91.27
	06/01/2026	\$62.25	\$14.25	\$16.05	\$0.00	\$92.55
	12/01/2026	\$63.69	\$14.25	\$16.05	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2021	\$36.82	\$13.41	\$16.01	\$0.00	\$66.24
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	12/01/2022	\$54.81	\$9.35	\$18.42	\$0.00	\$82.58
	06/01/2023	\$55.81	\$9.35	\$18.42	\$0.00	\$83.58
	12/01/2023	\$57.06	\$9.35	\$18.42	\$0.00	\$84.83
	06/01/2024	\$58.54	\$9.35	\$18.42	\$0.00	\$86.31
	12/01/2024	\$60.01	\$9.35	\$18.42	\$0.00	\$87.78
	06/01/2025	\$61.51	\$9.35	\$18.42	\$0.00	\$89.28
	12/01/2025	\$63.01	\$9.35	\$18.42	\$0.00	\$90.78
	06/01/2026	\$64.56	\$9.35	\$18.42	\$0.00	\$92.33
	12/01/2026	\$66.06	\$9.35	\$18.42	\$0.00	\$93.83
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	12/01/2022	\$56.81	\$9.35	\$18.42	\$0.00	\$84.58
	06/01/2023	\$57.81	\$9.35	\$18.42	\$0.00	\$85.58
	12/01/2023	\$59.06	\$9.35	\$18.42	\$0.00	\$86.83
	06/01/2024	\$60.54	\$9.35	\$18.42	\$0.00	\$88.31
	12/01/2024	\$62.01	\$9.35	\$18.42	\$0.00	\$89.78
	06/01/2025	\$63.51	\$9.35	\$18.42	\$0.00	\$91.28
	12/01/2025	\$65.01	\$9.35	\$18.42	\$0.00	\$92.78
	06/01/2026	\$66.56	\$9.35	\$18.42	\$0.00	\$94.33
	12/01/2026	\$68.06	\$9.35	\$18.42	\$0.00	\$95.83
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2022	\$46.88	\$9.35	\$18.42	\$0.00	\$74.65
	06/01/2023	\$47.88	\$9.35	\$18.42	\$0.00	\$75.65
	12/01/2023	\$49.13	\$9.35	\$18.42	\$0.00	\$76.90
	06/01/2024	\$50.61	\$9.35	\$18.42	\$0.00	\$78.38
	12/01/2024	\$52.08	\$9.35	\$18.42	\$0.00	\$79.85
	06/01/2025	\$53.58	\$9.35	\$18.42	\$0.00	\$81.35
	12/01/2025	\$55.08	\$9.35	\$18.42	\$0.00	\$82.85
	06/01/2026	\$56.63	\$9.35	\$18.42	\$0.00	\$84.40
	12/01/2026	\$58.13	\$9.35	\$18.42	\$0.00	\$85.90
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2022	\$48.88	\$9.35	\$18.42	\$0.00	\$76.65
	06/01/2023	\$49.88	\$9.35	\$18.42	\$0.00	\$77.65
	12/01/2023	\$51.13	\$9.35	\$18.42	\$0.00	\$78.90
	06/01/2024	\$52.61	\$9.35	\$18.42	\$0.00	\$80.38
	12/01/2024	\$54.08	\$9.35	\$18.42	\$0.00	\$81.85
	06/01/2025	\$55.58	\$9.35	\$18.42	\$0.00	\$83.35
	12/01/2025	\$57.08	\$9.35	\$18.42	\$0.00	\$84.85
	06/01/2026	\$58.63	\$9.35	\$18.42	\$0.00	\$86.40
	12/01/2026	\$60.13	\$9.35	\$18.42	\$0.00	\$87.90
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2021	\$36.24	\$13.41	\$16.01	\$0.00	\$65.66
WAGON DRILL OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
WAGON DRILL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2022	\$36.81	\$9.35	\$16.89	\$0.00	\$63.05
	06/01/2023	\$37.71	\$9.35	\$16.89	\$0.00	\$63.95
	12/01/2023	\$38.61	\$9.35	\$16.89	\$0.00	\$64.85
	06/01/2024	\$39.94	\$9.35	\$16.89	\$0.00	\$66.18
	12/01/2024	\$41.27	\$9.35	\$16.89	\$0.00	\$67.51
	06/01/2025	\$42.66	\$9.35	\$16.89	\$0.00	\$68.90
	12/01/2025	\$44.04	\$9.35	\$16.89	\$0.00	\$70.28
	06/01/2026	\$45.48	\$9.35	\$16.89	\$0.00	\$71.72
	12/01/2026	\$46.92	\$9.35	\$16.89	\$0.00	\$73.16
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2022	\$53.63	\$14.25	\$16.05	\$0.00	\$83.93
	06/01/2023	\$54.88	\$14.25	\$16.05	\$0.00	\$85.18
	12/01/2023	\$56.13	\$14.25	\$16.05	\$0.00	\$86.43
	06/01/2024	\$57.43	\$14.25	\$16.05	\$0.00	\$87.73
	12/01/2024	\$58.88	\$14.25	\$16.05	\$0.00	\$89.18
	06/01/2025	\$60.18	\$14.25	\$16.05	\$0.00	\$90.48
	12/01/2025	\$61.63	\$14.25	\$16.05	\$0.00	\$91.93
	06/01/2026	\$62.93	\$14.25	\$16.05	\$0.00	\$93.23
	12/01/2026	\$64.38	\$14.25	\$16.05	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
WATER METER INSTALLER <i>PLUMBERS & PIPEFITTERS LOCAL 51</i>	08/30/2021	\$46.49	\$10.15	\$19.95	\$0.00	\$76.59
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						

Additional Apprentices 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. Apprentices 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.



MassWorks Infrastructure Program Monthly Invoice Form

www.mass.gov/infrastructure

This request for payment cover sheet should be filled out and submitted with the invoices for which you are requesting reimbursement. Request for reimbursement will not be processed without the request for payment cover sheet.

To be completed by the Public Entity:

Name of Public Entity _____ Date completed _____

Person preparing request _____

Total amount of invoices _____ Number of invoices attached _____

If payment already made, amount paid _____

The chart below should include overall project spending information.

	Amount This Invoice	Amount To Date (grant only)
Study Phase Funding		
Design & Engineering Funding		
Construction Funding		
Other (i.e. legal, permits etc)		

The chart on the following page is an interactive chart that can be clicked on in order to add the information requested.

Invoice Date	Payee	Invoice Amount	Dates Covered	Services
12/15/11	John Doe Company	10,000.50	11/1/11 to 12/10/11	Project Management
01/12/12	Walter & Ben	5,500.00	12/1/11 to 12/31/11	Legal Services
	Total	15,500.50		

Briefly describe work completed in regards to the attached invoices.
 (Note: To prevent delay, reference Exhibit 1 when describing the completed work)

Have scheduled milestones passed since the last request for payment?
 No (skip bullet questions below) Yes (proceed to bullet questions below)

- Have milestone(s) been met? _____
- If no, attach a description of how and why the timeline has changed.
- If no, attach a description of what is being done to get back on track with the timeline.

Check this box if this is the final payment request. The Public Entity is acknowledging that there will be no additional requests for payment. This final request for payment will close out the grant contract and release any retainage withheld.

Please attach a separate sheet listing any additional issues or concerns the Executive Office of Housing and Economic Development should be made aware of in regards to said infrastructure project.

By signing below, I _____ certify that the expenditures enumerated by this request are in accordance with the Agreement, and the funds disbursed by the MassWorks Infrastructure Program shall only be used to pay for the invoices and contractors submitted.

Signature of person preparing request

Date



APPLICATION for CONTRACTOR PREQUALIFICATION

In accordance with Massachusetts General Laws Chapter 81, §8B, the undersigned offers the following information as evidence of the applicant's qualifications to perform the work to be bid upon according to all the requirements of the plans and specifications of the MassDOT – Highway Division.

Contractor Prequalification Application Checklist

The Application is in Adobe fill-in format. Form fields, drop-downs and check boxes are included in the form to make the document user friendly to assist in preserving the original format. Use the tab or arrow keys to scroll through the form. Information can be typed directly into "Text Form" fields. Single click in the "Drop-down" Select One box to open the field to make your selection. Single click in the "Check Box" field to make selection(s).

One (1): Complete a W9 form if your Firm does not have a Vendor Code

Two (2): Welding, Cutting, & Other Hot Works (NEW ITEM) – Pages 16 & 17

Applicants must provide evidence of training completion per 527 CMR 1.00; must be current and submitted with application.

Note Anyone that performs, supervises or delegates Hot Work must be trained.

Three (3): Electrical Contractors Only

Applicants requesting ITS, Electrical all types & maintenance, Highway Lighting or Traffic Signals must have a current Massachusetts master electricians license & be a corporate officer. The name on the license must include the business name.

Four (4): Hazardous Waste Removal & Remediation

Current Hazwoper Certificates and or Hazmat Transport License must be attached and current.

Five (5): Painting Contractors Only

The category of Painting-Structural requires that the contractors for this Class of Work must be certified by the Society For Protective Coatings (SSPC), Painting Contractor Certification Program (PCCP), QP-1 and QP-2 must be attached and current.

Six (6): Contractor Information / Request for Classes of Work — Page 3

Applicants MUST provide the company's full name, the state where the entity is registered, a mailing and shipping address, the Federal Employer Identification Number (FEIN), Vendor Code and check box to each class of work for which the company are experienced and are requesting consideration for Prequalification. **The name on the application MUST correspond with the name imprinted on your corporate seal (if a registered corporation) and the name that will appear on bids.**

Seven (7): Business Organization / Corporate Members or Managers — Pages 4 & 5

- Applicants MUST provide type of business organization and full names & title of all corporate officers
- Certificate of Good Standing (if applicable)

Eight (8): Surety Company Letter and Bonding Capacity — Page 6

Attach an original commitment letter from a Surety Company licensed in the Commonwealth of Massachusetts and whose name appears on the United States Treasury Department Circular 570, stating the Contractor's Aggregate Bonding Capacity and Single Contract Limit. A Power-of-Attorney or Attorney-in-Fact must be attached to the letter.

Nine (9) – a-d: Past Performance Information — Page 7

Ten (10): Legal or Administrative Proceedings — Pages 8 & 9

Question 9 (If you answer yes to any question, on a separate page provide a complete explanation of each proceeding or action and any judgment, decision, fine or other sanction or result).

Eleven (11): Class of Work – Completed Projects (within the past 10 years only) — Pages 10, 11 & 12

List three completed projects for each of the requested Class of Work (**example attached**).



APPLICATION for CONTRACTOR PREQUALIFICATION

Twelve (12): Equipment List — Page 13

- Complete this question and provide information in the format shown.
- If the firm leases equipment, please provide the owner's name and copies of all lease agreements.
- Please note that equipment lease agreements should be for a period of one year.

Thirteen (13): Subsidiaries List — Page 14

Provide name, address and telephone number of all subsidiaries.

Fourteen (14): Confirm that there is NO Inaccurate or Falsified Information — Page 14

Fifteen (15): Acknowledge that the Prequalification Committee has the Right to Request Additional Information, AT ANY TIME, Per 720 CMR 5.0 — Page 14

Sixteen (16): Company Name and Original Signature Required — Page 15

The full name of the company and the **original signature** and title of the signing authority is required and date on this page.

Seventeen (17): Supplemental Information Attached — Beyond Page 17

The applicant may also provide additional information such as resumes of principals or key personnel, company organization chart, letters of recommendation, any other information demonstrative of the applicant's experience, skill, ability and integrity.

Additional projects & equipment may be listed separately as long as the format mirrors the application.

Please mail the checklist with your completed application to:

MassDOT – Highway Division
Construction Prequalification / Records & Procedures Office
10 Park Plaza, Room 6260
Boston, MA 02116
ATTN: Director of Construction Prequalification

Questions? Call (857) 368-8660



APPLICATION for CONTRACTOR PREQUALIFICATION

Six (6): Contractor Information / Request for Classes of Work		
6.1 Name of Applicant:		
Business Address:		
City:	State:	Zip:
Telephone No.:	Fax No.:	
Company Email Address:		
6.2 Massachusetts Vendor Code:		Tax ID No.:
6.3 Number of years applicant has been in business under present name:		
6.4 Please place a check mark next to each class of work to indicate what categories your firm is requesting consideration for Prequalification.		

CLASSES OF WORK

<input type="checkbox"/> Bridge – Construction	<input type="checkbox"/> Highway – Bike Paths	<input type="checkbox"/> Salt Marsh and Wetland Restoration
<input type="checkbox"/> Bridge – Culverts	<input type="checkbox"/> Highway-Construction	<input type="checkbox"/> Sewer and Water
<input type="checkbox"/> Bridge – Deck Repairs	<input type="checkbox"/> Highway-Lighting	<input type="checkbox"/> Signing – Non Structural
<input type="checkbox"/> Bridge – Joints	<input type="checkbox"/> Highway – Sidewalk and Curbing	<input type="checkbox"/> Signing – Structural
<input type="checkbox"/> Catch Basin Cleaning	<input type="checkbox"/> Impact Attenuators	<input type="checkbox"/> Street Sweeping
<input type="checkbox"/> Chemical Storage Sheds	<input type="checkbox"/> Intelligent Transportation Systems	<input type="checkbox"/> Traffic Signals
<input type="checkbox"/> Crack Sealing	<input type="checkbox"/> Landscaping Including Tree Planting	<input type="checkbox"/> Tree Trimming - Maintenance & Removal
<input type="checkbox"/> Dam Construction	<input type="checkbox"/> Marine Construction	<input type="checkbox"/> Waterways
<input type="checkbox"/> Demolition	<input type="checkbox"/> Mowing and Spraying	
<input type="checkbox"/> Drainage	<input type="checkbox"/> Painting–Structural	
<input type="checkbox"/> Drawbridge Maintenance	<input type="checkbox"/> Pavement Markings	
<input type="checkbox"/> Dredging	<input type="checkbox"/> Pavement–Milling and Cold Planing	
<input type="checkbox"/> Drilling & Boring	<input type="checkbox"/> Pavement - Reclamation	
<input type="checkbox"/> Electrical – All Types – Including Electrical Maintenance	<input type="checkbox"/> Pavement - Surfacing	
<input type="checkbox"/> Guard Rail & Fencing	<input type="checkbox"/> Pump Stations	
<input type="checkbox"/> Hazardous Waste Remediation & Transportation	<input type="checkbox"/> Recreational Facilities	



APPLICATION for CONTRACTOR PREQUALIFICATION

Seven (7): Type of Business Organization:

***** Please attach official documentation of all other corporate officers or managers *****

7a. If Prequalifying as a Corporation:

State of Incorporation:

President:

Treasurer:

Secretary:

CERTIFICATE OF GOOD STANDING (FOREIGN CORPORATION) WITH THE SEAL:

In accordance with M.G.L. c. 30 §39L, corporations incorporated **outside** the Commonwealth of Massachusetts must attach a certificate from the Secretary of the State of Massachusetts, stating that the corporation has complied with M.G.L. c. 181, §§3 and 5, and the date of such compliance. **This can be obtained by calling 617-727-7030 or visiting: <http://corp.sec.state.ma.us/CorpWeb/Certificates/CertificateOrderForm.aspx>**

7b. If Prequalifying as a Partnership: (name all partners)

Name of Partner:	% of Ownership
------------------	----------------

Address:

Name of Partner:	% of Ownership:
------------------	-----------------

Address:

Name of Partner:	% of Ownership:
------------------	-----------------

Address:

7c. If Prequalifying as a Limited Liability Corporation: (name all members of the LLC)

Name of Member:	% of Ownership
-----------------	----------------

Address:

Name of Member:	% of Ownership
-----------------	----------------

Address:

Name of Member:	% of Ownership
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APPLICATION for CONTRACTOR PREQUALIFICATION

Address:
7d. If prequalifying as an individual doing business under a firm name:
Name of firm:
Name of individual:
Business address:
7e. If prequalifying as a continuous (one year) Joint Venture: (name of each company)
<u>Required for Full Yearly Joint Venture:</u>
Name of Company:
Address:
Company Telephone:
Name of Company:
Address:
Company Telephone:
7f. Additional requirements for those who wish to prequalify as a Joint Venture:
<p>a. Submission of a notarized letter signed by an officer of each company authorizing one individual to sign the Bid Proposal Documents and Request for Proposal Form on behalf of the Joint Venture.</p>
<p>b. A certified copy of Power of Attorney from each Joint Venture partner.</p>
<p>c. A copy of the Joint Venture agreement.</p>
<p>Please note that a prequalification application does not have to be completed for a one-time per project Joint Venture request. Instead, the prequalification documentation listed below would need to be submitted on behalf of the Joint Venture partners.</p>
<p>1. A letter from each proposed Joint Venture partner company. The letter should include information such requesting approval for the Joint Venture, identifying which company will be designated as the lead entity and percentage of participation; and, if needed, requesting a waiver on behalf of the Joint Venture.</p>
<p>2. A completed Joint Venture Agreement.</p>
<p>3. A certified copy of the Power of Attorney from each Joint Venture partner.</p>
7g. If Prequalifying as another form of business organization, please describe:



APPLICATION for CONTRACTOR PREQUALIFICATION

Eight (8) A: Surety Company which will furnish performance and payment bonds:	
Name:	
Address:	
Attach an original commitment letter from a Surety Company licensed in the Commonwealth of Massachusetts and whose name appears on the United States Treasury Department Circular 570, stating the Contractor's Aggregate Bonding Capacity and Single Contract Limit. A Power-of-Attorney or Attorney-in-Fact must be attached to the letter.	
Eight (8) B: Largest Performance Bond amount ever furnished by the Contractor to an Awarding Authority or Owner:	
Class of Work:	
Bond Amount:	
Project Description:	
Location:	
Owner:	
Owner's Rep:	
Telephone#:	
Architect/Engineer:	
A/E contact person:	
Telephone#:	
Original contract amount: \$	Original completion date:
Final contract amount: \$	Final completion date:
Percentage of work self-performed:	



APPLICATION for CONTRACTOR PREQUALIFICATION

Nine (9): Information regarding past performance:
<p>9a. Has your firm ever failed to complete any work or has any officer, partner, member or principal, as listed in Question 5, been an officer, partner, member or principal of another firm that has failed to complete a project in the last 10 years? <input type="checkbox"/> YES <input type="checkbox"/> NO</p>
<p>If YES, please provide the following information for each project you or one of your officers, partners, members or principles have failed to complete: To list multiple contracts, duplicate the following information format.</p>
Company awarded the contract:
Principal involved in this company, if company is not the Applicant:
Class of Work:
Project Description:
Location:
Scope of work:
Owner:
Owner's Rep:
Telephone#:
Contract Amount: \$
Reason for Failure to Complete:
<p>9b. Is the company able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work? <input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>If NO, attach full explanation.</p>
<p>9c. Is the company presently debarred or suspended from doing public construction work in the Commonwealth under the provisions of Section 29F of Chapter 29, or any other applicable debarment provisions of any other Chapter of the Massachusetts General Laws or any rule or regulation promulgated thereunder. <input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>If YES, attach a copy of the debarment and a full explanation.</p>
<p>9d. Is the company debarred or suspended from performing work of any kind by any state other than the Commonwealth of Massachusetts or any Federal agency or authority? <input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>If YES, attach a copy of the debarment and a full explanation.</p>



APPLICATION for CONTRACTOR PREQUALIFICATION

Ten (10): Legal or Administrative Proceedings; Compliance with laws:

Please answer the following questions. Information is to cover all judicial and administrative proceedings involving applicant’s firm, which were instituted or concluded (adversely or otherwise) within the **past 5 years** prior to the date of submission of this application.

The term “administrative proceedings” as used in this application for certificate of eligibility includes (i) any action taken or proceeding brought by a governmental agency, department or officer to enforce any law, regulation, code, legal or contractual requirement, except for those brought in state or federal courts, or (II) any action taken by a governmental agency, department or officer imposing penalties, fines or other sanctions for failure to comply with any such legal or contractual requirement.

The term “anyone with a financial interest in your firm” as used in this Section “T” shall mean any person and / or entity with a 5% or greater ownership interest in the applicant’s firm.

If you answer YES to any question, on a separate page provide a complete explanation of each proceeding or action and any judgment, decision, fine or other sanction or result. Include all details (nature or basis of claim, name of court or administrative agency, title of case or proceeding, case number, date action was commenced, date judgment or decision was entered, fines or penalties impose, etc.).

	YES	NO
10a. Within the past 5 years have any civil, judicial or administrative proceedings involving your firm or a principal or officer or anyone with a financial interest in your firm been brought, concluded, or settled relating to the procurement or performance of any construction contract, including but not limited to actions to obtain payment brought by subcontractors, suppliers or others?	<input type="checkbox"/>	<input type="checkbox"/>
10b. Within the past 5 years have any criminal proceedings involving your firm or a principal or officer or anyone with a financial or officer or anyone with a financial interest in your firm been brought, concluded or settled relating to the procurement or performance of any construction contract including, but not limited to, any of the following offences: fraud, graft, embezzlement, forgery, bribery, falsification or destruction of records or receipt of stolen property?	<input type="checkbox"/>	<input type="checkbox"/>
10c. Within the past 5 years have any judicial or administrative proceedings involving your firm or a principal or officer or anyone with a financial interest in your firm been brought, concluded or settled relating to a violation of any state’s or federal procurement laws arising out of the submission of bids or proposals?	<input type="checkbox"/>	<input type="checkbox"/>
10d. Within the past 5 years have any judicial or administrative proceedings involving your firm or a principal or officer or anyone with a financial interest in your firm been brought, concluded or settled relating to a violation of M.G.L. Chapter 268A, the State Ethics Law?	<input type="checkbox"/>	<input type="checkbox"/>
10e. Within the past 5 years have any judicial or administrative proceedings involving your firm or a principal or officer or anyone with a financial interest in your firm been brought, concluded or settled relating to a violation of any state or federal law regulating hours of labor, unemployment compensation, minimum wages, prevailing wages, overtime pay, equal pay, child labor or worker’s compensation?	<input type="checkbox"/>	<input type="checkbox"/>
10f. Within the past 5 years have any judicial or administrative proceedings involving your firm or a principal or officer or anyone with a financial interest in your firm been brought, concluded or settled relating to a violation of any state or federal law prohibiting discrimination in employment?	<input type="checkbox"/>	<input type="checkbox"/>



APPLICATION for CONTRACTOR PREQUALIFICATION

<u>Legal or Administrative Proceedings; Compliance with laws (Section 2)</u>	YES	NO
<i>10g.</i> Within the past 5 years have any judicial or administrative proceedings involving your firm or a principal or officer or anyone with a financial interest in your firm been brought, concluded or settled relating to a claim of repeated or aggravated violation of any state or federal law regulating labor relations?	<input type="checkbox"/>	<input type="checkbox"/>
<i>10h.</i> Within the past 5 years have any judicial or administrative proceedings involving your firm or a principal or officer or anyone with a financial interest in your firm been brought, concluded or settled relating to decertification, debarment or suspension of your firm or any principal or officer or anyone with a financial interest in your firm from public contracting?	<input type="checkbox"/>	<input type="checkbox"/>
<i>10i.</i> Within the past 5 years have any judicial or administrative proceedings involving your firm or a principal or officer or anyone with a financial interest in your firm been brought, concluded or settled relating to a violation of any state or federal law regulating the environment, including but not limited to DEP and EPA?	<input type="checkbox"/>	<input type="checkbox"/>
<i>10j.</i> Within the past 5 years have your firm been fined by OSHA or any other state or federal agency for violations of any laws or regulations related to occupational health or safety? NOTE: this information may be obtained from the OSHA's Website at www.osha.gov	<input type="checkbox"/>	<input type="checkbox"/>
<i>10k.</i> Within the past 5 years has your firm been sanctioned for failure to achieve DBE/MBE/WBE goals, workforce goals or failure to file certified payrolls on any public projects?	<input type="checkbox"/>	<input type="checkbox"/>
<i>10l.</i> Other than previously reported in the above paragraphs of this Section "I", within the past 5 years have any administrative proceedings or investigations involving your firm or a principal or officer or anyone with a financial interest in your firm been brought, concluded or settled by any local, state or federal agency relating to the procurement or performance of any construction contract?	<input type="checkbox"/>	<input type="checkbox"/>
<i>10m.</i> Are there any other issues that you are aware which may affect your firm's responsibility and integrity as a construction contractor?	<input type="checkbox"/>	<input type="checkbox"/>
<i>10n.</i> Is your firm current with the provisions of 527 CMR 1.00:41 welding, cutting & other Hot-Works. Has all your required Staff completed an approved training program? Please attach evidence of such completed training program (see pages 16-17).	<input type="checkbox"/>	<input type="checkbox"/>
NOTE THAT ANYONE WHO PERFORMS, SUPERVISES OR DELEGATES HOT WORK MUST BE TRAINED		



APPLICATION for CONTRACTOR PREQUALIFICATION

***** **EXAMPLE** *****

FOR EACH CLASS OF WORK FOR WHICH PREQUALIFICATION IS REQUESTED THE APPLICANT MUST SUBMIT THREE (3) PROJECTS COMPLETED BY THE FIRM (within the past 10 years)

<p><i>Eleven (11):</i> Please provide 3 of your firm's recent completed projects similar in scope for each class of work checked in item number four (4) above. Please provide a THOROUGH description of the class of work. Contractors should not submit experience less than \$50,000 in project value.</p> <p align="center"><u>Do not list contracts completed more than 10 years ago.</u></p>	
11.0 Class of work: Highway Construction	Dollar Value: \$20,000,000
1a. Other Sub-Classes of work performed:	Dollar Value:
Drainage	\$4,000,000
Sidewalk & Curbing	\$1,000,000
Signing Structural	\$500,000
Pavement Surfacing	\$2,000,000
Project Title: Route XXX Rehab	
Location: Boston, MA	
Owner: MassDOT	
Owner's rep: John Smith	
Telephone#: 857 368 8660	Email:jsmith@xxx.org
Architect / Engineer: MassDOT	
A/ E contact person:	
Telephone#: 857 368 8660	Email: jsmith101@xxx.org
Original contract amount: \$20,000,000	Original completion date: December 2016
Final contract amount: \$21,050,000	Final completion date: March 2017
Were you the Prime Contractor <u> X </u> Or Subcontractor <u> </u> for this project?	
Percentage of work completed with own forces: 75%	
Value of work completed with own forces: \$15,787,050	
<p>Detailed class of work description: full road rehab on route XXX in Boston, from xxx to yyy, including roadway resurfacing, drainage installation, guardrails, sidewalk repairs & signing, etc.,</p> <p>Detailed class of sub-work description: Drainage: installed 1000 ft. of 24, 1500 ft. of 48 and 1800 ft. of 60 inch RCP drainage pipe from xxx to yyy</p>	



APPLICATION for CONTRACTOR PREQUALIFICATION

11.1 Class of work:		Dollar Value:
2a. <u>Other Classes of work performed:</u>		<u>Dollar Value:</u>
Project Title:		
Location:		
Owner:		
Owner's rep:		
Telephone#:	Email:	
Architect / Engineer:		
A/ E contact person:		
Telephone#:	Email:	
Original contract amount: \$	Original completion date:	
Final contract amount: \$	Final completion date:	
Were you the Prime Contractor Or Subcontractor for this project?		
Percentage of work completed with own forces:		
Value of work completed with own forces: \$		
Detailed scope of work:		



APPLICATION for CONTRACTOR PREQUALIFICATION

11.2 Class of work:		Dollar Value:
3a. <u>Other Classes of work performed:</u>		<u>Dollar Value:</u>
Project Title:		
Location:		
Owner:		
Owner's rep:		
Telephone#:	Email:	
Architect / Engineer:		
A/ E contact person:		
Telephone#:	Email:	
Original contract amount: \$	Original completion date:	
Final contract amount: \$	Final completion date:	
Were you the Prime Contractor Or Subcontractor for this project?		
Percentage of work completed with own forces:		
Value of work completed with own forces: \$		
Detailed scope of work:		



APPLICATION for CONTRACTOR PREQUALIFICATION

11.3 Class of work:		Dollar Value:
3a. <u>Other Classes of work performed:</u>		<u>Dollar Value:</u>
Project Title:		
Location:		
Owner:		
Owner's rep:		
Telephone#:	Email:	
Architect / Engineer:		
A/ E contact person:		
Telephone#:	Email:	
Original contract amount: \$	Original completion date:	
Final contract amount: \$	Final completion date:	
Were you the Prime Contractor Or Subcontractor for this project?		
Percentage of work completed with own forces:		
Value of work completed with own forces: \$		
Detailed scope of work:		



APPLICATION for CONTRACTOR PREQUALIFICATION

Twelve (12): EQUIPMENT LIST: Show make, model, year, serial / vin#, and type.
 The listing of equipment must be grouped by type of equipment (i.e. loaders, backhoes, pavers, rollers, etc.)

DO NOT INCLUDE OFFICE EQUIPMENT, HAND TOOLS OR PERSONAL VEHICLES IN THIS LIST
*** Attach copies of lease agreements***

Type of Equipment:

Make, Model and Year	Type of Equipment	Serial no. / Vin No.	Used for what Prequalification Class of Work?	Owned	*Leased
				<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>
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				<input type="checkbox"/>	<input type="checkbox"/>



APPLICATION for CONTRACTOR PREQUALIFICATION

<p><i>Thirteen (13):</i> <u>Contractors need to list all subsidiaries. Please note that each listing will be reviewed and non-collusion agreements may be required.</u></p>
<p><u>List all Subsidiaries:</u></p>
<p>Company Name:</p>
<p>Company Address:</p>
<p>Company Telephone:</p>
<p>Company Name:</p>
<p>Company Address:</p>
<p>Company Telephone:</p>
<p>Company Name:</p>
<p>Company Address:</p>
<p>Company Telephone:</p>
<p>Company Name:</p>
<p>Company Address:</p>
<p>Company Telephone:</p>
<p><i>Fourteen (14):</i> <u>Inaccurate or falsified information:</u> Failure to accurately and completely provide the information requested may result in rejection of the Application for Prequalification and additional penalties under the law. If information provided herein changes, a current and complete update statement must be provided by the Applicant.</p>
<p><i>Fifteen (15):</i> The Prequalification Committee reserves the right to request additional information, AT ANY TIME, regarding the Applicant’s experience, equipment, safety record or procedures, bonding capacity, financial status, completed projects, work currently under contract and any and all information pertinent to the applicant’s skill, ability and integrity to perform work for the department. Note that this information must be provided to the Committee within 30 days of official request per 720 CMR 5.00 or your Prequalification can be subject to Revocation and or Revision.</p>
<p>Questions pertaining to information contained in this application should be directed to:</p>
<p>Contact Person</p>
<p>Phone Number</p>
<p>Email Address</p>



APPLICATION for CONTRACTOR PREQUALIFICATION

Sixteen (16):

The undersigned, on behalf of the Applicant, hereby certifies the foregoing information to be true and complete, under the penalties of perjury. The undersigned further certifies, under the penalties of perjury, that he or she is authorized to sign this application on behalf of the Applicant. In accordance with 720 CMR Section 5.04 (2) and under the penalties of perjury, I certify that my company will not request a project whose value plus the firm's uncompleted work would exceed the firm's aggregate bond capacity.

Company Name (print or type):

By:

Original Signature and Title

Date

Print Name and Title

In accordance with 720 CMR 5.02 (5), Applications for Prequalification shall be submitted at least 14 calendar days preceding the day set for opening of bids for work upon which a Contractor intends to bid.

If you should have any questions or concerns please direct them to prequal.r109@dot.state.ma.us or feel free to contact the Prequal Hotline at 857-368-8660

If an incomplete application is received, the following procedure will be followed:

a. The Prequalification Department will notify the applicant responsible for submitting the Prequalification Application via telephone/email or if applicable by letter that their application is incomplete. The Prequalification Department will state missing information that is required for Prequalification Committee review.

b. If after notifying the applicant the application remains incomplete for thirty days, the application will be voided and returned to applicant.

MAIL THIS COMPLETED APPLICATION TO:

COMMONWEALTH OF MASSACHUSETTS
MASSDOT – HIGHWAY DIVISION
CONSTRUCTION PREQUALIFICATION / RECORDS & PROCEDURES OFFICE
10 PARK PLAZA, ROOM 6260
BOSTON, MA 02116
ATT: DIRECTOR OF CONSTRUCTION PREQUALIFICATION

What are the additional duties of a hot work fire watch?

The fire watch must review and ensure the internal hot work permit is completed and posted. The fire watch must also remain on site for at least 30 minutes after the completion of all hot work.

Is an AHJ permit always required?

No. There are few exceptions where an AHJ permit is not required.

Homeowners and hobbyists conducting hot work are exempt from both training and permit requirements.

Individuals who conduct hot work operations on their premise or equipment shall be permitted to carry-out hot work, after consultation with the AHJ before hot work operations can be conducted.

When the hot work activity is performed by a person, or under the direct supervision of a person, licensed and permitted pursuant to a specialized code as defined in M.G.L. c. 143, §96 (ex. licensed plumbers, electricians, sheet metal workers, etc).

When the local fire and building officials have already pre-approved the location as a designated area.

What is the difference between permitted and designated area?

A designated area does not require either an AHJ or hot work permit, although these areas are still pre-approved by the building and fire official and must be reviewed annually by the PAI. The AHJ may require an annual permit issued for the designated area.

A permitted area must have a permit from the AHJ and a daily hot work permit issued from the PAI, unless exempt.

Contact Information

For information about the state fire code and fire safety, contact the DFS Code Compliance and Enforcement Unit at:

- Stow Headquarters (Eastern MA)
978-567-3375
- Springfield Office (Western MA)
978-567-3813

Welding, Cutting, and Other Hot Work



Fire Safety Requirements in Massachusetts



The Department of Fire Services (DFS) is pleased to provide this list of frequently asked questions (FAQ's) regarding hot works in Massachusetts. The brochure covers the most common questions concerning hot works safety in the state.

The DFS Code Compliance & Enforcement Unit works in conjunction with local communities to ensure that hot work is conducted safely and in accordance with the state fire code. We have listed the most important terms that you will need to understand.

Definitions

Hot Work - Work involving, burning, welding, or a similar operation that is capable of initiating fires or explosions. Examples include, but are not limited to: welding, cutting, grinding, soldering, heat treating, hot riveting, torch-applied roofing, abrasive blasting, and powder-driven fasteners.

Qualified Person – As of July 1, 2018, a qualified person is a person who has successfully completed training approved by the State Fire Marshal.

Permit Authorizing Individual (PAI) –An individual designated by management to authorize hot work.

Permissible Area – There are two types of permissible areas, designated area and permitted area.

Designated Area - A specific location designed and approved for hot work operations that is maintained fire-safe, such as a maintenance shop or a detached outside location, that is of noncombustible or fire-resistant construction, essentially free of combustible and flammable contents, and suitably segregated from adjacent areas.

Permitted Area - Any location, other than a designated area which is approved for hot work and is made fire-safe by removing or protecting combustibles from ignition sources.

Hot Work Permit – A permit issued by the PAI, which shall not be valid for more than 24 hours. Information on the permit should include work location, type of hot work, the work to be done, the operator, duration, equipment, and controls to ensure safety.

Fire Department (AHJ) Permit - A document issued by the AHJ to a qualified person for the purpose of authorizing that individual to carry out the activity of hot work.

Fire Watch - The assignment of a person or persons to an area for the express purpose of notifying the fire department, the building occupants, or both of an emergency; preventing a fire from occurring; extinguishing small fires; or protecting the public from fire or life safety dangers.

Frequently Asked Questions

What is the state fire code in Massachusetts? The state fire code is known as the Massachusetts Comprehensive Fire Safety Code, 527 CMR 1.00. Visit www.mass.gov/dfs and search for 527 CMR 1. The state fire code adopts NFPA 1 (2015 Edition), and includes Massachusetts amendments. Within the code are the appropriate editions of NFPA standards that must be met.

Where can the requirements for hot works be found within the state fire code? These requirements are found in Chapter 41. This section adopts NFPA 51B – Standard for Fire Prevention During Welding, Cutting, and Other Hot Work (2014 Edition), which also includes Massachusetts amendments.

Do the personnel involved in hot work need to be trained? As of July 1, 2018, for an individual to be qualified to be a PAI, perform fire watches, perform, supervise or delegate any activities of hot work they shall have documentation that he or she has successfully completed training approved by the State Fire Marshal.

What are the Permit Authorizing Individual's (PAI) primary responsibilities? The PAI issues the hot work permit and is charged with ensuring the health and safety within the permissible area.



CHAPTER 90 - PAYROLL - HED 600 FORM

City/Town of _____

PAYROLL for period beginning _____ and ending _____

both inclusive, on account of Contract No. _____ with MassDOT Highway Division,

under Section 34, Clause 2(a). of Chapter 90 of the General Laws.

Table with columns: EMPLOYEE NAME, CLASSIFICATION, TIME (Days: S, M, T, W, T, F, S), Total Hrs., RATE, AMOUNTS, CHECK #.

"To the best of my knowledge, the payroll or the rental of hired or municipally owned equipment appearing on this sheet is not in conflict with Chapter 779 of the Acts of 1962. Signed under the penalty of perjury".

Supervisor / Foreman _____ Date _____

Town Accounting Approval _____ Date _____



STATE AID REIMBURSABLE PROGRAMS - MATERIALS - HED 454 FORM

Updated 12/2017

City/Town of: _____

PROJECT NAME: _____

PROGRAM TYPE: Chapter 90 Muni Bridge Complete Streets Other

MATERIALS for period beginning _____ and ending _____
both inclusive, on account of Contract No. _____ with MassDOT Highway Division,

VENDOR NAME	ITEM #	QTY.	UNIT	UNIT PRICE \$	AMOUNTS \$	CHECK #	REMARKS
					\$ -		
					\$ -		
					\$ -		
					\$ -		
					\$ -		
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					\$ -		
TOTAL					\$ -		

"To the best of my knowledge the purchases of materials or services appearing on this sheet are not in conflict with Chapter 779 of the Acts of 1962.
Signed under the penalty of perjury."

Supervisor / Foreman _____ Date _____ Town Accounting Approval _____ Date _____

SECTION 00800
SUPPLEMENTARY CONDITIONS
PART II – FEDERAL, STATE AND LOCAL GOVERNMENT PROVISIONS
3.0 CITY OF NEW BEDFORD, MASSACHUSETTS PROVISIONS

**City of
New Bedford**

**INSTRUCTIONS TO BIDDERS
For
AFFIRMATIVE ACTION ISSUES**

for Public Works and Construction Projects

Office of Equal Opportunity & Contract Compliance
133 William Street, Room 208
New Bedford, Massachusetts 02740
ph: 508-979-1446 / fax: 508-991-6148
Revised April 2007

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AA.01: Definitions

Relevant to the requirements set forth in this bidding document

Construction Bidding Statutes*

Public Works Projects

Governed under Massachusetts General Laws, ch. 30, sec. 39M.

Includes all municipal contracts for construction, reconstruction, alteration, remodeling, and/or repair/s estimated to cost more than \$10,000 which does not include work on a building. Includes the construction and repair of roads, bridges, water mains, sewers, and the like, as well as improvement to public land (i.e.: operation of a municipal landfill, removal of waste materials, grading, erosion control, and other forms of improvement and maintenance.

Also governs contracts of \$50,000-150,000 for construction, reconstruction, installation, demolition, maintenance, or repair work on a building.

Building Projects

Governed under Massachusetts General Laws, Ch. 149, sec. 44.

Includes all contracts for the construction, reconstruction, installation, demolition, maintenance, or repair of a building at an estimated cost of more than \$25,000.

Lowest Eligible & Responsible Bidder*

Massachusetts G.L. c. 30, sec. 39M; c. 149, sec. 44A state that the contract be awarded to the lowest eligible and responsible bidder.

Eligible means the bidder meets all of the requirements set forth in the bidding documents.

Responsible means the bidder possesses the skill, ability, and integrity to complete the job.

Reasonable Accommodations

Any change in work environment or the way job duties are customarily performed that enables individuals with disabilities to perform the essential functions of the job in issue, or that ensures equal opportunity for individuals with disabilities with respect to the application process or the enjoyment of benefits and privileges of employment.

Administering Agency

The agency that administers the city, state, state-assisted, or federally assisted contract awarded by the contracting agency

Contracting Agency

The agency that directly awards the contract

Contractor

Any general contractor and all subcontractors

* This information is taken directly from "Designing and Constructing Municipal Facilities: Legal Requirements; Recommended Practices; Sources of Assistance" Published by, William Francis Galvin, Secretary of the Commonwealth, Office of the Inspector General, Oct. 1989.

AA.01: continued

Minority / Women Business Enterprise

As defined by the Massachusetts SDO (State Diversity Office) (formerly known as SOMWBA). In summary, an MBE/WBE is a business at least fifty-one percent (51%) owned or controlled by minority/women group members, or an individual contractor or professional who is a minority/women group member (as defined by SDO).

Minority refers to:

Native American

A person having origin in any of the original people of North America, who is recognized as American Indian by a tribe or tribal organization or is recognized as such within his/her community

Asian

A person having origin in any of the original people of the Far East, Southeast Asia, Indian Subcontinent, Korea, Philippines, and Samoa

Black

A person having origin in any of the black racial groups of Africa

Cape Verdean

A person having origin in any of the original people of the Cape Verde Islands

Eskimo / Aleut

A person having origin in any of the original people of Northern Canada, Greenland, Alaska, and East Siberia

Hispanic

A person of Spanish descent and culture having origin in Mexico, the Island of the Caribbean, Central America or South America

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City of New Bedford
133 William Street
New Bedford, MA 02740

EEO/AA POLICY STATEMENT

City of New Bedford has a statutory mandate under law to guarantee equal treatment for all who seek access to its services or opportunities for employment and advancement. No discrimination will be tolerated on the basis of race, creed, political affiliation, color, sex, national origin, age, or handicap. The ultimate goal is for personnel of this organization to reflect the proportions of minority, female, and handicapped persons in the populations they serve.

City of New Bedford will meet its legal, moral, social, and economic responsibilities for Equal Employment Opportunity/Affirmative Action as authorized and required by all pertinent state and federal legislation, executive orders and rules and regulations, including the following:

1. Title II of the Civil Rights Act of 1964 (42 USC s2000e et seq.), which prohibits discrimination in employment on the basis of race, color, religion, sex, or national origin; and
2. The Age Discrimination in Employment Act of 1967 (29 USC s621 et seq.), which prohibits discrimination in employment on the basis of age with regard to those individuals who are at least 40 years of age, but less than 65 years of age; and
3. Section 504 of the Rehabilitation Act of 1973 (29 USC s794), and the regulations promulgated pursuant thereto (45 CFR Part 84), which prohibit discrimination against qualified handicapped individuals on the basis of handicap and requires employers to make reasonable accommodations to known physical or mental limitations of otherwise qualified handicapped applicants and employees; and
4. M.G.L. c. 151B s4 (1), as amended by Chapter 533, 1983, which prohibits discrimination in employment on the basis of race, color, sex, religious creed, national origin, ancestry, age or handicap,

In addition, the Provider agrees to be familiar with and abide by:

- * Massachusetts Executive Order 524
- * Massachusetts Executive Order 526
- * Equal Pay Act of 1963
- * Massachusetts Architectural Barriers Board Act
- * Federal Executive Orders 11246 and 11375 as amended.
- *

All employees, unions, sub contractors and vendors must make genuine and consistent efforts:

1. To ensure equal employment opportunities for present and future employees, and
2. To implement affirmative action, as legally required, to remedy the effects of past employment discrimination and social inequalities.

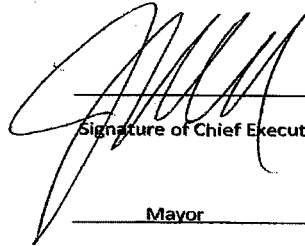
The responsibility for implementing and monitoring this policy has been delegated to:

EEO Contract Compliance Officer

Name and Title of Employee

Furthermore, City of New Bedford

prohibits that any employee, or applicant, be subjected to coercion, intimidation, interference or discrimination for filing a complaint or assisting in an investigation under this program. No portion of this Equal Employment Opportunity/Affirmative Action Policy shall be construed as conflicting with any existing or future judicial or legislative mandate where a constriction consistent with that mandate is reasonable.



Signature of Chief Executive

Mayor

Title of Chief Executive

2/10/12
Date

AA.02: Statement of Policy

MINORITY/WOMAN BUSINESS ENTERPRISE PROGRAM

It is the policy of the government of the United State of America, the Commonwealth of Massachusetts and the City of New Bedford, that no person shall be discriminated against in any manner whatsoever, on the grounds of race, color, age, national origin, disability, religion, or sex.

Under this policy, the minority and woman business enterprises shall have the maximum practicable opportunity to participate in federally assisted projects, and shall not be excluded from such participation, nor denied the benefits of or be subjected to discrimination under any program or activity receiving federal assistance.

The City of New Bedford unequivocally ascribes to said policies as the recipient of Federal and state financial assistance, in connection with its activities, and may receive further Federal and State financial assistance in the future.

The City of New Bedford strongly affirms that it will not discriminate in any contractual procedure against any person because of race, color, age, national origin, disability, religion, or sex, or any other condition that is a bona fide qualification. This policy shall be administered at all levels with a positive, aggressive and supportive attitude by all department heads.

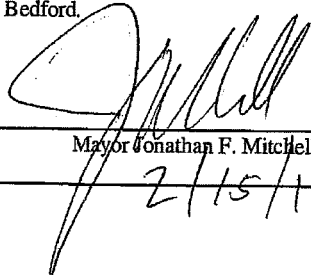
It is the responsibility of all department heads and employees to take affirmative steps to implement this policy to ensure equality of opportunity in conducting the affairs of the City of New Bedford, including notifying those persons and businesses doing business with the City of New Bedford, that contracts for goods and services and construction, shall be made without, reference to race, color, age, national origin, disability, religion or sex.

This Minority/Woman Business Enterprise Program sets forth the administrative standards for the further implementation of the City of New Bedford's policy for the utilization of minority and female contractor, subcontractors, and suppliers.

Each department shall ensure that all solicitation in advertisements includes a statement of the City's affirmation action policy, in an approved format.

The city's Equal Opportunity Officer shall be responsible for ensuring that all aspects of the MBE/WBE program are initiated and undertaken. By virtue of the delegation of this responsibility and authority to direct the program, the Contract Compliance Officer will report directly to the Mayor on equal opportunity matters. The Equal Opportunity Officer shall be responsible for the development, administration, and monitoring of all activities necessary to ensure the accomplishment and success of this program.

NOW, THEREFORE IT IS HEREBY RESOLVED that the following Minority/Woman Business Enterprise Program is instituted for and in behalf of the City of New Bedford.



Mayor Jonathan F. Mitchell

Date

2/15/12

AA.03: City of New Bedford Ordinances - Synopsis

See **Appendix A** for complete City Ordinances relevant to this bid document

(1) Residency Requirements for Certain City-Supported Construction Projects, Chap. 10, Article II.

(a) Shall apply to all general and subcontractors of public works projects which have a projected cost of more than \$100,000.00

(b) Fifty (50) percent of the total employee man-hours in each trade must be performed by residents of the City of New Bedford (excluding the employer's foreman or supervisor and two other key employees.)*

* *Contact the N.B. EEO Dept. for further assistance in this matter.*

(c) resident is defined as someone having his/her true, fixed, and permanent home and principal establishment in the City of New Bedford, for a *minimum of six (6) months prior* to the contract bid opening date.

(2) Contractor Qualifications and Sanctions, a.k.a. "The Responsible Employer Plan", Chap. 10-77.

(a) Shall apply to all bidders and subcontractors for projects subject to MGL c. 149

(b) Not applicable to construction projects where the low general bid was less than \$100,000; to subcontracts bid for less than \$25,000; or to re-bids for which the City receives fewer than three (3) qualified bidders in the original bid

(c) Must pay appropriate lawful prevailing wage rates to employees

(d) Must maintain or participate in a bona fide apprentice training program for each apprenticeable trade represented in the workforce

(e) Must furnish hospitalization and medical benefits and maintain appropriate accident insurance coverage

(f) Must classify all employees as employees rather than independent contractors, and treat accordingly regarding workers compensation, unemployment taxes, social security taxes and income tax withholding.

AA.04: Contractors Agreements under Executive Order 11246, as Amended by Executive Order 11375

During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment of compensation; and selection of training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

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

(3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under Section 202 of Executive Order No. 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The contractor will comply with all provisions of Executive Order No. 11246 of Sept. 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The contractor will furnish all information and reports required by Executive Order No. 11246 of Sept. 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No. 11246 of Sept. 24, 1965, or by rule, regulation or order of the Secretary of Labor, or as otherwise provided by law.

(7) The contractor will include the provisions of paragraphs (1) through (7) in every subcontract or purchase order, unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of Sept. 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions including sanctions for noncompliance: provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

AA.05: Dept. of Labor, 41 Code of Federal Regulations Parts 60-1, 60-6 - Government Contractors, Affirmative Action Requirements, Executive Order 11246

(1) Segregated Facilities. The contractor hereby certifies that it does not and will not maintain or provide any facilities for its employees in a segregated manner, or permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. Further, the contractor shall obtain a similar certification of non-segregated facilities prior to the award of any contract or subcontract, which is subject to Executive Order 11246, and shall provide a copy thereof to the Association.

This clause prohibits segregation on the basis of race, color, religion, national origin, or sex, and applies to all contracts regardless of the amount thereof. The term facilities includes, but is not limited to, waiting rooms, work areas, restaurants and other eating areas, time clock, parking

lots, drinking fountains, recreation or entertainment areas, transportation, employer-provided housing, washrooms, locker rooms or other storage or dressing areas.

(2) Affirmative Action Compliance Program. The contractor certifies that it has developed a written affirmative action compliance program for each of its establishments consistent with the rules and regulations published by the Department of Labor in 41 CFR Chapter 60, and agrees to require a similar certification from each of its nonexempt subcontractors. Such an affirmative action program shall contain a set of specific and result-oriented procedures, the objective of which shall be the achievement of equal employment opportunity. An acceptable affirmative action program must include an analysis of areas within which the contractor is deficient in the utilization of minority groups and women and further, goals and timetables to which the contractor's good faith efforts must be directed to correct any deficiencies and, thus, to achieve prompt and full utilization of minorities and women, at all levels and in all segments of his work force where deficiencies exist.

The contractor's affirmative action plan shall be summarized and updated annually and the program summary shall be submitted to the Office of Federal Contract Compliance Programs (OFCCP) on the anniversary date of the contractor's affirmative action program.

(3) Contractor's Compliance with Exec. Order and 41 CFR Par 60-4. The contractor's compliance with E.O. 11246 and 41 C.F.R. Part 60-4, shall be based on its implementation of the Equal Opportunity clause, specific affirmative action obligations required by the specifications set forth in 41 C.F.R. 60-4.3, and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed.

AA.06: Section 503 of the Rehabilitation Act of 1973

(Dept. of Labor, 41 Code of Federal Regulations, Parts 60-250 and 60-741, Affirmative Action & Nondiscrimination Obligations of Contractors and Subcontractors Regarding Individuals with Disabilities, Disabled Veterans, and Veterans of Vietnam Era)

Parties holding a Government contract or subcontract in excess of \$10,000 must take affirmative action to employ and advance in employment-qualified individuals with disabilities. Contractors are required to use effective practices to recruit qualified individuals with disabilities.

Applicants with disabilities must be provided a reasonable accommodation if they are qualified with respect to the application process (e.g.: if they present themselves at the correct location and time to fill out an application).

AA.07: MBE / WBE Policy (for the life of the project)

(1) **Eleven (11) percent** of the work on this project shall be performed by Minority Business Enterprises (MBEs) and **five (5) percent** of the work shall be performed by Women Business Enterprises (WBEs) for a total of 16% overall. **Four and one-third (4.33%) percent of all Airport projects shall be performed by Disadvantaged Business Enterprises (DBE).** Proven documentation of non-availability and the filing of a MBE/WBE/DBE Request for Waiver will be required to be submitted by the general contractor in circumstances where the EEO goals are not met.

(2) If it is determined that one or more of the MBE/WBE or DBE contractors, as submitted by the Contractor on the EEO forms, is not SDO (State Diversity Office) (formerly known as SOMWBA)

certified or certified by the Local Government Unit, in accordance with the provision of Executive Order 237, **the bidder shall have five (5) working days following notification to either find a certified MBE/WBE/DBE contractor to perform work equal to or greater than that of the uncertified contractor, or to submit a waiver request.**

(4) The contractor shall not enter into any subcontract with any person or firm debarred from government contracts, pursuant to Executive Order 11246.

AA.08: Workforce Utilization (for the life of the project)

(1) Minimum percentages for **employment (workforce utilization)** on the project are at **18% minority** and **6.9% female** participation. The employment percentages shall apply to the contractor and to **all** subcontractors, regardless of tier, for all on-site work.

A single goal for minorities and a separate goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the contractor has achieved its goals for women generally, the contractor may be in violation of the Exec. Order if a specific minority group of women is under-utilized.)

(3) The contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

AA.09: Contractor's EEO / Records Monitor

The contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof, as may be required by the Government, and to keep records which shall at least include, for each employee, the name, address, telephone numbers, social security number, race, sex, status, (e.g.: mechanic, apprentice, trainee, helper, or laborer) dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents.

AA.10: Bidder's Eligibility

The lowest responsible and eligible bidder shall mean the General Bidder whose bid is the lowest of those bidders demonstrating possession of the skill, ability and integrity necessary for the faithful performance of the work, and

(a) who shall certify that he/she is able to furnish labor that can work in harmony with other labor employed on the work;

(b) who shall certify that he/she will demonstrate good faith efforts to obtain the minority workforce goal (18%) the woman workforce goal (6.9%) and, for projects \$100,000+, NB residency goal of 50%; the insurance that all subcontractors and/or sub-subcontractors are

also in compliance with workforce utilization goals; including compliance with the minority business goal (11%) and woman business goal (5%), for a total of 16% (or 4.33% for Airport projects) of the total dollar amount of the contract, and will certify that it will meet all applicable City Ordinances in accordance with this contract provision.

AA.11: Bid Submission Requirements

(1) Required bid forms that must be completed, signed, and submitted with the bid at the time of the bid opening, are as follows:

(a) Certificate of Understanding; Certification of Compliance w/ Exec. Order 11246

(b) Schedule of Participation for MBE/WBE or DBE as required

(c) Letter of Intent (for each MBE/WBE/DBE participation)

(d) MBE/WBE/DBE Contractor Identification Statement (for each MBE/WBE/DBE)

(e) Bidder's Certification (to be completed by both the General Contractor *and* each MBE/WBE/DBE)

(f) If applicable, a completed and signed MBE/WBE/DBE Unavailability Certification in the event that the work listed on the Schedule is not sufficient to fulfill the requirement for MBE/WBE/DBE Participation. This certification must include a statement by the bidder of the reasons why it believes it is in compliance with this provision, and a list of the names, addresses, telephone numbers and reason given for unavailability of the Minority/Women Contractor contacted by the bidder with respect to the performance of work under the contract.

(g) If applicable, a completed and signed Minority / Women / Disadvantaged Business Enterprises Request for Waiver.

(2) The successful bidder will also be required to submit, prior to award, its estimates of labor (permanent and trainee) and material required to carry out its work under the contract, for review by the City, so as to establish maximum feasible goals for the utilization of City residents and business concerns. These goals, and the basis for monitoring and reporting progress toward meeting them, will be established by mutual agreement, with the assistance of the City's Contract Compliance Officer, and discussed in the Pre-Construction and/or Pre-Award Conference.

AA.12: Bid Approval or Disapproval

(1) At the time of the bid opening, the bidder will have five (5) days, from the date of the bid opening, to comply with the MBE/WBE/DBE requirements. Failure to meet these requirements within the five days will have the Bid/Proposal disapproved by the Office of Equal Opportunity.

(2) Each bidder, as part of its bid submission, must agree to make good faith efforts to contract with minority and woman owned businesses (and disadvantaged business when applicable), as defined by the State Diversity Office (SDO) (formerly known as Office of Minority and Woman Business Assistance (SOMWBA)) and the City of New Bedford's affirmative action policies. The

amount of participation reserved for such enterprises shall not be less than 16% of the total bid amount, of which at least 11% of the total bid amount applies to minority businesses. The balance 5% is applied to women-owned businesses. Proven documentation of non-availability of either one of these entities provides that the available business may be awarded no less than 16% of the total contract dollar value.

(3) If the general bidder is either an MBE or WBE and is responsible for 100% of the project work, the 16% is fulfilled. If said MBE/WBE contractor is a joint venture, the MBE/WBE must be responsible for at least 51% of the project.

(4) The general contractor must submit, as part of its bid and as a condition of contract approval, signed Letters of Intent with all subcontractors and material suppliers listed on the participation schedule. Sub-bidders must submit the participation schedule with their bid and a participation schedule if they intend to sub-sub work.

AA.13: Steps to Ensure a Responsive Bid

The total price for work to be performed by Minority/Woman or Disadvantaged Contractors, as indicated in each bidder's bid submission, is required to be sufficient to fulfill the MBE/WBE/DBE requirements, unless the bidder shall demonstrate to the satisfaction of the Awarding Authority that:

(1) it has made every possible effort to contact and negotiate with Minority/Women or Disadvantaged Contractors in an attempt to subcontract work, including every possible effort to select the portions of the work proposed to be subcontracted in order to meet the requirements;

(2) it was unable, notwithstanding such efforts, to achieve the stated requirement because Minority/Woman or Disadvantaged Contractors were not qualified or were unavailable (any proven non-availability of MBE/WBE/DBE must make up the difference to still fulfill the 16% goals with the available MBE or WBE or 6.0% DBE. If neither category is available to fulfill the goal, it must have a SDO statement as to no business listed);

(3) it included in its Schedule of Participation such proposed agreements as could be made with such efforts;

(4) the general contractor is a MBE or WBE and said contractor is performing 16% of work or the general contractor is a DBE and is performing 6.0% of the work and therefore, will be deemed as fulfilling the affirmative action bidding requirements;

(5) for contractors performing work under \$50,000 that can demonstrate all work will be completed under the contractor's own workforce, the contractor must be able to demonstrate how this will be accomplished and submit, at the time of the bid a statement requesting a waiver of the 16% MBE/WBE or 6.0% DBE participation goal. Said contractors will still be required to demonstrate good faith efforts regarding the prescribed employment workforce percentage goals.

AA.14: Bid Award or Rejection

(1) The Awarding Authority will responsible for awarding or rejecting any bid, with the

approval/disapproval of the Office of Equal Opportunity & Contract Compliance in its decision. The Awarding Authority also reserves the right to reject any or all bids, or to accept any other than the lowest bidder, should it be deemed to be in the best interest of the City of New Bedford, Massachusetts, to do so.

(2) The Awarding Authority may reject, as non-responsive, any bid, which it determines, fails to comply with the applicable requirements of this contract provision. Nothing, herein, shall relieve any bidder or any contractor performing any work under the contract, from any of the terms, conditions, or requirements of the contract.

AA.15: Awarded Contractor's Obligations

(1) The Contractor shall specifically ensure that the City's EEO policy and affirmative action obligations under this contract provision, is reviewed with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decision, including specific review of these terms with on-site supervisory personnel, prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

(2) Minority/Woman Work Hours must be maintained for the life of this project (at a minimum ratio of 18% minority work hours and 6.9% woman work hours to total work hours in each job category, including, but not limited to bricklayers, carpenters, cement masons, electricians, ironworkers, operating engineers, and those classes of work identified in Section 44C of M.G.L. ch. 149). *(Please note the City of New Bedford's Residency Ordinance requiring 50% City of New Bedford residents on projects of \$100,000+)*

(3) Apprentices and Trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability, in order for the apprentices and trainees to be counted toward the minority/woman work hour percentage goals.

(4) Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the contractor has a collective bargaining agreement to refer either minorities or women, shall excuse the contractor's obligation under these specifications, Exec. Order 11246 or the regulations promulgated pursuant thereto.

(5) In the employment of journeymen, apprentices, teamsters and laborers, the Contractor shall give preference first, to citizens of the Commonwealth who have served in the armed forces of the United States in time of war and have been honorably discharged therefrom or released from active duty therein, and who are qualified to perform the work which the employment relates, and secondly, to citizens of the City of New Bedford, and if such cannot be obtained in sufficient numbers, the Commonwealth generally, then to citizens of the United States.

(6) Reports to Be Submitted to the Office of Equal Opportunity & Contract Compliance include:

(a) Licensing Statutes: Every contractor and subcontractor must submit, before starting work, a plan by which he/she will satisfy the requirements of licensing statutes, including the following, where applicable: MGL Ch. 149, Sec. 6 (painters); Ch. 146, Sec. 53 (hoisting engineers); Ch. 149, Sections 6B-6F (asbestos abatement workers, supervisors & contractors); Ch. 146, Sec. 3 & 3B (plumbers & gas fitters); Ch. 141, Sec. 1

(electricians); Ch. 14, Sec. 84 (pipefitters & sprinkler fitters); and Ch. 143, Sec. 94 (construction supervisor).

(b) Work Hour Reports: The contractor and each subcontractor shall prepare weekly reports in an approved form, of the hours worked in each trade by each employee, identified as minority or non-minority, and/or female, and/or resident. Copies of these shall be provided at the end of each such week to the City's Office of Equal Opportunity & Contract Compliance.

(c) Projected Manning Tables: The contractor shall prepare projected manning tables on a quarterly basis. These shall be broken down into projections, by week, of workers required in each trade. Copies shall be furnished one week in advance of the commencement of the period covered, and also when updated, to the City. A copy of the certified payroll will be submitted with these reports.

(d) Billing Reports: The contractor shall prepare and submit monthly billing reports of amounts paid to MBEs, WBEs and/or DBEs each monthly billing period, as well as the record of final payment accompanied by canceled checks.

(e) Payroll Reports: Every contractor and subcontractor shall submit weekly payroll reports to the City, indicating the following information for each employee and/or independent contractor employed on the project; name, address, hours worked, occupational classification, wages, and fringe benefit payments, if any. Said reports shall be signed by the employer or his authorized agent under the penalties of perjury (see MGL Ch. 149, Section 27B).

AA.16 Recruitment/Referral Responsibilities

(1) In the hiring of minority/woman journeymen, apprentices, teamsters, and laborers, the contractor shall rely on referrals from a multi-employer affirmative action program approved by the City, traditional referral method utilized by the construction industry, and referrals from agencies, not more than three in number at any one time, designated by the City's Equal Opportunity Officer.

(2) Records of employment referral orders, prepared by the contractor, shall be made available to the awarding authority.

(3) The contractor will maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization, and of what action was taken with respect to each such individual.

(4) If such individual was sent to the union hiring hall for referral, and was not referred back to the contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the contractor may have taken.

(5) The contractor will document and maintain a record of all solicitations of offers for subcontractors from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractors' associations and groups.

(6) The contractor will, in all solicitations or advertisements for employees placed by or on

behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin, and maintain a record thereof.

AA.17: Subcontracts

(1) The Contractor receiving the award of the contract shall be required to obtain from each of its subcontractors (filed or non-filed) and submit to the Authority prior to the performance of any work under said subcontract, a certification by said subcontractor, regardless of tier, that it will comply with the minority and women work hours/employee ratio and specific affirmative action steps, and to submit this information to the Office of Equal Opportunity, prior to the subcontractor's performance on the project.

(2) In order to ensure that the said subcontractor's certification becomes a part of all subcontracts under the prime contract, no subcontract shall be executed until an authorized representative of the Authority administering this project has determined, in writing, that the said certification has been incorporated in such subcontract, regardless of tier. Any subcontract executed without such written approval shall be void.

(3) Whenever the contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000, the contract provisions listed in this Instructions to Bidders for Affirmative Action Issues, and the applicable goals for minority and female participation and which is set forth in the solicitation form which the contract resulted.

(4) Noncompliance of a subcontractor in compliance with these provisions, will result in the contractor taking such action, with respect to any subcontract or purchase order, as the administering agency may direct, as a means of enforcing such equal opportunity provisions; provided that, in the event a contractor becomes involved in, or is threatened with litigation with a subcontractor or vendor, as a result of such direction, the contractor may request the United States, the State of Massachusetts or the City of New Bedford, to enter into such litigation to protect the interests of the U.S., the State or the City.

AA.18: Wage Rates

(1) Attention is called to Labor Standards provisions regarding conditions of employment, including State and Federal Wage Rates, the Davis-Bacon Act, the Copeland Anti-Kickback Act, and the Contract Work Hours and Safety Standards Act. Where Federal and State wage rates differ, the higher rates shall be used as a minimum.

(2) The rate per hour of the wages to be paid to mechanics, apprentices, teamsters, chauffeurs, and laborers employed on the work shall be not less than the rate of wages in Minimum Wage Rates as determined by the Commissioner of Labor and Industries, as required by M.G.L. Chapter 149, Sections 26 & 27-27h. This schedule shall be in place for said employees during the life of this contract.

(3) Contractor shall keep posted on the site, a legible copy of said schedule. The Contractor shall keep on file wage rates and classifications of labor employed on this work, in order that they may be available for inspection by the Administrator, the Office of Equal Opportunity, or the Architect.

(4) Apprentices employed pursuant to this determination of wage rates must be registered and

approved by the State Apprenticeship Council, wherever rates for journeymen or apprentices are not listed.

(5) Pay reserve police officers employed on this work the prevailing rate of wages paid to regular police officers, as required by M.G.L. Chap. 149, Sec. 34B, as amended. Such police officers shall be covered by Workmen's Compensation Insurance and Employer's Liability Insurance by the Contractor.

(6) Noncompliance by the contractor or any subcontractor will result in the City's Contract Compliance Office and/or Legal Office, to consult with the Department of Labor and Industries, and will result in the contractor or subcontractor receiving notification of such, and subsequently must respond to the City of New Bedford within five (5) business days.

AA.19: Access to Compliance Information & Reports

(1) The contractor will provide all information and reports, required by the administering agency or the City of instructions issued by either of them, and will permit access to its facilities and any books, records, accounts, and other sources of information pertinent to the City's affirmative action contract requirements.

(2) Where the information required is in the exclusive possession of another who fails or refuses to furnish this information, the contractor shall so certify to the administering agency or the City, and shall set forth what efforts he/she has made to obtain the information.

AA.20: Noncompliance

(1) Investigation

Whenever the administering agency or the City believe the general contractor or any subcontract may not be operating in compliance with the terms of this provision, the City directly or through its designated agent, shall conduct an appropriate investigation, and may confer with the parties, to determine if such contractor is operating in compliance with the terms of this contract provision. If noncompliance is found, then a preliminary report on noncompliance will be made, and the City or its agent will notify such contractor, in writing, of such steps as will, in the judgment of the city or its agent, bring such contractor into compliance.

(2) Report of Noncompliance

In the event that such contractor fails or refuses to fully perform such affirmative action steps, the City shall make a final report of non-compliance, and recommend to the administering agency, the imposition of one or more of the sanctions identified in these provisions. Within fourteen (14) days of the receipt of the recommendations of the City, the administering agency shall move to impose one or more of the following sanctions as it may deem appropriate to attain full and effective enforcement.

(3) Any disagreement between the City and a contractor or subcontractor shall be submitted for a hearing pursuant to the provisions of Chapter 30A. The City shall impose one or more of the following sanctions, as it may deem appropriate, to attain full and effective enforcement.

AA.21: Sanctions

(1) The recovery by the administering agency from the general contractor of 1/100 of 1% of the

contract award price, or \$1,000.00, whichever sum is greater, in the nature of liquidated damages, or if a subcontractor is in non-compliance, the recovery by the administering agency from the general contractor, a back charge against the subcontractor, of 1/10 of 1% of the subcontract price or \$400.00, whichever sum is greater, in the nature of liquidated damages, for each week that such party fails or refuses to comply.

- (2) The suspension of any payment or part thereof, due under the contract, until such as the general contractor or any subcontractor is able to demonstrate his/her compliance with the terms of the preceding sections of the contract.
- (3) The termination of employment of the contractor and taking possession of the site and finishing the work by whatever method he/she may deem expedient, upon giving the contractor and his/her surety, if any, seven days' written notice.
- (4) The termination or cancellation of the contract, in whole or in part.
- (5) The denial to the general contractor and any subcontractor of the right to participate in any future contract awarded by the administering agency for a period of up to three years.
- (6) Other sanctions to be applied, as stipulated in the City of New Bedford Ordinances (Residency and Responsible Employer Plan ordinances) and other local, state, and federal laws and regulations, as applicable.

AA.22: Appeal of Sanctions

If, at any time after imposition of one or more of the sanctions listed in these provisions, the contractor or subcontractor is able to demonstrate that it is in compliance with the EEO/AA program, the contractor or subcontractor may request the administering or contracting agency, in consultation with the City's Equal Employment Opportunity compliance officer, to conditionally suspend the sanction, pending final determination by the investigating officer, whether the contractor is in compliance. Upon final determination by the investigating office, the administering or contracting agency, based on the investigating officer's recommendation, shall either lift the sanctions or impose them.

Sanctions shall not be imposed by the contracting agency or administering agency except after an adjudicatory proceeding, as defined by M.G.L. Chapter 30A, has been conducted. No investigation by the Office of Equal Opportunity shall be initiated without prior notice to the contractor or the subcontractor.

AA.23: Severability

The provisions of this section are severable, and if any of these provisions shall be held unconstitutional by any court of competent jurisdiction, the decision of such court shall not affect or impair any of the remaining provisions.

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APPENDIX A
BID SUBMISSION DOCUMENTS

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Bid Submission Checklist

THE GENERAL BIDDER SHALL SUBMIT ALL THE FOLLOWING FORMS AS A PART OF ITS BID SUBMISSION, AND SHALL SUBMIT A COPY OF SUCH TO:

The City of New Bedford
Office of Equal Opportunity
133 William Street Room 208
New Bedford, MA 02740
ph: 979-1446 / fax: 508-991-6148

- (1) Certificate of Understanding: Certification of Compliance with Executive Order 11246"
- (2) Schedule of Participation for Minority, Woman & Disadvantaged Business Enterprises
- (3) Letter of Intent - for each MBE/WBE/DBE Participation
- (4) MBE/WBE Contractor Identification Statement - for each MBE/WBE/DBE
- (5) Bidder's Certification - must be completed and signed by the General Contractor and all Subcontractors who will work on the project (to include MBE/WBE/DBE **and** non-MBE/WBE/DBEs)
- (6) If applicable, a completed and signed MBE/WBE/DBE Unavailability Certification in the event that the work listed on the Schedule is not sufficient to fulfill the Requirement for MBE/WBE/DBE Participation. This certification must include a statement by the bidder of the reasons why it believes it is in compliance with this Provision, and a list of the names, addresses, telephone numbers and reason given for unavailability of the Minority /Woman/ Disadvantaged Contractor who was contacted by the Bidder with respect to the performance of work under the contract.

BIDDERS CERTIFICATE OF UNDERSTANDING

Equal Employment Opportunity Provisions

Contractor _____ Project _____

Address _____ Tel. # _____ Project # _____

_____ Fax # _____

I, the undersigned, understand that:

- A. Minority Business Enterprises are to be awarded at least 11% of the total contract amount for construction/public works projects.
- B. Woman Business Enterprises are to be awarded at least 5% of the total contract amount for construction/public works projects.
- C. Disadvantaged Business Enterprises are to be awarded at least **4.33%** of the total contract amount for airport projects.
- D. All required MBE/WBE/DBE forms included in Instructions to Bidders are to be completed and submitted with the bid.
- E. Prior to award of the contract, a pre-construction conference must be held (to be attended by the general contractor and all subcontractors, regardless of tier) at which time the following requirements will be discussed:
 - 1. Weekly Workforce Utilization Reports (Form CAD85) are to be submitted weekly with payroll reports within five (5) days of last payroll;
 - 2. Quarterly Manpower Projection Tables (Form CAD85-1) are to be submitted with the Start Construction notification;
 - 3. Any project in the amount of \$100,000+ is subject to the New Bedford Resident Hiring and Responsible Employer Plan ordinances;
 - 4. A minimum goal of 18% minority manpower utilization, in terms of total work hours in the aggregate workforce, in each trade or craft, on each project, will be maintained. The goal for female manpower utilization will be maintained at 6.9% according to regulations;
 - 5. Minority and female work hours are to be uniform in each trade, and minorities and females are to be employed evenly on each project;
 - 6. Minority or female employees are not be transferred from project to project for the purpose of meeting goals;
 - 7. A roster of all minority and/or female applicants for employment must be maintained at each project site (Federal & Non-Federal) in the New Bedford Hometown Plan Area.
- F. The submission of the above reports and adherence to hiring practices and equal opportunity performance of subcontractors is the responsibility of the prime contractor.

The bidder hereby certifies that he/she shall comply with the minority manpower ratio and specific affirmative action steps contained in the EEO above, including compliance with the minority contractor compliance specifications. The Contractor receiving the award of the contract shall be required to obtain from each of its subcontractors, and submit to the contracting or administering agency prior to the performance of any work under said contract, a certification by said subcontractor, regardless of tier, that it will comply with the minority manpower ratio and specific affirmative action steps contained in this appendix.

Authorized Signature

Date

Name (Please Print or Type)

Title

**SCHEDULE OF PARTICIPATION
DISADVANTAGED/MINORITY/WOMAN BUSINESS ENTERPRISES
to be completed by the Bidder**

Item I - Minority Or Disadvantaged Business Enterprise Participation

1. Name: _____
Address: _____
Nature of Participation: _____
Dollar Value / % of Bid: _____
2. Name: _____
Address: _____
Nature of Participation: _____
Dollar Value / % of Bid: _____

TOTAL BID PRICE **TOTAL DBE or MBE COMMITMENT**
\$ _____ \$ _____ %

Item II – Woman Or Disadvantaged Business Enterprise Participation

1. Name: _____
Address: _____
Nature of Participation: _____
Dollar Value / % of Bid: _____
2. Name: _____
Address: _____
Nature of Participation: _____
Dollar Value / % of Bid: _____

TOTAL BID PRICE **TOTAL WBE or DBE COMMITMENT**
\$ _____ \$ _____ %

The bidder agrees to furnish implementation reports, as required by the awarding authority, to indicate the MBE/WBE or DBE which it has used or intends to use. Breach of this commitment constitutes a breach of the contract.

General Bidder: _____

Signature: _____ Date: _____

LETTER OF INTENT
to be completed by the DBE/MBE/WBE

This form is to be completed by the DBE or MBE and WBE and must be submitted by the General Bidder as part of the Bid Proposal. A separate form must be completed for each MBE, WBE or DBE involved in the project.

Project Title: _____ Project Location: _____

To: _____
(Name of Bidder)

From: _____
(Name of DBE/MBE/WBE)

Indicate DBE/MBE/WBE
status

I / we intend to perform work in connection with the above project as (Check One)

- | | |
|---|--|
| <input type="checkbox"/> } an individual | <input type="checkbox"/> } a partnership |
| <input type="checkbox"/> } a corporation | <input type="checkbox"/> } a joint venture with: _____ |
| <input type="checkbox"/> } other (explain): _____ | |

It is understood that if you are awarded the contract, you intend to enter into an agreement to perform the activity described below for the prices indicated.

DBE/MBE/WBE PARTICIPATION:

Description of Activity	Project Start Date	\$ Amount	% of Bid Price

The undersigned certify that they will enter into a formal agreement upon execution of the contract for the above-referenced Project

BIDDER

DBE/MBE / WBE

Authorized Signature Date

Authorized Signature Date

Address

Address

Telephone / Fax

Telephone / Fax

MINORITY / WOMAN BUSINESS ENTERPRISE PROGRAM

CONTRACTOR IDENTIFICATION STATEMENT

Project Name: _____ Project #: _____

Total Bid Price: \$ _____ Bid Date: _____

In accordance with the New Bedford Minority Business Enterprise Program, the undersigned bidder certifies that he/she:

1. is a bona fide Minority/Woman/Disadvantaged Business Enterprise currently certified by the State Office of Minority/Woman Business Assistance (SOMWBA); and such SOMWBA certification has not changed; and in the event of said status changing, it will immediately forward written notification to the City of New Bedford and SOMWBA; and
2. intends to perform certain work (specified by formal bid proposal) under a contract in connection with the above-named project, and that work will not be sublet to any company at any tier; and
3. will comply with the minority/woman workforce ratio and specific affirmative action steps contained in the EEO/AA Contract Provisions and shall obtain from each of its subcontractors a copy of the bidder's certification and submit to the administering agency, prior to the award of such subcontract, regardless of tier, that he/she will comply with the minority/woman workforce ratio and specific affirmative action steps contained in these and the EEO/AA Contract Provisions.

SOMWBA CERTIFICATION CATEGORY: _____

CONTRACTORS NAME: _____
{ } MBE { } WBE { } DBE

ADDRESS: _____

TELEPHONE #: _____ FAX #: _____

REPRESENTATIVE NAME & TITLE: _____

AUTHORIZED SIGNATURE: _____

GENERAL BIDDERS NAME: _____

BIDDERS CERTIFICATION

To be completed by General Contractor & each of its Subcontractors (MBE/WBE/DBE and non-MBE/WBE/DBE)

The undersigned bidder hereby certifies that he/she will comply with the Minority/Woman Workforce Ratio and Specific Affirmative Action Steps contained in the EEO/AA Provisions of this contract, including compliance with the Minority/Woman/Disadvantaged Business Enterprise as required under these contract provisions.

The contractor receiving the award of the contract shall be required to obtain, from each of its subcontractors, regardless of tier, a copy of this Bidder's Certification indicating that it will comply with the Minority/Woman Workforce Ratio and Specific Affirmative Action Steps contained in these EEO/AA Contract Provisions, and submit it to the contracting agency prior to the award of such contract and subcontract.

Name of General Contractor

Name of Subcontractor

{ } MBE { } WBE { } DBE { } Non-MBE/WBE

Signature of Authorized Representative

Signature of Authorized Representative

Name & Title (Printed or Typed)

Name & Title (Printed or Typed)

Date

Date

**MINORITY / WOMAN BUSINESS ENTERPRISES
UNAVAILABILITY CERTIFICATIONS**
to be completed by General Contractor

*(The Bidder shall prepare additional copies of this information form
in the quantity necessary to comply with the bidding requirements)*

I, _____, _____
Name Title

of _____
Contractor Name

certify that on _____, I contacted the below listed MBE/WBE/DBE
Date of Contact
requesting a bid for

Project _____ as an { } MBE, { } WBE or { } DBE for the provision of
{ } Goods & Services or { } Labor to accomplish _____
Subcontract Work Offered to this MBE/WBE/DBE Company

Name of Prospective Sub-Contractor

Address City and State Telephone #

Contact was made by { } Telephone { } In Person

Said sub-contractor was unavailable for work on this project or unable to prepare a bid for the following reason(s):
(check appropriate answer):

{ } MBE/WBE/DBE Firm Declined Job

{ } MBE/WBE/DBE Firm offered to do a job at the price of \$ _____, which was not
acceptable because: _____

{ } Other _____

The above information is accurate and complete, to the best of my knowledge and belief. Signed under the
pains and penalties of perjury.

Signature of Authorized Representative, General Contractor

Date

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MINORITY / WOMAN/DISADVANTAGED BUSINESS ENTERPRISES

REQUEST FOR WAIVER

Upon exhausting all known sources and making every possible effort to meet the minimum requirements for MBE/WBE/DBE participation, the Contractor may seek relief from these requirements by filing this form (completed) NO LATER THAN FIVE (5) working days following the bid opening. Failure to comply with this process shall be cause the bidder to be rejected, thereby rendering the contractor not eligible for award of the contract.

General Information

Project Title: _____ Location: _____

Bid Opening (time/date): _____ Location: _____

Bidder: _____

Mailing Address: _____

Contact Person: _____

Telephone No.: (_____) _____ Ext.

Minimum Requirements

The contractor must show that good faith efforts were undertaken to comply with the percentage goals, as specified. The bidder seeking relief must show that such efforts were taken appropriately, in advance of the time set for opening bid proposals, to allow adequate time for response(s) by submitting the following: *(please check all that apply and attach applicable documentation)*

- A. A detailed record of the effort made to contact and negotiate with minority, woman or disadvantaged business enterprises, to include:
 - () 1. Names, addresses and telephone numbers of all such companies contacted;
 - () 2. Copies of written notice(s) which were sent to MBE/WBE/DBE potential subcontractors prior to bid opening;
 - () 3. Copies of advertisements prior to bid opening, as appearing in general publications, trade-oriented publications, and applicable minority/women focused media detailing the opportunities for participation;
 - () 4. A detailed statement as to why each subcontractor contacted (a) was not willing to do the job or (b) was not qualified to perform the work as solicited; and
 - () 5. In the case(s) where a negotiated price could not be reached, the bidder should detail what efforts were made to reach an agreement on a competitive price
 - () 6. Contractor certifies that 100% of the project is to be carried out with his/her own workforce. No subcontractors are to be utilized.

- B. The Agency may require the contractor to produce such additional information, as it deems appropriate and may obtain whatever other information it deems necessary to reach a conclusion from any source.
- C. No later than fifteen (15) days after receipt of all necessary information and documentation, a decision will be made in writing to the bidder. If the waiver request is denied, the facts upon which a denial is based will be set forth. A contractor who is dissatisfied with the decision may then appeal that decision to the Equal Opportunity Employment Agency.

Certification

The undersigned herewith certified that the above information and appropriate attachments are true and accurate to the best of my ability, and that I have been authorized to act on behalf of the bidder in this matter.

(Authorized original signature)

Date

Submit to: Equal Employment Opportunity
Compliance Officer
133 William Street, Room 208
New Bedford, MA 02740

To be completed by the City of New Bedford's EEO

Bid Date

Date Received by EEO

Initials

NOTICE REGARDING RESPONSIBLE EMPLOYER ORDINANCE (REO)
CITY OF NEW BEDFORD

DATE: **October 21, 2016**

TO: **ALL POTENTIAL BIDDERS**

FROM: **OFFICE OF PROCUREMENT**

Pursuant to the Federal Court decisions in UCANE, et al. v. City of Worcester, U.S. District Court (D. Mass 2002) Civ. Action 02-11877-NG, Fernandes Masonry, Inc. v. City of Taunton, U.S. District Court (D. Mass 2010) Civ. Action 1:2010-cv-10753-JRT, UCANE, et al. v. City of Fall River, U.S. District Court (D. Mass 2011) Civ. Action 10-10994-RWZ and the current 1st Circuit appeal stemming from the decision in Merit Construction Alliance, et al. v. City of Quincy, U. S. District Court (D. Mass 2013) Civ. Action 12-10458-RWZ, under the advisement of the City's Law Department, per Order of the City Solicitor, effective immediately, the City of New Bedford's Office of Procurement will not enforce the following sections of the City's "Responsible Employer Ordinance."

The City is temporarily suspending the enforcement of these sections because of the above referenced legal precedent. However, the City believes that the ultimate goals reflected in the REO are important and the City encourages voluntary compliance with the spirit of these provisions. Moreover, the City will monitor all contractors who are awarded contracts to determine whether they are making a good faith effort to abide by the spirit of these provisions. Moving forward, the City is particularly interested in ensuring that the hiring and training of the local workforce is a top priority on all City projects. The City is willing to work closely with all successful bidders by assisting them in identifying viable well-trained workers who are residents of the City of New Bedford.

The sections listed below will not be enforced at this time. All other sections of the City Ordinance will be strictly enforced.

Section 10-76:

In order to assist to the unemployment rate, to assist the problem of businesses leaving the region, to decrease the number of businesses filing bankruptcy, to combat the recession in the region, to assist the problem caused by the reduction of local aid from the commonwealth and to assist in preventing the depletion of the tax base, all general and subcontractors constructing or rehabilitating public works projects which have a projected cost of more than one hundred thousand dollars (\$100,000.00) and are funded in full or in part with federal, state, or city funds, shall have the worker hours on a craft by craft basis performed by residents of the City of New Bedford, who shall comprise at

least fifty (50) percent of the total employee man-hours in each trade, excluding the employer's foreman or supervisor and two (2) other key employees.

Section 10-76 (4):

Any person who provides false information regarding his or her residence shall be penalized three hundred dollars (\$300.00): Any contractor or subcontractor who violates the provisions of this section shall be penalized three hundred dollars (\$300.00) per day for each and every day the ordinance is in violation. Said penalty shall be levied and withheld from payments due the contractor or subcontractor.

Section 10-77 (a)(3):

The bidder and all subcontractors under the bidder must maintain or participate in a bona fide apprentice training program, as defined by M.G.L.A. c. 23, §§ 11H and 11I, for each apprenticeable trade or occupation represented in their workforce that is approved by the division of apprentice training of the department of labor and industries and must abide by the apprentice to journeyman ratio for each trade prescribed therein in the performance of the contract.

Section 10-77 (a)(4)

The bidder and all subcontractors under the bidder must furnish, at their expense, hospitalization and medical benefits for all their employees employed on the project and/or coverage at least comparable in value to the hospitalization and medical benefits provided by the health and welfare plans in the applicable craft recognized by M.G.L.A c. 149 § 26, in establishing minimum wage rates.



THE COMMONWEALTH OF MASSACHUSETTS
OFFICE OF THE ATTORNEY GENERAL

ONE ASHBURTON PLACE
BOSTON, MASSACHUSETTS 02108

MARTHA COAKLEY
ATTORNEY GENERAL

(617) 727-2200
www.mass.gov/ago

May 23, 2011

In re:)
)
City of Gloucester:)
Vehicle Exhaust System)
)
and)
)
Air Cleaning Specialists of New)
England, LLC)
Protestor)
_____)

ATTORNEY GENERAL

**BUSINESS AND LABOR
BUREAU**

BID PROTEST DECISION

INVESTIGATION SUMMARY

Pursuant to M.G.L. c. 149, § 44H, the undersigned conducted an investigation of the captioned matter to determine whether any violation of the Massachusetts public bidding laws had occurred with respect to the City of Gloucester’s (“City”) procurement of a Vehicle Exhaust System for its Fire Department (“project”). As part of this investigation, a hearing was held on April 25, 2011. The Protestor, Air Cleaning Specialists of New England, LLC (“ACS”) argues that the City violated the competitive bidding laws because: 1) it did not execute a contract with low bidder Murphy Specialty, Inc. (“Murphy”) within 30 days of the bid opening; 2) Murphy did not proceed with the



work within ten days of signing the contract; 3) Murphy did not complete the work within 30 days; 4) Murphy did not provide a payment bond at the time of bidding; 5) Murphy does not store parts in New England, and 6) Murphy does not meet the requirements of the specifications. The City argues that the issues raised by ACS all relate to contract performance and not bid responsiveness. The City also argues that Murphy's submittals meet the specifications.

ACS and representatives of the City attended the hearing and presented testimony and evidence. Further argument and documents were received on April 29, May 4, May 5, May 16 and May 17 and the record then closed.

For the reasons that follow, I find that the City did not violate the competitive bidding laws. The Protest is therefore, Denied, as set forth below.

STATEMENT OF THE FACTS

Two bids for the project were received on January 26, 2011. Murphy was the lowest bidder at \$16,000 and ACS was the other bidder at \$16,123. The estimate for the project was \$23,000. The contract was awarded to Murphy and was executed on March 11, 2011, 31 days from the bid opening, excluding Saturdays, Sundays and legal holidays. Murphy received the executed contract on March 24, 2011.

The contract provides that Murphy shall begin work within ten days of the execution of the contract, and complete the work within 30 days of the execution of the contract. Murphy ordered materials for the contract on March 25, 2011. The work has not been completed within the 30 day time period.

The bid specifications state that the successful bidder will be required to provide a payment bond for fifty percent of the contract price. There is no date set in the specifications for the provision of the bond. Murphy provided the payment bond on April 25, 2011, after the Protest was filed. ACS argues that Murphy did not include the bond premium in its bid. However, ACS provided no evidence to support this allegation.

The bid specifications also state that the contractor must stock parts in New England. The City argues that there is no timeline included in this provision of the specifications and that it was meant to cover repair and maintenance, and not the initial installation of the system.

The specifications for the project required the bidders to indicate whether they took any “exceptions” to any of the specifications. ACS points out that Murphy took no exceptions to the specifications in its bid. ACS argues, however, that Murphy does not meet the requirements of the specifications because it did not include any mention of an 8 inch pneumatic nozzle for the Pierce ladder truck in its submittals. The City argues that the part listed in Murphy’s submittals can be used without voiding the Pierce warranty. ACS also argues that Murphy’s submittals do not include an *adjustable* safety disconnect mechanism. The City argues that Murphy’s submittals include a safety disconnect mechanism.

ANALYSIS

In *Signet Electronic Systems, Inc. v. Marshfield Housing Authority*, Attorney General Bid Protest Decision (January 5, 2000), we held that a c. 149 contract awarded 31 days after the opening of the bids was valid. We reasoned that “statutory provisions that ‘relate [] only to the time of performance of a duty by a public officer and do not go

to the essence of the thing to be done' are considered to be directory and not mandatory." *Accord: ACS v. Plymouth*, Attorney General Bid Protest Decision (February 23, 2009).

The City argues that Murphy started the contract within ten days of the signing of the contract. The City provided evidence to support this, including emails that established that Murphy ordered materials for the project the day after it signed the contract. Regardless, this is matter of contract compliance, and not a matter of bid responsiveness. So, too, is the contract provision stating that the work should be completed within 30 days. The bidding laws are not implicated in these issues and accordingly, this office has no jurisdiction over them.

Turning to the question of the payment bond, it is essential to note that the payment bond was not required by statute, see M.G.L. c. 30, § 39M(c) (bond required for projects over \$25,000), but rather, by the specifications. The provision of a bond was therefore not part of the statutory definition of a "responsible bidder." Compare *Murphy Specialty v. Truro*, Attorney General Bid Protest Decision (January 18, 2011) (seasoned bidder should have been aware of and complied with statutory payment bond requirement since the procurement was over \$25,000). However, since the City included the bond in the bidding requirements and it affects price and fair competition, it would not have been permissible to waive the bond requirement. Accordingly, Murphy is presumed to have bid with the expectation of having to submit a bond. The City correctly points out that there is no time frame spelled out in the specifications for the provision of the payment bond. It was, therefore, permissible for the City to accept Murphy's bond submitted on April 25, 2011.

The City also correctly argues that there is no timeline included in the specification that calls for parts to be stored in New England. Murphy could presumably store parts for the system in New England for repair and maintenance and warranty work and not prior to the installation of the system.

Finally, ACS argues that Murphy does not meet the specifications because it did not include an 8 inch nozzle and an adjustable quick release valve in its submittals. ACS appears to be arguing that the ability of a contractor to offer an equal product or system is forfeited if exceptions are not taken to the specifications at bid time. However, the exceptions method contained in the specifications does not supplant the statutory right to offer an equal product or system post-bid and a bidder should not be rejected for failing to take exceptions and then offering an equal product or system. See M.G.L. c. 30, § 39M(b):

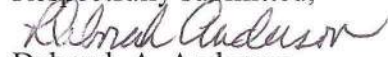
Every such contract shall provide that an item equal to that named or described in the said specifications may be furnished; and an item shall be considered equal to the item so named or described if, in the opinion of the awarding authority: (1) it is at least equal in quality, durability, appearance, strength and design, (2) it will perform at least equally the function imposed by the general design for the public work being contracted for or the material being purchased, and (3) it conforms substantially, even with deviations, to the detailed requirements for the item in the said specifications.

The bidder who proposes an equal product bears the risk that the awarding authority will reject the proposed equal, and will require the bidder to provide the product or system delineated in the specifications. See *E.A. Berman v. Marlborough*, 11

Mass.App.Ct. 1009, 1010 (1981). To the extent, if any,¹ that Murphy's submittals do not comply with the specifications, there is no basis for automatically rejecting Murphy's bid. The City must require the bidder to install a product or system that it deems consistent with the specifications as a matter of contract compliance.

For the foregoing reasons, the Protest is Denied.

Respectfully submitted,



Deborah A. Anderson

Assistant Attorney General

¹ It should be noted that the City takes the position that Murphy's submittals comply with the specifications. We will not second-guess the City in this regard.

END OF SECTION 00800

SECTION 00811
SPECIAL PROVISIONS
MONTHLY PRICE ADJUSTMENT FOR HOT MIX ASPHALT (HMA) MIXTURES

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. This Section applies to all projects using greater than 100 tons of hot mix asphalt (HMA) mixtures containing liquid asphalt cement as stipulated in the contract documents. Due to the uncertainty of liquid asphalt prices, and in accordance with the requirements of Chapter 303 of the Acts of 2008, this Contract will incorporate special MassDOT provisions, available at the MassDOT website, that make contract adjustments to account for the price of liquid asphalt in effect at the time the work is performed.
- B. The price adjustment will be based on the variance in price from the liquid asphalt component only from the Base Price to the Period Price. It shall not include transportation or other charges. The Price Adjustment will occur on a monthly basis.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 BASE PRICE

- A. The Base Price of liquid asphalt on a project as listed within this Section of the Contract Documents is a fixed price determined at the time of bid by the Department using the same method as for determination of the Period Price detailed below. The Base Price shall be used in all bids.
- B. The Base Price of liquid asphalt for this contract is \$665.00 per ton (January 2023).

3.02 PERIOD PRICE

- A. The Period Price is the price of liquid asphalt for each monthly period as determined by the MassDOT using the average selling price per standard ton of PG64-28 paving grade (primary binder classification) asphalt, FOB manufacturer's terminal, as listed under the "East Coast Market – New England, Boston, Massachusetts area" section of the Poten & Partners, Inc. "Asphalt Weekly Monitor". The average selling price is listed in the issue having a publication date of the second Friday of the month and will be posed as the Period Price for that month. MassDOT will post this Period Price on this website within two (2) business days following their receipt of the relevant issue of the "Asphalt Weekly Monitor." Poten and Partners has granted the MassDOT the right to publish this specific asphalt price information sourced from the Asphalt Weekly Monitor. This method of period price determination was formerly called the New Asphalt Period Price Methods. Separate website postings using both the New Asphalt Period Price Method and the Old Asphalt Period Price Method were discontinued in June 2013.

<https://www.mass.gov/service-details/2019-massdot-contract-price-adjustments>

B. The New Asphalt Period Price Method shall be used for this Contract.

3.03 PRICE ADJUSTMENT DETERMINATION, CALCULATION AND PAYMENT

A. The Contract Price of the HMA will be paid under the respective item in the Bid Form. The price adjustment, as herein provided, upwards or downwards, will be made after the work has been performed, using the monthly period price for the month during which the work was performed.

B. The Price Adjustment applies only to the actual virgin liquid asphalt content in the mixture placed on the job in accordance with these Specifications.

D. The Price Adjustment will be a separate payment item. It will be determined using the following formula:

Price Adjustment = Tons of HMA Placed x Liquid Asphalt Content % x RAP Factor x (Period Price – Base Price)

E. The Price Adjustment will be paid only if the variance from the Base Price is 5-percent or more for a monthly period. The complete adjustment will be paid in all cases with no deductions of the 5-percent from either upward or downward adjustments.

F. No Price Adjustment will be allowed beyond the Completion Date of this Contract, unless there is an approved extension of time.

END OF SECTION

SECTION 00812
SPECIAL PROVISIONS
MONTHLY PRICE ADJUSTMENT FOR DIESEL FUEL AND GASOLINE

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. This monthly fuel adjustment is inserted in this Contract because of the national and worldwide energy situation has made the future cost of fuel unpredictable. This adjustment will provide for either additional compensation to the Contractor or repayment to the Owner, depending on an increase or decrease in the average price of diesel fuel or gasoline.
- B. The price adjustment will be based on fuel usage factors for various items of work developed by the Highway Research Board in Circular 158, dated July 1974. These factors will be multiplied by the quantities of work done in each item during each monthly period and further multiplied by the variance in price from the Base Bid Price to the Period Price.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 BASE PRICE

- A. The Base Price of Diesel Fuel and Gasoline will be the price as indicated in the MassDOT website for the month in which the contract was bid, which includes Sales Tax.

<https://www.mass.gov/service-details/2019-massdot-contract-price-adjustments>

- B. The Base Price of diesel fuel for this contract is \$3.830 per gallon (January 2023).
- C. The Base Price for gasoline is \$2.767 per gallon (January 2023).

3.02 PERIOD PRICE

- A. The Period Price will be the average of prices charged to the State, including State Tax for the bulk purchases made during each month.

3.03 PRICE METHOD

- A. The Price Adjustment will be paid only if the variance from the Base Price is 5-percent or more for a monthly period. The complete adjustment will be paid in all cases with no deductions of the 5-percent from either upward or downward adjustments.

- B. No Price Adjustment will be allowed beyond the Completion Date of this Contract, unless there is an approved extension of time.
- C. Any adjustment (increase or decrease) to estimated quantities made to each item at the time of final payment will have fuel price adjustment figured at the average period price for the entire term of the project for the difference of quantity.
- D. The Fuel Adjustment Price will apply only to the following items of work at the fuel factors listed:

Items Covered	Fuel Factors	
	Diesel	Gasoline
Excavation and borrow work items	0.29 Gallons/CY	0.15 Gallons/CY
Surfacing Work: All items containing Hot Mix Asphalt including	2.90 Gallons/Ton	Does Not apply

END OF SECTION

SECTION 00813
SPECIAL PROVISIONS
PRICE ADJUSTMENT FOR STRUCTURAL STEEL AND REINFORCING STEEL

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. This provision applies to projects containing a price adjustment for structural steel and/or reinforcing steel as stipulated within the Contract Documents. It applies to the all structural steel and all reinforcing steel as defined below and all reinforcing steel on the project. Compliance with this provision is mandatory, i.e. there are no “opt-in” or “opt-out” clauses. Price adjustments will be handled as described below and shall only apply to unfabricated reinforcing steel bars and unfabricated structural steel material, consisting of rolled shapes, plate steel, sheet piling, pipe piles, steel casings, and steel forgings..
- B. Price adjustments will be variances between Base Prices and Period Prices. Base Prices and Period Prices are defined below.
- C. Price adjustments will only be made if the variances between Base Prices and Period Prices are five percent or more. A variance can result in Period Price being either higher or lower than the Base Price. Once the five percent threshold has been achieved, the adjustment will apply to the full variance between the Base Price and the Period Price.
- D. Price adjustments will be calculated by multiplying the number of pounds of unfabricated structural steel material or unfabricated reinforcing steel bars subject to a price adjustment by the index factor calculated as shown within Document 00813 published by the MassDOT.
- E. The weight of steel subject to a price adjustment shall not exceed the final shipping weight of the fabricated part by more than 10 percent.
- F. No price adjustment will be made for price changes after the Contract Completion date, unless the Owner has approved an extension of Contract Time for the Contract.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 BASE PRICE

- A. The Base Price of unfabricated structural steel and unfabricated reinforcing steel on a project are fixed prices determined by the MassDOT are found at the following website:

<http://www.bls.gov/ppi/#contract>

- B. It is the Contractor's responsibility for verifying, based on the type of steel being provided, the Base Price at the time of the Bid Opening and that the correct price is used in determining his/her bid.
- C. The Base Price Date is the month and year in which the Bids are opened for the project. The date is used to select the Base Price Index.

3.02 PERIOD PRICE

- A. The Period Price of unfabricated structural steel and unfabricated reinforcing steel on a project are variable prices calculated based on the purchase date of the steel (Period Price Date) using an index of steel prices to adjust the Base Price.
- B. The Period Price date is the date the steel was delivered to the fabricator as evidenced by an official bill of lading submitted to the Engineer containing a description of the shipped materials, weights of the shipped materials, and the date of shipment. This date is used to select the Period Price Index.
- C. The index used for the calculation of Period Prices is the U.S. Bureau of Labor Statistics (BLS) Producer Price Index (PPI) Series ID WPU101702 (Not Seasonally Adjusted, Group: Metals and Metal Products, Item: Semi-finished Steel Mill Products.) As this index is subject to revision for a period of up to four (4) months after its original publication, no price adjustment will be made until the index for the period is finalized, i.e. the index is no longer suffixed with a "(P)".
- D. Period Prices are determined as follows:
 - 1. Period Price = Base Price times Index Factor
 - 2. Index Factor = Period Price Index / Base Price Index

END OF SECTION

SECTION 00814
SPECIAL PROVISIONS
PRICE ADJUSTMENT FOR PORTLAND CEMENT CONCRETE MIXES

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. This provision applies to all projects using greater than 100 cubic yards of Portland cement concrete containing Portland cement as stipulated within the Contract Documents. The Price Adjustment will occur on a monthly basis.
- B. The Price Adjustment will be based on the variance in price from the Portland cement component only from the Base Price to the Period Price. It shall not include transportation or other charges.
- C. No price adjustment will be made for price changes after the Contract Completion date, unless the Owner has approved an extension of Contract Time for the Contract.
- D. The Price Adjustment will be paid only if the variance from the Base Price is five percent or more for a monthly period. The complete adjustment will be paid in all cases with no deduction of the five percent from either upward or downward adjustments.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 BASE PRICE

- A. The Base Price of Portland cement concrete on a project is a fixed price determined at the time of bid by the MassDOT using the same method as for the determination of the Period Price (see below) and found within the Contract Documents.
- B. The Base Price for Portland cement concrete for this Contract is \$170.00 per ton (January 2023). It is the Contractor's responsibility for verifying, based on the type of concrete being provided, the Base Price at the time of the Bid Opening and that the correct price is used in determining his/her bid.

3.02 PERIOD PRICE

- A. The Period Price of Portland Cement will be determined by using the latest published price, in dollars per ton, for Portland cement (Type I) quoted for Boston USA in the Construction Economics section of ENR Engineering News-Record magazine or at the ENR website <http://www.enr.com> under Construction Economics. The Period Price will be posted on the MassDOT website the Wednesday immediately following the publishing of the monthly price in ENR, which is normally the first week of the month.

- B. The Contract Price of Portland cement concrete mix will be paid under the respective item in the Bid Form. The Price Adjustment, as herein provided, upwards or downwards, will be made after the work has been performed, using the monthly period price for the month during which the work was performed.
- C. The Price Adjustment only applies to the actual Portland cement content in the mix placed on the job in accordance with MSSHB, Division III, Section M4.02.01. No adjustments will be made for any cement replacement materials such as fly ash or ground granulated blast furnace slag.
- D. The Price Adjustment will be determined by multiplying the number of cubic yards of Portland cement concrete placed during each monthly period times the Portland cement content percentage times the variance in price between the Base Price and Period Price of Portland Cement.

END OF SECTION

SECTION 01005
GENERAL REQUIREMENTS

PART 1 GENERAL

1.00 GENERAL

- A. This section is intended to provide the Contractor with an overview of the required included in the Contract. It is not intended to provide all of the requirements under this Contract; all requirements are not listed. Refer to the technical specifications regarding project specific requirements.

1.01 SCOPE AND INTENT

- A. The work to be done consists of furnishing all labor, materials, and equipment and the performance of all work included in this Contract.
- B. The Contractor shall furnish all labor, superintendence, material, power, light, heat, fuel, water, tools, appliances, equipment, supplies, and other means of construction necessary or proper for performing and completing the Work.
- C. The Contractor shall provide and maintain such modern plant, tools, and equipment as may be necessary, in the opinion of the Engineer, to perform in a satisfactory and acceptable manner all the work required by this Contract. Only equipment of established reputation and proven efficiency shall be used. The Contractor shall be solely responsible for the adequacy of his workmanship, materials, and equipment, prior approval of the Engineer notwithstanding.
- D. The Contractor shall perform and complete the work in the manner best calculated to promote rapid construction consistent with the safety of life and property, and in strict accordance with the Contract Documents. The Contractor shall clean up the work and maintain it during and after construction, until accepted, and shall do all work and pay all costs incidental thereto. He or she shall repair or restore all structures and property that may be damaged or disturbed during performance of the work.
- E. Coordinate with the City of New Bedford for use of City streets, sidewalks, parking areas or other public areas.
- F. The cost of incidental work described in the Project Manual or shown on the Drawings, for which there are no specific pay items, shall be considered as part of the general cost of doing the work and shall be included in the prices for the various pay items. No additional payment will be made therefore.
- G. The Contractor shall remove, demolish, and dispose of all equipment, piping, asphalt, concrete, site furnishings, rock and appurtenances as specified or shown on the Drawings and as required to complete the work except as noted in the Construction Documents. No additional payment will be made for additional demolition or disposal work, not specifically specified on the Drawings as required to complete the work.
- H. Items to be retained by the Owner shall be as specified in Section 01046.

- I. The Contractor shall perform all work in accordance with applicable local, state, and federal codes and regulations.
- J. Public Utility Installations and Structures
 - 1. Public utility installations and structures shall be understood to include all poles, tracks, pipes, wires, conduits, house service connections, vaults, manholes and all other appurtenances and facilities pertaining thereto whether owned or controlled by the Owner, other governmental bodies or privately owned by individuals, firms or corporations, used to serve the public with gas, electricity, telephone, TV cable, sewerage, drainage, water or other public or private utility which may be affected by the work shall be deemed included hereunder.
 - 2. Not all private storm drains, private sanitary services, water, gas, electrical services, overhead utilities and other utilities to the adjacent buildings are shown. It is to be expected that each building will have service connections for the various utilities. The Contractor shall have these services located prior to making any excavations. All services shall be protected from damage, and shall be reconnected or be repaired by the Contractor at no additional cost to the Owner (unless specifically defined for payment under a bid item). The Contractor shall pay particular attention to safety issues relating to gas and electrical facilities, both overhead and underground.
 - 3. The Contractor shall protect all public utility installations and structures from damage during the work. Access across any buried utility installation or structure shall be made only in such locations and as approved by the Engineer. The Contractor shall so arrange his operations as to avoid any damage to these facilities. All required protective devices and construction shall be provided by the Contractor at his/her expense. All existing utilities damaged by the Contractor shall be repaired by the Contractor, at his expense, as directed by the Engineer. No separate payment shall be made for such protection or repairs to public utility installations or structures.
 - 4. Where public utility installations or structures owned or controlled by the Owner or other governmental body are encountered during the course of the work, and are not indicated on the Drawings or in the Specifications, and when, in the opinion of the Engineer, removal, relocation, replacement, or rebuilding is necessary to complete the work under the Contract, such work shall be accomplished by the utility having jurisdiction, or such work may be ordered, in writing by the Engineer, for the Contractor to accomplish. If such work is accomplished by the utility having jurisdiction it will be carried out expeditiously and the Contractor shall give full cooperation to permit the utility to complete the removal, relocation, replacement or rebuilding as required. If such work is accomplished by the Contractor, it will be in accordance with the General and Supplemental General Conditions.
 - 5. Notify Massachusetts Dig Safe, telephone 1-888-344-7233 at least 72 hours prior to start of work. It will be the sole responsibility of the Contractor to coordinate with the City of New Bedford Department of Public Infrastructure, Eversource Electric, Eversource Gas, Comcast, Verizon, City of New Bedford MIS for fiber lines, Extranet and OpenCape for fiber lines, and other affected utilities for identifying utilities which interfere with the work and for determining the methods by which they must be protected, support and/or relocation and for accomplishing this work in the construction schedule. Utility locations

shown on the Drawings are approximate and shall be field verified prior to construction in the area.

6. Contractor shall not interrupt service to residences, businesses or buildings at any time except as scheduled and approved by the Owner.

K. Protection of Existing Storm Drain

1. In addition to preventing or repairing any physical damage to existing storm drainage, the Contractor shall install sedimentation control measures as specified and detailed at existing catch basins to prevent sedimentation within said storm drainage. The Engineer will inspect the sediment levels in the catch basins and drainage manholes on the project site prior to the start of work. Inspection forms will be completed document the sediment levels. The Engineer may require the physical inspection of the storm drainage system to determine the existence of sedimentation which can be attributed to this construction, and if present, the Contractor will do all that which is necessary (e.g., flushing, jetting, removal, etc.) to return the storm drains to their original operating condition at no additional cost to the Owner. The responsibility for the cost of protecting and repairing storm drainage facilities shall belong to the Contractor, except as otherwise provided in the Bid Form and in Section 01046.

L. Existing Water Services

1. The Contractor shall exercise extreme caution when digging in the vicinity of water services encountered on a project. Water services to residences and businesses along the watermain route shall be maintained at all times. If service disruption is required, Contractor shall provide at least 72 hours notice to the property owner and City of New Bedford. The responsibility for cost of protecting, repairing and replacing water services shall belong to the Contractor.

M. Existing Sanitary Sewer Services

1. Sewer service laterals to residences and businesses along the sewer main route shall be maintained at all times. If service disruption is required, Contractor shall provide at least 72 hours notice to the property owner and City of New Bedford. The responsibility for cost of protecting, repairing and replacing sewer services shall belong to the Contractor.

N. Existing Trees and Vegetation

1. All trees designated for preservation shall be protected from vehicular traffic. Construction materials shall not be piled/stored within the limits of the canopy. Contractor shall take special care to protect root zone areas of all trees from compaction and disturbance.
2. Vegetation and/or trees to be temporarily removed shall be carefully removed with root masses substantially intact, stored heeled in with roots covered with wet burlap or mulch, and watered regularly until reinstallation. Coordinate with Owner for those items to be temporarily removed and location of storage of temporarily removed vegetation/trees.
3. Dead, damaged, or unhealthy branches/trees shall be removed by a certified arborist or tree care professional. Coordinate with the City of New Bedford Department of Public Infrastructure to determine the condition of trees. If Owner directs contractor to remove

the tree, it shall be done so as indicated herein. The Owner may elect to conduct the work using City crews. Low hanging branches that impede emergency vehicles and construction equipment shall be trimmed or removed prior to construction or after consultation with the Owner/Engineer and the Contractor. Trimming and branch removal shall only be done by a certified arborist or tree care professional and only done with permission by the Owner.

4. Trees and other vegetation designated on the Drawings or directed by the Owner and Engineer to remain shall be protected from damage by all construction operations by erecting suitable barriers, guards, enclosures, or by other approved means. Under no circumstances shall nails or other fasteners be allowed to enter the trees. Conduct clearing operations in a manner to prevent falling trees from damaging trees and vegetation designated to remain and to the work being conducted and so as to provide for the safety of employees and others.
5. Immediately repair any damage to existing tree crowns, trunks or root systems. Roots exposed and/or damaged during the work shall immediately be cut off cleanly inside the exposed or damaged area. Temporarily cover all exposed roots with wet burlap to prevent roots from drying out and providing earth cover as soon as possible. Coordinate with City Arborists on any needed repair work. The Contractor is liable for damage to City trees and the cost will be deducted from the related job retainage.
6. Restrict construction activities to those areas within the limits of construction designated on the Drawings within public rights-of-way, and within easements provided by the Owner. Adjacent properties and improvements thereon, public or private, which become damaged by construction operations shall be promptly restored to original condition, to the full satisfaction of the property owner at no cost to the Owner.
7. Fill holes/depressions caused by clearing and grubbing operations with gravel borrow conforming to MassDOT standard specifications unless earthwork is done at a location of hole/depression. Place fill in horizontal layer, 6-in loose depth and compact to a density equal to adjacent undisturbed material.
8. Planks shall be strapped around trunks of street trees to provide additional protection from construction.
9. Maintain protection until all work in the vicinity of the trees being protected has been completed and approved by the Owner.

O. Protection and Preservation of Private Property

1. Any damage to on-site structures, paving, gas, water, sewer, electric, telephone, fiberoptic, cable, sewer, drain, electric light, or any other pipe, mains, conduits, overhead or underground utility, wire, fences, buildings, building thresholds, building overhangs, retaining walls, garden buffers/borders, and any other property shall be corrected at no additional cost to the Owner to pre-existing conditions or better and to the satisfactory condition of the Owner or operator. Should any damage or injury be caused by the Contractor or anyone under his/her employment, or by work under this Contract, the Contractor shall at his/her own expense, make good such damage and assume responsibility for such damage and assume responsibility for such injury without cost to the Owner.

2. Contractor should be aware that sprinkler systems privately owned may exist within the public right-of-way. These locations shall be marked in the field jointly by the Owner/Engineer and Contractor prior to construction. Regardless if shown on the Drawings, these systems shall be protected. Any damage to these systems that have been pre-marked by the Contractor and Owner shall be repaired/replaced at no additional cost to the Owner. If Owner determines that these systems need to be relocated as a result of the Contract work, and the work has not been previously identified on the Drawings or specifications and included in the Bid Price, the Owner may direct the contractor in writing to relocate the systems.
3. In case of an emergency, which threatens loss or injury of property and or safety of life, the Contractor will be allowed to act, without previous instructions from the Owner, in a diligent manner. It shall notify the Owner immediately thereafter. Any claim for compensation by the Contractor due to such extra work shall be promptly submitted to the Owner in accordance with Article 10 of the General Conditions.
4. Where the Contractor has not taken action but has notified the Engineer of an emergency threatening injury to persons or damage to the work or any adjoining property, it shall act as instructed or authorized by the Owner. The amount of reimbursement claimed by the Contractor on account of any emergency action shall be determined in the manner in accordance with Article 10 of the General Conditions.

P. Construction Barrier Fence and Lights

1. The Contractor shall install and maintain barricades, fencing and lighting as specified in Section 01570, herein, and/or as indicated on the Drawings
2. Temporary Site Security Fence - Fabric shall be No. 9 gauge galvanized wire woven in 2-inch diamond mesh with top and bottom twisted selvage. Intermediate and terminal posts shall be galvanized steel H or pipe, minimum 2-3/8-inch OD line posts, 2-7/8-inch OD corner and pull posts, and 1-5/8-inch OD top rails.
3. Temporary Safety Fence – Temporary safety fence shall be bright orange, four feet high, flexible lightweight safety fence to identify work areas. Temporary safety fence shall be Carsonite Flexible Fencing, flexible safety fencing CFF-AP, orange, 48-in high with fence posts and poly rope or cable through the top fence line or approved equal.
4. Perform daily inspections of fence, gates, screen and immediately repair or replace damaged or compromised sections and as directed by the Engineer.
5. Install all products per manufacturer's recommendations.

Q. Noise and Dust Prevention

1. The Contractor shall eliminate noise to as great extent as practicable at all times. Air compressing equipment shall be equipped with silencers and the exhaust of all gasoline motors or other power equipment shall be provided with mufflers. The Contractor shall strictly observe all local regulations and ordinances covering noise control.
2. The Contractor shall prevent dust nuisance from his operations or from traffic. All sawing of concrete and bricks shall be performed with a wet saw. There shall be no dry-sawing of

brick or concrete masonry items during the demolition, installation, or otherwise, using a dry saw.

3. Refer to Section 01562 for additional Dust Control requirements.

R. Limits of Construction

1. The Contractor shall contain all construction activities within the limits of construction shown on the Drawings. If no limits are shown, the City Right-of-Way shall be presumed to be the limit of work. The Contractor shall take all measured required to protect trees, plants, sprinkler systems, utilities located outside the construction limits from damage.
2. If access to private property is needed to facilitate completion of the project per the Drawings, Owner will obtain needed right of entry form.

S. Enforcement Action/Penalties

1. The Contractor shall be fully responsible for any and all violations of this Project Manual and permit conditions. In event that a violation occurs or if a Notice of Violation is received, the Contractor shall take immediate action to correct the violation as directed by the Owner or required by Local, State or Federal Agencies. Any penalties resulting from such violations shall be assessed to the Contractor.

1.02 DRAWINGS AND SPECIFICATIONS

- A. Refer to Sections 00100 and 00800 for information regarding release of assignments.

B. Drawings

1. Refer to Section 00800 for information regarding the order of priority of drawing information.

C. Copies Furnished to Contractor

1. After the Contract has been executed or written notice to proceed given, the Contractor will be furnished with three sets of paper prints, the same size as the original drawings, of each sheet of the Plans and three copies of any supplemental project specifications. Additional copies of the Drawings and Specifications, when requested, may be furnished to the Contractor. The Contractor may request that the Engineer provide AutoCAD files and standards for Record Drawings. The Contractor will be required to sign and submit an AutoCAD disclaimer form before receiving the AutoCAD files.

D. Supplementary Drawings

1. When in the opinion of the Engineer, it becomes necessary to explain more fully the work to be done or to illustrate the work further or to show any changes which may be required, Drawings known as Supplementary Drawings, with specifications pertaining thereto as required, shall be prepared by the Engineer and three paper copies thereof be given to the Contractor.

E. Contractor to Check Drawings and Data

1. The Contractor shall verify all grades, dimensions, quantities, and details shown on the Drawings, Supplementary Drawings, Schedules, Specifications, or other data received from the Engineer, and shall notify him of all errors, omissions, conflicts, and discrepancies found therein. Failure to discover or correct errors, conflicts, or discrepancies shall not relieve the Contractor of full responsibility for unsatisfactory work, faulty construction, or improper operation resulting from nor from rectifying such conditions at his own expense. Contractor will not be allowed to take advantage of any errors or omissions, as full instruction shall be furnished by Engineer, should such errors or omissions be discovered. The Contractor shall assume all responsibility for making estimates of the size, kind, and quality of materials and equipment included in work to be done under the Contract.
2. Spot elevations shown on the Drawings and profiles are for quantity estimation purposes only. Prior to construction, the Contractor shall coordinate with Engineer to establish survey control, stake proposed elevations for the purposes of grading and make all adjustments to final line and grade as directed by the Engineer.

F. Specifications

1. The Technical Specifications for this project are, unless otherwise specifically stated, based on the Massachusetts Department of Transportation, Highway Division, Standard Specification for Highways and Bridges, latest edition including any and all addenda, the City of New Bedford Construction Specifications latest edition including all addenda, and any supplemental specifications provided in the Contract Documents. In the event of a conflict, the more stringent specification shall apply unless specifically notified by the Engineer and/or Owner to deviate from a specification. Bidders are required to have a copy of the latest edition thereof, and are responsible for being thoroughly familiar with them.
2. The specifications consist of three parts – General, Products, and Execution. The General section contains general requirements which govern the work. Products and Execution modify and supplement these by detailed requirements for the work and shall always govern whenever there appears to be a conflict.

G. Intent

1. All work called for in the Specifications applicable to this Contract, but not shown on the Drawings in their present form, or vice versa, shall be of like effect as if shown or mentioned in both. Work not specified in either the Drawings or in the Specifications, but involved in carrying out their intent or in the complete and proper execution of the work, is required and shall be performed by the Contractor as though it were specifically delineated or described.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, shop drawings showing details of all temporary services, bypasses, materials, equipment, and tie-ins to existing systems.

1.04 MATERIALS AND EQUIPMENT

- A. Manufacturer

1. The names of proposed manufacturers, suppliers, and dealers who are to furnish materials, fixtures, equipment, appliances, furnishings, or other fittings shall be submitted to the Engineer for approval. Such approval must be obtained before any shop drawings shall be checked. No manufacturer shall be approved for any material to be furnished under this Contract unless he shall be of good reputation and have a plant of ample capacity. He shall, upon request of the Engineer, be required to submit evidence that he has manufactured a similar product to the one specified and that it has been previously used for like purpose for a sufficient length of time to demonstrate satisfactory performance.
2. Any two or more pieces of material or equipment of the same kind, type, or classification, and being used for identical types of services, shall be made by the same manufacturer.
3. Refer to Sections 00100, 00700 and 00800 for performance guarantee bonds and warrantees.

1.05 INSPECTION AND TESTING

A. General

1. Inspection and testing of materials shall be performed by the Engineer unless otherwise noted. Inspections and testing of equipment shall be performed by the Contractor. If the Engineer's tests indicate that materials are defective or do not meet the required specifications/standards, the Contractor will be notified in writing. Correction of defective work is defined in Section 00700 and must be completed at not additional cost to the Owner. Refer to Section 00800 for additional information on testing requirements.
2. For tests specified to be made by the Contractor, the testing personnel shall make the necessary inspections and tests and reports thereof shall be in such form as will facilitate checking to determine compliance with the Contract Documents. Two copies of the reports shall be submitted and authoritative certification thereof must be furnished to the Engineer as a prerequisite for acceptance of any material or equipment
3. If, in the making of any test of any material or equipment, it is ascertained by the Engineer that the material or equipment does not comply with the Contract, the Contractor shall be notified thereof and he shall be directed to refrain from delivering said material or equipment, or to remove it promptly from the site or from the work and replace it with acceptable material, without cost to the Owner.
4. Test of electrical and mechanical equipment and appliances shall be conducted in accordance with recognized test codes of ANSI, ASME, IEEE, except as may otherwise be stated herein.
5. The Contractor shall be fully responsible for the proper operation of equipment during tests and instruction periods and shall neither have nor make any claim for damage which may occur to equipment prior to the time when the Owner formally takes over the operation thereof.
6. Refer to Section 00800 for additional requirements regarding warrantees and guarantees.
7. Refer to Section 01300 for submittal requirements.

B. Soils Testing

1. At all structures, manholes, pipelines, and utilities, roadways and paved areas prior to the placement of concrete working mats, structural fill, crushed stone or structural concrete, coordinate with the Engineer to verify the suitability of the existing subgrade soil. The Engineer shall assess all subgrades below structures prior to the placement and compaction of structural fill or the construction of foundations.
2. During placement of bedding or pavement base material, backfill and fill, the Engineer may perform in-place density testing to confirm that fill material has been compacted in accordance with the requirements of this Section. The Engineer may designate areas to be tested. Contractor shall notify Engineer at least 72 hours in advance of schedule activities such that Engineer will have ample time to coordinate compaction testing.

C. Pavement and Concrete Testing

1. The Engineer may complete the following sampling of pavement. All field testing and inspection services will be paid for by the Owner. Method of testing will comply with the latest applicable ASTM or AASHTO standards.
 - a. Pavement thickness cores – pavement cores will be completed within the project limits to verify the required thickness of pavement.
 - b. Pavement compaction tests – compaction tests will be completed in accordance with AASHTO standards.
 - c. Collection of pavement cores will be coordinated with pavement compaction testing.
 - d. Batch testing at the pavement plant or at the job site of as-delivered mix may be completed by the Engineer or their authorized representative. Engineer may request various reports/sampling regarding the aggregate or products used to produce Hot Mix Asphalt.
2. Contractor shall supply appropriate reports/product data in accordance with Section 01300:
 - a. Sources of cement, fly ash or ground granulated blast furnace slag, aggregates and batched concrete. Indicate name and address of mill or quarry, as applicable.
 - b. Air entraining admixture. Product data including catalogue cut, technical data, storage requirements, product life, recommended dosage, temperature considerations and conformity to ASTM standards.
 - c. Water reducing admixtures. Product data including catalogue cut, technical data, storage requirements, product life, recommended dosage, temperature considerations and conformity to ASTM standards.
 - d. Sheet curing material. Product data including catalogue cut, technical data and conformity to ASTM standards.
 - e. Safety Data Sheet (SDS) for all concrete components and admixtures.
 - f. Cold weather and hot weather concreting plans demonstrating how concrete will meet the requirements of MSSHB and City's standards including but not limited to concrete mixes, placement, curing and protection.
 - g. Fine and coarse aggregates as requested for examination by the Engineer.
 - h. Certifications that admixtures used in the same concrete mix are compatible with each other and the aggregates.
3. Contractor shall submit the following test reports in accordance with Section 01300:
 - a. Aggregates: Conformance to ASTM standards, including sieve analysis, mechanical properties, deleterious substance content, and mortar bar expansion test results.

- b. Cement and fly ash or ground granulated blast furnace slag: Conformance to ASTM standards, including cement analysis and physical tests.
- c. Cement mixes: For each formulation of concrete proposed for use, submit constituent quantities per cubic yard, water cementitious ratio, air content, concrete slump, type and manufacturer of cement and type and manufacturer of fly ash or ground granulated blast furnace slag. Provide either Paragraph a or b below for each mix proposed.
 - a) Standard deviation data for each proposed concrete mix based on statistical records. Provide the following for each strength data point used in the calculation of the standard deviation for determination of the minimum required average strength:
 - i. Date of sampling and name of testing laboratory.
 - ii. Name of concrete batch plant.
 - iii. Water cementitious ratio.
 - iv. Slump of batch
 - v. Air content of batch
 - vi. Compressive strength of all cylinders tested at the age in the batch.
 - vii. If available, temperature and unit weight of batch.
 - viii. Provide data from projects not more strictly controlled than outlined in the specifications. Provide summary sheet showing all pertinent data and the computations of the standard deviation.
 - b) Water cementitious ratio curve for concrete mixes based on laboratory tests. Provide average cylinder strength test results at 7, 14 and 28 days for laboratory concrete mix designs.

D. Failure of Tests

1. Any defects in the materials and equipment or their failure to meet tests, guarantees or requirements of the Contract Documents shall be promptly corrected by the Contractor by replacements or otherwise. The decision of the Engineer as to whether or not the Contractor has fulfilled his obligation under the Contract shall be final and conclusive. If the Contractor fails to make these corrections, or if the improved materials and equipment, when tested, shall again fail to meet the guarantees or specified requirements, the Owner notwithstanding its partial payment for work, and materials and equipment, may reject the materials and equipment and may order the Contractor to remove them from the site at his own expense with no claim for delay.
2. In case the Owner rejects any materials and equipment, then the Contractor shall replace the rejected materials and equipment within a reasonable time. If he fails to do so, the Owner may, after giving him notice in writing, proceed to replace such rejected materials and equipment, and the cost thereof shall be deducted from any compensation due or which may become due to the Contractor under his Contract.

E. Final Inspection

1. In no case will the final invoice be prepared until the Contractor has complied with all requirements set forth and the Engineer has made his final inspection of the entire work and is satisfied that the entire work is properly and satisfactorily constructed in accordance with the requirements of the Contract Documents.

1.06 TEMPORARY STRUCTURES

- A. As described in Section 01570, the Contractor shall, at his own expense, provide a suitable temporary walkway which shall be maintained to provide access to all entrances within the construction areas during concrete sidewalk construction until the permanent walkway is installed or replaced. The type of temporary walkway shall be approved by the Engineer prior to installation and must be ADA compliant.
- B. Refer to Sections 01046 and 01170 for additional requirements.

1.07 SAFETY EQUIPMENT

- A. First Aid.
 - 1. The contractor shall keep upon the site, at each location where work is in progress, a completely equipped first aid kit and shall provide ready access thereto at all times when people are employed on the work.

1.08 LINES AND GRADES

- A. Grades
 - 1. All work under this Contract shall be constructed in accordance with the lines and grades shown on the Drawings, or as given by the Engineer. The full responsibility for keeping alignment, grade, and ensuring ADA compliance with finished product shall rest upon the Contractor.
 - 2. Unless otherwise directed, the City of New Bedford shall establish temporary benchmarks as needed, referenced to data established by the Owner's survey control monuments. The Owner shall record locations, with coordinates and elevations on Record Drawings. Reference marks for lines and grades as the work progresses shall be located to cause as little inconvenience to the prosecution of the work as possible. The Contractor shall so place excavation and other materials as to cause no inconvenience in the use of the reference marks as possible. He shall remove any obstructions placed by him contrary to this provision at no cost to the Owner.
 - 3. Vertical alignment changes of water, sewer and storm drain conveyance structures will be made gradually so that unnecessary intermediate high points will not be created to trap air or otherwise affect normal flow characteristics.
 - 4. The sewer and drain pipes shall be placed per the Contract Documents and within the following tolerances:
 - a. Horizontal – 0.01 feet
 - b. Vertical – 0.01 feet
 - 5. The water pipes shall be placed per the contract Documents and within the following tolerances:
 - a. Horizontal – 0.1 feet
 - b. Vertical – 0.1 feet

6. Changes from the Drawings shall not be permitted unless specifically approved by the Engineer. All costs shall be included in the various pay items in the Bid Form. The Contractor's Log shall be formally submitted with each monthly request for payment. Payment will not be made for any pipe not included in the log or for minor grade adjustments made by the Engineer.

B. Surveys

1. Existing Survey: Survey information provided on plans is for informational purposes only. All elevations, locations of pipes, doorways, and site elements shall be documented prior to construction as identified below.
2. Existing Condition Survey: The Owner shall furnish to the Contractor an existing condition survey that includes where appropriate, locations and spot grades at all doorways and thresholds identifying all changes of pavement materials. Finish grades will be expected to match existing grade at building faces and thresholds unless specifically identified by the Engineer to be modified.
3. Construction Survey.
 - a. The Owner or his/her designee, for the convenience of the Contractor, shall furnish and maintain, stakes and other such materials, as may be required for setting reference marks as deemed appropriate for the proper completion of the work and development of as-built surveys. The Contractor shall check such reference marks by such means as he may deem necessary. The Owner or his/her designee, for the convenience of the Contractor, shall establish all working or construction lines and grades as required from the established reference marks. It is the responsibility of the Contractor to verify the accuracy thereof. The Owner does not take any responsibility for any inaccuracies in the information provided for the convenience of the Contractor.
 - b. There may be instances where the Owner cannot provide survey services to the Contractor during Construction. The Owner will provide the Contractor 72-hour notice. If this occurs, Contractor will be required to provide survey work for project construction. At a minimum Owner will provide benchmarks for Contractor's use. Refer to Section 00800 for additional requirements regarding the City's assistance in Construction Survey.

C. Safeguarding Marks

1. The Contractor shall safeguard all points, stakes, grade marks, monuments, and bench marks made or established on the work. The Owner will reestablish survey control if damaged during or as a result of normal construction operations. The Owner may, if deemed abuse of Owner's staff or excessive or uncontrolled disturbance to established marks/stakes require the Contractor to bear the cost of re-establishing them. It is the Contractor's responsibility to check all marks and lines/grades and notify the Owner about the disturbance. If the Contractor fails to notify the Owner within 24-hours of needed services to restore disturbed control, and if the work is completed from disturbed control, Contractor shall bear the entire expense of rectifying work improperly installed due to not maintaining or protecting or to removing without authorization such established points, stakes, and marks.

2. The Contractor shall safeguard all existing and known property corners, monuments, and marks adjacent to but not related to the work, if required, shall bear the cost of reestablishing them if disturbed or destroyed.

D. Datum

1. All elevations indicated or specified refer to that shown on the Drawings. If New Bedford City Datum is shown, to convert to NGVD mean sea level datum, add 2.55 feet. If NAVD 88 is shown, to convert to New Bedford City Datum, subtract 1.72 feet.
2. All horizontal control indicated on the Drawings shall be referenced to that shown.

1.09 ADJACENT STRUCTURES, PAVEMENTS AND LANDSCAPING

A. Responsibility

1. Contractor is expressly advised that the protection of buildings, adjacent pavements, curbing, structures, tunnels, tanks, pipelines, etc., and related work adjacent to and in the vicinity of his operations, wherever they may be, is solely his responsibility. Conditional inspection of buildings or structures in the immediate vicinity of the project which may reasonably be expected to be affected by the Work shall be performed by and be the responsibility of the Contractor.
2. Preconstruction Photographic Survey: The Owner may, before starting operations, make photographic and/or video examination of the interior and/or exterior of the adjacent structures, buildings, facilities, rights-of-ways, work limits, etc., and record by notes, measurements, photographs, video, etc., conditions which might be aggravated by open excavation, adjacent material demolition, and construction. Any required disturbance to building thresholds outside of the limit of work shall be brought to the attention of the Engineer prior to disturbance. Repairs and/or reconstruction shall utilize materials similar to existing and shall be approved by the Engineer prior to installation. This does not preclude conforming to the requirements of the insurance underwriters. Should the Contractor wish to complete a pre-construction photographic survey and/or video examination of the site prior to the start of work; the survey shall be completed at his/her own expense. The Owner and Contractor shall meet to review the survey(s) and discuss any differences in the data and come to an agreement about the condition of the site prior to the start of any and all work.
 - a. If the Contractor starts work prior to the review and comparison of existing conditions survey work with the Owner, it shall be the Owner's survey data and interpretation of that data that shall be the final decision and accepted standard for pre-construction site conditions.

1.10 CUTTING AND PATCHING

- A. The Contractor shall do all cutting, fitting, patching of his portion of the work that may be required to make the several parts thereof join and coordinate in a manner satisfactory to the Engineer and in accordance with the Contract Documents. The work must be done by component workmen skilled in the applicable trade.
- B. Cutting of concrete sidewalk panes shall be at the nearest joint. No half panels are allowed.

- C. Saw cut existing pavement where existing pavement to be removed is adjacent to pavement to remain and when existing pavement to be retained is adjacent to new pavement to be installed.
- D. Pavements shall be cut with a saw, wheel or pneumatic chisel along straight lines, perpendicular to the street's gutter line, before excavating. Contractor shall protect existing pavements and sidewalks to remain in place.

1.11 MAINTENANCE OF WORK AREAS AND CLEANING

A. General

- 1. Refer to Dust Control Section 01562 for additional requirements.

B. During Construction

- 1. During construction of the work, the Contractor shall at all times, keep the site of the work and adjacent premises as free from material, debris, and rubbish as is practicable and shall remove the same from any portion of the site if, in the opinion of the Engineer, such material, debris, or rubbish constitutes a nuisance or is objectionable at no cost to the Owner.
- 2. The Contractor shall remove from the site all of his surplus materials and temporary structures when no further need therefore develops. Any material supplied by others to the Contractor for his use on site shall be removed by the supplier of the materials. It is the responsibility of the Contractor to coordinate the removal with any third parties as required.
- 3. The Contractor shall be responsible and liable for all spillage and incur all associated costs including, but not limited to, cost related to repair and maintenance resulting from damages thereof.
- 4. Street sweeping shall be required daily or more frequently as determined by the Owner, at intersections and adjacent blocks for the duration that roadways are unpaved. Sweeping shall be considered incidental to the cost of the work and be completed at no additional cost to the Owner. Contractor shall be responsible for any and all street sweeping requirements within the project limits including interim sweeping prior to final paving activities.
 - a. Owner will pay any and all costs associated with the disposal of street sweeping debris. Contractor shall deliver and dispose of sweeping debris at a location to be determined by the Owner.
 - b. The Owner may elect to complete street sweeping at various intervals at no cost to the Contractor. The Owner will notify the Contractor if he/she intends to complete the sweeping.
 - c. If the Contractor fails to complete required sweeping as directed by the Owner or required by these specifications, the Owner may complete the required sweeping. The Owner will then notify the Contractor in writing that he/she is completing the sweeping and will reduce the retainage of the project by the cost of the sweeping.

C. Final Cleaning.

1. At the completion of the work on each block, all erection plant, tools, temporary structures, and material belonging to the Contractor shall be promptly taken away, and he shall remove and promptly dispose of all water, dirt, rubbish, or any other foreign matter in accordance with all local, state and federal requirements.
2. The Contractor shall thoroughly clean all equipment and materials installed by him and shall deliver such materials and equipment undamaged in a bright, clean, polished and new operating condition.

1.12 EMERGENCY ACCESS

- A. Emergency personnel access shall be maintained at all times.
- B. Hydrants and Siamese connections shall be accessible at all times.
- C. Refer to Sections 01046 and 01170 regarding notifications.

1.13 MISCELLANEOUS

- A. Use of Chemicals
 1. All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant, or other classification, must shown NSF approval for items to be in contact with water being treated or stored. Other items shall have approval of either EPA or USDA. Use of all such chemicals and disposal of residues shall be in strict conformance with the manufacturer's instructions and EPA requirements.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01010
SUMMARY OF WORK

PART 1 GENERAL

1.01 LOCATION OF WORK

- A. The work of this Contract is located within various City owned properties and rights-of-ways in the City of New Bedford, Massachusetts at the location as shown on the Drawings and listed in this Section.

1.02 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required to perform drainage system improvements, sewer system improvements, water system improvements, streetscape, and roadway improvements in its entirety as shown on the Drawings and as specified herein.
- B. The Work within the project includes, but is not necessarily limited to, the following:
 - 1. Traffic management including but not limited to installing temporary vehicular and pedestrian barriers and furnishing and installing temporary lighting and signage.
 - 2. Providing for emergency access, deliveries, and continual access to all buildings.
 - 3. Installation of new catch basins, drainage pipe, drainage manholes, drainage structures, Best Management Practices (BMPs), reconstruction of drainage outfalls, and connection to and work on existing stormwater system.
 - 4. Sewer system improvements including installation of new sewer, sewer services and manholes.
 - 5. Relocation of existing sewer and water service connections due to conflicts with proposed drain lines.
 - 6. Connection to and work on existing drain, water and sewer system including but not limited to management of dry and wet weather flows, tidal flows and all associated by-pass pumping and temporary service connections needed to maintain service during the course of work.
 - 7. Roadway reconstruction and replacement of pavement and pavement markings.
 - 8. Curbing, sidewalks, crosswalks, accessible curb ramp and driveway apron removal and replacement.
 - 9. Installation of special pavement within the sidewalk and City streets.
 - 10. Reconstruction of driveway and walkway interface with sidewalks as necessary.
 - 11. Street tree and other vegetation removal and replacement.
 - 12. Removal and replacement of street lighting including conduits and controls.

13. Street and roadway sign removal and replacement.
14. Landscaping.
15. Coordination with private utility companies for the relocation of existing utility poles, duct banks, pipes and service connections in conflict with the proposed work.
16. Testing and miscellaneous work as shown on the Drawings and as specified herein.
17. Replacement and/or relocation of miscellaneous utilities located along the project route.
18. All other appurtenant work and cleanup necessary to complete the Work of this project.

1.03 SPECIAL CONSTRUCTION SCHEDULE REQUIREMENTS

- A. Perform work in suggested sequence listed below to ensure completion of the Work in the Contract Time.
 1. Limbing of trees and trimming of vegetation shall occur prior to the work. Limbing shall be coordinated with the City Arborist.

1.04 CONTRACTOR'S USE OF PREMISES

- A. Contractor shall limit the use of the premises for his/her Work and for storage to allow for:
 1. Work by other contractors.
 2. Owner occupancy of adjacent properties including receipt of deliveries and foot traffic resulting from daily residential and business activities.
 3. Public use of sidewalk areas between buildings and the tree-line for passage and access to all addresses within the limits of construction.
- B. Coordinate use of premises with City of New Bedford.
- C. Contractor shall assume full responsibility for 24-hour security of all his/her and his/her subcontractors materials and equipment stored on the site.
- D. If directed by the Owner and/or Engineer, move any stored items which interfere with operations of Owner or other contractors at no additional cost to the Owner.
- E. Obtain and pay for use of additional storage or work areas above and beyond what is being provided by the Owner, if needed to perform the Work.
- F. The on-site area available for Contractor staging/storage is limited to the areas within the limits of disturbance as shown on the Drawings excepting sidewalk areas. The Contractor is responsible for obtaining offsite staging/storage areas as required at his or her expense, if these areas are insufficient for the work. The Contractor shall not utilize or disrupt privately owned properties without prior written authorization. The areas identified shall be restored to pre-construction conditions that existed prior to the Work, upon completion of the Work.

- G. See Drawings and Section 00800, 01046 and 01170 for restrictions regarding work within the project area.

1.05 OWNER OCCUPANCY

- A. Owner will occupy premises during performance of the work for the conduct of his/her normal operations. Coordinate all construction operations with Engineer to minimize conflict and to facilitate Owner usage.
- B. Work at driveway entrances and walkways should be performed outside of the regular commuting hours for those occupants if possible, and temporary bridges installed to cross new work during open excavation or pavement curing times.

1.06 OWNER-FURNISHED PRODUCTS

- A. Refer to Section 00100 regarding Owner's authority to issue concurrent contracts and supply materials to the Contractor regardless if Bid Items have been established within the Contract. The Owner may furnish and pay for the following items for Contractor to install. Where specific items for Contractor to provide have been established in the Bid Form, Owner may ask Contractor to purchase materials for installation. Owner will notify Contractor at the time of issuance of assignment if specific materials normally furnished by Owner (as defined below) shall be provided by Contractor under the established unit price in the Bid Form. For the convenience of the Contractor, the Bid Item numbers where Owner provided materials are anticipated to be installed have been provided. (Note: Those items listed below in *italics* include items where Owner may require Contractor to purchase items under established unit prices in the Bid Form.)

1. *Detection panels (all colors) for ADA compliant wheelchair ramps (Items 2c and 2f in the Bid Form);*
2. *Curbing - straight, rounded, transition and gutter inlets (Item 3b in the Bid Form);*
3. 6-in PVC or CL 52 DI pipe for private drain pipes to property line (Item 4f in the Bid Form);
4. *Manhole frames and covers (Item 5a-1 thru 5b-2 in the Bid Form);*
5. *Catch basin and gutter inlet frames and grates (Item 5c and 5d in the Bid Form);*
6. 5'x5' concrete Bradley Head tops and concrete throat stones (Item 5c and 5f in the Bid Form);
7. CL 52 pipe and fittings for main line pipe replacement on hydrant relocations (Item 7b in the Bid Form);
8. Hydrants (Items 7a and 7b in the Bid Form);
9. CL 52 DI pipe, valves, restrained joint fittings and appurtenances for utility relocations (Item 9a and 9b in the Bid Form);

10. Copper tubing, fittings, corporation stops and/or saddles for domestic water service relocations (Item 9b in the Bid Form);
11. Curb stops and boxes (Item 9b in the Bid Form);
12. *Survey services - Refer to Sections 00800 and 01005 regarding assistance (Item 11b);*
13. *Boston pavers (Item 15b in the Bid Form);*
14. Belgian pavers - Contractor is responsible for any and all cleaning needed of Belgian pavers (Item 16a in the Bid Form);
15. Bluestone (Item 17b in the Bid Form);
16. *Street light poles (Item 22b-2 in the Bid Form);*
17. LED globes (Items 22c in the Bid Form);
18. Street trees (Items 21c-1 thru 21c-3)
19. Various granular materials (Project by project bases – Contractor to be notified during cost estimating process);
20. Up to 100 barrels for traffic management (Incidental);

B. Owner's Responsibilities

1. Arrange for and deliver necessary shop drawings, product data and samples to Contractor.
2. Deliver supplier's bill of materials to Contractor.
3. Inspect delivery jointly with Contractor.
4. Submit claims for transportation damages.
5. Arrange for replacement of damaged, defective, or missing items.
6. Arrange for manufacturer's warranties, bonds, service and inspections as required.

C. Contractor's Responsibilities

1. Coordinate delivery date for each pre-purchased item with Owner. Coordinating with Owner for the pick up and delivery of Owner purchased products to the job site. The cost of such coordination, pickup and delivery to the job site by the Contractor shall be considered incidental to the cost of the project and no separate payment will be made.
2. Review shop drawings, product data and samples. Notify Owner of any discrepancies or problems anticipated with use of pre-purchased item.
3. Receive and unload items at site.

4. Inspect items jointly with Owner and record any shortages, damaged or defective items.
5. Assume responsibility for items, including insurance, upon acceptance of items at site.
6. Handle items at site, including uncrating and storage. Protect items from exposure to elements and damage.
7. Assemble, install, connect and finish products and provide warranty for Contractor furnished materials and workmanship as specified.
8. Repair or replace items damaged as a result of Contractor's work.

1.07 ABBREVIATIONS AND REFERENCES

- A. Whenever reference is made to the furnishing of materials or testing thereof to conform to the standards of any technical society, organization or body, it shall be construed to mean the latest standard, code, specification or tentative specification adopted and published at the date of advertisement of bids, even though reference has been made to an earlier standard. The following list of specifications is hereby made a part of the contract the same as if herein repeated in full. In the event of any conflict between any of these specifications, standards, codes or tentative specifications, and the Specifications or in the event that one of the following conflict with another, the decision as to which shall govern shall be decided by the Engineer whose judgment will be final.
- B. Reference to a technical society, organization, or body may be made in the specifications by abbreviations, in accordance with the following list:

AASHTO	- The American Association of State Highway and Transportation Officials
AAB	- Architectural Advisory Board
ACI	- American Concrete Institute
ADA	- Americans With Disabilities Act
AGA	- American Gas Association
AGMA	- American Gear Manufacturer's Association
IEEE	- Institute of Electrical and Electronic Engineers
AISC	- American Institute of Steel Constructors
AISI	- American Iron and Steel Institute
API	- American Petroleum Institute
ASCE	- American Society of Civil Engineers
ASME	- American Society of Mechanical Engineers
ASTM	- American Society of Testing Materials
AWPA	- American Wood Preservers Association
AWS	- American Welding Society
AWWA	- American Water Works Association
FED.SPEC	- Federal Specifications
CIPRA	- Cast Iron Pipe Research Association
DIPRA	- Ductile Iron Pipe Research Association
DEP	- Department of Environmental Protection
EPA	- Environmental Protection Agency
MassDOT	- Massachusetts Department of Transportation – Highway Division

MSSH	- Massachusetts Department of Transportation – Highway Division Standard Specifications for Highways and Bridges
NCPI	- National Clay Pipe Institute
NEMA	- National Electrical Manufacturers Association
NFPA	- National Fire Protection Association
TCA	- Tile Council of America, Inc.
AWPA	- American Wood Preservation Association
NEC	- National Electric Code
NLMA	- National Lumber Manufacturers Association
SAE	- Society of Automotive Engineers Standards
SHBI	- Steel Heating Boiler Institute
SBCC	- Standard Building Code Congress International, Inc.
U.L.	- Underwriter’s Laboratory, Inc.
OSHA	- Occupational Health and Safety Act
SSPC	- Steel Structures Painting Council

- C. Where no reference is made to a code, standard, or specification, the standard specification of ASTM, ANSI, ASME, IEEE or NEMA shall govern.
- D. Where reference is made to the OWNER it shall refer to the City of New Bedford. Where reference is made to the ENGINEER it shall refer to the City of New Bedford Department of Public Infrastructure Engineering Division or their authorized representative.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01025
MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.00 PRICE ADJUSTMENT CLAUSE

1. All municipalities are required to include price adjustment clauses for diesel fuel, gasoline, liquid asphalt, Portland cement concrete, and steel in the bid documents for all construction contrast to be funded under the program described in Chapter 4, Section 6C of the Massachusetts General Laws (commonly referred to as “the Chapter 90 Program”). Notwithstanding any general or special law to the contrary, all construction contracts funded in whole or in part by the funds authorized by this Act shall include a price adjustment clause for above described items. A Base Price for each material as of April 2013 shall be set by MassDOT and included in the Bid Documents at the time a project is advertised. Current base price information can be found at the following web site:

<https://www.mass.gov/service-details/2019-massdot-contract-price-adjustments>

The adjustment clause shall provide for a contract adjustment to be made on a monthly basis when the monthly cost change exceeds +/- five percent. It is the Contractor’s responsibility for verifying the correct Base Price and that the correct Base Price is used to determine his/her Bid.

2. Price adjustment shall be handled as a change order (either an increase or a decrease in the bid amount) in accordance with Section 00700 Article 4 – Paragraph 4.03B and as modified by Section 00800 – Supplementary Conditions. Included within the Contractor’s Schedule of Values (See Section 01370), he/she shall provide the Base Price used in determining the unit and/or lump sum cost of the appropriate item.
3. See Section 00811 for additional requirements regarding monthly price adjustment for hot mix asphalt.
4. See Section 00812 for additional requirements regarding monthly price adjustment for fuel and gasoline.
5. See Section 00813 for additional requirements regarding price adjustment for structural steel and reinforcing steel.
6. See Section 00814 for additional requirements regarding price adjustment for Portland cement concrete mixes.

1.01 INCIDENTAL AND MISCELLANEOUS ITEMS

1. Unless specifically identified for payment under a bid item, the following items shall be considered incidental to the project cost and not to a specific pay item:
 - a. Site preparation
 - b. Dewatering and drainage
 - c. Excavation support system(s) temporary and left in place
 - d. Furnishing, installing and compacting all types of pipe bedding and structure bedding and backfill materials as specified and detailed on the Drawings.

- e. Geotextile fabric
 - f. Backfilling and compaction of pipe trenches
 - g. External/internal manhole drop connections
 - h. Temporary storing and delivery of equipment and materials to the City of New Bedford DPW Yard at Liberty Street (e.g. temporary storage of castings, signs, valve boxes, covers, grates, frames, curb stops, curbing, cobble stones, light poles removed to accommodate work).
 - i. Pickup and delivery of Owner provided materials to the project site from 1105 Shawmut Avenue or Liberty Street.
 - j. Removal and delivery of surplus reclaimed materials as defined in Section 01046 that is not used or reset within the completed project that has not been damaged through a lack of protection or carelessness to the DPI Yard at 1105 Shawmut Avenue.
 - k. Acceptance and Testing
 - l. Providing required Superpave Mix QA/QC plans and Job Mix Formulas
 - m. Water for construction purposes
 - n. Supporting, protecting and crossing of existing utilities and structures
 - o. Coordinating with City of New Bedford and private utility companies
 - p. Steel plates
 - q. Care and protection of City and private property
 - r. Safeguarding open excavations
 - s. Support, protection and bracing of overhead wires and utility poles
 - t. Restoring pipe trench surface to grade
 - u. Site security
 - v. Dust control
 - w. Sweeping and cleaning of pavement during and after construction. City will pay for disposal of any street sweeping debris.
 - x. Noise control
 - y. Traffic management
 - z. Tree protection
 - aa. Vibration control
 - bb. Construction and maintenance of temporary surfaces and pavements to maintain traffic, access to driveways and ADA access for sidewalks during construction. Any winterizing of projects shall be paid for under the appropriate Item in the Bid Form.
 - cc. Protection of sprinkler systems in the City right of way.
 - dd. Hydrostatic testing and bacteriological testing for watermains.
 - ee. Other work incidental thereto for which separate payment is not provided in other items in the Bid Form.
2. It is the intent of this Section of the Specifications to comment on those items of the Bid Form that will direct the Contractor's attention to special work. Those items of the Bid Form which are not listed are covered under their respective sections of the Specification. The price shall be payment for all labor, materials, and equipment unless specifically noted in a Bid Item. Bid items are the only pay items. Any items of work required but not included as a bid item will not be paid for separately but reflected in related items of work.
 3. Insurance and bonds and in general the costs associated with establishing the work on site to assure that it is proceeding in a continuous manner shall be considered incidental to the cost of the project.

4. Payment for foreman's labor shall not be measured for payment under individual items in the Bid Form. Payment for foreman's labor shall be made under Item 11b for the actual hours a foreman spends on each individual project. Duplicate payment will not be allowed.

1.02 BITUMINOUS CONCRETE PAVEMENT (Items 1a thru 1s)

A. Measurement

1. Measurement for saw cutting, removing and disposing asphalt pavement and aggregate base (Item 1a-1) will be in square yards of material removed to the extent ordered by the Engineer. Depth for payment shall be 12-in. Longitudinal measurement will be along the pavement surface. Transverse measurement will be as shown on the Drawings.
 - a. No adjustment in quantity will be made if the "as measured" thickness of pavement varies from the specified measurements. The pavement thickness noted on the pavement cores, soil borings or Drawings shall not be used to calculate Items 1a-1 or 1a-2.
2. Measurement for saw cutting, removing and disposing asphalt pavement with cobblestones and/or concrete base including aggregate base up to 12-in in depth (Item 1a-2) will be in square yards of material removed to the extent ordered by the Engineer. Depth for payment shall be 12-in. Longitudinal measurement will be along the pavement surface. Transverse measurement will be as shown on the Drawings.
 - a. No adjustment in quantity will be made if the "as measured" thickness of pavement varies from the specified measurements. The pavement thickness noted on the pavement cores, soil borings or Drawings shall not be used to calculate Items 1a-1 or 1a-2.
3. Measurement for saw cutting, removing and disposing concrete or bituminous sidewalks, sidewalk ramps, driveway aprons with aggregate base (Item 1a-3) will be in square yards of material removed, to the extent ordered by the Engineer. Depth for payment shall be 12-in.
4. Measurement for HMA Superpave Surface Course 12.5 (SSC 12.5) (Item 1b-1), will be in tons of asphalt actually placed or to the extent ordered by the Engineer. No deductions will be made for surface structures. Longitudinal measurements will be along the pavement surface. Transverse measurements will be as shown on the Drawings.
3. Measurement for HMA Superpave Intermediate Course 19.0 (SIC 19.0) (Item 1b-2), will be in tons of asphalt actually placed or to the extent ordered by the Engineer. No deductions will be made for surface structures. Longitudinal measurements will be along the pavement surface. Transverse measurements will be as shown on the Drawings.
4. Measurement for HMA Superpave Surface Course 9.5 (SSC 9.5) (1.5-in) sidewalk and driveway (Item 1c), will be in square yards as actually placed, to the limits of the existing pavement, or to the extent ordered by the Engineer.
5. Measurement for HMA Superpave Intermediate Course 12.5 (SIC 12.5) (1.5-in) sidewalk (Item 1d-1) and HMA Superpave Intermediate Course 12.5 (SIC 12.5) (2.5-in) driveway aprons (Item 1d-2), will be in square yards as actually placed, to the limits of the existing pavement, or to the extent ordered by the Engineer.

6. Measurement for winterizing driveways, wheelchair ramps and cut pavement edges (Item 1d-3) will be in linear feet of driveway, wheelchair ramp or cut pavement edges winterized as directed by the Engineer.
7. Measurement for HMA Superpave Surface Course 12.5 (SSC 12.5) (1.5-in) and HMA Superpave Intermediate Course 19.0 (SIC 19.0) (2.5-in) for utility trenches, roadway patches, parking lot sections, park and cemetery roads (Item 1e) will be in square yards as actually placed or to the extent ordered by the Engineer. No deductions will be made for surface structures. Longitudinal measurements will be along the pavement surface. Transverse measurements will be as shown on the Drawings or directed by the Engineer.
 - a. The maximum area for measurement under this bid item shall be 400 square yards per patch. Any area larger than this shall be paid for under other items in the Bid Form.
8. Full depth roadway reclamation (Items 1f) will be measured in actual square yards reclaimed as directed by the Engineer. Reclamation shall be as directed by the Engineer and to the latest requirements of the MassDOT Highway Division Standard Specifications for Highways and Bridges and these Specifications. No deductions will be made for surface structures.
9. Pavement milling (1.5-in) (Item 1g) will be measured in square yards of roadway milled as directed by the Engineer. Milling shall be as directed by the Engineer and to the latest requirements of the MassDOT Highway Division Standard Specifications for Highways and Bridges and these Specifications. No deductions will be made for surface structures. Longitudinal measurements will be along the pavement surface. Transverse measurements will be as shown on the Drawings.
10. Measurement for furnishing and installing 4-in “T” and “L” white thermoplastic markings (Items 1h) shall be on an each basis for the number actually installed within the completed project.
11. Measurement for furnishing and installing 6-in and 12-in yellow and white thermoplastic lines (Item 1i and 1j, respectively) will be measured in linear feet of lines installed within the completed project. Measurement shall be obtained by:
 - a. Calculation from established baseline station;
 - b. Use of measuring wheel; or
 - c. Vehicle odometer readings.
 - d. The length of broken lines (except for broken lines 10-ft or less in length, the actual length shall be used) will be obtained by using 25-percent of the result from the measurement obtained above for solid lines.
12. Furnishing and installing street print pavement texturing (Item 1k) will be measured in square yards of street print pavement texturing installed as directed by the Engineer.
13. Measurement for furnishing and installing miscellaneous yellow and white thermoplastic roadway markings (Item 1l) shall be on an each basis for the number actually installed within the completed project.
14. Measurement for furnishing and installing crosswalk skid resistant infill painting (Item 1m) will be measured in square yards of infill markings installed within the completed project.

15. Aggregate to correct gradation deficiencies (Items 1n) will be measured in actual cubic yards of aggregate used to correct gradation deficiencies.
16. Measurement for roadway excavation (Item 1p) will be in cubic yards of material removed to the extent ordered by the Engineer. Measurement for length will be along the centerline of the roadway, width shall be to the back edge of curbing and depth of excavation defined below. Measurement by truck count will not be permitted.
 - a. Pavement removed under Item 1a-1 – The top 12 inches below the existing roadway surface will be paid for under Item 1a-1. The remaining depth starting at 12-in below the existing roadway surface to the bottom of the proposed pavement structure will be measured to calculate the volume of roadway excavation.
 - b. Pavement removed under Item 1a-2 – The top 12 inches below the existing roadway surface will be paid for under Item 1a-2. The remaining depth starting at 12-in below the existing roadway surface to the bottom of the proposed pavement structure will be measured to calculate the volume of roadway excavation.
 - c. No adjustment in quantity will be made if the “as measured” thickness of pavement varies from the specified measurements. The pavement thickness noted on the pavement cores, soil borings or Drawings shall not be used to calculate Items 1a-1 or 1a-2.
17. Measurement for subgrade undercut and backfill with reclaimed pavement borrow material (M1.09.0) compacted in place (Item 1q) will be in cubic yards and will extend only downward from the dimensions defining normal grade on the Drawings to a depth and width determined by the Engineer. Normal grade is defined as the bottom of the proposed roadway aggregate sub-base. Contractor shall proof roll the subgrade in order for the Engineer to determine the extent of the subgrade undercut. If the roadway base is excavated below normal grade through error by the Contractor or if improper drainage softens the subgrade and additional excavation is required before constructing the roadway, such removal and replacement of material will not be measured for payment. No allowances will be made for shrinkage or compaction of gravel in place. Measurement by truck count will not be permitted.
18. Measurement for restoration by loaming and hydroseeding (6-in depth) (Item 1r) will be in square yards as actually installed and accepted in the completed project as directed by the Engineer.
19. Structures damaged below the plated depth, due to the Contractor’s negligence, shall be repaired at no additional cost to the Owner and will not be eligible for payment under the appropriate item in the Bid Form. Castings, grates, frames, covers, valve boxes and covers and curb stops damaged as a result of the Contractor’s negligence during the removal, storage, and/or resetting work shall be replaced at no additional cost to the Owner and will not be eligible for payment under other items in the Bid Form.

B. Payment

1. Payment for saw cutting, removing and disposing of asphalt pavement and aggregate base will be made for the quantity as determined above at the unit price bid for Item 1a-1 in the Bid Form. This price and payment shall be full compensation for all labor, tools, equipment, materials and incidental work necessary to complete saw cutting; removing existing pavement; removing existing bituminous concrete berms; removing existing aggregate base

course; performing all finishing work; disposal of excess material; and all else incidental thereto for which separate payment is not provided under other items in the Bid Form.

- a. For the purposes of bidding Item 1a-1, Contractor shall assume that the depth of pavement and aggregate base to be removed is 12-in. No adjustment in unit price will be made if the actual thickness of pavement measured varies from the specified thickness.
 - b. Payment for removal of existing granite curbing will be paid for under Item 3d.
 - c. Payment for removal of existing concrete curbing will be paid for under Item 3e.
 - d. Payment for removal of sidewalks, wheelchair ramps, and driveway aprons will be paid for under Item 1a-3.
 - e. Payment for removal of pavement in areas considered “roadway patch” as determined by the Engineer will be paid for under Item 1e.
2. Payment for saw cutting, removing and disposing of asphalt pavement with cobblestones and/or concrete base including aggregate base up to 12-in in depth will be made for the quantity as determined above at the unit price bid for Item 1a-2 in the Bid Form. This price and payment shall be full compensation for all labor, tools, equipment, materials and incidental work necessary to complete saw cutting; removing existing asphalt pavement; removing existing concrete base; removing existing cobblestones; removing existing trolley tracks if encountered; removing aggregate base course; performing all finishing work; disposal of excess material; and all else incidental thereto for which separate payment is not provided under other items in the Bid Form.
- a. For the purposes of bidding Item 1a-2, Contractor shall assume that the depth of asphalt pavement, concrete base and aggregate base to be removed is 12-in and the concrete base is not reinforced. No adjustment in unit price will be made if the thickness of pavement measured varies from the specified thickness.
 - b. Payment for removal of existing granite curbing will be paid for under Item 3d.
 - c. Payment for the removal of concrete curbing will be paid for under Item 3e.
 - d. Payment for removal of sidewalks, wheelchair ramps, and driveway aprons will be paid for under Item 1a-3.
3. Payment for saw cutting and removing and disposing of concrete or bituminous sidewalks, sidewalk ramps and driveway aprons with aggregate and sand base up to 12-in in depth will be made for the quantity as determined above at the unit price bid for Item 1a-3 in the Bid Form. This price and payment shall be full compensation for all labor, tools, equipment, materials and incidental work necessary to complete saw cutting; removal of existing sidewalk, sidewalk ramps, driveway aprons, and underlying aggregate and sand base if deemed necessary by the Engineer, at a depth sufficient to construct proposed sidewalk or driveway; removing existing reinforcing; performing all finishing work; and all else incidental thereto for which separate payment is not provided under other items in the Bid Form.
- a. For the purposes of bidding Item 1a-3, Contractor shall assume that the depth of pavement and aggregate base to be removed is up to 12-in. No adjustment in unit

price will be made if the actual thickness of pavement measured varies from the specified thickness.

4. Payment for HMA Superpave Surface Course 12.5 (SSC 12.5) and HMA Superpave Intermediate Course 19.0 (SIC 19.0) course complete in place and approved by the Engineer, will be made for the quantity determined above at the price bid for Items 1b-1 and Items 1b-2 respectively, in the Bid Form. This price and payment shall be full compensation for all labor, materials, equipment and incidental work necessary for cleaning and priming the edges of the existing pavement with a tack coat; preparing the surface of the base; cleaning, preparing and compacting the surface of the gravel base; furnishing, placing, compacting and maintaining the pavement for a period of three years including labor and materials; applying bitumen tack coat; hot poured tar crack rubberized asphalt sealer; applying temporary pavement makings where required; and all else incidental thereto for which for which separate payment is not provided under other items in the Bid Form.
 - a. For bidding purposes, Contractor shall assume temporary pavement markings consist of 4-in-wide tape, 2.0-ft in length, placed every 50-ft along the newly paved roadway.
5. Payment for construction of 1.5-in HMA Superpave Surface Course 9.5 (SSC 9.5) in sidewalks and driveways (Item 1c) and 1.5-in HMA Superpave Intermediate Course 12.5 (SIC 12.5) for sidewalk (Item 1d-1) and 2.5-in HMA Superpave Intermediate Course 12.5 (SIC 12.5) for driveways (Item 1d-2) will be made for the quantity determined above at the unit price bid in the Bid Form. This price and payment shall be full compensation for all labor, tools, equipment, materials and incidental work necessary for preparing the surface of the base; cleaning, preparing and compacting the surface of the gravel base; cleaning and priming the edges of existing pavement with tack coat; furnishing, placing, compacting and maintaining the bituminous concrete for a period of three years, including labor and materials; applying Bitumen Tack Coat; hot poured tar crack rubberized asphalt sealer and all else incidental thereto for which separate payment is not provided under other Items in the Bid Form.
6. Payment for the winterization of driveways, wheelchair ramps and cut pavement edges (Item 1d-3) will be made for the quantity determined above at the unit price bid in the Bid Form. This price and payment shall be full compensation for all labor, tools, equipment, materials and incidental work necessary for sweeping and cleaning the area to be winterized; furnishing and installing construction paper barrier; installing HMA Superpave Surface Course 9.5 (SSC 9.5) up to 2-ft from cut edge ramping to full pavement thickness of 1.5-in for the length of area to be winterized; compaction; maintaining the pavement during the winter season; removal of the temporary winterization prior to construction; disposal of surplus material and all else incidental thereto for which separate payment is not provided under other Items in the Bid Form.
7. Payment for construction of HMA patch for utility trenches, roadway patches, parking lot sections and cemetery roads (Item 1e) will be made for the quantity determined above at the unit price bid in the Bid Form. This price and payment shall be full compensation for all labor, tools, equipment, materials and incidental work necessary for saw cutting; removing existing pavement; removing existing bituminous berm; removing existing aggregate base course; performing all finishing work; preparing the surface of the base; cleaning, preparing and compacting the surface of the gravel base; cleaning and priming the edges of existing pavement with tack coat; furnishing, placing, compacting and maintaining the 1.5-in HMA Superpave Surface Course 12.5 (SSC 12.5) and 2.5-in HMA Superpave Intermediate Course

19.0 (SIC 19.0) for a period of three years including all labor and materials; applying Bitumen Tack Coat; hot poured tar crack rubberized asphalt sealer; installing temporary pavement markings as necessary; disposal of excess material; and all else incidental thereto for which separate payment is not provided under other Items in the Bid Form.

- a. For the purposes of bidding Item 1e, Contractor shall assume that the depth of asphalt pavement to be removed is 4-in. No adjustment in unit price will be made if the thickness of pavement measured varies from the specified thickness.
 - b. For the purposes of bidding Item 1e, Contractor shall assume that the depth of asphalt pavement to be placed is 1.5-in of HMA Superpave Surface Course 12.5 (SSC 12.5) and 2.5-in of HMA Superpave Intermediate Course 19.0 (SIC 19.0).
 - c. Where the depth of existing pavement is greater than 4-in, Contractor shall place 1.5-in of HMA Superpave Surface Course 12.5 (SSC 12.5) and 2.5-in of HMA Superpave Intermediate Course 19.0 (SIC 19.0). The remaining depth shall be adjusted using Reclaimed Pavement Base Course to be paid for under Item 12k. Labor and equipment for re-grading, shaping and compaction of the Reclaimed Pavement Base Course will be paid for under Item 1e.
 - d. For bidding purposes, Contractor shall assume temporary pavement markings consist of 4"-wide tape, 2.0' in length, placed every 50 feet along the newly paved roadway.
 - e. Payment for installation of new HMA cape cod berm or B Berm shall be made under Items 3f and 3g in the Bid Form.
 - f. Adjustment of drainage structures; raising and lowering of structures; setting and adjusting castings, grates, frames and covers, valve boxes and covers and curb stops to finished grade will be paid for under the appropriate item in the Bid Form.
 - g. Payment under this Item shall apply for those patch locations less than 400 square yards as directed by the Engineer. Use of this Item shall be where directed by the Engineer. All other patch locations in excess of 400 square yards shall be paid for under other items in the Bid Form.
8. Payment for roadway reclamation will be made for the quantity as determined above at the unit price bid under Item 1f in the Bid Form. This price and payment shall be full compensation for all labor, tools, equipment, materials and all incidental work necessary to complete crushing, pulverizing, blending, spreading, and grading; saw cutting existing asphalt pavement; compacting; test section construction; blending with aggregate; moving the processed material to allow for modifications to the remaining sub-base and/or sub-grade; moving reclaimed material from one location to another within the project, and any incurred costs resulting from the Contractor's decisions to process off site; grading and compacting the sub-base and/or sub-grade resulting from the removal of unsuitable materials; disposal of excess material; performing all finishing work, and all else incidental thereto for which separate payment is not provided under other items in the Bid Form.
- a. Adjustment of drainage structures; raising and lowering of structures; setting and adjusting castings, grates, frames and covers, valve boxes and covers and curb stops to finished grade will be paid for under the appropriate item in the Bid Form.

- b. For the purposes of bidding Item 1f, Contractor shall assume that the depth of reclamation is 16-in.
 - c. Payment for reclaimed pavement borrow material for volume to be paid for under Bid Form Item 12k.
 - d. Payment for crushed stone for blending to meet specified gradation shall be included under Item 1n.
9. Payment for roadway pavement milling, will be made for the quantity as above determined, at the respective prices bid for Item 1g in the Bid Form, which price and payment shall be full compensation for cleaning and preparing the surface of the street; milling up to 1.5-in of existing pavement including any proper transition from new pavement to existing pavement and grooving existing pavement at curbing, where necessary as determined by the Engineer, to leave proper curbing reveal; performing all finishing work; removal and disposal of excess material, and all else incidental thereto for which separate payment is not provided under other items in the Bid Form.
- a. Raising catch basins and manhole castings and gate boxes to new grade including concrete collars will be paid for under the appropriate item in the Bid Form.
 - b. Payment for repairs to settled trenches and variable leveling courses where determined necessary by the Engineer will be paid for under Bid Item 1b-2.
 - c. Payment for final HMA surface course paving to be paid for under Bid Item 1b-1.
10. Payment for furnishing and installing 4-in “T” and “L” white thermoplastic lines markings and miscellaneous thermoplastic roadway markings will be made for the quantity as above determined at the unit price bid for Item 1h and 1l respectively in the Bid Form and shall fully compensate the Contractor for furnishing all necessary equipment, labor, and materials to install thermoplastic roadway markings such as 4-in “T” and 4-in “L” parking space markings, shark teeth, arrows, bicycle detector symbols, and bike lane bicycle symbols (excluding 6-in and 12-in lines) with white reflectorized thermoplastic roadway markings; surface preparation; blowing/removal and disposal of sand, debris and other deleterious material in the installation area; laying out, survey and marking locations of the roadway markings prior to placement, and all incidental work required to install the roadway markings as shown on the Drawings and specified.
11. Payment for furnishing and installing 6-in and 12-in yellow and white thermoplastic lines will be made for the quantity as above determined at the unit prices bid for Items 1i and 1j, respectively in the Bid Form. This price and payment shall be full compensation for furnishing and installing 6-in (Item 1i) white and yellow centerlines, fog lines, lanes, etc. and 12-in (Item 1j) white crosswalks and/or stop lines as shown on the drawings and specified.
11. Payment for furnishing and installing street print pavement texturing in HMA will be made for the quantity as above determined at the unit price bid for Item 1k in the bid form. This price and payment shall be full compensation for furnishing all labor, materials, and equipment to install bituminous concrete pavement stamping (all patterns, no color) at locations directed by the Engineer or shown on the Drawings.

12. Payment for furnishing and installing crosswalk skid resistant infill painting (yellow or brick red) will be made for the quantity as above determined at the unit price bid for Item 1m in the Bid Form and shall fully compensate the Contractor for furnishing all necessary equipment, labor, and materials to install crosswalk skid resistant infill markings; surface preparation; blowing/removal and disposal of sand, debris and other deleterious material in the installation area; taping off area to be painted; laying out, survey and marking locations of the roadway markings prior to placement, and all incidental work required to install the markings as shown on the Drawings and specified.
13. Payment for furnishing, installing and blending aggregate to correct gradation deficiencies for roadway reclamation will be made for the quantity as above determined at the unit price bid for Item 1n in the Bid Form. This price and payment shall be full compensation for furnishing, installing and blending aggregate with reclaimed base material; test pits and borings required to procure samples to establish the suitability of the materials; coordinating with Engineer and assistance in sample collection for testing by Engineer and all else incidental thereto for which separate payment is not provided under other items in the Bid Form.
14. Payment for roadway excavation will be made for the quantity as determined above at the unit price bid for Item 1p in the Bid Form. The price and payment shall be full compensation for all labor, tools, equipment, materials and incidental work necessary to complete the removal and disposal of excavated material starting 12-in below the existing asphalt surface; performing all finishing work; and all else incidental thereto for which separate payment is not provided under other items in the Bid Form.
15. Payment for sub-grade undercut and backfill with reclaimed pavement borrow material (M1.09.0) compacted in place will be made for the quantity as determined above at the unit price bid for Item 1q in the Bid Form. This price and payment shall be full compensation for all labor, tools, equipment, materials and incidental work necessary to complete proof-rolling the subgrade; excavation, removal and disposal of unsuitable material to limits determined by the Engineer; furnishing, placing and compacting reclaimed pavement borrow material; and all else incidental thereto for which separate payment is not provided under other items in the Bid Form.
 - a. Prior to the use of this item, Contractor shall notify Engineer who will measure limits to be removed. Only these measurements shall be used for a basis of payment. Any removal done so without prior notification of Engineer will not be eligible for payment.
16. Payment for loaming (6-in depth) and hydroseeding, complete in place and approved by the Engineer, will be made for the quantity determined above at the unit price bid for Item 1r in the Bid Form. This price and payment shall be full compensation for preparing the subgrade; furnishing, stockpiling, testing, installing and grading loam, including hand raking; fertilizer, lime and superphosphate, and hydroseeding to the limits shown on Drawings, as directed by the Engineer or as required to complete the Work of this Contract; watering, maintaining, and reseeding, as necessary; providing a 1 year warranty from the time of provisional acceptance, as all else incidental thereto for which separate payment is not provided under other items in the Bid Form.
17. If the thickness of pavement ordered placed by the Engineer is greater than that specified, payment will be prorated on the basis of the thickness of material actually ordered placed. No payment will be made for any additional pavement not specifically ordered in writing by the Engineer.

18. No additional payment will be made for leveling course if required as a result of negligence by the Contractor.

1.03 NEW CEMENT CONCRETE SIDEWALKS, DRIVEWAY APRONS, AND ADA/AAB COMPLIANT WHEELCHAIR RAMPS (Items 2a thru 2c)

A. Measurement

1. New 4-in Portland cement concrete sidewalks (Item 2a) as shown on the Drawings and as directed by the Engineer, shall be measured as the actual number of square yards placed and accepted in the completed project.
2. New 6-in Portland cement concrete driveway aprons (Item 2b) as shown on the Drawings and as directed by the Engineer shall be measured as the actual number of square yards placed and accepted in the completed project.
3. New 6-in fiber reinforced Portland cement concrete driveway aprons and wheelchair ramps (Item 2c) as shown on the Drawings and as directed by the Engineer shall be measured as the actual number of square yards placed and accepted in the completed project.
4. New 4-in Portland cement concrete sidewalks and transition areas with colored concrete (Item 2d) as shown on the Drawings and as directed by the Engineer, shall be measured as the actual number of square yards placed and accepted in the completed project.
5. New 6-in Portland cement concrete driveway aprons with colored concrete (Item 2e) as shown on the Drawings and as directed by the Engineer shall be measured as the actual number of square yards placed and accepted in the completed project.
6. New 6-in fiber reinforced Portland cement concrete driveway aprons and wheelchair ramps with colored concrete (Item 2f) as shown on the Drawings and as directed by the Engineer shall be measured as the actual number of square yards placed and accepted in the completed project.
7. Furnishing new yellow ADA compliant detection panels (Item 2g) will be measured as the number of each provided to be installed in the completed project and accepted by the Owner and Engineer.
8. Measurement will be performed in place to the inside edge of concrete sidewalk placed based on plan view area of the completed and accepted structure, with no allowances for slope correction or overlaps.

B. Payment

1. Payment for installing new 4-in Portland cement concrete sidewalks shall be made for the quantity as above determined above at the unit price bid for Item 2a in the Bid Form. This price and payment shall be full compensation for all labor, tools, equipment, materials and incidental work necessary to complete shaping and compacting subgrade to required grade and cross section; furnishing, placing and compacting 8-in reclaimed pavement sub-base (M1.09.0) if deemed necessary by the Engineer; furnishing, forming, placing and shaping the 4-in concrete sidewalk to the line and grade shown on the Drawings; all concrete work and finishing work; expandable filler joint material; expansion joints; protection of existing

foundations and structures; and all else incidental thereto, for which separate payment is not provided under other items in the Bid Form.

2. Payment for installing new 6-in Portland cement concrete residential driveway aprons and transition areas shall be made for the quantity as above determined at the price per square yard bid for Item 2b in the Bid Form. This price and payment shall be full compensation for shaping and compacting subgrade to required grade and cross section; furnishing, placing and compacting 8-in reclaimed pavement subbase (M1.09.0) if deemed necessary by the Engineer; furnishing, forming, placing and shaping the 6-in cement concrete driveway apron and 6-in cement concrete wheelchair ramps; all concrete work and finishing work; install detectable warning panels; expandable filler joint material; expansion joints; protection of existing foundations and structures; and all else incidental thereto, for which separate payment is not provided under other items in the Bid Form.
3. Payment for installing new 6-in fiber reinforced Portland cement concrete commercial driveway aprons and transition areas and wheelchair ramps and transition areas shall be made for the quantity as above determined at the price per square yard bid for Item 2c in the Bid Form. This price and payment shall be full compensation for shaping and compacting subgrade to required grade and cross section; furnishing, placing and compacting 8-in reclaimed pavement subbase (M1.09.0) if deemed necessary by the Engineer; furnishing, forming, placing and shaping the 6-in fiber reinforced cement concrete driveway apron and 6-in fiber reinforced cement concrete wheelchair ramps; all concrete work and finishing work; install detectable warning panels; expandable filler joint material; expansion joints; protection of existing foundations and structures; and all else incidental thereto, for which separate payment is not provided under other items in the Bid Form.
5. Payment for installing new 4-in Portland cement concrete sidewalks with colored concrete shall be made for the quantity as above determined above at the unit price bid for Item 2d in the Bid Form. This price and payment shall be full compensation for all labor, tools, equipment, materials and incidental work necessary to complete shaping and compacting subgrade to required grade and cross section; furnishing, placing and compacting 8-in reclaimed pavement sub-base (M1.09.0) if deemed necessary by the Engineer; furnishing, forming, placing and shaping the 4-in colored concrete sidewalk to the line and grade shown on the Drawings; all concrete work and finishing work; expandable filler joint material; expansion joints; protection of existing foundations and structures; and all else incidental thereto, for which separate payment is not provided under other items in the Bid Form.
5. Payment for installing new 6-in Portland cement concrete residential driveway aprons and transition areas with colored concrete shall be made for the quantity as above determined at the price per square yard bid for Item 2e in the Bid Form. This price and payment shall be full compensation for shaping and compacting subgrade to required grade and cross section; furnishing, placing and compacting 8-in reclaimed pavement subbase (M1.09.0) if deemed necessary by the Engineer; furnishing, forming, placing and shaping the 6-in colored cement concrete driveway apron and 6-in colored cement concrete wheelchair ramps; all concrete work and finishing work; install detectable warning panels; expandable filler joint material; expansion joints; protection of existing foundations and structures; and all else incidental thereto, for which separate payment is not provided under other items in the Bid Form.

6. Payment for installing new 6-in fiber reinforced colored Portland cement concrete commercial driveway aprons and transition areas and wheelchair ramps and transition areas with colored concrete shall be made for the quantity as above determined at the price per square yard bid for Item 2f in the Bid Form. This price and payment shall be full compensation for shaping and compacting subgrade to required grade and cross section; furnishing, placing and compacting 8-in reclaimed pavement subbase (M1.09.0) if deemed necessary by the Engineer; furnishing, forming, placing and shaping the 6-in fiber reinforced colored cement concrete driveway apron and 6-in fiber reinforced colored cement concrete wheelchair ramps; all concrete work and finishing work; install detectable warning panels; expandable filler joint material; expansion joints; protection of existing foundations and structures; and all else incidental thereto, for which separate payment is not provided under other items in the Bid Form.
7. Payment for furnishing ADA compliant yellow detection panels will be made for the quantity as determined above at the unit price bid in the Bid Form for Item 2g. Price and payment shall be full compensation for all materials, labor, equipment and incidentals to furnish new yellow ADA compliant detection panels to any project location in the City of New Bedford or location directed by the Engineer; and all else incidental thereto for which payment is not provided under other items in the Bid Form.
8. Payment for loaming and seeding associated with sidewalk construction will be made under Item 1r.
9. Payment for removing and stacking existing granite curbing will be under Item 3d.
10. Payment for saw cutting, removal and disposal of existing Portland cement concrete or bituminous concrete is included under Item 1a-3.
11. It is the Contractor's responsibility to ensure that all sidewalks, driveways and wheelchair ramps to be built in accordance with the latest ADA requirements, MassDOT standards and City requirements including all addenda. Any sidewalk, driveway, or wheelchair ramp not constructed to the above referenced standard shall not be measured for payment and shall be replaced at no cost to the Owner.

1.04 CURBING (Items 3a thru 3g)

A. Measurement

1. Furnishing new straight granite curbing (Type VA-4) (Item 3a) will be measured in place on a linear foot basis as the amount of curbing provided in the completed project and accepted by the Owner and Engineer.
2. Installing granite curbing – all types and sizes (Item 3b) will be measured in place on a linear foot basis in the completed project and accepted by the Owner and Engineer.
3. Resetting existing granite curbing – all types and sizes (Item 3c) will be measured on a linear foot basis of existing curbing reset in the completed project and accepted by the Owner and Engineer.
4. Removing and stacking existing granite curbing (all types and sizes) (Item 3d) will be measured on a linear foot basis of curbing actually removed and stacked in the completed project and accepted by the Owner and Engineer.

5. Removing and replacing concrete curbing, poured in place – all types and sizes (Item 3e) will be measured on a linear foot basis of curbing actually removed and installed in the completed project and accepted by the Owner and Engineer.
6. Furnishing and installing HMA “Type A” Cape Cod Berm (Detail 106.1.0) (Item 3f) will be measured on a linear foot basis of berm actually installed in the completed project and accepted by the Owner and Engineer.
7. Furnishing and installing HMA B Berm Type 1, 2 or 3 (Detail 106.2.0) (Item 3g) will be measured on a linear foot basis of berm actually installed in the completed project and accepted by the Owner and Engineer.
8. Measurement for length of curbing installed or reset shall be measured along the front arris of the curb and edging, except that where the curbing is set on a curve having a radius of 10-feet or less, the measurement will be made along the edging at the lowest exposed level after completion of shoulder or pavement for newly installed curbing (Items 3b thru 3e).
9. Existing granite curbing (all types) proposed to be removed and stacked and/or reset that is damaged as a result of Contractor negligence, lack of protection or carelessness shall not be measured for payment and shall be replaced at no additional cost to the Owner.

B. Payment

1. Payment for furnishing new straight granite curbing Type VA-4 will be made for the quantity as determined above at the unit price bid in the Bid form for Item 3a. Price and payment shall be full compensation for all materials, labor, equipment and incidentals to furnish new straight, VA-4, granite curbing to any project location in the City of New Bedford or location directed by the Engineer; and all else incidental thereto for which payment is not provided under other items in the Bid Form.
2. Payment for installing granite curbing (all types and sizes) will be made for the quantity as determined above at the unit price bid for Item 3b in the Bid Form. Payment shall be full compensation for material, labor, equipment and incidentals, including delivering stacked curbing from storage area to the work site; installing new or salvaged granite curbing (all types and sizes) to the lines and grades shown on the Drawings per MassDOT 106.3.0 with an additional placement of concrete curbblock behind the curbing; compaction of the sub-grade; saw cutting of the granite curbing; processed gravel sub base (M1.03.1); concrete; mortar work and finishing; disposal of excess material; and all else incidental thereto, for which separate payment is not provided under other items in the Bid Form.
 - a. Payment under Item 3b shall also include full compensation for materials, labor, equipment and incidentals required to install curb at the back of sidewalk, as detailed and specified.
3. Payment for resetting existing granite curbing (all types and sizes) will be made for the quantity as determined above at the unit price bid for Item 3c in the Bid Form. Payment shall be full compensation for material, labor, equipment and incidentals, including delivering stacked curbing from storage area to the work site; saw cutting; installing the salvaged granite curbing (all types and sizes) to the lines and grades shown on the Drawings per MassDOT 106.3.0 with an additional placement of concrete behind the curbing; compaction of the sub-grade; processed gravel sub base (M1.03.1); concrete; mortar work

and finishing; disposal of excess material; and all else incidental thereto, for which separate payment is not provided under other items in the Bid Form.

4. Payment for removing and stacking existing granite curb (all types and sizes) will be made for the quantity as determined above at the unit price bid in the Bid Form for Item 3d. Price and payment shall be full compensation for all materials, labor, equipment, and incidentals to remove existing granite curbing (all types and sizes) including saw cutting; removal of the existing granite curbing; handling and stacking of the curbing; protection of the curbing; and all else incidental thereto for which payment is not provided under other items in the Bid Form.
 - a. Should the Owner require that curbing from a project be delivered to the City Yard for stacking, payment for labor and equipment shall be considered incidental to the cost of the project.
5. Payment for removal and installation of poured in place concrete curbing will be made for the quantity as determined above at the unit price bid for Item 3e in the Bid Form. This price and payment shall be full compensation for all labor, tools, equipment, materials and incidental work necessary to complete saw cutting; removal of the existing curbing; protection of curbing to remain in place; shaping and compacting the subgrade to the required grade and cross section; furnishing, placing and compacting in place processed gravel sub base (M1.03.1); complete furnishing, placing, finishing, texturing and stenciling the concrete to the lines and grade shown on the Drawings; furnishing and placing bar chains and steel reinforcement; all forms and form work; joints where new concrete curbing meets existing concert curbing; performing all finishing work; disposal of excess material; and all else incidental thereto for which separate payment is not provided under other Items in the Bid Form.
6. Payment for installation of HMA Type "A" Cape Cod Berm (106.1.0) and HMA B Berm Type 1, 2 or 3 (106.2.0) will be made for the quantity as determined above at the unit price bid for Items 3f and 3g respectively in the Bid Form. This price and payment shall be full compensation for all labor, tools, equipment, materials and incidental work necessary to complete saw cutting; shaping and compacting the subgrade to the required grade and cross section; furnishing, placing and compacting in place processed gravel base (M1.03.1); preparing the surface of the base; complete furnishing, placing finishing of the bituminous berm to the lines and grade shown on the Drawings; tack coat; joints where new berm/curb meets existing berm/curb; disposal of excess material; performing all finishing work; and all else incidental thereto for which separate payment is not provided under other items in the Bid Form.

1.05 DRAIN AND SEWER PIPE AND APPURTENANCES (Items 4a thru 4f)

A. Measurement

1. Drain pipe of the type and size specified on the Bid Form (Items 4a thru 4e) will be measured in place on a linear foot basis. Measurement for payment does not signify that the drain line is accepted.
2. Measurement of drain and sewer pipe for length will be along the horizontal centerline of the pipe with no deduction for manholes and fittings. Measurement will be to the center of manholes or to the inside face of the wall at drain/sewer structures. Measurement for depth

will be from the original ground surface, as determined by the Engineer, to the invert of the pipe. Measurement for length will be to the nearest tenth of a foot.

3. 6-in PVC and CL 52 DI private drain lateral connections (Item 4f) will be measured in place on a linear foot basis along the horizontal centerline of the pipe from either the centerline of the mainline drain or from the centerline of the chimney to the end of the pipe as laid. Measurement for payment does not signify that the drain service is accepted.
4. Wye branches, saddles, or DI tees for sewer or private drain lateral connections to the new sewer or drain pipe will not be measured for separate payment and shall be included under the service pipe cost.
8. The payment limits for trench excavation shall not exceed the trench widths defined for rock.

B. Payment

1. Payment for furnishing and installing drain pipe of the size and class specified will be made for the respective quantities as determined above at the unit price bid under Items 4a thru 4e in the Bid Form. Price and payment shall be full compensation for all materials, labor, equipment, and incidentals for saw cutting existing pavement, curbing, ramps, driveways and sidewalks; cutting, removal and disposal of existing drain pipe to be replaced; removal and disposal of existing manholes and catch basins to be replaced; coring existing manholes where required to install new pipe; connecting to existing manholes and drains; impervious dams; excavation; furnishing, laying, jointing, cleaning and testing the new pipe; acceptance and testing; maintenance of flow; and all else incidental thereto, for which separate payment is not provided under other items in the Bid Form.
 - a. For bidding purposes, Bid Items 4a thru 4e are for all depths up to 8-feet in depth.
2. Payment will be made for pipe only when it is installed in the ground and no so-called proportional payment shall be made for pipe on the site but not yet installed.
3. Payment for furnishing and installing 6-inch PVC or CL 52 DI private drain lateral pipe to property line will be made for the quantity as determined above at the unit price under Item 4f in the Bid Form. Price and payment shall be full compensation for all materials, labor, equipment, and incidentals for saw cutting existing pavement, curbing, ramps, driveways and sidewalks; cutting, removal and disposal of existing service piping to be replaced; laying, jointing, cleaning, and testing of the new PVC or DI service pipe; furnishing and installing the new wye branch, saddle, or DI tee, pipe adapters and fittings; flexible pipe repair couplings; furnishing and installing service pipe identification post marker; saw cutting or coring pipe connections to manholes or pipe; pipe connections to existing drain services from private properties; plugging and abandoning existing downstream drain service connections to existing drains or sewers; furnishing and installing new DI chimneys as detailed on the Drawings where directed by the Engineer; new sewer service cleanout as detailed including box and cover adjusted to finished grade; coordinating with private property owner for final location of service connection; excavation; acceptance and testing, and all else incidental for which separate payment is not provided under other items in the Bid Form.
4. Payment for placement of aggregate material for fill in areas of over excavation directed by the Engineer shall be paid for under Item 13 in the Bid Form. Contractor shall not be

eligible for payment of placement of aggregate for fill in areas of over excavation where no direction was given by the Engineer or where it was performed for convenience of the Contractor.

1.06 PRECAST CONCRETE DRAIN AND SEWER MANHOLES AND CATCH BASINS (Item 5a-1 thru 5g)

A. Measurement

1. Precast concrete drain and sewer manholes and appurtenances (Items 5a-1 thru 5b-2) will be measured as follows:
 - a. 4-ft diameter and 5-ft diameter drain and sewer manholes (Items 5a-1 thru 5b-2, respectively) will be measured in vertical feet from the invert of the lowest pipe in the manhole to the top of the manhole frame.
2. Catch basins (Item 5c), will be measured in vertical feet from 4 feet below the invert of the outlet pipe to the top of the catch basin grate (for catch basins installed in streets) or to the top of the catch basin manhole rim (for Bradley Head catch basins installed in sidewalks).
3. Concrete block gutter inlets (Item 5d) shall be measured as the number of each actually installed in the completed project and accepted by the Engineer.
4. Adjusting structures to line and grade (Item 5e) shall be measured as the number of each actually raised to line and grade in the completed project and accepted by the Engineer.
5. Replace and adjust existing Bradley Head Top Slabs and wash stones to line and grade (Item 5f) shall be measured as the number of each actually raised to line and grade in the completed project and accepted by the Engineer.
6. Change in structure type (Item 5g) shall be measured as the number of each actually changed and raised to line and grade in the completed project and accepted by the Engineer.
7. Furnishing new manhole frames and covers (Item 5h) will be measured as the number of each provided to be installed in the completed project and accepted by the Owner and Engineer.
8. Furnishing new catch basin frames and grates (Item 5i) will be measured as the number of each provided to be installed in the completed project and accepted by the Owner and Engineer.

B. Payment

1. Payment for furnishing and installing precast concrete drain and sewer manholes (all types) complete in place will be made for the respective quantities as above determined at the respective unit prices bid for Items 5a-1 thru 5b-2 in the Bid Form. Price and payment shall be full compensation for all materials, labor, equipment, and incidentals for all saw cutting existing pavement, sidewalks, ramps, driveways and curbing; excavation; furnishing and installing precast sections and bases; cutting, removing and disposing of existing pipe to be replaced when constructing manhole on existing drain or sewer pipe; furnishing and installing cast in-place bases where shown on the Drawings or as directed by the Engineer; removal and disposal of existing manholes and excess material; manhole rungs; installing

frames and covers; all forms, reinforcing, concrete and masonry materials; brick channels and shelves or formed concrete inverts where shown on the Drawing or specified; maintenance of flow; flexible pipe repair couplings; top slabs for shallow manholes if used, acceptance and testing, and all else incidental thereto, for which separate payment is not provided under other items in the Bid Form.

2. Payment for furnishing and installing catch basins (installed within the street and Bradley Heads within the sidewalk), complete in place will be made for the quantity as above determined at the price bid for Item 5c in the Bid Form. Price and payment shall be full compensation for all materials, labor, equipment, and incidentals for saw cutting existing pavement, sidewalk, ramps, driveways and curbing; furnishing and installing precast 4-ft diameter concrete base and riser sections; furnishing and installing catch basin hoods as specified; installing City provided frame, cover and grate; saw cutting or coring outlet pipe hole based on field invert requirement; saw cutting or coring inlet manhole pipe hole based on field invert requirement; setting City provided 5' x 5' top slab and manhole frame and cover for Bradley Head catch basins; all forms, reinforcing, concrete and masonry materials; brick; excavation; disposal of excess material; acceptance and testing; and all else incidental thereto for construction of catch basins (in the street and Bradley Head catch basins in the sidewalk) as detailed on the Drawings and specified herein for which separate payment is not provided under other items in the Bid Form.
3. Payment for furnishing and installing concrete block gutter inlets, complete in place will be made for the quantity as above determined at the unit price bid for Item 5d in the Bid Form. Price and payment shall be full compensation for all materials, labor, equipment, and incidentals for saw cutting existing pavement, sidewalk, ramps, driveways and curbing; furnishing and installing precast concrete blocks; bricks and masonry; furnishing and installing cast-in-place concrete base; installing frame, cover and grate; saw cutting or coring inlet manhole pipe hole based on field invert requirement; all forms, reinforcing, concrete and masonry materials; furnishing, forming and shaping concrete inverts; excavation; disposal of excess material; acceptance and testing, and all else incidental thereto for construction of concrete block gutter inlets as detailed on the Drawings and specified herein for which separate payment is not provided under other items in the Bid Form.
4. Payment for adjusting manhole and catch basin castings to line and grade, complete in place, will be made for the quantity as above determined at the unit price bid for Item 5e in the Bid Form. Price and payment shall be full compensation for all materials, labor, equipment, and incidentals for saw cutting existing pavement, sidewalk, ramps, driveways and curbing; removal of existing casting and bricks; all forms, reinforcing, concrete and masonry materials; bricks and grade rings; resetting of castings; excavation; disposal of excess material; dewatering of manholes, structures and catch basins; cleaning and debris removal from manholes, structures and catch basins (City will pay for disposal of debris); acceptance and testing, and all else incidental thereto for which separate payment is not provided under other items in the Bid Form.
5. Payment for adjusting Bradley head catch basins and wash stone to line and grade, complete in place, will be made for the quantity as above determined at the unit price bid for Item 5f in the Bid Form. Price and payment shall be full compensation for all materials, labor, equipment, and incidentals for saw cutting existing pavement, sidewalk, ramps, driveways and curbing; removal of existing 5'x5' concrete Bradley head, concrete wash stone and bricks; all forms, reinforcing, concrete and masonry materials; bricks; installation of a new 5'x5' concrete top slab and concrete wash stone provided by the City of New Bedford

excavation; disposal of excess material; dewatering of catch basins; cleaning and debris removal from manholes, structures and catch basins (City will pay for disposal of debris); furnishing and installing a new catch basin hood on the outlet pipe; acceptance and testing, and all else incidental thereto for which separate payment is not provided under other items in the Bid Form.

6. Payment for changing structure type and adjusting to line and grade, complete in place, will be made for the quantity as above determined at the unit price bid for Item 5g in the Bid Form. Price and payment shall be full compensation for all materials, labor, equipment, and incidentals for saw cutting existing pavement, sidewalk, ramps, driveways and curbing; saw cutting existing structure; removal of existing casting and bricks; all forms, reinforcing, concrete and masonry materials; bricks and grade rings; furnishing and installing new concrete top slabs and barrel sections; resetting of castings; excavation; disposal of excess material; dewatering of manholes, structures and catch basins; cleaning and debris removal from manholes, structures and catch basins (City will pay for disposal of debris); acceptance and testing, and all else incidental thereto for which separate payment is not provided under other items in the Bid Form.
7. Payment for furnishing new 30-in diameter manhole frames and covers will be made for the quantity as determined above at the unit price bid in the Bid Form for Item 5h. Price and payment shall be full compensation for all materials, labor, equipment and incidentals to furnish new manhole frame and cover to any project location in the City of New Bedford or location directed by the Engineer; and all else incidental thereto for which payment is not provided under other items in the Bid Form.
8. Payment for furnishing catch basin frame and grate (all types) will be made for the quantity as determined above at the unit price bid in the Bid Form for Item 5i. Price and payment shall be full compensation for all materials, labor, equipment and incidentals to furnish new catch basin frame and grate to any project location in the City of New Bedford or location directed by the Engineer; and all else incidental thereto for which payment is not provided under other items in the Bid Form.
9. Payment for placement of aggregate material for fill in areas of over excavation directed by the Engineer shall be paid for under Item 13 in the Bid Form. Contractor shall not be eligible for payment of placement of aggregate material for fill in areas of over excavation where no direction was given by the Engineer or where it was performed for the convenience of the contractor.
10. New sewer and drain manholes shall be for 30-inch diameter frame and cover.
11. Payment for resetting existing curbing will be provided under Item 3c in the Bid Form.
12. Bricks and grade rings for adjusting drain and sewer manhole castings installed under Items 5a-1 thru 5b-2 to be paid for under Item 5e in the Bid Form.
13. Frames, covers and grates for new drain and sewer manholes and catch basins installed under Items 5a-1 thru 5b-2 and 5d shall be included under Items 5h and 5i. Under Items 5e and 5g, if a new casting is needed, it shall be paid for under Item 5h or 5i respectively.

1.07 VALVES, HYDRANTS, AND APPURTENANCES (Item 6 – OMITTED, Items 7a and 7b, Item 8 - OMITTED)

A. Measurement

1. Removal of existing hydrants and the installation of new hydrants (Item 7a) will be measured as the actual number of new hydrant assemblies installed in the completed project and accepted by the Engineer.
2. Relocation of an existing hydrant and installation of a new hydrant assembly and anchoring tee (Item 7b) will be measured as the actual number of each existing hydrant assembly relocated and accepted by the Engineer.
3. The payment limits for trench excavation shall not exceed the trench widths defined for rock.

B. Payment

1. Payment for removal of an existing hydrant and installation of a new hydrant will be made for the quantity as above determined at the unit price bid for Item 7a in the Bid Form. Price and payment shall be full compensation for all materials, labor, equipment, and incidentals for saw cutting existing pavement, sidewalk, ramps, driveways and curbing; saw cutting existing watermain; removing the existing hydrant and piping; handling leakage through existing closed valves; furnishing and installing restraining joints and fittings; setting of the hydrant; jointing; furnishing, installing and testing DI pipe; providing screened gravel drainage pockets; tie rods; furnishing and installing concrete supports and thrust blocks as required; cleaning; testing; chlorinating; maintenance of flow; excavation; disposal of excess material; acceptance and testing, and all else incidental thereto for construction of new hydrant as detailed on the Drawings and specified herein for which separate payment is not provided under other items in the Bid Form.
 - a. This item shall be used when the existing hydrant anchoring tee at the main and hydrant gate valve and box are to remain.
2. Payment for relocating an existing hydrant and installation of a new hydrant and anchoring tee will be made for the quantity as above determined at the unit price bid for Item 7b in the Bid Form. Price and payment shall be full compensation for all materials, labor, equipment, and incidentals for saw cutting existing pavement, sidewalk, ramps, driveways and curbing; saw cutting existing watermain; removing the existing hydrant and piping; handling leakage through existing closed valves; furnishing and installing restraining joints and fittings; setting the hydrant; jointing; furnishing, installing and testing DI pipe between main and hydrant; furnishing and installing main line anchoring tee of the size required with anchoring gate valve; installing new owner provided CL 52 DI pipe and fittings for mainline watermain replacement; installing connections; furnishing and installing valve box with cover; providing screened gravel drainage pockets; tie rods; furnishing and installing concrete supports and thrust blocks as required; abandoning existing hydrant connection and valve by cutting and removing existing hydrant tee and valve and installing new; cleaning; testing; chlorinating; maintenance of flow; excavation and disposal of excess material; and all else incidental thereto for construction of new hydrant as detailed on the Drawings and specified herein for which separate payment is not provided under other items in the Bid Form.
 - a. This item shall be used when a new hydrant assembly is being installed from the main including new anchoring tee.

- b. For purposes of bidding, Contractor shall assume water main lines are 6-in, 8-in, 10-in and 12-in in diameter.
3. Payment for placement of aggregate material for fill in areas of over excavation directed by the Engineer shall be paid for under Item 13 in the Bid Form. Contractor shall not be eligible for payment of placement of aggregate material for fill in areas of over excavation where no direction was given by the Engineer or where it was performed for the convenience of the contractor.
4. Payment for adjusting gate valve boxes and covers to finished grade shall be paid for under Item 5e in the Bid Form.

1.08 UTILITY RELOCATIONS (Items 9a thru 9f)

A. Measurement

1. Water main relocations, 4-in, 6-in, 8-in, 10-in and 12-in (Item 9a) will be measured in linear feet between the cut ends of the existing pipe where shown on the Drawings ordered by the Engineer. Replacements may be ordered by the Engineer to address conflicts with new drains, sewer and/or service laterals. No compensation will be made for replacement of lines damaged or broken by the Contractor's operations.
2. Measurement of the relocation of existing domestic water service connections (all sizes) (Item 9b) shall be on a linear foot basis.
3. Measurement for the relocation of existing sewer service connections (6-in and 8-in) (Item 9c) shall be measured on a linear foot basis.
4. Measurement for the complete replacement of water gate box and curb stop boxes to line and grade (Item 9d) shall be the actual number of each existing gate valve box or curb stop boxes that are replaced to line and grade and accepted by the Engineer.
4. Measurement for the adjustment of top section of water gate box and curb stop box to line and grade (Item 9e) the actual number of each gate valve or curb stop boxes adjusted to line and grade and accepted by the Engineer.
9. Only those water and sewer services that must be relocated due to direct conflict with the new sewer, new water mains, or new drains shall be measured for payment. No payment will be made for water or sewer services that are damaged by the Contractor through error or for his/her own convenience.
10. The payment limits for trench excavation shall not exceed the trench widths defined for rock.

A. Payment

1. Payment for 4-in, 6-in, 8-in, 10-in and 12-in water main relocations of as shown on the Drawings or when ordered by the Engineer will be made for the quantity as determined above at the price bid for Item 9a in the Bid Form. Price and payment shall be full compensation for all materials, labor, equipment, and incidentals for saw cutting existing pavement, sidewalk, ramps, driveways and curbing; laying, jointing, cleaning, testing, disinfecting and sampling the line; installing all fittings including restrained joints (tees,

bends, crosses, reducers, solid sleeves, couplings, etc.) provided by the Owner; cutting and connecting to existing water pipes; handling leakage through closed valves; maintenance of flow; concrete encasement; excavation; disposal of excess material; acceptance and testing, and all else incidental thereto, for which separate payment is not provided under other items in the Bid Form.

2. Payment for the relocation of existing domestic water service connections (all sizes) will be made for the respective quantity as determined above at the unit price bid under Item 9b in the Bid Form. This price and payment shall be full compensation for saw cutting existing pavement, sidewalk, driveways, ramps and curbing; removal and disposal of existing water service pipe to be relocated; installing new curb stop with box; laying, jointing, cleaning, chlorinating and testing of new copper tubing; installing all required pipe couplings, adapters, fittings and appurtenances required to execute such connections; excavation; disposal of excess material; acceptance and testing, and all else incidental thereto for which separate payment is not provided under other items in the Bid Form.

- a. Access to private property not required for this Bid Item.

3. Payment for the relocation of existing sewer service connections (6-in and 8-in) will be made for the respective quantity as determined above at the unit price under Item 9c in the Bid Form. This price and payment shall be full compensation for saw cutting existing pavement, sidewalks, driveways, ramps, and curbing; cutting, removal and disposal of existing sewer service pipe; furnishing, laying, jointing, cleaning, and testing of the new PVC or CL 52 DI service connections; new CL 52 DI chimneys as detailed on the Drawings where directed by the Engineer; new sewer service cleanout as detailed including box and cover adjusted to finished grade; pipe adapters, fittings, flexible pipe repair couplings; concrete encasement; maintenance of flow; excavation; disposal of excess material; acceptance and testing and all else incidental for which separate payment is not provided under other items in the Bid Form.

4. Payment for furnishing and installing new gate valve box on existing valve and new curb stop boxes on existing curb stops, complete in place will be made for the quantity as above determined at the unit price bid for Item 9d in the Bid Form. Price and payment shall be full compensation for all materials, labor, equipment, and incidentals for saw cutting existing pavement, sidewalk, ramps, driveways and curbing; removal of existing gate valve box or curb stop box; all forms, reinforcing, concrete and masonry materials; furnishing and installing, setting and aligning new gate valve box and cover or curb stop box and cover; protection of the actuator and operating nut; installation of a posi-cap if required; excavation; disposal of excess material; acceptance and testing; and all else incidental thereto for which separate payment is not provided under other items in the Bid Form.

5. Payment for adjusting gate valves and boxes and curb stop boxes, complete in place will be made for the quantity as above determined at the unit price bid for Item 9e in the Bid Form. Price and payment shall be full compensation for all materials, labor, equipment, and incidentals for saw cutting existing pavement, sidewalk, ramps, driveways and curbing; adjusting valve box or curb stop to finished line and grade; all forms, reinforcing, concrete and masonry materials; protection of the valve box, actuator and operating nut; excavation; disposal of excess material; acceptance and testing; and all else incidental thereto for which separate payment is not provided under other items in the Bid Form.

- a. If during the adjustment of the gate valve and box or curb stop and box, it is determined by the Engineer that the type of gate valve and box or curb stop and box

is not of an adjustable type, payment for complete replacement shall be paid for under Item 9d in lieu of Item 9e. Any gate valve and box or curb stop and box called for adjustment on the Drawings or directed by the Engineer that is fully replaced without the permission of the Engineer shall not be measured for payment.

6. Payment for placement of aggregate material for fill in areas of over excavation directed by the Engineer shall be paid for under Item 13 in the Bid Form. Contractor shall not be eligible for payment of placement of aggregate material for fill in areas of over excavation where no direction was given by the Engineer or where it was performed for the convenience of the contractor.

1.09 EQUIPMENT RENTAL AND LABOR (Items 10a thru 10o, 11a thru 11b)

A. Measurement

1. Measurement for payment for furnishing and supplying equipment and laborers/crew members to operate the equipment of the type and size specified in the Bid Form (Items 10a thru 10o) will be measured on a per hour basis for the equipment actually supplied and used in the completed project and accepted by the Engineer.
2. Measurement for payment for furnishing and supplying laborers/crew members of the job classification specified in the Bid Form (Item 11a and Item 11b) will be measured on a per hour basis for the employee actually supplied and used in the completed project and accepted by the Engineer.
3. Equipment and laborers/crew members that are on the job site and determined by the Engineer to be idling as a result of inactivity or improper use as determined by the Engineer will not be measured for payment under this item. The Engineer will record and log each piece of equipment labor category and the hours of use of each equipment and laborer and those totals will be deemed the final.

B. Payment

1. Payment for furnishing and supplying equipment and laborers/crew members to operate the equipment will be made for the respective quantity as determined above at the unit price under Items 10a thru 10o in the Bid Form. This price and payment shall be full compensation for furnishing and operating the specified piece of equipment; all transport costs to deliver equipment from Contractor's yard or rental facility to and from the project site; all costs to relocate equipment to and from local yard in the City of New Bedford and project site(s); fuel; furnishing laborers/crew members with adequate certifications and training to operate the equipment; and all else incidental thereto for which separate payment is not provided under other items in the Bid Form. Contractor shall ensure that equipment is in proper working condition throughout the duration of the project.
2. Payment for furnishing and supplying laborers/crew members of the documented status be made for the respective quantity as determined above at the unit price under Items 11a and 11b in the Bid Form. This price and payment shall be full compensation for furnishing staff of the type documented in the Bid Form with proper certifications; and all else incidental thereto for which separate payment is not provided under other items in the Bid Form.

- a. Item 11a shall be for additional staff needed to complete the work in the project above and beyond those needed to operate equipment which shall be included under Items 10a thru 10p.
3. The cost of all labor (excluding project foreman) shall be paid for under the appropriate items in the Bid Form and not measured for payment under Item 11a.
4. The cost of the project foreman will be included under Item 11b for all bid items.
5. Should the Engineer or Owner direct the Contractor to provide survey services for a project as specified section 00800 Paragraph 8.08.A; payment for such services shall be made under Item 11a. No separate payment for foreman to support survey services under Item 11a shall be made. Use of Item 11a for survey support shall only be made with the permission of the Engineer.

1.10 FILL MATERIALS (Items 12a thru 12k)

A. Measurement

1. Quarry Stone of the type and size specified in the Bid Form delivered to any location in City (Items 12a thru 12d) when its use is approved by the Engineer and when furnished, placed and compacted will be measured in cubic yards at actual in-place dimensions as determined by the Engineer. When used in trenches the payment limits shall not exceed the trench widths defined for rock. No allowance will be made for loss from consolidation of material. Truck measurement will not be permitted.
2. Gravel borrow/bank run gravel delivered to any location in City (M1.03 Type "B") (Item 12e), when its use is approved and when furnished, placed and compacted for pavement sub-base, structural fill in trenches, and for miscellaneous uses will be measured in cubic yards at actual in-place dimensions as determined by the Engineer. No allowance will be made for loss from consolidation of material. Truck measurement will not be permitted.
3. Modified rockfill delivered to any location in City (M2.02.4) (Item 12f), when its use is approved and when furnished and placed will be measured in cubic yards at actual in-place dimensions as determined by the Engineer. No allowance will be made for loss from consolidation of material. Truck measurement will not be permitted.
4. Processed Gravel delivered to any location in City (M1.03.1) (Item 12g), when its use is approved and when furnished, placed and compacted will be measured in cubic yards at actual in-place dimensions as determined by the Engineer. No allowance will be made for loss from consolidation of material. Truck measurement will not be permitted.
5. Stone dust delivered to any location in City (Item 12h) when its use is approved and when furnished, placed and compacted will be measured in cubic yards at actual in-place dimensions as determined by the Engineer. No allowance will be made for loss from consolidation of material. Truck measurement will not be permitted.
6. Ordinary borrow material delivered to any location in City (M1.01.0) (Item 12i) when its use is approved and when furnished, placed and compacted will be measured in cubic yards at actual in-place dimensions as determined by the Engineer. When used in trenches the payment limits shall not exceed the trench widths defined for rock. No allowance will be made for loss from consolidation of material. Truck measurement will not be permitted.

7. Controlled low-strength material (CLSM) Type 2E (M4.08.0) delivered to any location in City (Item 12j), used in conjunction with utility crossings and at other locations when its use is ordered by the Engineer will be measured in cubic yards at actual in-place dimensions as determined by the Engineer. When used in trenches the payment limits shall not exceed the trench widths defined for rock. No allowance will be made for loss from consolidation of material. Truck measurement will not be permitted. Flowable fill placed at locations not indicated on the Drawings or without the prior approval of the Engineer shall not be measured for payment.
8. Reclaimed pavement borrow material (“K” Base) delivered to any location in City (M1.09.0) (Item 12k) when its use is approved and when furnished, placed and compacted will be measured in cubic yards at actual in-place dimensions as determined by the Engineer. When used in trenches the payment limits shall not exceed the trench widths defined for rock. No allowance will be made for loss from consolidation of material. Truck measurement will not be permitted.

B. Payment

1. Payment for quarry stone, gravel borrow, modified rockfill, processed gravel, stone dust, and CLSM will be made for the quantity determined above at the respective unit price bid for Items 12a thru 12k in the Bid Form. This price and payment shall be full compensation for furnishing, hauling, placing, compacting and all else incidental thereto for which separate payment is not provided under other items.
2. Payment for screened gravel refill material to replace unsuitable material below normal pipe grade will be included in Item 13.
3. Payment for gravel refill materials to refill rock and boulder excavation will be included elsewhere.
4. Payment for reclaimed pavement borrow used for sidewalks, wheel chair ramps and driveway aprons will be included under the respective bid item and shall not be paid for under Items 12k.
5. Payment for material to amend gradation in areas of roadway reclamation shall be paid for under Item 1n.
6. Payment for granular fill materials used in pipe and structure bedding, trench backfill, and encasements is incidental to the cost of the project and shall not be measured for payment under Item 12a thru 12k.
7. Payment for reclaimed pavement borrow material refill material to replace unsuitable material below normal roadway grade will be included under Item 1q.

1.11 EARTH EXCAVATION AND REFILL BELOW NORMAL GRADE (Item 13)

A. Measurement

1. Measurement of earth excavation and refill below normal pipe grade (Item 13) will extend only downward from the dimensions defining normal grade on the Drawings, to a depth determined by the Engineer. If occurring in trenches, the width for measurement will be as

defined for rock excavation or as approved by the Engineer. Normal grade is defined as the bottom of the pipe trench.

2. If the trench bottom is below normal grade through error by the Contractor or if improper drainage softens the subgrade and additional excavation in the trench or roadway is required before laying the pipe/roadway base material, such removal and replacement of material will not be measured for payment.
3. No allowance will be made for shrinkage or compaction of gravel in place. Measurement by truck count will not be permitted.
4. Furnishing and placing screened gravel in accordance with the Specifications to replace excavation below normal grade is included in this work and will not be measured for payment under Item 12.
5. Furnish and placing reclaimed pavement borrow in accordance with the Specification to replace excavation below normal roadway grade will be paid for under Item 1q.

B. Payment

1. Payment for earth excavation and refill below normal pipe grade will be made for the quantity as above-determined at the price per cubic yard bid for Item 13 in the Bid Form which price and payment shall be full compensation for excavation and disposal of all materials below normal grade; furnishing, placing and compacting screened gravel, and all other work incidental thereto for which separate payment is not provided under other items in the Bid Form.
2. No payment will be made under Item 1q and 12 for refill below normal roadway or pipe grade.

1.12 SEDIMENTATION AND EROSION CONTROL (Items 14a and 14b)

A. Measurement

1. Furnishing, installing, and maintaining compost socks (Item 14a) shall be measured on a linear foot basis of compost sock actually furnished, installed and maintained in the completed project and accepted by the Engineer.
2. Furnishing, installing, and maintaining catch basin filter traps (Item 14b) shall be measured on an each basis for the actual number of catch basin filter traps actually furnished, installed and maintained in the completed project and accepted by the Engineer.

B. Payment

1. Payment for compost socks and catch basin filter traps will be made for the respective quantity as determined above at the unit price under Items 14a thru 14b respectively in the Bid Form. Price and payment shall be full compensation for all materials, labor, equipment, and incidental work necessary to furnish, install, maintain, replace, and remove sedimentation and erosion control measures of the type indicated on the Drawings for the duration of the project as shown on the Drawings, specified herein or directed by the Owner and Engineer.

1.13 MASONRY WORK (Items 15a thru 15d, 16a thru 16c and 17a and 17b)

A. Measurement

1. Furnishing new brick pavers (Boston Pavers) for sidewalks, crosswalks, amenity strips and miscellaneous uses (Item 15a) will be measured in place on a square yard basis of bricks supplied in the completed project and accepted by the Owner and Engineer.
2. Installing brick pavers – all types, sizes and patterns with concrete base (Item 15b) will be measured in place on a square yard basis of bricks with concrete base installed in the project and accepted by the Owner and Engineer. This item shall be used for sidewalks, amenity strips and miscellaneous locations where traffic loading will not occur.
3. Resetting existing brick pavers – all types, sizes and patterns (Item 15c) will be measured in place on a square yard basis of bricks reset with concrete base in the project and accepted by the Owner and Engineer.
4. Removing and stacking existing brick pavers – all types and sizes (Item 15d) will be measured in place on a square yard basis of bricks removed and stacked in the project and accepted by the Owner and Engineer.
5. Installing Belgian Pavers with concrete base (Item 16a) will be measured in place on a square yard basis of Belgian Pavers installed with concrete base in the project and accepted by the Owner and Engineer.
6. Removing and stacking Belgian Pavers (Item 16b) will be measured in place on a square yard basis of Belgian Pavers removed and stacked in the project and accepted by the Owner and Engineer.
7. Repointing of existing Belgian Pavers (Item 16c) will be measured in place on a square yard basis of existing Belgian Pavers repointed in the project and accepted by the Owner and Engineer.
8. Removing and stacking existing bluestone – all sizes (Item 17a) will be measured in place on a square yard basis of bluestone removed and stacked in the project and accepted by the Owner and Engineer.
9. Installing bluestone (2-in and 3-in) sidewalk, cross walk, driveway apron or wheelchair ramp with concrete base (Item 17b-1 and 17b-2 respectively) will be measured on a square yard basis of bluestone installed in the project and accepted by the Owner and Engineer.
10. Existing materials to be removed and stacked and or reset that is damaged as a result of the Contractor’s negligence, lack of protection or carelessness shall not be measured for payment and shall be replaced at no additional cost to the Owner.

B. Payment

1. Payment for furnishing new brick pavers (Boston Pavers) for sidewalks, crosswalks, amenity strips and miscellaneous uses will be made for the quantity as determined above at the unit price bid in the Bid form for Item 15a. Price and payment shall be full

compensation for all materials, labor, equipment and incidentals to furnish new brick pavers – Boston Pavers specified to any project location in the City of New Bedford or location directed by the Engineer; and all else incidental thereto for which payment is not provided under other items in the Bid Form.

2. Payment for installing new brick pavers (all types, sizes and patterns) with concrete base will be made for the quantity as determined above at the unit price bid for Item 15b in the Bid Form. Payment shall be full compensation for material, labor, equipment and incidentals, including delivering stacked brick pavers from storage area to the work site; shaping and compacting sub grade to required grade and cross section; furnishing, placing and compacting 8-in reclaimed pavement borrow material subbase; forming, placing, and shaping the 4-in concrete sub-base with 2-in diameter weep holes with rice stone; furnishing, placing and grading stonedust level course; installing new or salvaged brick pavers (all types, sizes, and patterns) to the pattern, lines and grades shown on the Drawings on concrete sub-base; saw cutting and placing brick unit pavers around site furnishing, castings, and concrete foundations as required; coordinating with private property owners; protection of new curbing and concrete sidewalk; concrete finishing work; brooming filler material into bricks; cleaning; and all else incidental thereto, for which separate payment is not provided under other items in the Bid Form.
3. Payment for resetting existing brick pavers (all types, sizes and patterns) will be made for the quantity as determined above at the unit price bid for Item 15c in the Bid Form. Payment shall be full compensation for material, labor, equipment and incidentals, including delivering stacked bricks from storage area to the work site; removing and stacking existing bricks; saw, removing and disposing of existing concrete base if present; shaping and compacting sub grade to required grade and cross section; installing salvaged brick pavers (all types, sizes, and patterns) to the pattern, lines and grades shown on the Drawings on new concrete 4-in sub-base with 2-in diameter weep holes with rice stone; furnishing, placing and grading stonedust level course; saw cutting and placing brick unit pavers around site furnishing, castings, and concrete foundations as required; coordinating with private property owners; protection of new curbing and concrete sidewalk; concrete finishing work; brooming filler material into bricks; cleaning; and all else incidental thereto, for which separate payment is not provided under other items in the Bid Form.
4. Payment for removing and stacking existing brick pavers (all types and sizes) will be made for the quantity as determined above at the unit price bid in the Bid Form for Item 15d. Price and payment shall be full compensation for all materials, labor, equipment, and incidentals to remove existing bricks (all types and sizes) including saw cutting; removal of the existing bricks; saw cutting, removing and disposing of existing concrete base if present; handling and stacking of the bricks; protection of the bricks; and all else incidental thereto for which payment is not provided under other items in the Bid Form.
5. Payment for installing Belgian Pavers (all patterns) with concrete base will be made for the quantity as determined above at the unit price bid for Item 16a in the Bid Form. Payment shall be full compensation for material, labor, equipment and incidentals, including delivering stacked Belgian Pavers from storage area to the work site; cleaning and removal of deleterious material from the Owner provided Belgian pavers; saw cutting; shaping and compacting sub grade to required grade and cross section; furnishing, placing and compacting 8-in reclaimed pavement borrow material subbase; forming, placing, and shaping the 6-in reinforced concrete sub-base with 2-in diameter weep holes with rice stone; furnishing, placing and grading stonedust level course; installing new or salvaged

Belgian Pavers (all types, sizes, and patterns) to the pattern, lines and grades shown on the Drawings on concrete sub-base; pointing of joints with wet mortar method; saw cutting and placing unit pavers around site furnishing, structures, castings, and concrete foundations as required; coordinating with private property owners; protection of structures, curbing and concrete sidewalk; concrete finishing work; cleaning; and all else incidental thereto, for which separate payment is not provided under other items in the Bid Form.

6. Payment for removing and stacking Belgian pavers (all types and sizes) will be made for the quantity as determined above at the unit price bid in the Bid Form for Item 16b. Price and payment shall be full compensation for all materials, labor, equipment, and incidentals to remove existing Belgian pavers; saw cutting, removing and disposing of concrete subbase if present; saw cutting; removal of the existing pavers; handling and stacking of the pavers; protection of the pavers; and all else incidental thereto for which payment is not provided under other items in the Bid Form.
7. Payment for repointing of existing Belgian pavers with mortar joints will be made for the quantity as determined above at the unit price bid in the Bid Form for Item 16c. Price and payment shall be full compensation for all materials, labor, equipment and incidentals to remove existing mortar within joints between Belgian Pavers; clean joints of excess material and debris; cleaning of Belgian Pavers; furnishing and installing mortar using wet placement method into joints (dry packing is not allowed); finishing joints; protection of curbing, structures and gate boxes; disposal of excess material; and all else incidental thereto for which payment is not provided under other items in the Bid Form.
8. Payment for removing and stacking existing bluestone (all sizes) will be made for the quantity as determined above at the unit price bid in the Bid Form for Item 17a. Price and payment shall be full compensation for all materials, labor, equipment, and incidentals to remove existing bluestone (all sizes) including saw cutting; saw cutting, removing and disposing of existing concrete base if present; handling and stacking of the bluestone; protection of the bluestone; and all else incidental thereto for which payment is not provided under other items in the Bid Form.
9. Payment for installing 2-in blue stone in sidewalk with concrete base will be made for the quantity as determined above at the unit price bid for Item 17b-1 in the Bid Form. Payment shall be full compensation for material, labor, equipment and incidentals, including delivering stacked blue stone from storage area to the work site; shaping and compacting sub grade to required grade and cross section; furnishing, placing and compacting 8-in reclaimed pavement borrow subbase; forming, placing, and shaping the 4-in concrete sub-base with 2-in diameter weep holes with rice stone; furnishing, placing and grading stonedust level course; installing Owner provided new 2-in blue stone to the pattern, lines and grades shown on the Drawings on concrete sub-base; saw cutting and placing blue stone around site furnishing, castings, and concrete foundations as required; coordinating with private property owners; protection of new curbing and concrete sidewalk; concrete finishing work; cleaning; disposal of excess material; and all else incidental thereto, for which separate payment is not provided under other items in the Bid Form.
10. Payment for installing 3-in blue stone in cross walk, driveway apron or wheelchair ramp with concrete base will be made for the quantity as determined above at the unit price bid for Item 17b-2 in the Bid Form. Payment shall be full compensation for material, labor, equipment and incidentals, including delivering stacked blue stone from storage area to the

work site; shaping and compacting sub grade to required grade and cross section; furnishing, placing and compacting 8-in reclaimed pavement borrow subbase; forming, placing, and shaping the 6-in reinforced concrete sub-base with 2-in diameter weep holes with rice stone; furnishing, placing and grading stonedust level course; installing Owner provided new 3-in blue stone to the pattern, lines and grades shown on the Drawings on concrete sub-base; saw cutting and placing blue stone around site furnishing, castings, and concrete foundations as required; coordinating with private property owners; protection of new curbing and concrete sidewalk; concrete finishing work; cleaning; disposal of excess material; and all else incidental thereto, for which separate payment is not provided under other items in the Bid Form.

11. Payment for adjusting service or gate valve boxes will be paid for under Item 9e in the Bid Form.
12. Payment for adjusting structure castings to finished grade will be paid for under Item 5e in the Bid Form.
13. City of New Bedford will provide Belgian Pavers and blue stone to Contractor. Contractor is responsible for materials and delivering them from the City Yard to the project location.

1.14 ROCK AND BOULDER EXCAVATION (Items 18a and 18b)

A. Measurement

1. When rock is encountered, the material shall be uncovered and the Engineer notified. The Engineer will then take cross sections of the rock surface. If the Contractor fails to uncover the ledge, notify the Engineer and allow ample time for cross sectioning the undisturbed material, the Contractor shall have no right-of-claim to any classification other than that allowed by the Engineer. Removal of old concrete foundations, if any, shall be classified as rock. Removal of concrete pavement, concrete sub-base, or concrete pipe/structures specifically called out to be paid for under other items in the Bid Form shall not be measured as rock removal.
2. Measurement of rock excavation in pipe trenches will extend to the width as specified below:

<u>Depth from Ground</u> <u>Surface to Invert of Pipe</u>	<u>Pay Width</u> <u>(Nominal Pipe Diameter)</u>	
	<u>0 to 24-in</u>	<u>over 24-in</u>
0 to 12-ft	5-ft-0-in	D + 3-ft-0-in
12-ft to 20-ft	7-ft-0-in	D + 5-ft-0-in
20-ft to 24-ft	8-ft-0-in	D + 5-ft-0-in

Measured widths for depths over 20-ft shall be determined case-by-case consistent with the foregoing chart.

- a. Payment depth for rock which is encountered in a trench shall be no less than three feet when removal can be accomplished only by drilling or by use of jack (air or hydraulic) hammers.

- b. Payment for rock removed, using the same or equal equipment as utilized for normal trench excavation, shall be limited to the actual depth removed within the limits established by the contract documents.
3. Measurement for depth shall be from the top of the rock formation to the normal depth of the pipe as shown on the Drawings.
4. The pay limit for rock and boulder removal for manholes shall commence one foot outside the widest dimension of the structure or shall be the maximum connecting trench width, whichever is greater. No allowance will be made for overbreakage.
5. Boulders and concrete structures exceeding 1 cu yd in volume when encountered in excavation will be measured for payment unless the removal of the concrete structure is being paid for under other items in the Bid Form. Removal of boulders of whatever size will not be paid for when encountered in borrow areas.
11. The quantity of rock and boulder excavation to be paid for shall be the number of cubic yards of rock or boulders measured in place within the limits herein specified.
12. The payment for removal of concrete pavement, concrete curbing, concrete sidewalk and concrete sub-base shall be paid for under the appropriate item in the Bid Form.
13. Payment for the removal of concrete structures and pipelines specifically called out for payment under other items shall not be paid for under this item.

B. Payment

1. Payment for rock and boulder excavation will be made for the quantities as determined above at the unit price established for Item 18a in the Bid Form. This price and payment shall be full compensation for excavation, mechanical removal and disposal of rock and boulder, backfilling and providing borrow for any deficiency of trench backfill and all work incidental thereto, for which separate payment is not provided under other items in the Bid Form.
2. Payment for rock and boulder excavation will also be made for the quantities as determined above at the unit price bid for Item 18b in the Bid Form. This price and payment shall be full compensation for any additional costs associated with rock and boulder excavation over and above the unit price established for Item 18a.
3. No payment will be made under any other items refill material to replace any deficiency of backfill material.

1.15 TRAFFIC AND STREET SIGNS (Items 19a and 19b)

A. Measurement

1. New MUTCD street name signs (Item 19a) and new roadway ornamental street name signs (Item 19b) shall be measured as the number of each actually furnished and installed in the completed project and accepted by the Owner and Engineer.

B. Payment

1. Payment for furnishing and installing new MUTCD compliant street name signs as specified will be made for the quantity determined above at the unit price bid for Item 19a in the Bid Form. This price and payment shall be full compensation for all labor, equipment, materials and incidentals required to furnish and install new MUTCD compliant street signs with heavy duty galvanized Type P-5 posts and all mounting hardware at the locations shown on the Drawings and as directed by the Engineer, and all else incidental thereto for which separate payment is not provided under other items in the Bid Form.
2. Payment for furnishing and installing new ornamental street name signs as specified will be made for the quantity determined above at the unit price bid for Item 19b in the Bid Form. This price and payment shall be full compensation for all labor, equipment and materials required to furnish and install ornamental street name signs with ornamental black colored baked enamel P-5 posts and all mounting hardware at the locations shown on the Drawings in Appendix D and as directed by the Engineer, and all else incidental thereto for which separate payment is not provided under other items in the Bid Form.
3. Payment for removal and salvaging existing roadway traffic and street signs for reinstallation and delivering them to the Department of Public Infrastructure is considered incidental to the cost of the project and no separate payment will be given.

1.16 TEST PITS (Item 20)

A. Measurement

1. Test pits (Item 20) will be measured in cubic yards in accordance with the following established volume rates:

<u>Test Pit Depth</u>	<u>Cu. Yds per vert. Ft.</u>
0 to 8 ft	1.5
Over 8 ft	2.0

B. Payment

1. Payment for test pits will be made for the quantities as determined above at the unit price bid for Item 20 in the Bid Form. This price shall be full compensation for cutting existing pavement, sidewalks, curbing, ramps and driveways; excavation (including hand excavation or vacuum excavation), exposing and obtaining both top and bottom elevations of existing utilities and/or structures; backfilling; compaction; restoring trench surface to grade, and all incidental work required to complete the test pits for which separate payment is not provided under other items in the Bid Form.
2. The Contractor is responsible for all costs associated with repair work and out of service time of all broken or damaged existing culverts, sewers, or utilities as a result of any action by the Contractor. If the exploratory excavation results in damage to private utilities, contact the owner of such utility and coordinate the repair at no cost to the City of New Bedford.

1.17 TREES (Item 21a thru 21d)

A. Measurement

1. Removal and disposal of existing trees and stumps for trees between 1-in and 12-in diameter (Item 21a) and trees larger than 12-in in diameter (Item 21b) shall be measured as the number of trees actually removed in the completed project and accepted by the Engineer.
2. Planting of new trees (Item 21c-1 thru 21c-3) of the species and caliper specified and shown on the Drawings shall be measured as the number of trees planted and accepted in the completed project by the Engineer.
3. Measurement for furnishing and installing pine bark mulch (M6.04.5) at any location in City (Item 21d), when its use is approved will be measured in square yards at actual in-place dimensions as determined by the Engineer. No allowance will be made for loss from consolidation of material. Truck measurement will not be permitted.

B. Payment

1. Payment for the removal and disposal of existing trees between 1-in and 12-in diameter (Item 21a) and trees larger than 12-in in diameter (Item 21b) will be made for the quantity as above determined at the unit price bid in the Bid Form. This price and payment shall be full compensation for all labor, equipment, materials and incidentals required for cutting, removing and disposing of existing trees and tree stumps; coordinating with private property owners, Engineer and Owner; retaining the services of a tree care professional to oversee the tree removals; protection of wires and property; grinding or removal of stumps; furnishing, placing, backfilling and compacting and all else incidental thereto, for which separate payment is not provided under other items in the Bid Form.
 - a. Grub and remove all stumps, roots in excess of 1.5-in in diameter, matted roots and other materials to a depth of 18-in below original grade or 18-in below the bottom of foundation and pavement sub-base, whichever is deeper. Refill all grubbing holes and depressions excavated below the original ground surface with ordinary borrow and compact to a density conforming to the surrounding ground surface.
2. Payment for planting of new trees will be made for the quantity as above determined at the unit price bid for Item 21c-1 through 21c-3 in the Bid Form. This price and payment shall be full compensation for all labor, equipment, materials and incidentals required for providing the necessary plant and tree life from off site, including plant/tree materials; planting soil and amendments; placing, compacting, fertilizing, testing and maintaining plant and tree life for the specified time after planting (2 years); and all else incidental thereto, for which separate payment is not provided under other items in the Bid Form. Trees shall be between 1-in and 3-in caliper trees.
3. Payment for furnishing and installing pine bark mulch (M6.04.5) at any location in City will be made for the quantity determined above at the respective unit price bid for Item 21d Bid Form. This price and payment shall be full compensation for furnishing, hauling, placing and leveling 4-in depth of pine bark mulch over the area directed by the Engineer or shown on the Drawings and all else incidental thereto for which separate payment is not provided under other items.

1.18 ELECTRICAL (Item 22a thru 22d)

A. Measurement

1. Furnishing and installing new street light foundations (Item 22a) shall be measured as the number of street light bases actually installed in the completed project and accepted by the Engineer.
2. Furnishing new street poles – New Bedford Style and Washington Style (Item 22b-1) shall be measured as the number of each provided to be installed in the completed project and accepted by the Owner and Engineer.
3. Installing new street poles – New Bedford and Washington Style (Item 22b-2) shall be measured as the number of street light poles actually installed in the completed project and accepted by the Engineer.
4. Installing new street light globes with LED luminaires (Item 22c) shall be measured as the number of luminaires actually installed in the completed project and accepted by the Engineer.
5. Electric conduit of the type and size specified on the Bid Form (Items 22d thru 22f) will be measured in place on a linear foot basis. Measurement for payment does not signify that the electric conduit is accepted.
 - b. Measurement of electric conduit for length will be along the horizontal centerline of the pipe with no deduction for manholes and fittings. Measurement will be to the center of manholes. Measurement for length will be to the nearest tenth of a foot.
6. Electric handhole boxes (Item 22g) shall be measured as the number of each actually installed in the completed project and accepted by the Engineer.
7. Excavation for installation of electric conduit and handhole boxes (Item 22h) shall be measured as the actual cubic yards of excavation required to install the electric conduit and hand holes. Measurement shall be along the centerline of the trench and depth of excavation shall be measured to the invert of the conduit or bottom of handhole. Measurement for length will be to the nearest tenth of a foot. Maximum payment for width shall be 2-ft. Any over excavation beyond the limits specified shall not be measured for payment.
 - a. Measurement of excavation for street light pole foundations shall be paid for under Item 22a and not measured for payment under this item.
8. Measurement for payment for furnishing and supplying a master electrician (Item 22i) and a journeyman electrician (Item 22j) will be measured on a per hour basis for the employee actually supplied and used in the completed project and accepted by the Engineer.

- C. Crew members that are on the job site and determined by the Engineer to be idling as a result of inactivity or improper use as determined by the Engineer will not be measured for payment under Item 22i or 22j. The Engineer will record and log each labor category and those totals will be deemed the final.

D. Payment

1. Payment for furnishing and installing new street light concrete foundations will be made for the quantity as above determined at the unit price bid for Item 22a in the Bid Form. This price and payment shall be full compensation for all labor, equipment, materials and incidentals required for saw cutting existing pavement, sidewalk, ramps, driveways and curbing; excavation; furnishing and installing precast concrete foundation for New Bedford style and Washington style light poles; conduit; fittings; special borrow backfill; grounding; all forms, reinforcing, concrete and masonry materials; disposal of excess material; and all else incidental thereto for installation of the new street light concrete foundation as detailed on the Drawings in Appendix A and specified herein for which separate payment is not provided under other items in the Bid Form.
2. Payment for furnishing new Washington or New Bedford style street light poles will be made for the quantity as determined above at the unit price bid in the Bid form for Item 22b-1. Price and payment shall be full compensation for all materials, labor, equipment and incidentals to furnish new Washington or New Bedford style light poles (Appendix B) to any project location in the City of New Bedford or location directed by the Engineer; and all else incidental thereto for which payment is not provided under other items in the Bid Form.
3. Payment for installing new street light poles – Washington and New Bedford style will be made for the quantity as above determined at the unit price bid for Item 22b-2 in the Bid Form. This price and payment shall be full compensation for all labor, equipment, materials and incidentals required for delivering stacked light poles from storage area to the work site; installing either Washington or New Bedford style light poles on concrete base; furnishing and installing receptacle on light pole; electrical work and wiring to connect and power light pole within limits detailed on the Drawings; masonry materials; disposal of excess material; and all else incidental thereto for installation of the new street light on a new concrete foundation as detailed on the Drawings in Appendix A and specified herein for which separate payment is not provided under other items in the Bid Form.
4. Payment for installing new LED luminaires will be made for the quantity as above determined at the unit price bid for Item 22c in the Bid Form. This price and payment shall be full compensation for all labor, equipment, materials and incidentals required for installing the LED luminaire on the light pole; electrical work to facilitate connecting the luminaire to the light pole wiring; and all else incidental thereto for installation of the LED luminaire on the light pole as detailed on the Drawings in Appendix C and specified herein for which separate payment is not provided under other items in the Bid Form.
5. Payment for furnishing and installing electrical conduit of the size and class specified will be made for the respective quantities as determined above at the unit price bid under Items 22d thru 22f in the Bid Form. Price and payment shall be full compensation for all materials, labor, equipment, and incidentals to core existing handholes where required to install new pipe and fittings (Appendix E); connecting to existing handholes; furnishing, laying, jointing, cleaning and testing the new pipe; concrete encasement; and all else incidental thereto, for which separate payment is not provided under other items in the Bid Form.
 - a. Payment for excavation shall be under Item 22h.

- b. Payment will be made for pipe only when it is installed in the ground and no so-called proportional payment shall be made for pipe on the site but not yet installed.
- 6. Payment for furnishing and installing new electrical handhole boxes will be made for the respective quantities as determined above at the unit price bid under Item 22g in the Bid Form. Price and payment shall be full compensation for all materials, labor, equipment, and incidentals to furnish and install new electrical handhole of the type and size specified; all forms, reinforcing, concrete and masonry materials; disposal of excess material and all else incidental thereto for which separate payment is not provided under other Items in the Bid Form.
 - a. Payment for excavation shall be under Item 22h.
- 7. Payment for excavation of trench for electrical conduit and handhole boxes (Item 22h) will be made for the respective quantities as determined above at the unit price bid under Item 22h in the Bid Form. Price and payment shall be full compensation for all materials, labor, equipment and incidentals required for saw cutting existing pavement, sidewalk, ramps, driveways and curbing; excavation; disposal of excess material; and all else incidental thereto for which separate payment is not provided under other Items in the Bid Form.
 - a. Maximum trench width shall be 2-ft. Any additional excavation beyond the specified limits shall not be measured for payment.
- 8. Payment for furnishing and supplying a master electrician and a journeyman electrician be made for the respective quantity as determined above at the unit price under Items 22i and 22j respectively in the Bid Form. This price and payment shall be full compensation for furnishing staff of the type documented in the Bid Form with proper certifications; and all else incidental thereto for which separate payment is not provided under other items in the Bid Form.

END OF SECTION

SECTION 01026
APPLICATION FOR PAYMENT

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Submit Applications for Payment to the Engineer in accordance with the schedule established by Conditions of the Contract and Agreement between Owner and Contractor.
- B. The accepted Schedule of Values, Section 01370, shall be used as the basis for the Contractor's Application for Payment.

1.02 RELATED WORK

- A. Agreement between Owner and Contractor is included in Section 00500.
- B. Standard General Conditions of the Construction Contract are included in Section 00700.
- C. Construction Photographs and Audio Video Taping are included in Section 01005.
- D. Schedule of Values are included in Section 01370.
- E. Contract Closeout is included in Section 01700.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, applications typed on forms provided by the Owner, Application for Payment, with itemized data typed on 8-1/2-in by 11-in or 8-1/2-in by 14-in white paper continuation sheets.
- B. Provide itemized data on continuation sheet.
 - 1. Format, schedules, line items and values: Those of the Schedule of Values accepted by the Engineer.
- C. Review Owner provide construction photographs and audio videotaping in accordance with Section 01005 and provide any supplemental documentation for review and approval prior to the start of construction.

1.04 PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT

- A. Application Form
 - 1. Fill in required information, including that for Change Orders executed prior to date of submittal of application.
 - 2. Fill in summary of dollar values to agree with respective totals indicated on continuation sheets.

3. Execute certification with signature of a responsible officer of Contract firm.

B. Continuation Sheets

1. Fill in total list of all scheduled component items of Work, with item number and scheduled dollar value for each item.
2. Fill in dollar value in each column for each scheduled line item when work has been performed or products stored.
 - a. Round off values to nearest dollar, or as specified for Schedule of Values.
3. List each Change Order executed prior to date of submission, at the end of the continuation sheets.
 - a. List by Change Order Number and description, as for an original component item of work.
4. To receive approval for payment on component material stored on site, submit copies of the original paid invoices with the application for payment.

C. Chapter 90 Request for Payment

1. A portion of this project is funded through Chapter 90 funds. Provide the required documentation in accordance with MassDOT requirements with each application for progress payment.

D. MassWorks Infrastructure Grant Request for Payment

1. A portion of this project is funded through a MassWorks Infrastructure Grant. Provide the required documentation in accordance with the MassWorks Infrastructure Program requirements with each application for progress payment.

E. Housing and Community Development Funding

1. A portion of this project is funded through Community Development Block Grants or other sources of funding the Department of Housing and Community Development. Provide the required documentation in accordance with the requirements with each application for progress payment.

1.05 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

- A. When the Owner or the Engineer requires substantiating data, submit suitable information, with a cover letter identifying.
1. Project.
 2. Application number and date.
 3. Detailed list of enclosures.

4. For stored products:

- a. Item number and identification as shown on application.
- b. Description of specific material.

B. Submit one copy of data and cover letter for each copy of application.

C. As a prerequisite for payment, submit a "Surety Acknowledgement of Payment Request" letter showing amount of progress payment which the Contractor is requesting.

1.06 PREPARATION OF APPLICATION FOR FINAL PAYMENT

A. Fill in Application form as specified for progress payments.

B. Use continuation sheet for presenting the final statement of accounting as specified in Section 01700 - Contract Closeout.

C. Submit all Project Record Documents in accordance with Section 01700.

D. Submit all required test reports.

1.07 SUBMITTAL PROCEDURE

A. Submit Applications for Payment to the Engineer at the times stipulated in the Agreement.

B. Number: Five copies of each Application.

C. When the Engineer finds Application properly completed and correct, he/she will transmit certificate for payment to Owner, with copy to Contractor.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01045
CUTTING, CORING AND PATCHING

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. This Section covers the cutting, coring, rough and finished patching of holes and openings in existing construction, or in parts of new construction. Procedures for cutting and patching will be the same for either condition.
- B. All cutting, coring, and rough patching shall be performed by the Contractor. Finish patching shall be the responsibility of the Contractor and shall be performed by the trade associated with the application of the particular finish.
- C. Provide all cutting, fitting and patching, including attendant excavation and backfill, required to complete the work or to:
 - 1. Make its several parts fit together properly.
 - 2. Uncover portions of the work to provide for installation of ill timed or improperly scheduled work.
 - 3. Remove and replace defective work.
 - 4. Remove and replace work not conforming to requirements of Contract Documents.
 - 5. Remove samples of installed work as specified for testing.
 - 6. Provide penetrations of structural surfaces and materials for installation of piping, ductwork, equipment and electrical conduit.
 - 7. Provide penetrations of non-structural surfaces and materials for installation of piping, ductwork, equipment and electrical conduit. The determination of what is a nonstructural surface or material shall be made by the Engineer.
 - 8. Remove, install, or relocate materials or equipment.
 - 9. Remove, install, or relocate driveway and walkway materials interfering with new sidewalks and driveway aprons included as part of this work.

1.02 RELATED WORK

- A. Summary of Work is included in Section 01010.
- D. Pipe penetrations and assemblies are included in Section 01180.

1.03 REFERENCES

- A. Massachusetts Department of Transportation Highway Division Standard Specifications and Details (MSSH), latest edition including all addenda.
- B. The City of New Bedford Department of Public Infrastructure Construction Specifications and Standards, latest edition including all addenda.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, a written request prior to executing any cutting or alteration which is not shown or detailed on the contract documents which affects or requires:
 - 1. Cutting structural members.
 - 2. Holes drilled in beams or other structural members.
 - 3. Work of the Owner or any separate contractor.
 - 4. Structural value or integrity of any element of the project.
 - 5. Integrity or effectiveness of weather-exposed or moisture-resistant elements or systems.
 - 6. Efficiency, operational life, maintenance or safety of operational elements.
 - 7. Visual qualities of sight-exposed elements including, but not limited to walls, fences, curbing, walkways, planting area or driveways.
- B. Request shall include:
 - 1. Identification of the project.
 - 2. Description of affected work.
 - 3. The reason for cutting, alteration or excavation.
 - 4. Effect on work of Owner or any separate contractor, or on structural or weatherproof integrity of project.
 - 5. Description of proposed work:
 - a. Method and extent of cutting, patching, alteration, or excavation.
 - b. Trades who will execute the work.
 - c. Products proposed to be used.
 - d. Extent of refinishing to be done.
 - 6. Alternatives to cutting and patching.
 - 7. If the work is considered out of scope, provide a cost proposal.

8. Confirmation of coordination with any separate contractor whose work will be affected.
 9. Related shutdown requests if required to do the work.
 10. Request for hot work permit if required to do the work.
- C. Submit written notice to the Engineer designating the date and the time the work will be uncovered.
 - D. When a written request is required, do not proceed with the work until a written notice to proceed is received from the Engineer.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Comply with specifications and standards for each specific product involved. Where there is no equivalent specification, the Contractor shall notify the Engineer who will provide a specification for the materials to be used.
- B. Concrete and grout for rough patching shall be as specified in the referenced technical specification documents.
- C. Materials for finish patching shall be equal to those of adjacent construction. Where existing materials are no longer available, use materials with equivalent properties and that will provide the same appearance. The materials are to be approved by the Engineer prior to their use.

PART 3 EXECUTION

3.01 INSPECTION

- A. Inspect existing conditions of project, including elements subject to damage or to movement during cutting and patching.
- B. After uncovering work, inspect conditions affecting installation of products, or performance of work.
- C. Report unsatisfactory or questionable conditions to the Engineer in writing; do not proceed with work until the Engineer has provided further instructions.

3.02 PREPARATION

- A. Provide adequate temporary support as necessary to assure structural value or integrity of affected portion of work.
- B. Protect surrounding materials and equipment prior to starting work.
- C. Contain and control cooling liquids and slurry produced by the cutting and coring operations.

- D. When the cutting or coring will result in the structure or equipment being exposed to provide adequate weather protection.
- E. Provide dewatering for excavation work.

3.03 PERFORMANCE

- A. Execute cutting and demolition by methods which will prevent damage to other work and will provide proper surfaces to receive installation of repairs.
- B. Execute excavating and backfilling by methods which will prevent settlement or damage to other work. When excavating in close proximity to piping, duct banks or other items subject to damage, use hand excavation.
- C. All equipment and workplace safety shall conform to OSHA standards and specifications pertaining to plugs, noise and fume pollution, wiring and maintenance.
- D. Where possible, employ original installer or fabricator to perform cutting and patching for:
 - 1. Weather-exposed or moisture-resistant elements.
 - 2. Sight-exposed finished surfaces.
- E. Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances and finishes.
- F. Restore work which has been cut or removed; install new products to provide completed work in accordance with requirements of Contract Documents.
- G. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes:
 - 1. For continuous surfaces, refinish to nearest intersection.
 - 2. For an assembly, refinish entire unit.
- H. Remove rubble and excess patching materials from the premises.

3.04 CORING

- A. All coring shall be performed in such a manner as to limit the extent of patching. Locate the rebar before coring to minimize cut throughs.
- B. Coring shall be performed with an approved non-impact rotary tool with diamond core drills.
- C. Size of holes shall be suitable for pipe, conduit, sleeves, equipment or mechanical seals to be installed.
- D. Fit work to minimize space to pipes, sleeves, ducts, conduit and other penetrations through surfaces.

- E. Fit to pipes and other penetrations in tanks to be water tight using seals or other methods defined in the specifications.
- F. All holes cut through concrete and masonry walls, slabs or arches shall be core drilled unless otherwise approved. All work shall be performed by mechanics skilled in this type of work.
- G. If holes are cored through floor slabs they shall be drilled from below where possible. If holes are drilled from above, provide protection and containment below the area being drilled to catch the plug and contain liquid and slurry.

3.05 CUTTING

- A. All cutting shall be performed in such a manner as to limit the extent of patching.
- B. Fit work to minimize space to pipes, sleeves, ducts, conduit and other penetrations through surfaces.
- C. Cutting shall be performed with a concrete saw and diamond saw blades of proper size.
- D. Provide for control of slurry generated by sawing operation on both sides of wall and from below if cutting a floor.
- E. When cutting a reinforced concrete wall or floor, the cutting shall be done so as not to damage the bond between the concrete and reinforcing steel left in structure. Cut shall be made so that steel neither protrudes nor is recessed from face of the cut.
- F. Adequate bracing of area to be cut shall be installed prior to start of cutting. Check area during sawing operations for partial cracking and provide additional bracing as required to prevent a partial release of cut area during sawing operations.
- G. Provide equipment of adequate size to remove cut panel.
- H. Saw cut concrete and masonry prior to breaking out sections.
- I. Install work at such time as to require the minimum amount of cutting and patching.
- J. All cutting of structural members shall be done in a manner directed by the Engineer.
- K. Cut opening only large enough to allow easy installation of the equipment, ducting, piping or conduit.
- L. When existing conduits or pipe sleeves are cut off at the floor line or wall line, they shall be filled with grout or suitable patching material.

3.06 PROTECTION

- A. Provide devices and methods to protect other portions of project from damage.
- B. Provide protection from elements for that portion of the project which may be exposed by cutting and patching work.

- C. Maintain excavations free from water.

3.07 PATCHING

- A. Rough patching shall be such as to bring the cut or cored area flush with existing construction unless otherwise shown.
- B. Finish patching shall match existing surfaces as approved.
- C. Patching shall be of the same kind and quality of material as was removed.
- D. The completed patching work shall restore the surface to its original appearance or better.
- E. Patching of waterproofed surfaces shall render the area of the patching completely waterproofed to include the joint between the existing material and the patch.
- F. Equipment damaged during cutting and patching shall be replaced or repaired by the equipment manufacturer, at the Engineer's sole discretion and at the expense of the Contractor doing the work.
- G. Repaint any damage to factory applied paint finishes using touch-up paint furnished by the equipment manufacturer.
- H. Slurry or tailings resulting from coring or cutting operations shall be contained and vacuumed or otherwise removed from the area following drilling or cut.
- I. Equipment shall be protected against mechanical and water damage during cutting and patching. Provide protective covers or use other means such as temporary relocation to protect equipment that is at risk of damage from the cutting and patching
- J. Provide protection for existing equipment, utilities and critical areas against water or other damage caused by drilling operation.

END OF SECTION

SECTION 01046
CONTROL OF WORK

PART 1 GENERAL

1.01 CONTRACTOR'S RESPONSIBILITY

- A. Furnish personnel and equipment which will be efficient, appropriate and large enough to secure a satisfactory quality of work and a rate of progress which will ensure the completion of the work within the Contract Time. If at any time such plant appears to the Engineer to be inefficient, inappropriate or insufficient for securing the quality of work required or for producing the rate of progress aforesaid, Engineer may order the Contractor to increase the efficiency, change the character or increase the plant equipment and the Contractor shall conform to such order. Failure of the Engineer to give such order shall in no way relieve the Contractor of his obligations to secure the quality of the work and rate of progress required.
- B. The Contractor shall not operate valves or any other appurtenances in order to disconnect or modify the existing sewer, water or stormwater system. The Contractor shall be responsible for requesting a minimum 72-hour in advance (excluding Saturdays, Sundays, and legal holidays), that the Owner's authorized staff shall be present to operate valves and appurtenances when necessary.
- C. The Contractor shall provide and maintain such modern plant, tools and equipment as may be necessary, in the opinion of the Owner and Engineer, to perform in a satisfactory and acceptable manner all the work required by this Contract. Only equipment of reputation and proven efficiency shall be used. The Contractor is solely responsible for the adequacy of his/her workmanship, materials and equipment, prior to approvals by the Owner and Engineer notwithstanding.
- D. All work shall be completed in accordance with local, state and federal codes of regulation.

1.02 PRIVATE LAND

- A. Do not enter or occupy private land outside of easements, except by written approval of the land owner by right-of-entry form.
- B. Contractor shall be aware that significant coordination with private property owners and tenants will be required as part of this work. When necessary to notify the property owner or tenant of any impact of construction activity, entry to business or residence shall only be made by a foreman or more senior person of the Contractor with a representative of the City of New Bedford. All foreman or those ranking above foreman, shall carry laminated, photo identification cards bearing the name, position, Contractor's name, and local day time and after hours phone number of the Contractor. This identification shall be produced, whether or not requested, any time a foreman or more senior person communicates with the property owner.
- C. Contractor shall dispose of excavated material and debris from the site preparation operations by hauling such material and debris to an approved off-site disposal area. Stockpiling on the street

and placement or storage of materials outside disposal areas shall not be permitted. All excess excavated material shall become property of the Contractor unless specifically called out on the Drawings or specified herein.

- D. All driveway, walkway, retaining wall or edging materials within the public right-of-way that are made of specialty pavers/materials shall be considered materials owned by the adjacent private property or the City of New Bedford. This shall include but not limited to cobbles, bricks, and other paver blocks. Any materials meeting this description shall be provided to the abutter and not discarded unless directed otherwise by the Engineer.
- E. The Contractor shall protect all buildings, foundations, building overhangs, steps, walkways, walls, fences and landscaping adjacent to and/or outside of the limit of work and clean and/or repair walls, fences, steps and walkways to their preexisting conditions after completion of Work. All costs associated with repairs to buildings, walls, steps, walkways, fences and landscaping or other fixtures outside of the limit of work or those items specifically called out to be protected within the Contract Documents within the limit of work shall be at no additional cost to the Owner.

1.03 PIPE LOCATIONS

- A. Locate pipelines substantially as indicated on the Drawings. The Engineer reserves the right to make such modifications in locations as may be found desirable to avoid interference with existing structures or for other reasons. Where fittings are noted on the Drawings, such notation is for the Contractor's convenience and does not relieve him from laying and jointing different or additional items where required.

1.04 FINAL GRADING

- A. The roadway reconstruction profiles shown on the Drawings are for quantity estimate purposes only. Prior to roadway reconstruction, the Contractor will be required to coordinate with the Engineer so that the Engineer or his/her designee can establish survey control, stake elevations at back of walk for the purposes of grading the road and make all adjustments to final line and grade as required by the Engineer. The Engineer reserves the right to make such modifications in locations as may be found desirable to achieve proper slope or for other reasons at no additional cost to the Contract or change in contract duration.
- B. 72 hours prior to the start of construction, Engineer will notify Contractor about the Owner's ability to provide survey services. Should the Owner require the Contractor to provide his/her own survey, Owner will at a minimum provide bench marks for elevation purposes. Refer to Sections 00800 and 01005 for additional requirements.

1.05 OPEN EXCAVATIONS

- A. Adequately safeguard all open excavations by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons and damage to property. The Contractor shall, at his/her own expense, provide suitable and safe bridges and other crossings for accommodating travel by pedestrians and workmen. Bridges provided for access during construction shall be removed when no longer required. The length or size of excavation will be

controlled by the particular surrounding conditions, but shall always be confined to the limits prescribed by the Engineer. If the excavation becomes a hazard, or if it excessively restricts traffic at any point, the Engineer may require special construction procedures such as limiting the length of the open trench, prohibiting stacking excavated material in the street and requiring that the trench shall not remain open overnight.

- B. As mandated by Chapter 82A of the Massachusetts General Law (MGL), the trench safety regulations require that all Contractors, 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 shall be road plates at least 3/4 –in thick or equivalent; barricades shall be fences at least 6-ft high with no openings greater than 4-in between vertical supports; backfilling shall be sufficient to eliminate the trench. Alternatively, Contractors may choose to attend trenches at all times, for instances by hiring a police detail, security guard or other attendant who shall be present during times when the trench will be unattended by the Contractor. For purposes of this Paragraph, a "trench" shall be defined as an excavation which is narrow in relation to its length, made below the surface ground in excess of 3 feet below grade and the depth of which is, in general, greater than the width, but the width of the trench, as measured at the bottom, is no greater than 15 feet and the words "excavator", "excavation" and "emergency" shall have the same meanings as defined in Section 40 of Chapter 82 of the MGL. The word "excavator" as used in this Paragraph shall also mean "Contractor".
- C. Contractor is advised that the work on this project may be located in a residential and/or commercial area of the City. Local businesses including shops, restaurants and commercial/industrial establishments must remain open and accessible during construction. Schools may also be located within the project area. Access by students and faculty to school facilities must be maintained 24-hour per day. Contractor shall make the necessary precautions to ensure local residences, businesses, and schools are accessible during construction.
- D. Contractor shall paint raised casting edges and cut pavement edges left prior to ramping with orange safety paint. Barrels shall be placed on raised castings and at other easily seen locations to notify pedestrians and motorists about cut edges or raised castings.

1.06 TEST PITS

- H. Excavate test pits, at the direction of the Engineer, to locate underground pipelines or structures in advance of the construction. Backfill test pits immediately after their purpose has been satisfied and restore and maintain the surface in a manner satisfactory to the Engineer.

1.07 MAINTENANCE OF TRAFFIC

- H. Unless permission to close a street is received in writing from the proper authority, place all excavated material so that vehicular and pedestrian traffic may be maintained at all times. If the construction operations cause traffic hazards, repair the road surface, provide temporary ways, erect wheel guards or fences, or take other measures for safety satisfactory to the Engineer.
- C. Detours around construction will be subject to the approval of the Owner and the Engineer. Prior to establishing detours, Owner and Contractor will walk project site and agree upon an

acceptable detour. Where detours are permitted, provide all necessary signs as required to divert the flow of traffic. Expedite construction operations while traffic is detoured. Periods when traffic is being detoured will be strictly controlled by the Owner. The Owner, from time to time through the duration of construction, may require alternation of existing detours. Contractor is required to adjust and relocate temporary traffic management devices as required with no claim for delay, time extension or additional expense.

- C. Take precautions to prevent injury to the public due to open trenches. Night watchmen may be required where special hazards exist, or police protection provided for traffic while work is in progress. Be fully responsible for damage or injuries whether or not police protection has been provided.
- D. Use of police for traffic control shall be in conformance with City requirements. Refer to Section 01576.
- E. During the work day, the Contractor will have use of the limit of work area defined on the Drawings. The Contractor shall position his/her equipment such that emergency vehicles, local traffic and pedestrians (must be ADA/AAB accessible) is available 24-hours per day to each work area when work in City streets. Contractor will be fully responsible for setting up and providing site security (i.e. temporary fences), noise control and traffic control such that access is available as referenced above.
- F. Work within this project will take place within neighborhood streets and adjacent to schools, businesses, and homes. The following additional requirements shall be adhered to at all times for maintaining traffic in these areas:
 - H. Provide access to local traffic;
 - 2. All other requirements of Special Provisions, Traffic Control, and the Contract Documents.
 - 3. Coordinate construction activities with City events.
- G. The Contractor will be required to submit in writing, 72-hours in advance (Saturdays, Sundays and legal holidays excluded) to the City of New Bedford Department of Public Infrastructure and Engineer a request to modify street patterns (i.e. one way street to two way street, street closures, and detours) due to interferences during construction. Written permission should be obtained prior to proceeding. Owner reserves right to reject requests without modifying schedule or cost.
- H. There may be certain times of the year that City or other private outside events require the temporary stoppage of work. Contractor shall not be eligible for additional cost to prepare the project area for special events. This may include but be not limited to the following requirements as directed by the Owner:
 - 1. Removal of any and all equipment and machines
 - 2. Reopening of detours
 - 3. Street sweeping and site cleanup
 - 4. Temporary paving

1.08 CARE AND PROTECTION OF PROPERTY

- A. Be responsible for the preservation of all public and private property and use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, restore such property to a condition similar or equal to that existing before the damage was done, or make good the damage in other manner acceptable to the Engineer at no additional cost to the Owner.
- B. All driveways, curbs, walkways, landscaping, walls, fences, sidewalks, sprinkler systems and other site amenities and fixtures outside of the limits of work which are disturbed by the Contractor, shall be restored to match existing at no additional cost to the Owner.
- C. Along the location of work, all thresholds and other physical features shall be protected and restored in a thoroughly workmanlike manner.
- D. Contractor should be aware that a significant number of large street trees located on both public and private property exist within the project and in areas adjacent to the project area. Contractor shall coordinate his/her construction means and methods and activities to avoid damage to low hanging limbs, roots, and tree canopies. Trees close to the work and outside of the limit of work not called for to be removed shall be protected against injury. Coordinate with the City of New Bedford Arborist for requirements regarding protection, pruning, and removal of trees.

1.09 PROTECTION AND RELOCATION OF EXISTING STRUCTURES AND UTILITIES

- A. Assume full responsibility for the protection of all buildings, structures, fences, walls, and utilities, public or private, including poles, signs, services to buildings, utilities in the street, gas pipes, water pipes, hydrants, sewers, drains and electric and telephone cables, whether or not they are shown on the Drawings. Carefully support and protect all such structures and utilities from injury of any kind. Immediately repair any damage resulting from the construction operations at Contractors expense.
- B. Assistance will be given to the Contractor in determining the location of existing services. The Contractor, however, shall bear full responsibility for obtaining all locations of underground structures and utilities (including existing water services, drain lines and sewers). Maintain services to buildings and all costs or charges resulting from damage thereto shall be paid by the Contractor.
- C. Protection and temporary removal and replacement of existing utilities and structures (culverts, water courses, storm drains, gas mains, water mains, cable TV, electric, telephone, gas and water service, mailboxes etc.) as described in this Section shall be a part of the work under the Contract and all costs in connection therewith shall be included in the appropriate bid item in the Bid Form. This work shall include but is not limited to the following: bracing, hand excavation and backfill, and any other work required for crossing the utility or obstruction.

- D. If, in the opinion of the Engineer, permanent relocation of a utility owned by the City is required due to a direct invert conflict with the work of this Contract, the Engineer may direct the Contractor, in writing, to perform the work. Work so ordered will be paid for at the prices bid for applicable pipe items, where applicable, or as extra work under Article 10, 11 and 12 of the Supplementary Conditions where no applicable pipe item exists. If relocation of a privately owned utility is required, City will notify the Utility to perform the work as expeditiously as possible. Cooperate fully with the City and Utility. No claim for delay will be allowed due to such relocation.
- E. Notify all utility companies in writing at least 72 hours (excluding Saturdays, Sundays and Legal holidays) before excavating in any public way. Also notify Massachusetts Dig Safe, telephone 1-888-344-7233 at least 72 hours prior to start of work.
- F. The Contractor shall be responsible for notification of and coordinating his/her work with the Private Utilities (Eversource, Comcast, Verizon, Extranet, OpenCape, etc.) and the City. Costs associated with coordination with Utilities and the City shall be considered incidental to the cost of the Work.
- G. At pipe crossings and where designated by the Engineer, furnish and place screened gravel bedding so that the existing utility or pipe is firmly supported for its entire exposed length. The bedding shall extend to the mid-diameter of the pipe crossed. Payment for screened gravel at pipe crossings will be made according to the unit price established in the Bid Form.
- H. Utility relocations will be required at location specified on the Drawings for construction of the new pipelines and appurtenances. City owned utilities (water, sewer, and drain) will be relocated by the Contractor. Payment for the City owned relocations at the specified locations will be made under the appropriate item in the Bid Form. Relocation of privately owned utilities will be performed by the Utility and will not be paid for under this Contract. Relocation of City owned street lights and electrical conduits/wires supplying power to street lights will be performed by the Contractor. Payment for relocation will be made under the appropriate item in the Bid Form.
1. The Contractor shall be responsible for notification of and coordinating his/her work with the Utilities and the City of New Bedford. Costs associated with the coordination with Utilities and the City shall be considered incidental to the cost of the project.
 2. If, following final inspection of the project or during the specified project warranty period, the Engineer determines that the Contractor has damaged a City owned or private utility thereby requiring repair to the utility, the Contractor will be responsible for the payment of all costs associated with the repairs to the damaged utility and the costs to restore the project site to existing conditions or better as required by the Engineer. All roads damaged shall be full width paved to the limits directed by the Engineer. All sidewalks, driveway aprons or wheelchair ramps shall be fully repaired to the limits directed by the Engineer. All work shall be completed to the satisfaction of the Engineer.

- I. Under no circumstances shall the Contractor damage any water lines, hydrants, service connections, valves and appurtenances, drains or sewers during the replacement/installation of the work. Should the contractor damage any portion of the system, at no additional cost to the Owner or Engineer, the Contractor shall make any necessary repairs to the satisfaction of the Owner and Engineer.
- J. Coordinate the removal and replacement of traffic loop detectors, traffic loop handholes, and signals, if required, and regardless if shown on the Drawings for performance of the work.

1.10 WATER FOR CONSTRUCTION PURPOSES

- A. In locations where public water supply is available, the Contractor may be allowed to use water without charge for construction purposes. Water for general construction purposes may be used by the Contractor as specified thru City owned hydrants.
- B. The express approval of the Owner shall be obtained before water is used. Waste of water as determined by the Owner shall be sufficient cause for withdrawing the privilege of unrestricted use. Hydrants shall only be operated by the Owner's personnel. Contractor shall use due diligence in the use of City water during construction in the interest of water conservation. Hydrants shall only be operated by the Owner's personnel.
- C. Regardless of the hydrant locations, the Owner requires the use of hydrant meters to record the volume of water used for construction purposes for Owner's yearly estimate of non-revenue water. The Owner shall provide hydrant meters to measure the volume of all water used for construction purposes. The Contractor shall also provide a means of back flow prevention for connection to the hydrant that is acceptable to the Owner. Contractor shall submit information to Owner on the hydrant meters intended for use while metering water used for construction purposes. The Contractor shall document all water used for construction that passes through the hydrant meter in a form that is acceptable to both the Owner. The Owner shall operate all hydrants and valves. The Owner will operate all hydrants and hydrant valves while assisting the Contractor with the installation of all hydrant meters. The Owner reserves the right to restrict use of hydrants for any reason. It shall be the responsibility of the Contractor to protect all hydrant meters from damage, loss and tampering. The Contractor shall be responsible for providing all hoses and special fittings needed for utilizing the Owner's water supply. The Contractor shall notify the New Bedford Water Department, Fire Department and Police Department when public safety is affected by use of hydrants for construction purposes. The Contractor will be responsible for any damage caused by water, whether it is used or wasted. If damage does occur, Contractor shall incur all responsibility and costs for repair of any damage and returning the site to its original condition.

1.11 MAINTENANCE OF FLOW

- A. The Contractor shall provide for the flow of sewers, drains and water courses interrupted during the progress of the work, and shall immediately cart away and remove all offensive matter. Discuss the entire procedure of maintaining existing flow with the Engineer well in advance of the interruption of any flow.

1.12 COOPERATION WITHIN THIS CONTRACT

- A. All firms or persons authorized to perform any work under this Contract shall cooperate with General Contractor and his/her Subcontractors or trades and assist in incorporating the work of other trades where necessary or required.
- B. Cutting and patching, drilling and fitting shall be carried out where required by the trade or subcontractor having jurisdiction, unless otherwise indicated herein or directed by the Engineer. Additional requirements related to cutting, coring and patching are included in Section 01045.
- C. At times throughout the project, construction of other pipelines or buildings may be carried out during the same period as construction under this Contract. It will be necessary for the Contractor to plan his/her work and cooperate with other Contractors insofar as connections required to each other's work and to prevent interference and delay for which he/she shall receive no other compensation.

1.13 CLEANUP AND DISPOSAL OF EXCESS MATERIAL

- A. The Contractor shall immediately remove from the site and legally dispose of all existing sewers, drains, watermains, manholes and appurtenances replaced under this contract. At no time shall these materials be stacked along the trench or site.
- B. During the course of the work, keep the site of operations as clean and neat as possible. Dispose of all residue resulting from the construction work and, at the conclusion of the work, remove and haul away any surplus excavation, broken pavement, lumber, equipment, temporary structures and any other refuse remaining from the construction operations and leave the entire site of the work in a neat and orderly condition. Stockpiling of excavated material on site is not allowed.
- C. In order to prevent environmental pollution arising from the construction activities related to the performance of this Contract, comply with all applicable Federal, State and local laws and regulations concerning waste material disposal, as well as the specific requirements stated in this Section and in other related sections.
- D. After completion of each work day, Contractor shall thoroughly remove all construction debris, equipment and materials from the site and deliver them to the Contractor's staging area. Contractor is responsible for the protection of his/her equipment during non-working hours. All non rubberized tire equipment shall not be permitted to travel on City streets to travel to and from projects or City Yard.
- E. Disposal of excess excavated material in wetlands, stream corridors and plains is strictly prohibited even if the permission of the property owner is obtained. Any violation of this restriction by the Contractor or any person employed by him will be brought to the immediate attention of the responsible regulatory agencies, with a request that appropriate action be taken against the offending parties. The Contractor will be required to remove the fill and restore the area impacted at no increase in the Contract Price.

- F. All excess excavated material shall become property of the Contractor unless specifically called out to remain or to be delivered to the Owner. Should excess materials or materials removed from a project site be called for to be delivered to the Owner, the cost of the delivery shall be considered incidental to the cost of the project and no separate payment will be made.
- G. Hydrants, gate valve boxes and covers, street light posts and fixtures, traffic and street signs, manhole frames and covers, trolley tracks, catch basin grates and frames, whole intact bricks and blue stone, granite curbing larger than 12-in in length, cobblestones, 2-ft City offset disks, and site amenities removed as part of the construction of this contract shall be returned to Owner. Items shall be delivered to the City of New Bedford Department of Public Infrastructure, 1105 Shawmut Avenue, New Bedford MA.
- H. Remove, demolish and dispose of all equipment, piping, asphalt, concrete, granite rubble, rock and appurtenances as specified or shown on the Drawings and as required to complete the Work except as noted in the Contract Documents. No additional payment will be made for additional demolition or disposal work, not specifically specified or shown on the Drawings, required to complete the work.
- I. Landscaping materials removed from private property as a result of the work shall remain property of the building owner. Specialty paving materials located within the public right-of-way that is integral to existing driveways or walkways shall remain property of the building owner. Contractor shall carefully stockpile specialty paving materials not reused at a location directed by the property owner. Where called for on the Drawings or specified herein, Contractor shall reinstall specialty paving materials and landscaping to existing conditions.
- J. Contractor shall use caution when removing existing granite curbing to be reset. Any damage to granite curbing to be reset shall be replaced at no additional cost to the Owner.
- K. Owner will be responsible for plowing snow within the project limits. If so ordered by the Owner, Contractor may be required to complete additional plowing, removal and disposal of snow in the project area.

1.14 INCIDENT REPORTING

- A. The Contractor shall notify the Engineer at the onset of each resident complaint and mishap that could lead to a complaint. An incident report is required to be submitted within 2 hours following the incident and forwarded to the Engineer.

1.15 INTERFERENCE WITH AND PROTECTION OF STREETS AND SIDEWALKS

- A. The Contractor shall close or obstruct any portion of a street or walkway only as approved by the Owner and Engineer as part of the phasing plan submitted in accordance with these Specifications. If any street or walkway shall be rendered unsafe by the Contractor's operations, he/she shall make such repairs or provide such temporary ways or guards as shall be acceptable to the proper authorities.
- B. Streets and walkways not closed shall be maintained passable and safe by the Contractor, who shall assume full responsibility for the adequacy and safety of provision made thereof.

1.16 CONTRACTOR'S RESPONSIBILITY TO SUPPLY MATERIALS AND PERFORM WORK AT HIS/HER EXPENSE

- A. An attempt has been made while writing this specification to state the Contractor's responsibilities for supplying materials and performing work under this Contract. All supply of materials and performance of work stated or implied to be the Contractor's responsibility shall be supplied and/or performed by the Contractor and all costs in connection therewith shall be included in the unit and or lump sum prices established under items in the Bid Form.

1.17 RESTORATION

- A. The work within this project encompasses both pipeline and roadway reconstruction activities. Due to the scheduling of the various types of activities, it may be necessary for the Contractor to temporarily restore the site to ensure safe conditions for motorists and pedestrians during off-work times. Contractor shall ensure safe conditions within the working area for motorists and pedestrians throughout the duration of the project.
- B. Restore all areas to conditions that existed prior to construction. Restoration outside of the limit of work required as a result of the installation of the work shall be at the Contractor's own expense. Restoration within the limits of work is included in the items within the Bid Form.
- C. Existing public and private driveways and sidewalks disturbed by the construction shall be replaced to the limits and thicknesses existing prior to construction unless otherwise directed by the Engineer.
- D. Existing signs, lampposts, and mailboxes which may be damaged by the Contractor or removed by the Contractor during the course of installing the new work shall be reinstalled in a vertical position at the same location from which they were removed unless otherwise noted on the Drawings. Damaged items shall be replaced with an item equal to or better than the damaged items. A concrete anchor shall be provided as necessary, at no additional cost, to ensure a rigid alignment. Care shall be exercised in the reinstallation of all items to prevent damage to the newly installed work.
- E. Existing concrete, bituminous, timber, or granite curbing shall be protected. If necessary, curbing shall be removed and replaced after backfilling. Curbing which is damaged during construction shall be replaced with curbing of equal quality and dimension at the Contractor's expense. Granite curbing removed and reset (with concrete installed both front and back of curbing) shall conform to the Massachusetts DOT Standards and these specifications shall be subject to the approval of the Engineer. Joints between sections shall be pointed as required after resetting. Bituminous berms shall conform to the Massachusetts DOT Standards and shall be subject to the approval of the Engineer.

END OF SECTION

SECTION 01110
ENVIRONMENTAL PROTECTION PROCEDURES

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials and equipment and perform all work required for the prevention of environmental pollution in conformance with applicable laws and regulations, during and as the result of construction operations under this Contract. For the purpose of this Section, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic and/or recreational purposes.
- B. The control of environmental pollution requires consideration of air, water and land, and involves management of noise and solid waste, as well as other pollutants.
- C. Schedule and conduct all work in a manner that will minimize the erosion of soils in the area of the work. Provide erosion control measures such as diversion channels, sedimentation or filtration systems, berms, staked hay bales, seeding, mulching or other special surface treatments as are required to prevent silting and muddying of streams, rivers, impoundments, lakes, etc. All erosion control measures shall be in place in an area prior to any construction activity in that area. Specific requirements for erosion and sedimentation controls are specified in Section 02270.
- D. This Section is intended to ensure that construction is achieved with a minimum of disturbance to the existing ecological balance between a water resource and its surroundings. These are general guidelines. It is the Contractor's responsibility to determine the specific construction techniques to meet these guidelines.
- E. All phases of sedimentation and erosion control shall comply with and be subject to the approval of the Massachusetts Department of Environmental Protection (DEP) and Local Conservation Commission (where applicable based on the location of work). The Owner shall prepare sedimentation and erosion control drawings meeting the requirements for approval by that agency. Upon approval, Owner will furnish two copies of the approved Drawing to the Contractor which shall be included in the 100 percent set of Construction Drawings.
- F. There may be times where, due to permitting requirements, an Order of Conditions is required to perform the work within the Contract. The Order of Conditions will be issued by the Local Conservation Commission. The City of New Bedford will obtain the Order of Conditions. Contractor will be required to comply with the appropriate conditions outlined within the approved document.

1.02 APPLICABLE REGULATIONS

- A. Comply with all applicable Federal, State and local laws and regulations concerning environmental pollution control and abatement.

1.03 NOTIFICATIONS

- A. The Engineer will notify the Contractor in writing of any non-compliance with the foregoing provisions or of any environmentally objectionable acts and corrective action to be taken. State or local agencies responsible for verification of certain aspects of the environmental protection requirements shall notify the Contractor in writing, through the Engineer, of any non-compliance with State or local requirements. After receipt of such notice from the Engineer or from the regulatory agency through the Engineer, immediately take corrective action. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails or refuses to comply promptly, the Owner may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time or for excess costs or damages by the Contractor unless it is later determined that the Contractor was in compliance.

1.04 IMPLEMENTATION

- A. Prior to commencement of the work, meet with the Engineer to develop mutual understandings relative to compliance with these provisions and administration of the environmental pollution control program.
- B. Remove temporary environmental control features, when approved by the Engineer and incorporate permanent control features into the project at the earliest practicable time.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 EROSION CONTROL

- A. Provide positive means of erosion control as specified in Section 02270, as shown on the Drawings, as required by the Order of Conditions (where appropriate) and as provided and approved in the Stormwater Pollution Prevention Plan (SWPPP). Flow of surface water into excavated areas shall be prevented. At the completion of the work adjacent ground surfaces shall be restored to original condition.

3.02 PROTECTION OF STREAMS AND SURFACE WATERS

- A. Take all precautions to prevent, or reduce to a minimum, any damage to any stream or surface water from pollution by debris, sediment or other material, or from the manipulation of equipment and/or materials in or near such streams. Water that has been used for washing or processing, that contains oils or sediments that will reduce the quality of the water in the stream, shall not be directly returned to the stream. Divert such waters through a settling basin or filter before being directed into streams or surface waters.
- B. Do not discharge water from dewatering operations directly into any live or intermittent stream, channel, wetlands, surface water or any storm sewer. Water from dewatering operations shall be treated by filtration, settling basins, or other approved method to reduce the amount of sediment contained in the water to allowable levels.
- C. Take all preventative measures to avoid spillage of petroleum products and other pollutants. In the event of any spillage, prompt remedial action shall be taken in accordance with a

contingency action Drawing approved by the Massachusetts Department of Environmental Protection. Submit two copies of approved contingency Drawings to the Engineer.

- D. Water being flushed from structures or pipelines after disinfection, with a Cl₂ residue of 2 mg/l or greater shall be treated with a dechlorination solution, in a method approved by the Engineer, prior to discharge.

3.03 PROTECTION OF LAND RESOURCES

- A. Restore land resources within the project boundaries and outside the limits of permanent work to a condition, after completion of construction that will appear equal to or better than prior to construction. All lawn areas disturbed shall be sodded. Shrub and perennial plant materials shall be carefully removed, heeled in, and replanted at the direction of the Engineer in any areas where construction disturbance cannot be avoided. Confine all construction activities to areas shown on the Drawings.
- B. No fencing, curbs, walls, pavements, mailboxes, or other structures shall be relocated or removed from private property without the approval of the Engineer. Any materials removed must remain and be reinstalled undamaged in a manner consistent with the original installation, unless otherwise shown on the Drawings.
- C. Do not deface, injure, or destroy trees, shrubs, or planting beds nor remove or cut them without prior approval unless shown on the Drawings. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorage unless specifically authorized by the Engineer. Where such special emergency use is permitted, first wrap the trunk with a sufficient thickness of burlap or rags over which softwood cleats shall be tied before any rope, cable, or wire is placed. The Contractor shall in any event be responsible for the cost to repair any damage resulting from such use.
- D. Protect trees that may possibly be defaced, bruised, injured, or otherwise damaged by the construction equipment, stockpiling, or other operations, by placing boards, planks, or poles around them prior to construction in the vicinity. Monuments, markers, fences, walls, and other structures shall be protected similarly.
- E. Any trees or other landscape features scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to their original condition at the Contractor's expense. The Engineer will decide the method of restoration to be used and whether damaged plant materials shall be pruned and shaped or removed, disposed of, and replaced.
 - 1. All trimming or pruning shall be performed in an approved manner by experienced landscape professionals with saws or pruning shears. Tree trimming with axes will not be permitted.
 - 2. Climbing ropes shall be used where necessary for safety. Trees that are to remain, either within or outside established clearing limits, that are subsequently damaged by the Contractor and are beyond saving in the opinion of the Engineer, shall be immediately removed and replaced at no additional cost to the Owner.
 - 3. Coordinate with the City of New Bedford for any tree pruning, repairs or removal needed. Reimburse Owner for any services needed by the City's arborist to repair damage caused by the Contractor to trees.

- F. The temporary locations for Contractor's material storage and other construction equipment or areas approved by the Engineer and shall not be within wetlands or floodplains. The preservation of the landscape shall be an imperative consideration in the selection of all sites. Drawings showing the storage facilities shall be submitted for approval of the Engineer.
- G. Remove all signs of construction such as work areas, temporary structures, stockpiles of excess of waste materials, or any other vestiges of construction as directed by the Engineer. It is anticipated that excavation, filling and revegetation may be required to restore the area to near natural conditions which will permit the growth of vegetation thereon. The disturbed areas shall be prepared as described in the referenced technical specifications, shown on the Drawings, or as approved by the Engineer.
- H. All debris and excess material will be disposed of off-site and outside wetland or floodplain areas in an environmentally sound manner. All excess construction debris shall become property of the Contractor except for materials specifically noted within the Drawings and Specifications to remain property of the Owner.

3.04 PROTECTION OF AIR QUALITY

- A. Burning - The use of burning at the project site for the disposal of refuse and debris will not be permitted.
- B. Dust Control - Maintain all excavations, stockpiles and all other work areas within or without the project boundaries free from dust which could cause the standards for air pollution to be exceeded and which would cause a hazard or nuisance to others as specified in Section 01562.
- C. An approved method of stabilization consisting of sprinkling water or other similar methods will be permitted to control dust. The use of petroleum products is prohibited. The use of chlorides may be permitted with approval from the Engineer.
- D. Sprinkling, to be approved, must be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times, and the Contractor shall have sufficient competent equipment on the job to accomplish this. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs, as determined by the Engineer.

3.05 NOISE CONTROL

- A. Make every effort to minimize noises caused by the construction operations. Equipment shall be equipped with silencers or mufflers designed to operate with the least possible noise in compliance with Federal and State regulations.

3.06 MAINTENANCE OF POLLUTION CONTROL FACILITIES DURING CONSTRUCTION

- A. Maintain all facilities constructed for pollution control as long as the operations creating the particular pollutant are being carried out or until the material concerned has become stabilized to the extent that pollution is no longer being created.

END OF SECTION

SECTION 01170
SPECIAL PROVISIONS

PART 1 GENERAL

1.01 GENERAL OBLIGATIONS OF THE CONTRACTOR

- A. General obligations of the Contractor shall be as set forth in the Contract Documents. Unless special payment is specifically provided in Section 01025, all incidental work and expense in connection with the completion of work under the Contract will be considered a subsidiary obligation of the Contractor and all such costs shall be included in the appropriate items in the Bid Form in connection with which the costs are incurred.

1.02 SITE INVESTIGATIONS

- A. The Contractor shall satisfy himself as to the conditions existing within the project area, the type of equipment required to perform the work, the character, quality and quantity of the subsurface materials to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, as well as from information presented by the Drawings and related Sections. Any failure of the Contractor to acquaint himself with the available information will not relieve him from the responsibility for estimating properly the difficulty or cost of successfully performing the work. The Owner assumes no responsibility for any conclusions or interpretation made by the Contractor on the basis of the information made available by the Owner.
- B. At no point shall wastewater service be interrupted during the project.
- C. The Contractor shall maintain 24-hr on-site personnel to monitor all bypass pumping operations.
- D. Contractor shall be aware that the project site is located within residential and business areas. Under no circumstances shall access to businesses and residences be restricted or blocked. Provide means of access (ADA/AAB compliant) to all business and homes throughout the project duration. Contractor shall also ensure that utility services to all locations are maintained. Any downtime, closure or disruption of business resulting from the Contractor's operations and all related costs associated with such shall be paid for by the Contractor at no additional expense to the Owner.
- E. He/she shall perform and complete the work in the manner best calculated to promote rapid construction consistent with safety of life and property, and in strict accordance with the Contract Documents. The Contractor shall clean-up the work and maintain it during and after construction until work is accepted, and shall do all work and pay all costs incidental thereto. He/she shall repair or restore all structures and property that may be damaged or disturbed during the performance of the work that is located outside of the limits of work or is specifically called out as being protected at no additional cost to the Owner.
- F. Contractor should be advised that sprinkler systems exist directly adjacent to the project area (i.e., private properties between the back of sidewalk or edge of pavement and the property line, etc.). Sprinkler systems will be jointly marked in the field with the Contractor and Engineer. Any sprinkler systems disturbed during construction shall be repaired at no cost to the Owner. The Contractor shall replace all sprinkler piping disturbed during construction within two (2)

weeks of its disturbance between April and October. Any sprinkler system disturbed between the months of November and March shall be replaced by April 15 of the same year. This will provide for uninterrupted water flow to various zones of the irrigation systems. Failure of the Contractor to replace disturbed sprinkler piping within the time specified will cause for the Engineer to direct other firms to replace the sprinkler piping at the Contractor's expense which will be deducted from the retainage.

1.03 SUBMITTALS

- A. Refer to Sections 01005 and 01300 for specific submittal requirements.

1.04 RIGHT TO KNOW LAW

- A. Submit to the City of New Bedford the Safety Data Sheets for all substances or mixtures of substances used on the Project by him/her or his/her subcontractors prior to commencing any work in accordance with the requirements of MGL Chapter 111F, Section 16.

1.05 COORDINATION WITH LOCAL AGENCIES

- A. Supply the Local Police Department, Fire Department, School Department, Conservation Commission, Traffic Commission, Army Corps of Engineers and the Department of Public Infrastructure with the following information.
 - 1. A list of streets and intersections where work will be in progress to be supplied at intervals as required by the Engineer.
 - 2. Areas where approved detours are in effect.
 - 3. Immediate notification of any drain, gas or water main breaks.
 - 4. A list of after-hours telephone numbers by which appropriate Contractor personnel may be contacted in the event of emergencies.
- B. Reimburse the Owner for the actual cost of the services of Department of Public Infrastructure (DPI) Personnel required during other than regular working hours. The emergency contact number for the DPI during non-business hours is 508-979-1550.
- C. Coordinate with the City of New Bedford for use of city streets, sidewalks, parking areas, or other public areas.
- D. The Contractor shall be aware that various City events occur within streets along the project route, including various concerts and festivals. Owner will advise Contractor, prior to the start of work, of any such events, that could impact Contractor's operations. Contractor shall coordinate all work around these events.
- E. The Contractor shall coordinate work activities with local businesses and residents.
- F. Maintain pavement and lawn as specified and provide the Department of Public Infrastructure with an address where the Contractor may be reached when not at the site. Upon notification by the Owner or Engineer, properly make such repairs as necessary to paved area surfaces and

lawn areas. The Contractor shall meet all requirements of the New Bedford Department of Public Infrastructure for pavement restoration and these specifications.

- G. Contractor should be advised that City and MassDOT bounds and survey monumentation exists within the project limits. Contractor shall provide full protection of all existing monumentation during the course of the work. Any damage to the existing monumentation shall be reported to the Engineer. Contractor shall hire the services of a Registered Professional Land Surveyor in the Commonwealth of Massachusetts to reset the monumentation. Contractor is responsible for the cost of all labor and materials resulting from reestablishing the monumentation at no additional cost to the Owner.

1.06 COORDINATION WITH BUSINESSES AND RESIDENTS

- A. Coordinate work activities with local businesses and residents.
- B. 72 hours prior to the commencement of work, coordinate with the City of New Bedford Department of Public Infrastructure, to notify by letter or door hanger, all residents and businesses that may be disturbed by construction activities. The Department of Public Infrastructure will issue the notices. The letter shall include a description of the location of work, approximate dates of when work will begin and end, general phasing and a list of people to contact should any questions arise, including the Contractor, the Engineer and a representative of the Owner. The DPI and Contractor shall coordinate notification as the DPI may be required to perform multiple notifications during the work which may address general construction activities.
- C. Coordinate with Section 01005.

1.07 COORDINATION WITH OTHER CONTRACTORS

- A. The Contractor shall coordinate all work activities with adjacent work by other Contractors, including but not limited to the work performed by other Owner contracted Contractors and private utilities. Work by other Contractors may be occurring at other locations around the City at any given time.

1.08 PUBLIC UTILITIES

- A. Comply with the requirements of the Commonwealth of Massachusetts Statute - Chapter 82, Section 40, for excavations in public and private property. Compliance shall include the following:
 - 1. Notify public utility companies in writing at least 72 hours (excluding Saturdays, Sundays and legal holidays) but not more than 30 days before excavating in areas where underground utility plant (pipes, cables, manholes, etc.) exist.
 - 2. Provide the Utility Companies with a schedule of the activities in areas where the utilities exist.
 - 3. Notify utility companies of any damage to their utilities resulting from construction operations.

- B. Notify DIGSAFE at 1-888-344-7233 at least 72 hours before digging, trenching, demolishing, backfilling, grading, landscaping or other earth moving operations in any public ways, rights of way and easements.
- C. Protect existing gas mains. Contractor shall comply with Eversource Gas requirements for work adjacent to existing gas mains.
- D. Protect existing sewers, drains, watermains, buried duct banks, and overhead utilities.
- E. Refer to 01046 for additional requirements.

1.09 NOISE LIMITATIONS

- A. All equipment to be furnished under this Contract, unless specified otherwise in the technical specifications, shall be designed to ensure that the sound pressure level does not exceed 85 decibels over a frequency range of 37.8 to 9600 cycles per second at a distance of 3-ft from any portion of the equipment, under any load condition, when tested using standard equipment and methods. Noise levels shall include the noise from the motor. Mufflers or external baffles shall not be acceptable for the purpose of reducing noise. Data on noise levels shall be included with the shop drawing submittal.

1.10 PROGRESS SCHEDULE

- A. Submit a progress schedule before starting any work, in accordance with Article 2.05B of the General Conditions.
- B. Review the progress schedule with the Engineer on a monthly basis or more frequently as required by the Engineer. The progress schedule shall be adjusted as required in accordance with the General Conditions.

1.11 PROVISIONS FOR CONTROL OF EROSION

- A. Take sufficient precautions during construction to minimize the run-off of polluting substances such as clay, silts, fuels, oils, bitumens, and calcium chloride into the supplies and surface waters of the State. Special precautions shall be taken in the use of construction equipment to prevent operations which promote erosion.
- B. Disposal of drainage shall be in areas approved by the Owner. Prevent the flow or seepage of drainage back into the drainage area. Drainage shall not be disposed of until silt and other sedimentary materials have been removed. Particular care shall be taken to prevent the discharge of unsuitable drainage to water supply or surface water body.
- C. Measures for control of erosion shall be adequate to assure that turbidity in the receiving water will not increase more than 10 standard turbidity units (STU), or otherwise required by the State or other controlling body, in waters used for public water supply or fish unless limits have been established for the particular water. In surface water used for other purposes, the turbidity shall not exceed 15 STU or 25 ppm TSS unless otherwise permitted.
- D. At a minimum, the following will apply:

1. Staked fiber rolls shall be provided at points where drainage from the work site leaves the site, to reduce the sediment content of the water. Sufficient fiber rolls shall be provided such that all flow will filter through the rolls. Other methods which reduce the sediment content to an equal or greater degree may be used as approved by the Engineer.
 2. Drainage leaving the site shall flow in a manner to prevent erosion.
 3. Erosion control blankets.
 4. Catch basin inlet protection.
- E. Refer to Section 01005 for additional requirements regarding the cleaning of catch basins and drainage structures.

1.12 PERMITS

- A. All necessary City issued permits required for proper execution of the project are waived. Environmental permit compliance is still applicable to this work if and where needed. All fees associated with permits are waived by the Owner. Work shall not commence on any phase of the work requiring a permit until the permit is obtained (e.g., Order of Conditions).

1.13 DISRUPTION TO THE EXISTING SYSTEM

- A. Make test pits to locate existing watermains, drain pipes, sewers or force mains, etc. where shown on the Drawings or as directed by the Engineer. If during the course of the excavation, the Contractor for whatever reason causes the existing pipeline to fail, the Contractor shall restore service in the shortest possible time, working around the clock if necessary. Cooperate with the Owner or utility company in supplying emergency service. Pay all costs associated with, or resulting from all breaks. Cooperate with the Owner and Fire Department in supplying emergency water.
- B. Contractor should be advised that a significant number of both public and private utilities exist within the Work area including major gas, telephone, electric, sewer and drain. Any damage to these utilities including all associated secondary charges will be the responsibility of the Contractor and shall be repaired by the Contractor at no additional cost to the Owner.
- C. Planned or scheduled water shutdowns require a minimum of 72 hours' notice to impacted residences/businesses. Coordinate with Owner for distribution of notices regarding impacts and for scheduling shut down.
- D. Businesses or residences that require use of water on a daily basis shall be bypass fed during planned or long term disruptions.

1.14 COOPERATION BY THE OWNER

- A. The Owner will within 72-hours of notice from the Contractor, operate all valves for isolating water mains and for draining or admitting water to various sections of the main, and at the request of the Contractor, dewater such sections of the main to the extent possible by gravity, but the Contractor shall be responsible for removing the remainder of the water. No damage shall be claimed by the Contractor for delays in isolating pipelines, dewatering pipelines whether or not such dewatering is done by him/her or the Owner nor shall any damage be

claimed because water leakage through closed valves after dewatering is completed. The Owner will be responsible for shutting down the necessary lines to allow the Contractor to install and restrain new valves as shown on the Drawings.

- B. Unless otherwise directed by the Owner, the Owner will refill the mainline and sideline connections in various sections of the work after pipe has been sterilized by the Contractor. All air must be purged from the mains before they can be pressurized, and the Contractor shall have no claim for delay while the Owner accomplishes this. The Owner may require the Contractor to make the required tap for this purpose.
- C. Refer to Sections 00800 and 01005 for additional information regarding survey services provided by the Owner.

1.15 TRAFFIC AT STREET INTERSECTIONS

- A. The Contractor shall minimize interferences with the normal flow of traffic at all street intersections. The Contractor shall take all actions ordered by the Engineer to minimize the time his vehicles are located at street intersections. The Contractor shall establish work zones and pedestrian safety per the Manual on Uniform Traffic Control Devices, 2009, of the MassHighway Standard Specifications, the Contract Plans and these Specifications.
- B. Contractor may be required to modify signal timing at existing intersections. Coordinate with the Owner to provide for continuous and safe operation of these lights throughout the duration of the Contract. Based on traffic patterns, Contractor may be required to modify the signal timing at the request of the Owner or based on seasonal changes.

1.16 TRAFFIC CONTROL PLAN AND DEVICES

- A. The Contractor shall develop, implement, furnish (excluding barrels which Owner will provide up to 100), install, maintain, and remove a traffic control plan and devices directed by the New Bedford Police Department and the Engineer. The Contractor shall be responsible for providing and maintaining all necessary signs, lights and such for the protection of the public and workers. Contractor shall be responsible for maintaining barrels. If additional barrels or barricades are needed as a result of the Contractor's operations above and beyond what is provided by the Owner, Contractor shall provide those at his/her own expense. All control devices shall be MUTCD compliant.
- B. Should an existing traffic control sign or safety measure (e.g., stop signs, directional signs, existing barricades/barriers, etc.) be removed to facilitate construction, temporary measures shall be installed in their place and maintained for the duration of the project. Contractor is solely responsible for any and all activities that occur on a project site and is responsible for the safety of motorists and pedestrians.

1.17 HURRICANE PREPAREDNESS PLAN

- A. Within 30 days of the date of Effective Date of the Agreement, submit a Hurricane Preparedness Plan to the Engineer and the Owner for approval. The Plan shall describe in detail the necessary measures which the Contractor will perform, at no additional costs to the Owner, in case of a hurricane warning. Revise Plan as required by the Engineer and Owner.

1.18 WEATHER PROTECTION

- A. In the event of temporary suspension of work, or during inclement weather, or whenever the Owner shall direct, the Contractor will, and will cause its subcontractors to protect carefully its and their work and materials against damage or injury from the weather. If, in the opinion of the Owner, any work or materials shall have been damaged or injured by reason of failure on the part of the Contractor or any of its subcontractors to so protect its work, such materials shall be removed and replaced at the expense of the Contractor. Contractor will not apply pavement or place concrete during unfavorable weather conditions unless Owner or Engineer grants approval.

1.20 CLEANING UP

- A. Removal all construction material, excess excavation, buildings, equipment and other debris remaining on the job site as a result of construction operations and restore the site of the work to a neat and orderly condition.
- B. The Owner may at times require the Contractor to conduct additional cleaning activities on the site. Contractor shall complete such activities at no additional cost to the Owner. Contractor will not have a claim for delay or payment for additional cleaning as a result of these requests.
- C. Refer to Sections 01005 and 01562 for street sweeping and dust control requirements.

1.21 INCIDENTAL WORK

- A. Do all incidental work not otherwise specified, but obviously necessary to the proper completion of the work as shown on the Drawings and specified in the Contract Documents.

1.22 RESTORING RIGHTS-OF-WAYS, PROPERTY AND EASEMENTS

- A. Portions of the work are within public rights-of-way, property owned by the City, and easements. Be responsible for all damage to private property due to the operations. Protect from injury all walls, fences, cultivated shrubbery, pavement, underground facilities, such water pipes, or other utilities which may be encountered along the route. In removal and replacement are required, it shall be done in a workmanlike manner so that replacement is equivalent to that which existed prior to construction.
- B. Existing lawn areas damaged by construction shall be replaced. Cut and replace the lawn and restore the areas with an equivalent depth and quality of loam, seed and fertilizer as necessary to produce a strand of grass at least equal to that existed prior to construction. These areas shall be maintained and reseeded, if necessary, until all work under this Contract has been completed and accepted. All additional work required to restore property to the original condition shall be performed.
- C. Existing bollards, fences, trees, shrubs, plants and bushes shall be fully protected as specified and/or directed by the Engineer. Existing bollards, fences, trees, shrubs, plants and bushes damaged or removed shall be replaced. The work shall include removing and replacing those bollards, fences, trees, shrubs and bushes indicated on the Drawings. It shall include the careful excavation of the root ball which shall be wrapped with burlap while out of the ground. Replant them after backfilling the trench, stake them in an upright position and shall periodically water replanted trees, bushes, and shrubs at a rate deemed acceptable by industry standards to

maintain proper growth. Be fully responsible for ensuring that any and all trees, bushes, and shrubs removed and replanted “take” and return to a viable state. Any replanted item that fails to “take” or that is so damaged as to be unsuitable for replanting shall be replaced at no additional cost to the Owner, with a tree, bush or shrub equal to the one removed.

- D. If during the course of the excavation, the Contractor for whatever reason damages the existing, including but not limited to stone wall(s), landscaping, granite block walls, cobblestones, landscaping, gates, mailboxes, specialty driveway and sidewalk materials, or picket fences, the Contractor shall immediately restore the amenities to at least original condition at no additional cost to the Owner.
- E. The Engineer will inspect all work for provisional acceptance upon the written request received at least 10 days before the anticipated date of inspection.
 - 1. After all necessary corrective work has been completed, the Engineer will certify in writing the provisional acceptance of the restoration work.

1.23 PROTECTION AND BRACING OF UTILITY POLES

- A. Make all arrangements with proper utility companies for bracing and protection of all utility poles and overhead wires that may be damaged or endangered by the operations. Work under this item includes the related removal reinstatement of guy wires, or support poles whether shown on the Drawings or not and shall be considered incidental to the cost of the project.

1.24 ASBESTOS CEMENT (AC) PIPE ABATEMENT REQUIREMENTS

- A. The Contractor shall either be, or employ the services of a Subcontractor, who is licensed in the Commonwealth of Massachusetts to perform asbestos abatement. All work associated with the handling of asbestos cement pipe shall be conducted only by the licensed party.
- B. Comply with all laws, ordinances, codes, rules, regulations of the local, state, and federal authorities including the requirements of the 29 CFR, Part 1910 and 1926; 40 CFR, Part 61 and 763; and 453 CMR, 6.00.
- C. Execute all notifications and manifests, and obtain all permits and licenses for removing, handling, and disposing of AC pipe.
- D. Existing AC pipe shall not be saw cut. The collar at each joint shall be removed and then the section of pipe shall be removed from the trench without disturbing the AC pipe to remain in service.
- E. Submit to the Engineer the following items prior to performing work associated with AC pipe:
 - 1. Copy of licenses to perform asbestos abatement work.
 - 2. Copy of training certificates and Massachusetts Department of Labor and Workforce Development Certification for each worker.
 - 3. OSHA medical surveillance documents conducted within the last 12 months for each worker.

4. Plan describing the methods for performing air monitoring and sampling to be in compliance with OSHA Asbestos Standards.
5. Name, address and applicable licenses of the transporter and landfill that will handle and dispose of the asbestos cement pipe.

END OF SECTION

SECTION 01180
PIPE PENETRATIONS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and install pipe penetration assemblies as shown. This Section covers materials for the various pipe penetration configurations where shown on the Drawings.

1.02 SUBMITTALS

- A. Submit manufacturers' literature, installation instructions, and where applicable, fire rating and certified test results of the various components on all items to be furnished in accordance with Section 01300.

PART 2 PRODUCTS

2.01 PIPE SLEEVES

- A. Unless otherwise shown all pipe sleeves shall be Schedule 40 galvanized steel pipe conforming to ASTM A53. Where indicated, provide a 2-in minimum circumferential water stop welded to exterior of sleeve at its midpoint. Ends of sleeves shall be cut and ground smooth and shall be flush with the wall or ceiling and extend 2-in above finished floors. Sleeves to be sealed with mechanical seals shall be sized in accordance with the seal manufacturer's recommendations. Sleeves to be sealed by caulking and sleeves for insulated piping shall be sized as required.

2.02 WALL CASTINGS

- A. Unless otherwise shown, wall castings shall be ductile iron conforming to ANSI/AWWA A21.51/C151, thickness Class 53, diameter as required. Flanges and/or mechanical joint bells shall be drilled and tapped for studs where flush with the wall. Castings shall be provided with a 2-in minimum circumferential flange/waterstop integrally cast with or welded to the casting, located as follows: for castings set flush with walls located at the center of the overall length of the casting; for castings which extend through wall located within the middle third of the wall.

2.03 SEALING MATERIALS

- A. Mechanical seals shall be modular, adjustable, bolted, mechanical type consisting of interlocking synthetic rubber links shaped to continuously fill the annular space between the pipe and sleeve. The seal shall be rated by the manufacturer for 40-ft of head or 20 psig. Mechanical seals shall be Link-Seal LS-300-C, LS-400-C, or LS-500-C, depending on pipe size, by Thunderline Corp., Wayne, MI or equal.
- B. Sealant shall be a two part foamed silicone elastomer by Dow Corning Co., Product No. 3-6548 silicone R.T.V.; 3M brand fire barrier products caulk C.P. 25 and 3M brand putty 303; or Flame-Safe fire stop systems Fig. No. FS-500 by Thomas & Betts Corp. Sealant bead configuration, depth and width shall be in accordance with manufacturer's recommendations.

2.04 MISCELLANEOUS MATERIALS

- A. Bonding compound shall be Sikadur Hi-Mod epoxy by Sika Corp.; Euclid Chemical Corp.; Master Builders Company or equal.
- B. Non-shrink grout shall be Masterflow 713 by Master Builders Co.; Euco N-S by Euclid Chemical Co.; Five Star Grout by U.S. Grout Corp. or equal.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Assemble and install components of pipe penetration assemblies as detailed on the Drawings and in accordance with Manufacturer's recommendations.

END OF SECTION

SECTION 01300
SUBMITTALS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. This Section includes the requirements for compiling, processing and transmitting submittals required for execution of the project.
- B. Submittals are categorized into two types: Action Submittals and Informational Submittals, as follows:
 - 1. Action Submittal: Written and graphic information submitted by the Contractor that requires the Engineer's approval. The following are examples of action submittals:
 - a. Shop drawings (including working drawings and product data)
 - b. Samples
 - c. Operation & maintenance manuals
 - d. Site Usage Plan (Contractor's staging - including trailer siting and material laydown area)
 - e. Schedule of values
 - f. Payment application format
 - 2. Informational Submittal: Information submitted by the Contractor that does not require the Engineer's approval. The following are examples of informational submittals:
 - a. Shop Drawing Schedule
 - b. Construction Schedule
 - c. Statements of Qualifications
 - d. Health and Safety Plans
 - e. Work Plans
 - f. Maintenance of Traffic Plans
 - g. Outage Requests
 - h. Proposed Testing Procedures
 - i. Test Records and Reports
 - j. Vendor Training Outlines/Plans
 - k. Test and Start-Up Reports
 - l. Certifications
 - m. Record Shop Drawings
 - n. Submittals required by laws, regulations and governing agencies
 - o. Submittals required by funding agencies
 - p. Other requirements found within the technical specifications
 - q. Warranties and Bonds
 - r. Contract Close-out Documents

1.02 RELATED WORK

- A. Additional requirements may be specified in the General Conditions for the Contract.
- B. Additional submittal requirements may be specified in the respective technical Specification Sections.

- C. Contract closeout submittals are included in Section 01700.
- D. Applications for Payment are included in Section 01026.
- E. Control of Materials are included in Section 01601.
- F. Operations and Maintenance are included in Section 01730.

1.03 CONTRACTOR'S RESPONSIBILITIES

- A. All submittals shall be clearly identified as follows:
 - 1. Date of Submission.
 - 2. Project Number.
 - 3. Project Name.
 - 4. Contractor Identification.
 - a. Contractor.
 - b. Supplier.
 - c. Manufacturer.
 - d. Manufacturer or supplier representative.
 - 5. Identification of the Product.
 - 6. Reference to Contract Drawing.
 - 7. Reference to specification section number, page and paragraph(s).
 - 8. Reference to applicable standards, such as ASTM or Federal Standards numbers.
 - 9. Indication of Contractor's approval.
 - 10. Contractor's Certification statement.
 - 11. Identification of deviations from the Contract Documents, if any.
 - 12. Reference to previous submittal (for resubmittals).
 - 13. Made in America (when required by the Contract).
- B. Submittals shall be clear and legible, and of sufficient size for legibility and clarity of the presented data.
- C. Submittal Log. Maintain a log of all submittals. The submittal log shall be kept accurate and up to date. This log should include the following items (as applicable):
 - 1. Description.
 - 2. Submittal Number.

3. Date transmitted to the Engineer.
 4. Date returned to Contractor (from Engineer).
 5. Status of Submittal (Approved/Not Approved/etc.).
 6. Date of Resubmittal to Engineer and Return from Engineer (if applicable and repeat as necessary).
 7. Date material released for fabrication.
 8. Projected (or actual) delivery date.
- D. Numbering System. Submittals shall be numbered sequentially. Follow-up submittals for a product or material shall be labeled with A, B, C, etc. depending on the resubmittal number.
- E. Variances
1. Notify the Engineer in writing, at the time of submittal, of any deviations in the submittals from the requirements of the Contract Documents.
 2. Notify the Engineer in writing, at the time of re-submittal (resubmission), of all deviations from previous submissions of that particular shop drawing, except those deviations which are the specific result of prior comments from the Engineer.
- F. Action Submittals
1. Shop Drawings, Working Drawings, Product Data and Samples.
 - a. Shop Drawings.
 - 1) Shop drawings as defined in the General Conditions, and as specified in individual Sections may include, but are not necessarily limited to, custom prepared data such as fabrication and erection/installation (working) drawings, scheduled information, setting diagrams, actual shop work manufacturing instructions, custom templates, valve schedules, wiring diagrams, coordination drawings, equipment inspection and test reports, and performance curves and certifications, as applicable to the work.
 - 2) Contractor shall verify all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data, and coordinate each item with other related shop drawings and the Contract requirements.
 - 3) All details on shop drawings shall clearly show 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 drawings before being submitted.
 - 4) All shop drawings submitted by subcontractors and vendors shall be reviewed by the Contractor. Contractor shall confirm, materials, dimensions, catalog numbers, technical data and performance criteria; and shall coordinate with other related shop drawings and the Contract requirements. In addition, Contractor shall confirm existing field conditions and dimensions and assure that the submittal is coordinated and compatible with existing conditions. Submittals directly from subcontractors or vendors will not be accepted by the Engineer.

- 5) The Contractor shall be responsible the accuracy of the subcontractor's or vendor's submittal; and, for their submission in a timely manner to support the requirements of the Contractor's construction schedule. Shop drawings found to be inaccurate or otherwise in error shall be returned to the subcontractor or vendor to correct, before submission to the Engineer. All shop Drawings shall be approved by the Contractor.
 - 6) Delays to construction due to the untimely submission of submittals will constitute inexcusable delays, for which Contractor shall not be eligible for additional cost nor additional contract time. Inexcusable delays consist of any delay within the Contractor's control.
- b. Working Drawings
- 1) Detailed installation drawings (sewers, equipment, piping, electrical conduits and controls, HVAC work, and plumbing, etc.) shall be prepared and submitted for review and approval by the Engineer prior to installing such work. Installation drawings shall be to-scale and shall be fully dimensioned.
 - 2) Piping working drawings shall show the laying dimensions of all pipes, fittings, valves, as well as the equipment to which it is being connected. In addition, all pipe supports shall be shown.
 - 3) Equipment working drawings shall show all equipment dimensions, anchor bolts, support pads, piping connections and electrical connections. In addition, show clearances required around such equipment for maintenance of the equipment.
 - 4) Electrical working drawings shall show conduits, junction boxes, disconnects, control devices, lighting fixtures, support details, control panels, lighting and power panels, and Motor Control Centers. Coordinate all locations with the Contract Documents and the Contractor's other working drawings.
- c. Product Data
- 1) Product data, as specified in individual Specification Sections, include, but are not limited to, the manufacturer's standard prepared data for manufactured products (catalog data), such as the product specifications, installation instructions, availability of colors and patterns, rough-in diagrams and templates, product photographs (or diagrams), wiring diagrams, performance curves, quality control inspection and reports, certifications of compliance (as specified or otherwise required), mill reports, product operating and maintenance instructions, recommended spare parts and product warranties, as applicable.
- d. Samples
- 1) Furnish, samples required by the Contract Documents for the Engineer's approval. Samples shall be delivered to the Engineer as specified or directed. Unless specified otherwise, provide at least two samples of each required item. Materials or equipment for which samples are required shall not be used in the work unless and until approved by the Engineer.
 - 2) Samples specified in individual Specification Sections, include, but are not limited to: physical examples of the work (such as sections of manufactured or fabricated work), small cuts or containers of materials, complete units of repetitively-used products, color/texture/pattern swatches and range sets, specimens for coordination of visual effect, graphic symbols, and other specified units of work.
 - 3) Approval of a sample shall be only for the characteristics or use named in such approval and shall not be construed to change or modify and Contract Requirements.
 - 4) Approved samples not destroyed in testing shall be sent to the Engineer or stored at the site of the work. Approved samples of the hardware in good condition will

be marked for identification and may be used in the work. Materials and equipment incorporated in work shall match the approved samples. Samples which fail testing or are not approved will be returned to the Contractor at his expense, if so requested at time of submission.

- e. Professional Engineer (P.E.) Certification Form
 - 1) If specifically required in any of the technical Specification Sections, submit a Professional Engineer (P.E.) Certification for each item required, using the form appended to this Section.
2. Contractor's Certification
 - a. Each shop drawing, working drawings, product data, and sample shall have affixed to it the following Certification Statement:
 - 1) "Certification Statement: by this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data and I have checked and coordinated each item with other applicable approved shop drawings and all Contract requirements."
 - b. Shop drawings, working drawings, and product data sheets 11-in x 17-in and smaller shall be bound together in an orderly fashion and bear the above Certification Statement on the cover sheet. The transmittal cover sheet for each identified shop drawing shall fully describe the packaged data and include a listing of all items within the package.
3. The review and approval of shop drawings, working drawings, product data, or samples by the Engineer shall not relieve the Contractor from the responsibility for the fulfillment of the terms of the Contract. All risks of error and omission are assumed by the Contractor and the Engineer will have no responsibility therefor.
4. Project work, materials, fabrication, and installation shall conform to approved shop drawings (including working drawings and product data) and applicable samples.
5. No portion of the work requiring a shop drawing (including working drawings and product data) or sample shall be started, nor shall any materials be fabricated or installed before approval of such item. Procurement, fabrication, delivery or installation of products or materials that do not conform to approved shop drawings shall be at the Contractor's risk. Furthermore, such products or materials delivered or installed without approved shop drawings, or in non-conformance with the approved shop drawings will not be eligible for progress payment until such time as the product or material is approved or brought into compliance with approved shop drawings. Neither the Owner nor Engineer will be liable for any expense or delay due to corrections or remedies required to accomplish conformity.
6. Operation and Maintenance Data
 - a. Operation and maintenance data shall be submitted in assembled manuals as specified. Such manuals shall include detailed instructions for Owner personnel on safe operation procedures, controls, start-up, shut-down, emergency procedures, storage, protection, lubrication, testing, trouble-shooting, adjustments, repair procedures, and other maintenance requirements.
7. Schedule of Values
 - 1) On projects consisting of lump sums (in whole or in part) submit a proposed schedule of values providing a breakdown of lump sum items in to reasonably

small components – generally disaggregated by building, area, and/or discipline. The purpose of the schedule of values is for processing partial payment applications. If requested by the Engineer, provide sufficient substantiation for all or some items as necessary to determine the proposed schedule of values is a reasonable representation of the true cost breakdown of the Work. The schedule of values shall not be unbalanced to achieve early payment or over-payment in excess of the value of work or any other mis-distribution of the costs. If, in the opinion of the Engineer, the schedule of values is unbalanced, Contractor shall reallocate components to achieve a balanced schedule acceptable to Engineer.

8. Payment Application Format
 - 1) If an application form is included in the Contract Documents, use that form unless otherwise approved by the Engineer and Owner. If an application form is not included in the Contract Documents, Contractor may propose a form for approval.
9. Site Usage
 - a. Submit a proposed site staging plan, including but not limited to the location of office trailers, storage trailers and material laydown. Such plan shall be a graphic presentation (drawing) of the proposed locations; and, shall include on-site traffic modifications, and temporary utilities, as may be applicable.

G. Informational Submittals

1. Shop Drawing Schedule
 - a. Prepare and submit a schedule indicating when shop drawings are required to be submitted to support the as-planned construction schedule. The submittal schedule shall allow sufficient time for preparation and submittal, review and approval, and fabrication and delivery to support the construction schedule.
2. Construction Schedule
 - a. Prepare and submit construction schedules and monthly status reports as specified.
3. Statements of Qualifications
 - a. Provide evidence of qualification, certification, or registration, as required in the Contract Documents, to verify qualifications of licensed land surveyor, professional engineer, materials testing laboratory, specialty subcontractor, technical specialist, consultant, specialty installer, and other professionals.
 - b. Health and Safety Plans
 - 1) When specified, prepare and submit a general company Health and Safety Plan (HSP), modified or supplemented to include job-specific considerations.
4. Work Plans
 - a. Prepare and submit copies of all work plans needed to demonstrate to the Owner that Contractor has adequately thought-out the means and methods of construction and their interface with existing facilities.
5. Maintenance of Traffic Plans
 - a. Prepare maintenance of traffic plans where and when required by the Contract Documents, the Owner, and/or by local ordinances or regulations or by the Owner/Engineer. If Contractor is not already knowledgeable about local ordinances

and regulations regarding maintenance of traffic requirements, become familiar with such requirements. The costs for preparation and submittal of traffic management plans and all associated costs for permits and fees to implement the traffic management plan, shall be considered incidental to the cost of the project. The cost of police attendance, when required shall be paid for directly by the City of New Bedford.

6. Outage Requests
 - a. Provide sufficient notification of any outages required (electrical, flow processes, etc.) as may be required to tie-in new work into existing facilities. Unless specified otherwise elsewhere, a minimum of seven calendar days' notice shall be provided.
7. Proposed Testing Procedures
 - a. Prepare and submit testing procedures it proposes to use to perform testing required by the various technical specifications.
8. Test Records and Reports
 - a. Provide copies of all test records and reports as specified in the various technical specifications.
9. Vendor Training Outlines/Plans
 - a. At least two weeks before scheduled training of Owner's personnel, provide lesson plans for vendor training in accordance with the specification for O&M manuals.
10. Test and Start-up Reports
 - a. Manufacture shall perform all pre-start-up installation inspection, calibrations, alignments, and performance testing as specified in the respective Specification Section. Provide copies of all such test and start-up reports.
11. Certifications
 - a. Provide various certifications as required by the technical specifications. Such certifications shall be signed by an officer (of the firm) or other individual authorized to sign documents on behalf of that entity.
 - b. Certifications may include, but are not limited to:
 - 1) Welding certifications and welders' qualifications
 - 2) Certifications of Installation, Testing and Training for all equipment
 - 3) Material Testing reports furnished by an independent testing firm
 - 4) Certifications from manufacturer(s) for specified factory testing
 - 5) Certifications required to indicate compliance with any sustainability or LEEDS accreditation requirements indicated in the Contract Documents
 - c. Submittals required by funding agencies
 - 1) Prepare and submit all documentation required by funding agencies. This includes, but is not limited to segregated pay applications and change orders when required to properly allocate funds to different funding sources; and certified payrolls for projects subject to wage requirements. Provide one copy of each submittal made in accordance with this paragraph to the Engineer.
12. Other requirements of the technical Specification Sections
 - a. Comply with all other requirements of the technical specifications.

13. Warranties and Bonds
 - a. Assemble a booklet or binder of all warranties and bonds as specified in the various technical specifications and in accordance with the specification on Warranties and Bonds; and provide two originals to the Engineer.
14. Contract Close-Out Documents
 - a. Submit Contract documentation as indicated in the specification for Contract Close-out.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 SUBMITTAL SCHEDULE

- A. Provide an initial submittal schedule at the pre-construction meeting for review by Owner and Engineer. Incorporate comments from Owner or Engineer into a revised submittal schedule.
- B. Maintain the submittal schedule and provide sufficient copies for review by Owner and Engineer. An up-to-date submittal schedule shall be provided at each project progress meeting.

3.02 TRANSMITTALS

- A. Prepare separate transmittal sheets for each submittal. Each transmittal sheet shall include at least the following: the Contractor's name and address, Owner's name, project name, project number, submittal number, description of submittal and number of copies submitted.
- B. Submittals shall be transmitted or delivered directly to the office of the Engineer, as indicated in the Contract Documents or as otherwise directed by the Engineer.
- C. Provide copies of transmittals forms or cover letters (without attachments) directly to the Resident Project Representative.

3.03 PROCEDURES

A. Action Submittals

1. Contractor's Responsibilities
 - a. Coordination of Submittal Times: Prepare and transmit each submittal sufficiently in advance of performing the related work or other applicable activities, or within the time specified in the individual work of other related Sections, so that the installation will not be delayed by processing times including disapproval and resubmittal (if required). Coordinate with other submittals, testing, purchasing, fabrication, delivery and similar sequenced activities. Extensions to the Contract Time will not be approved for the Contractor's failure to transmit submittals sufficiently in advance of the Work.
 - b. The submittals of all shop drawings (including working drawings and product data) shall be sufficiently in advance of construction requirements to allow for possible need of re-submittals, including the specified review time for the Engineer.
 - c. No less than 30 calendar days will be required for Engineer's review time for shop drawings and O&M manuals involving only one engineering discipline. No less than 45 calendar days will be required for Engineer's review time for shop drawings and

O&M manuals that require review by more than one engineering discipline. Resubmittals will be subject to the same review time.

- d. Submittals of operation and maintenance data shall be provided within 30 days of approval of the related shop drawing(s).
 - e. Before submission to the Engineer, review shop drawings as follows:
 - 1) make corrections and add field measurements, as required
 - 2) use any color for its notations except red (reserved for the Engineer's notations) and black (to be able to distinguish notations on black and white documents)
 - 3) identify and describe each and every deviation or variation from Contract documents or from previous submissions, except those specifically resulting from a comment from the Engineer on a previous submission
 - 4) include the required Contractor's Certification statement
 - 5) provide field measurements (as needed)
 - 6) coordinate with other submittals
 - 7) indicate relationships to other features of the Work
 - 8) highlight information applicable to the Work and/or delete information not applicable to the Work
 - f. Submit the following number of copies:
 - 1) Shop drawings (including working drawings and product data) – Submit no fewer than six, and no more than nine; five of which will be retained by the Engineer.
 - 2) Samples – three
 - 3) Site Usage Plan – three copies
 - 4) Schedule of values – four copies
 - 5) Payment application format – four copies
 - g. If Contractor considers any correction indicated on the shop drawings to constitute a change to the Contract Documents, provide written notice thereof to the Engineer immediately; and do not release for manufacture before such notice has been received by the Engineer.
 - h. When the shop drawings have been completed to the satisfaction of the Engineer, carry out the construction in accordance therewith; and make no further changes therein except upon written instructions from the Engineer.
2. Engineer's Responsibilities
- a. Engineer will not review shop drawings (including working drawings and product data) that do not include the Contractor's approval stamp and required certification statement. Such submittals will be returned to the Contractor, without action, for correction.
 - b. Partial shop drawings (including working drawings and product data) will not be reviewed. If, in the opinion of the Engineer, a submittal is incomplete, that submittal will be returned to the Contractor for completion. Such submittals may be returned with comments from Engineer indicating the deficiencies requiring correction.
 - c. If shop drawings (including working drawings and product data) meet the submittal requirements, Engineer will forward copies to appropriate reviewer(s). Otherwise, noncompliant submittals will be returned to the Contractor without action - with the Engineer retaining one copy.
 - d. Submittals which are transmitted in accordance with the specified requirements will be reviewed by the Engineer within the time specified herein. The time for review will commence upon receipt of submittal by Engineer.

3. Review of Shop Drawings (Including Working Drawings and Product Data) and Samples

- a. The review of shop drawings, working drawings, data and samples will be for general conformance with the design concept and Contract Documents. They shall not be construed:
 - 1) as permitting any departure from the Contract requirements
 - 2) as relieving the Contractor of responsibility for any errors, including details, dimensions, and materials
 - 3) as approving departures from details furnished by the Engineer, except as otherwise provided herein
- b. The Contractor remains responsible for details and accuracy, for coordinating the work with all other associated work and trades, for selecting fabrication processes, for techniques of assembly, and for performing work in a safe manner.
- c. If the shop drawings (including working drawings and product data) or samples as submitted describe variations and indicate a deviation from the Contract requirements that, in the opinion of the Engineer are in the interest of the Owner and are so minor as not to involve a change in Contract Price or Contract Time, the Engineer may return the reviewed drawings without noting an exception.
- d. Only the Engineer will utilize the color "RED" in marking submittals.
- e. Shop drawings will be returned to the Contractor with one of the following codes.
 - 1) "APPROVED" - This code is assigned when there are no notations or comments on the submittal. When returned under this code the Contractor may release the equipment and/or material for manufacture.
 - 2) "APPROVED AS NOTED" - This code is assigned when a confirmation of the notations and comments IS NOT required by the Contractor. The Contractor may release the equipment or material for manufacture; however, all notations and comments must be incorporated into the final product.
 - 3) "APPROVED AS NOTED/CONFIRM" - This combination of codes is assigned when a confirmation of the notations and comments is required by the Contractor. The Contractor may release the equipment or material for manufacture; however, all notations and comments must be incorporated into the final product. This confirmation shall specifically address each omission and nonconforming item that was noted. Confirmation is to be received by the Engineer within 15 calendar days of the date of the Engineer's transmittal requiring the confirmation.
 - 4) "APPROVED AS NOTED/RESUBMIT" - This combination of codes is assigned when notations and comments are extensive enough to require a resubmittal of the entire package. This resubmittal is to address all comments, omissions and non-conforming items that were noted. Resubmittal is to be received by the Engineer within 30 calendar days of the date of the Engineer's transmittal requiring the resubmittal.
 - 5) "NOT APPROVED" - This code is assigned when the submittal does not meet the intent of the contract documents. The Contractor must resubmit the entire package 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.
 - 6) "COMMENTS ATTACHED" - This code is assigned where there are comments attached to the returned submittal, which provide additional data to aid the Contractor.
 - 7) "RECEIPT ACKNOWLEDGED (Not subject to Engineer's Review or Approval)" - This code is assigned to acknowledge receipt of a submittal that is not subject to the Engineer's review and approval, and is being filed for informational purposes only. This code is generally used in acknowledging

receipt of means and methods of construction work plans, field conformance test reports, and health and safety plans.

- f. Repetitive Reviews: Shop drawings, O&M manuals and other submittals will be reviewed no more than twice at the Owner's expense. All subsequent reviews will be performed at the Contractor's expense. Reimburse the Owner for all costs invoiced by Engineer for the third and subsequent reviews.

4. Electronic Transmission

- a. Action Submittals may be transmitted by electronic means provided the following conditions are met:
 - 1) The above-specified transmittal form is included.
 - 2) All other requirements specified above have been met including, but not limited to, coordination by the Contractor, review and approval by the Contractor, and the Contractor's Certification.
 - 3) The submittal contains no pages or sheets large than 11 x 17 inches.
 - 4) With the exception of the transmittal sheet, the entire submittal is included in a single file.
 - 5) The electronic files are PDF format (with printing enabled).
 - 6) In addition, transmit three hard-copy (paper) originals to the Engineer.
 - 7) The Engineer's review time will commence upon receipt of the hard copies of the submittal.
 - 8) For Submittals that require certification, corporate seal, or professional embossment (i.e., P.E.s, Surveyors, etc.) transmit at least two hard-copy originals to the Engineer. In addition, provide additional photocopied or scanned copies, as specified above, showing the required certification, corporate seal, or professional seal.

B. Informational Submittals

1. Contractor's Responsibilities

- a. Number of copies: Submit three copies, unless otherwise indicated in individual Specification sections
- b. Refer to individual technical Specification Sections for specific submittal requirements.

2. Engineer's Responsibilities

- a. The Engineer will review each informational submittal within 15 days. If the informational submittal complies with the Contract requirements, Engineer will file for the project record and transmit a copy to the Owner. Engineer may elect not to respond to Contractor regarding informational submittals meeting the Contract requirements.
- b. If an informational submittal does not comply with the Contract requirements, Engineer will respond accordingly to the Contractor within 15 days. Thereafter, the Contractor shall perform the required corrective action, including retesting, if needed, until the submittal, in the opinion of the Engineer, is in conformance with the Contract Documents.

3. Electronic Transmission

- a. Informational submittals may be transmitted by electronic means providing all of the following conditions are met:
 - 1) The above-specified transmittal form is included.

- 2) The submittal contains no pages or sheets large than 11 x 17 inches.
- 3) With the exception of the transmittal sheet, the entire submittal is included in a single file.
- 4) The electronic files are PDF format (with printing enabled).
- 5) For Submittals that require certification, corporate seal, or professional embossment (i.e., P.E.s, Surveyors, etc.)) transmit two hard-copy originals to the Engineer.

END OF SECTION
P.E. CERTIFICATION FORM

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

_____ to design
(Company Name)

(Insert P.E. Responsibilities)

In accordance with Specification Section _____ for the

_____.
(Name of Project)

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

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

(Insert Name of Owner)

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

P.E. Name

Company Name

Signature

Signature

P.E. Registration Number

Title

Address

Address

SECTION 01370
SCHEDULE OF VALUES

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Submit a Schedule of Values allocated to the various portions of the work, within 21 days after the effective date of the Agreement or following the issuance of an notice to proceed with request for cost and breakdown of work items.
- B. Upon request of the Engineer, support the values with data which will substantiate their correctness.
- C. The accepted Schedule of Values shall be used only as the basis for the Contractor's Applications for Payment.

1.02 RELATED REQUIREMENTS

- A. Standard General Conditions of the Construction Contract are included in Section 00700.
- B. Application for Payment is included in Section 01026.

1.03 FORM AND CONTENT OF SCHEDULE OF VALUES

- A. Type schedule on an 8-1/2-in by 11-in or 8-1/2-in by 14-in white paper furnished by the Owner; Contractor's standard forms and automated printout will be considered for approval by the Engineer upon Contractor's request. Identify schedule with:
 - 1. Title of Project and location.
 - 2. Engineer and Project number.
 - 3. Name and Address of Contractor.
 - 4. Contract designation.
 - 5. Date of submission.
- B. Schedule shall list the installed value of the component parts of the work in sufficient detail to serve as a basis for computing values for progress payments during construction.
- C. Identify each line item with the number and title of the respective Section.
- D. For each major line item list sub-values of major products or operations under the item.
- E. For the various portions of the work:
 - 1. Each item shall include a directly proportional amount of the Contractor's overhead and profit.
 - 2. For items on which progress payments will be requested for stored materials, break down the value into:

- a. The cost of the materials, delivered and unloaded, with taxes paid. Paid invoices are required for materials upon request by the Engineer.
 - b. The total installed value.
- F. The sum of all values listed in the schedule shall equal the total Contract Sum or the submitted cost to complete each individual Notice to Proceed.

1.04 SUB-SCHEDULE OF UNIT MATERIAL VALUES

- A. Submit a sub-schedule of unit costs and quantities for:
 - 1. Products on which progress payments will be requested for stored products.
- B. The form of submittal shall parallel that of the Schedule of Values, with each item identified the same as the line item in the Schedule of Values.
- C. The unit quantity for bulk materials shall include an allowance for normal waste.
- D. The unit values for the materials shall be broken down into:
 - 1. Cost of the material, delivered and unloaded at the site, with taxes paid.
 - 2. Copies of invoices for component material shall be included with the payment request in which the material first appears.
 - 3. Paid invoices shall be provided with the second payment request in which the material appears or no payment shall be allowed and/or may be deleted from the request.
- E. The installed unit value multiplied by the quantity listed shall equal the cost of that item in the Schedule of Values.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01445
PIPELINE TESTING AND CLEANING

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and test and clean all new pipelines installed under this Contract as specified herein.

1.02 RELATED WORK

- A. Buried pipelines are included in Division 2 and sections of the referenced technical specifications.
- B. Allowable deflection testing of PVC sewer or stormwater pipe is included in Section 02622.
- C. Testing of sewer pipe joints is included in Section 02762.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 GENERAL

- A. Furnish all necessary equipment and labor for cleaning, testing, and chlorinating the pipelines. Submit testing plan including procedures and methods to the Engineer for approval. All tests shall be conducted in the presence of the Engineer.
- B. Make any taps and furnish all necessary caps, plugs, etc, as required in conjunction with testing pipelines. Furnish a test pump, gauges and any other equipment required in conjunction with carrying out the hydrostatic tests.
- C. Test all new sewer pipe by testing each pipe joint as specified in Section 02762. Joints that fail the pressure test shall be repaired by open cut excavation and retested until the joint passes the pressure test.
- C. The Owner will provide the source of water from the existing water distribution system for Contractor's use in filling lines. Refer to Sections 01046 and 01170.
- D. Submit a testing plan including detailed procedures and methods and equipment that will be used for pipeline testing at least 10 days before starting the testing for the Engineer's review. The methods and procedures shall be approved by the Engineer. All tests shall be conducted in the presence of the Engineer.

3.02 CLEANING PIPELINES

- A. As pipe laying progresses and at the conclusion of the work thoroughly clean all new pipelines by flushing with water or other means to remove all dirt, stones, pieces of wood or other material which may have entered during the construction period. Debris cleaned from the lines

shall be removed from the low end of the pipeline. If, after this cleaning, obstructions remain, they shall be removed. After the pipelines are cleaned and if the groundwater level is above the pipe or following a heavy rainfall event, the Engineer will examine the pipe for leaks. If any defective pipes or joints are discovered, they shall be repaired or replaced by the Contractor.

3.03 TESTING GRAVITY PIPELINES

- A. All gravity pipelines shall be tested for leakage by an infiltration or exfiltration test. Buried piping shall be tested by an infiltration test if the groundwater is more than 2-ft above the crown of the pipe for the full length of the section to be tested. Air testing may be used in lieu of an exfiltration test subject to approval of the Engineer.
- B. Exfiltration Test
 - 1. Leakage tests by exfiltration shall be made by creating a head in the pipeline to be tested by filling the line and either a manhole or temporary riser on one end of the line with water. The length of pipe to be tested shall be such that the head over the crown at the upstream end is not less than 2-ft and the head over the downstream crown is not more than 6-ft. The pipe shall be plugged by pneumatic bags or mechanical plugs in such a manner that the air can be released from the pipe while it is being filled with water. Before any measurements are made, the pipe shall be kept full of water long enough to allow absorption and the escape of any trapped air to take place. Following this, a test period of at least one hour shall begin. Provisions shall be made for measuring the amount of water required to maintain the water at a constant level during the test period.
 - 2. If any joint shows an appreciable amount of leakage, the jointing material shall be removed and the joint repaired. If any pipe is defective, it shall be removed and replaced. If the quantity of water required to maintain a constant head in the pipe does not exceed 1.9 gallons per inch of diameter per day per 100-ft of pipe and if all the leakage is not confined to a few joints, workmanship shall be considered satisfactory.
- C. Infiltration Test
 - 1. Pipe shall be tested for infiltration after the backfill has been placed and the ground water allowed to return to normal elevation. The length of line to be tested shall be not less than the length between adjacent manholes and not more than the total length of each size of pipe. The allowable infiltration shall be 1.9 gallons per inch of diameter per day per 100-ft of pipe in each section tested. There shall be no gushing or spurting leaks.
 - 2. If an inspection of the completed pipeline or any part thereof shows pipes or joints which allow noticeable infiltration of water, the defective work or material shall be replaced or repaired as directed.
 - 3. Rates of infiltration shall be determined by means of V-notch weirs, pipe spigots, or by plugs in the end of the pipe installed in an approved manner and at such times and locations as may be directed by the Engineer.
- D. When the pipeline to be tested is reinforced concrete pipe, the allowable leakage in the above tests shall be 4.7 gallons per inch of diameter per 100-ft of pipe.

E. Low Pressure Air Test

1. Low-pressure air tests shall be made with equipment specifically designed and manufactured for the purpose of testing pipelines using low-pressure air. The equipment shall be provided with an air regulator valve or air safety valve so set that the internal air pressure in the pipeline cannot exceed 8 psig. Pneumatic plugs shall have a sealing length equal to or greater than the diameter of the pipe to be tested. All air used shall pass through a single control panel.
2. Install plugs at manholes. Brace plugs securely as required for safety and allow no one in the manholes while pressurizing the line or during the test.
3. Low-pressure air shall be introduced into the sealed line until the internal air pressure reaches 4 psig. The internal air pressure in the sealed line shall not be allowed to exceed 8 psig. At least 2 minutes shall be allowed for the air pressure to stabilize in the section under test. After the stabilization period, the low-pressure air supply hose shall be quickly disconnected from the control panel. The time required in minutes for the pressure in the section under test to decrease from 3.5 to 2.5 psig shall not be less than that shown in Table 1 of ASTM C925 for RC pipe and F1417 for PVC pipe.
4. If the pipe section does not pass the air test, sectionalize the section tested to determine the location of the leak. Once the leak has been located, repair and retest.

3.04 TESTING PRESSURE PIPELINES

- A. All pressure pipelines shall be pressure and leakage tested. Pipelines shall be subjected to a hydrostatic pressure of 50 percent above the normal operating pressure and this pressure maintained for at least 10 minutes. The leakage test shall be conducted at the maximum operating pressure as determined by the Engineer, and this pressure shall be maintained for at least two hours. The test pump and water supply shall be arranged to allow accurate measurement of the water required to maintain the test pressure. Where applicable, hydrant branch gate valves shall remain open during this test. The amount of leakage which will be permitted shall be in accordance with AWWA C600.
- B. All valves and valve boxes shall be properly located and installed and operable prior to testing. Bulkheads shall be provided with a sufficient number of outlets for filling and draining the line and for venting air.

3.05 CHLORINATION OF PIPELINES

- A. Before being placed in service, all new potable water pipelines (including plant water) shall be chlorinated using the continuous feed method specified in AWWA C651. The procedure shall be approved by the Engineer in advance.
- B. The location of the chlorination and sampling points will be determined by the Engineer in the field. Taps for chlorination and sampling shall be installed. Uncover and backfill the taps as required.
- C. The general procedure for chlorination shall be first to flush all dirty or discolored water from the lines and then introduce chlorine in approved dosages through a tap at one end, while water

is being withdrawn at the other end of the line. The chlorine solution shall remain in the pipeline for 24 hours.

- D. Following the chlorination period, all treated water shall be flushed from the lines at their extremities and replaced with water from the distribution system. All treated water flushed from the lines shall be disposed of by discharging by means approved by the Owner and Engineer in accordance with all Federal, State and local standards. No discharge to any storm sewer or natural watercourse will be allowed. Engineer will require bacteriological sampling and analysis of the replacement water by the Contractor in full accordance with the latest edition of the AWWA C651 standard. Contractor shall make payment for bacteriological sampling and testing required by the Engineer and in accordance with Owner's Construction Specifications. The Contractor will be required to rechlorinate, if necessary, and the line shall not be placed into service until all requirements of the Commonwealth of Massachusetts and the Owner are met. Additional testing by a qualified individual for heterotrophic plate count (HPC) and volatile organic carbon (VOCs) shall be completed and recorded on forms as required by the Commonwealth of Massachusetts. Contractor shall forward to the Engineer all sampling and analysis forms to the Commonwealth of Massachusetts as required. Disinfection and final water quality results shall be consistent with the existing water quality in the Owner's water system in accordance with the Owner's Construction Standards and Specifications.
- E. Special disinfecting procedures shall be used in connections to existing pipelines and where the method outlined above is not practical.
- F. All adjoining potable water pipelines (at ends) shall be kept clean and shall be swabbed with 5.26 percent chlorine solution just prior to installing the pipes, valves, components, fittings and appurtenances. Contractor shall provide necessary labor and equipment for disinfection.
- G. The Owner shall be notified at least 72 hours in advance prior to chlorination and shall witness the procedure. If no one from the Owner is available, the procedure shall be rescheduled to accommodate the Owner.
- H. Discharge of chlorinated water shall comply with Federal, State and local standards. Provide bisulfate for dechlorination prior to discharge.

END OF SECTION

SECTION 01510
MAINTENANCE OF FLOW IN EXISTING SEWERS AND DRAINS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. As required in Article 2.05A of the General Conditions, the Contractor shall submit to the Engineer a schedule to complete the work. It shall include the excavation and replacement of existing pipe; handling of wastewater and stormwater flow during construction; and re-connection of active service connections.
- B. Furnish all labor, materials equipment and incidentals required, and maintain wastewater and stormwater flow in all public and private pipes during construction including individual house service connections. The method used shall be compatible with the varied work performed under this Contract.
- C. Contractor shall supply pumps, conduits, power, and other equipment to divert and by-pass the flow of sewage and/or stormwater around the section in which work is to be performed. The by-pass system shall be of sufficient capacity to handle existing flows plus additional flows that may occur during a rain event.
- D. The Contractor shall incorporate to the satisfaction of the Owner and Engineer, noise prevention measures for any and all equipment being used to ensure minimum noise impact on the surrounding areas. Such measures shall include but not be limited to insulated enclosures, hospital grade mufflers or silencers, equipment modifications, and special equipment as necessary. As an added noise prevention measure wherever and whenever possible, the Owner reserves the right to require the Contractor to use electrically powered pumps for any and all pumping required for work under this contract. If so required the primary power supply needed to operate such pumps shall be obtained through temporary power services installed, maintained and operated in strict accordance with all power company rules and regulations. Operating on-site power generating facilities outside of normal working hours shall not be allowed unless authorized by the Owner and Engineer as an emergency backup in the event of a power failure to prevent shutdown of the diversion system. Should the Owner exercise the above mentioned right, all associated costs including but not limited to installation, operation, and maintenance of both the pumping systems an related power services shall be totally at the Contractors expense and at no cost the Owner, and without basis for additional compensation for wok under this contract.
- E. The Contractor shall be required to repair at his own expense any damage to property, public or private caused by his operations.
- F. Flows from existing facilities shall not be allowed to enter the new facilities until the new facilities have been cleaned and tested as required in the specifications.
- G. Should damage of any kind occur to the existing facilities, the Contractor shall at his own expense make repairs to the satisfaction of the Engineer.

- H. The Contractor shall not be permitted to overflow, bypass pump or by any other means convey drainage to any brook or water course without permission of the Engineer.
- I. All procedures for maintaining flow must meet the approval of the Engineer. The Contractor shall be required to submit to the Engineer, for approval, a detailed written plan of all methods of flow maintenance ten (10) days in advance of any flow interruption. All proposed noise prevention measures shall be outlined in detail in the submitted plan. No construction shall begin until all provisions and requirements have been reviewed and approved by the Engineer. Should at any time prior to or during the performance of said work, the Owner or Engineer determine that the noise preventions measures being used are not adequate, the Contractor shall at no additional cost to the Owner suspend all work until acceptable measures are incorporated.
- J. Contractor shall maintain 24-hr on site personnel to monitor by-pass pumping efforts. Maintain temporary by-pass pumping systems so that they are completely functional throughout the required period of service.
- K. The design, installation, and operation of temporary by-pass pumping systems shall be the Contractor's responsibility. The Contractor shall provide the services of a professional bypass design company who can demonstrate to the Owner and Engineer that the company specializes in the design and operation of temporary by-pass pumping systems. The by-pass system shall meet the requirements of all codes and regulatory agencies having jurisdiction. By-pass plan shall be designed by a registered professional engineer in the Commonwealth of Massachusetts and submitted to the Owner and Engineer for review.
- L. Following the required period of service, remove temporary by-pass pumping systems from the site and conduct site reconstruction to repair any damage caused resulting from system installation.
- M. Provide all maintenance including manufacturer recommended preventative maintenance and on-call repair services. Contractor shall provide repair services and/or replacement equipment 24 hours per day, seven days per week within 4 hours of being called.
- N. Should the Contractor elect to use diesel fuel for temporary by-pass pumping, the total storage quantity of fuel allowable at the site to operate the temporary pumps shall not exceed the sum of the individual fuel tank capacities furnished with each pump's diesel engine drive. Provide a refueling service to maintain continuous 24-hour per day, 7 day per week pumping system operation.
- O. Project flows will be provided on a project by project basis depending on the type of work taking place.
- P. Contractor will be required to install by-pass piping within City right-of-ways. Piping installed within the roadway shall be buried. Contractor shall not block cross streets, driveways, or intersections with piping installed above grade. Piping shall be installed in the roadway shoulder when possible. Contractor will be responsible for all restoration of driveways, sidewalks, and ADA/AAB compliant wheel chair ramps and driveway aprons. Payment for restoration associated with by-pass pumping shall be included in the appropriate item in the Bid Form.

- Q. Provide field testing and inspections as required to demonstrate 24 hours of continuous operation and the ability of the pumps to automatically start and stop in response to changing flow conditions.

END OF SECTION

SECTION 01562
DUST CONTROL

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Perform dust control operations, in an approved manner, whenever necessary or when directed by the Engineer, even though other work on the project may be suspended. Dust control shall be generally accomplished by the use of water; however, the use of calcium chloride may be used when necessary to control dust nuisance as specified below.
- B. Several materials may be used for dust control, including temporary mulch, spray on adhesives such as latex emulsions or resin in water sprayed onto mineral soil, sprinkling water, crushed stone or wind barrier in the form of sediment fence or snow fence. Do not use calcium chloride or spray on asphalt emulsions in areas requiring growth of vegetation/grass as it will hinder and/or prevent the growth of grass/vegetation. Calcium chloride may be used in the roadway and shall conform to AASHTO M144, Type I except the requirements for "total alkali chlorides" and other impurities shall not apply.
- C. Methods of controlling dust shall meet all air pollutant standards as set forth by Federal and State regulatory agencies.
- D. Maintain all excavations, embankments, stockpiles, access roads, plant sites, waste areas, borrow areas and all other work areas free from dust which could cause the standards for air pollution to be exceeded and which would cause a hazard or nuisance to others.
- E. Conduct trucking operations in a manner to cause a minimum of dust. Give unpaved streets, roads, detours, or haul roads used in construction areas a dust-preventative treatment or periodically water to minimize dust. Strictly adhere to applicable environmental regulations for dust prevention.
- F. Provide and maintain temporary dust-tight partitions, bulkheads, or other protective devices during construction to permit al operation of existing park facilities outside of the limits of work. Construct partitions of plywood, insulating boards, plastic sheets, or similar materials. Construct partitions in such a manner that dust and dirt from demolition and cutting will not enter parts of existing buildings or facilities. Remove temporary partitions as soon as the need no longer exists.
- G. Sprinkling, to be approved, must be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs, as determined by the Engineer.
- H. Control dust associated with the traffic generated by the work performed under this Contract. The following describes the minimum required of the Contractor in this regard.
 - 1. Assure that all work areas and all roads used are kept free from debris and that dust is adequately controlled.

2. Weather permitting, arrange for street sweeping of the construction traffic route as necessary, but at least twice weekly during the construction period or as directed by the Engineer and Owner.
 3. Owner may request additional street sweeping in the project area and along haul routes which shall be completed at no additional cost to the Owner. Refer to Section 01005 for additional requirements.
 4. Weather permitting within one week of discovery or notice from the Owner, repair roadways which are damaged as a result of construction or construction related traffic to City streets as specified.
 5. Assure that any open body trucks transporting materials with the potential to generate spillage or dust shall have its bed securely covered by a canvas or plastic tarp to ensure that its load is contained and to minimize spillage or dust. In addition, all trucks transporting materials with the potential to generate odors shall be tightly covered or closed.
 6. In the event that these minimum measures prove inadequate and Owner receives verifiable and reasonable complaints covering dust generated by construction or related traffic, furnish such additional dust control measures as may be required to control the dust so generated.
 7. Contractor shall prevent dust nuisance from his/her operation or from traffic. All sawing of concrete, pavement or bricks/cobbles/pavers shall be performed with a wet saw. There shall be no dry sawing of concrete, pavement or bricks/cobbles/pavers during the demolition, installation or otherwise using a dry saw.
- I. Contractor will be required to use On-Road Low Sulfur Diesel (LSD) fuel in all off-road construction equipment.
 - J. Trucks hauling materials from the site shall be covered with a tarpaulin and equipped with refuse gates which prevent material from dropping while the vehicle is moving.

END OF SECTION

SECTION 01570
TRAFFIC REGULATION

PART 1 GENERAL

1.01 REQUIREMENTS

- A. All traffic control work performed by the Contractor shall be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) latest edition, the latest version of the Massachusetts Department of Transportation (MassDOT) Standard Specification for Highways and Bridges, the Contract Drawings and these specifications. Where reference is made to one of the aforementioned publications, the revision in effect at the time of bid opening shall apply.
- B. The Contractor shall furnish, install, operate and maintain equipment, services and personnel with traffic control and protective devices, as required to expedite vehicular traffic flow during construction.
- C. The City of New Bedford Department of Public Infrastructure, for the convenience of the Contractor will supply the Contractor up to 100 barrels for use on any and all projects. It is the responsibility of the Contractor to coordinate the number of barrels needed with the City at least 72 hours in advance. The Contractor will be responsible for picking the barrels up at the City Yard, signing a release waiver with the City for the barrels, bringing them to the project site and returning them in the same condition as they were received to the City Yard at the completion of work which shall be considered incidental to the cost of the project which no separate payment will be given. When barrels are returned to the City, Contractor shall notify Owner and those barrels will be deducted from Contractor's total number of available barrels. Any barrels being used by the Contractor that are damaged shall be replaced by the Contractor at no additional cost to the Owner. At the completion of construction season, Contractor shall return all barrels to the Owner. Number of barrels to be returned shall be based on Owner's sign out list. Any barrel not returned, Owner will replace the barrel at Contractor's cost which will be deducted from the total project retainage. Contractor is required to furnish and install any and all other traffic management devices required.
- D. The City, from time to time, may require that the Contractor return barrels being used on a project(s) for their use. Owner will provide Contractor 72 hours written notice of such need. Contractor shall coordinate with Owner for delivery of barrels. Any and all costs to return the barrels back to the City and pick them up again shall be considered incidental to the cost of the project. Contractor will be required to obtain barrels or other needed measures to ensure that same or better controls are provided once the City's barrels have been removed from the project site. Contractor will not be eligible for additional cost or time extension as a results of these requests.
- E. Detailed traffic control plans, if required, shall be developed jointly between the Contractor and the City of New Bedford. Once an agreed upon plan has been established, the Contractor shall submit any requested modifications to the Engineer for review. Changes to the traffic control plans shall detail all requested changes to the plans including all temporary changes in traffic control equipment, street or road closures, detours, etc. prior to the start of construction for review by the Engineer in conformance with the Contract Documents. Plans must address concurrent operations as required to ensure the proper flow of traffic within the project area.

The Contractor shall make every effort to adhere to the agreed upon plan. When necessary, the Contractor shall coordinate with the City of New Bedford to update this plan which will be forwarded to the City of New Bedford Engineer, City of New Bedford Police Department, Fire Departments, Traffic Commission, School Departments, SRTA Bus Company, Emergency Medical Services and ABC Disposal Company for approval. The City of New Bedford reserves the right to modify the plan through the course of the Contract without modifying Contractor's schedule or cost.

- F. Where required by the Engineer, Contractor shall submit a pedestrian access plan that includes furnishing, installing, and maintaining all pedestrian access and control devices meeting ADA guidelines and furnishing all labor required for pedestrian access controls as shown in the Drawings and specified herein.
- G. The Contractor shall remove temporary equipment and facilities when no longer required and restore grounds to original or to specified conditions.
- H. The Contractor shall notify all property owners at least 72 hours in advance of any work that will interfere with access to their residence or place of business. Contractor shall coordinate with Engineer to develop the required letters and/or door hangers.
- I. No road shall be closed to traffic or traffic patterns modified without prior consent of the Engineer and the City of New Bedford. Contractor shall submit a written request to the Engineer 72-hrs (Saturdays, Sundays and Legal holidays excluded) in advance of request for traffic pattern modifications. Written permission shall be obtained prior to proceeding. Owner reserves right to reject requests without modifying schedule or cost.
- J. Traffic control, including but not restricted to signing and traffic control devices, shall be provided for all openings in roads by the Contractor in accordance with City of New Bedford and Massachusetts Department of Transportation, Highway Division Standards.
- K. Work within the traveled way is restricted to between 7:00 a.m. to 5:00 p.m. (Monday through Friday) with the exception of road closure areas, unless otherwise specified for 24-hour work or those locations that are mandated for different hours. Contractor shall submit written request to the Owner for modification to this time restriction. See Sections 00800, 01005 and 01046 for additional requirements regarding work hours and the Drawings.
- L. The Contractor shall cover all directional, regulatory and warning signs that are not in use.
- M. Any traffic control device or barrier removed to facilitate construction, shall be replaced immediately with a temporary device (e.g., stop signs, directional signs, barriers/barricades). All temporary signs shall be affixed to barricades or posts and be per MUTCD and MassDOT standards. Contractor shall maintain all temporary traffic control devices for the duration of construction.

1.02 MINIMUM REQUIREMENTS FOR TRAFFIC CONTROL AND PEDESTRIAN ACCESS

- A. The Contractor shall provide access to all buildings including business, parking areas and private residence driveways at all times, unless otherwise specified in the plans or directed by the Engineer. Property owners must be notified prior to impeding access.

- B. One through travel lane having a minimum width of 11-ft shall be provided for both directions (lane to be shared and the direction of travel to alternate in some situations under police officer control), unless otherwise specified in the plans.
- C. Police detail or flaggers may be required at certain times in order to maintain safe traffic control within the project area. Suggested Police detail or flagger locations, additional locations and changes will be determined by the Engineer or City of New Bedford. Police details will be paid for by the City of New Bedford. Flaggers will be paid for under the appropriate item in the Bid Form. Policing and flaggers are discussed in Section 01576 of these Specifications.
- D. The Contractor shall not be allowed to utilize detours unless the detour is already identified in the traffic control plans and/or approved by the Engineer. No detour shall be allowed without prior approval the Engineer and the City of New Bedford. A detailed Traffic Control Detour Plan will be coordinated between the Owner and Contractor prior to Construction.
- E. The Contractor shall maintain access to storefronts, businesses and private residences throughout the project area at all times. It is the contractor's responsibility to coordinate with local businesses, owners, the Owner, and maintain access during construction activities, such as pouring concrete for proposed sidewalks. Contractor shall at his expense provide suitable temporary walkways and bridges which shall be maintained to provide safe and secure access to the storefronts in the project area at all times. Contractor shall provide for public use of sidewalk area except for limited times scheduled in advance with City and Engineer. Contractor shall allow for receipt of deliveries, (i.e. mail, etc.) and foot traffic resulting from daily activities. Contractor shall not close or obstruct any portion of a street or walkway without obtaining prior approval from the City. Where such walkways are required, they shall have a minimum walking width of no less than four (4) feet, shall include handrails, and shall be ADA compliant. Pedestrians shall be separated from the work zone by temporary barrier specified in Section 01005. The type of temporary walkway and bridges provided shall be approved by the Engineer and Owner prior to installation.
- F. The Contractor shall at all times conduct the Work in such a manner as to ensure the least practicable obstruction to public travel and access. The convenience of the general public and residents and businesses along and adjacent to the area of work shall be provided for in a satisfactory manner, consistent with the operation and local conditions. The Contractor shall be responsible for proper maintenance control and detour of both vehicular and pedestrian traffic in the area of construction during the course of construction.
- G. Excavated or other material stored adjacent to or partially upon a roadway pavement shall be adequately marked for traffic and pedestrian safety at all times. Necessary access to adjacent property shall be provided at all times.
- H. Excavation shall be conducted in a manner to cause the least possible interruption to traffic outside of the limits of work. Contractor shall comply with all City regulations, and no claims for additional payment will be considered for any costs included.
- I. Communication on traffic control issues shall be made at least daily between the Contractor, Engineer and Owner.
- J. In the event of nighttime work operations, the contractor shall submit a nighttime operations and lighting plan to the Owner and Engineer for approval. The plan shall be updated as necessary and include all details for traffic control and lighting plans in accordance with MSSHB.

- K. The Contractor shall at all times maintain parking spaces designated as City use only, and commercial loading zones as required based on current field conditions.
- L. The Contractor shall provide an 11-foot wide corridor into and out of the opening entrance to lots at all times. Any excavation made to block access to the areas shall be filled with temporary pavement or covered with steel plates at the end of each workday. The contractor shall employ short term work zone traffic control measures within the work hours specified in this Section, and other sections of the specifications. It is the Contractor's responsibility to coordinate construction activities at these locations with Owner. At no time during construction shall locations be closed to parking or traffic.
- M. The Contractor shall maintain and coordinate access for scheduled waste pickup at all times. Coordinate with City of New Bedford, Owner and Owner's Solid Waste Collector for specific pick up times and days.

1.03 SUBMITTALS

- A. Not Used.

1.04 TRAFFIC CONTROL DEVICES

- A. The Contractor shall provide (excluding barrels) and operate traffic control and directional signals required to direct and maintain an orderly flow of traffic in all areas under all Contractors' control or affected by all Contractor's operations.
- B. Provide traffic control and directional signs, mounted on barricades or standard posts at the following locations:
 - 1. Each change of direction of a roadway and each crossroads.
 - 2. Detours
 - 3. Parking areas
 - 4. For business within detour routes
- C. Contractor will be required to furnish, install, remove and relocate temporary barriers, fencing, signage and other traffic safety devices for various traffic setups related to different phases of the project or at the request of the Owner. Contractor shall provide where shown on the Drawings and within the approved traffic management plans traffic safety devices including but not limited to temporary jersey barriers, temporary jersey barriers with fencing, temporary impact attenuators, reflectorized drums with lighting, temporary lighting for night work where required and approved, etc. All traffic control devices and their placement by the Contractor shall conform to the MSSHB and MUTCD.
- D. Existing permanent traffic control signing and devices, including guardrails, shall not be removed unless called for on the Contract Plans or without the prior consent of the agency responsible for the road and the Engineer.

- E. Detours around construction will be subjected to the approval of the City of New Bedford and the Engineer. Where detours are permitted the contractor shall provide all necessary barricades and signs as required to divert the flow of traffic. While traffic is detoured the Contractor shall expedite construction operations and periods when traffic is being detoured will be strictly controlled by the City of New Bedford. Electronic message boards shall be utilized where required in accordance with Massachusetts General Laws and the approved traffic management plans.
- F. After completion of the project, the Contractor shall remove all construction signing and support systems and patch the disturbed area to match existing as closely as possible and to the satisfaction of the Engineer.
- G. The Contractor shall take precautions to prevent injury to the public due to open trenches in accordance with all Massachusetts General Laws. Night watchmen may be required where special hazards exist, or police protection provided for traffic while work is in progress. The Contractor shall be fully responsible for damage or injuries whether or not police protection has been provided.
- H. The Contractor shall take precautions to prevent injury due to structures above grade. The contractor shall ensure that all structures (e.g. frames and covers) and cut pavement edges shall be clearly marked with safety orange paint and lighted barrel at all times or until finished grade is set. Type of protection shall be approved by the Engineer.

1.05 CONSTRUCTION PARKING CONTROL

- A. Contractor shall control vehicular parking to preclude interference with public traffic or parking, access by emergency vehicles, Public Works Department operations, or construction operations.
- B. Contractor shall monitor parking of construction personnel's private vehicles, maintain free vehicular access to and through parking areas and prohibit parking on or adjacent to access roads in non-designated areas.
- C. Parking of equipment or vehicles in private parking lots is not permitted.

1.06 HAUL ROUTES

- A. Contractor shall be responsible for consulting with governing authorities to establish public thoroughfares that will be used as haul routes and site access.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01576
POLICING

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. When, in the opinion of the Owner, or the Engineer, public safety or convenience requires the services of police, the Engineer may direct the Contractor to provide manpower to direct traffic within the location of work under this Contract.
- B. When so directed, make all arrangements in obtaining the manpower and all invoices for policing will be made to the City of New Bedford and the City of New Bedford shall pay all expenses incurred, including the salaries of the assigned personnel. The Contractor shall maintain a record of the police officers including name, location of work, badge number, and hours and day worked. This list will be submitted to the City of New Bedford Engineering Department on a weekly basis. The police shall at all times be subject to the direction and control of the Owner. In the event construction operations run beyond the scheduled time, it is the Contractors responsibility to notify the New Bedford Police Detail office to ensure continuous uninterrupted shift coverage.
- C. The intent is to insure public safety by police direction of traffic. Police are not to serve as watchmen to protect the Contractor's equipment and materials, or to warn pedestrians of such hazards as open trenches. Payment shall not be made for police protection used for the convenience of the Contractor.
- D. The Owner is not responsible for the payment of police officers or flaggers when the original work was rejected by the Owner.
- E. The Owner is not responsible for the payment of police officers when the Contractor fails to provide adequate notice to the Police Department for cancellation of officers.
- F. Nothing contained herein shall be construed as relieving the Contractor of any of his/her responsibilities for protection of persons and property under the terms of the Contract. The Contractor shall remain fully responsible at all times whether or not police protection has been provided.
- G. In the event insufficient police details report for the construction project, it is the Contractors responsibility to notify the Owner and Engineer before work can begin. In this event, the Contractor will provide adequate personnel and/or traffic safety control devices to ensure the site is secure, work can proceed safely, and work quality will not be affected.

END OF SECTION

SECTION 01601
CONTROL OF MATERIALS

PART 1 GENERAL

1.00 GENERAL

- A. As specified, the Owner intends to purchase items for installation as part of this project. This section applies to all materials whether purchased by the Owner or purchased by the Contractor.

1.01 APPROVAL OF MATERIALS

- A. Unless otherwise specified, only new materials and equipment shall be incorporated in the work. All materials and equipment furnished shall be subject to the inspection and approval of the Engineer. No material shall be delivered to the work without prior approval of the Engineer.
- B. Submit, in accordance with Section 01300, data relating to materials and equipment proposed to be furnished for the work. Such data shall be in sufficient detail to enable the Engineer to identify the particular product and to form an opinion as to its conformity to the specifications.
- C. Facilities and labor for handling and inspection of all equipment shall be furnished by the Contractor. Facilities and labor for handling and inspection of all pipe, manholes and catch basins shall be furnished by the Contractor. Refer to Section 00700, 00800 and 01005 for additional requirements. Refer to Section 01010 for requirements regarding Owner provided equipment. If the Engineer requires, either prior to beginning or during the progress of the work, submit additional samples or materials for such special tests as may be necessary to demonstrate that they conform to the requirements specified herein. Such samples shall be furnished, stored, packed and shipped as directed at the Contractor's expense.
- D. Any delay of approval resulting from the Contractor's failure to submit samples or data promptly shall not be used as a basis of a claim against the Owner or the Engineer.
- E. In order to demonstrate the proficiency of workmen or to facilitate the choice among several textures, types, finishes and surfaces, provide such samples of workmanship or finish as may be required.
- F. The materials and equipment used on the work shall correspond to the approved samples or other data.

1.02 HANDLING AND STORAGE OF MATERIALS

- A. All materials and equipment to be incorporated in the work shall be handled and stored by the manufacturer, fabricator, supplier and Contractor before, during and after shipment in a manner to prevent warping, twisting, bending, breaking, chipping, rusting and any injury, theft or damage of any kind whatsoever to the material or equipment.
- B. Cement and lime shall be stored under a roof and off the ground and shall be kept completely dry at all times. All structural, miscellaneous, reinforcing steel shall be stored off the ground or otherwise to prevent accumulations of dirt or grease and in a position to prevent accumulations of standing water and to minimize rusting. Beams shall be stored with the webs vertical.

Precast concrete shall be handled and stored in a manner to prevent accumulations of dirt, standing water, staining, chipping or cracking. Brick, block and similar masonry products shall be handled and stored in a manner to reduce breakage, chipping, cracking and spalling to a minimum.

- C. All mechanical equipment subject to corrosive damage by the atmosphere if stored outdoors (even though covered by canvas) shall be stored in a building to prevent injury. The building may be a temporary structure on the site or elsewhere, but it must be satisfactory to the Engineer.
- D. All materials which, in the opinion of the Engineer, have become so damaged as to be unfit for the use intended or specified shall be promptly removed from the site of the work and no compensation shall be given for the damaged material or its removal.
- E. All pipe and other materials delivered to the job shall be unloaded and placed in a manner which will not hamper the normal operation of the existing plant or interfere with the flow of necessary traffic.
- F. Based on availability of area/land, Contractor may have the use of some of Owner's land at 1105 Shawmut Avenue or Liberty Street yard for the temporary storage of equipment. Coordinate with Owner prior to use of these properties. Owner is not responsible for any damage to equipment or materials stored on Owner's site. This is for the convenience of the Contractor only and the availability of space is not guaranteed.

1.03 TRANSPORTATION OF MATERIALS

- A. Transport and handle items in accordance with manufacturer's instructions.
- B. Schedule delivery to reduce long term on-site storage prior to installation and/or operation. Under no circumstances shall equipment be delivered to the site more than one month prior to installation without written authorization from the Owner and/or Engineer.
- C. Coordinate delivery with installation to ensure minimum holding time for items that are hazardous, flammable, easily damaged or sensitive to deterioration.
- D. Deliver products to the site in manufacturer's original sealed containers or other packing systems complete with instructions for handling, storing, unpacking, protecting, and installing.
- E. All items delivered to the site shall be unloaded and placed in a manner which will not hamper the Contractor's normal construction operations or those of subcontractors and other contractors and will not interfere with the flow of necessary traffic.
- F. Provide necessary equipment and personnel to unload all items delivered to the site.
- G. Coordinate delivery of items to be supplied by Owner.
- H. There may be instances when the Contractor (for various reasons) needs to deliver material to the Owner's yard(s) or other location(s), Contractor's subcontractor need to deliver material to/from yards or project site(s) or Contractor needs to pickup and deliver material to project site from a location. Unless specifically called for payment as specified in Section 01025, such

work shall be considered incidental to the cost of the project with no separate payment. Transporting materials between yards and/or subcontractor's yards shall be done for the convenience of the Contractor's means and methods of which no separate payment will be provided.

END OF SECTION

SECTION 01700
CONTRACT CLOSEOUT

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. This Section specifies administrative, verification and procedural requirements for project closeout (project close out shall refer to each individual Notice to Proceeds), including but not limited to:
 - 1. Final cleaning.
 - 3. Spare parts and maintenance materials (spare paint, lubricants, special tools) (applicable Sections).
 - 4. Record Shop Drawings Section 01300.
 - 5. Warranties, guarantees, and bonds Section 01740 and applicable Sections in Technical Specifications.
 - 6. Reconciliation of final accounting, final change order, final payment application Section 01026 and General Conditions and Contractor's releases.
 - 8. Permit close-outs including Order of Conditions (where needed), Certificate of Occupancy or Certificate of Completion.

1.02 RELATED WORK

- A. Operation and Maintenance (O&M) data and manuals Section 01730 and applicable Sections in Technical Divisions.

1.03 CLOSEOUT PROCEDURES

- A. Provide all deliverables as specified, prior to submitting the final payment application.
- B. Provide submittals to Engineer that are required by governing or other authorities having applicable jurisdiction including but not limited to permit close out information, certificates of occupancy, etc.
- C. Submit Application for Final Payment identifying total adjusted Contract Sum, previous payments and sum remaining due.
- D. Submit Contractor's Final Release and Release of Liens with final payment application.

1.04 FINAL CLEANING

- A. Contractor to complete final cleaning prior to submittal of the final application for payment.
- B. Before final payment to removal all surplus material, false work, temporary structures, including foundations thereof, plant of any description and debris of every nature resulting from its operations, and to put the site in a neat, orderly condition.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 01730
OPERATION AND MAINTENANCE DATA

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. This Section includes procedural requirements for compiling and submitting operation and maintenance data required to complete the project.

1.02 RELATED WORK

- A. Submittals are included in Section 01300.
- B. Contract closeout is included in Section 01700.
- C. Warranties and Bonds are included in Section 01740.

1.03 OPERATING MANUALS

- A. Provide operation and maintenance instructions for all electrical and mechanical equipment furnished under various technical specifications Sections.
- B. Separate manuals shall be provided for each type of equipment, or each Section number. Each manual shall contain the following:
 - 1. Format and Materials
 - a. Binders:
 - 1) Commercial quality three ring binders with durable and cleanable plastic covers
 - 2) Maximum ring width capacity: 3 inches
 - 3) When multiple binders are used, correlate the data into related consistent groupings/volumes.
 - b. Identification: Identify each volume on the cover and spine with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS". Include the following:
 - 1) Title of Project.
 - 2) Identify the general subject matter covered in the manual
 - 3) Identify structure(s) and/or location(s), as applicable
 - 4) Specification Section number
 - c. 20 lb loose leaf paper, with hole reinforcement
 - d. Page size: 8-1/2 inch by 11 inch

- e. Provide heavy-duty fly leafs (section separators), matching the table of contents, for each separate product, each piece of operating equipment, and organizational sections of the manual.
 - f. Provide reinforced punched binder tab; bind in with text.
 - g. Reduce larger drawings and fold to the size of text pages - but not larger than 11 inches x 17 inches - or provide a suitable clear plastic pocket (with drawing identification) for such folded drawings/diagrams.
2. Contents:
- a. A table of contents/Index
 - b. Specific description of each system and components
 - c. Name, address, telephone number(s) and e-mail address(es) of vendor(s) and local service representative(s)
 - d. Specific on-site operating instructions (including starting and stopping procedures)
 - e. Safety considerations
 - f. Project specific operational procedures
 - g. Project specific maintenance procedures
 - h. Manufacturer's operating and maintenance instructions – specific to the project
 - i. Copy of each wiring diagram
 - j. Copy of approved shop drawing(s) and Contractor's coordination/layout drawing(s)
 - k. List of spare parts and recommended quantities
 - l. Product Data: Mark each sheet to clearly identify specific products and component parts and data applicable to installation. Delete inapplicable information.
 - m. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams
 - n. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified.
 - o. Warranties and Bonds, as specified in the General Conditions
3. Transmittals
- a. Prepare separate transmittal sheets for each manual. Each transmittal sheet shall include at least the following: the Contractor's name and address, Owner's name, project name, project number, submittal number, description of submittal and number of copies submitted.

- b. Submittals shall be transmitted or delivered directly to the office of the Engineer, as indicated in the Contact Documents or otherwise directed by the Engineer.
 - c. Provide copies of transmittals (only, i.e., without copies of the respective submittal) directly to the Resident Project Representative.
- C. Manuals for Equipment and Systems - In addition to the requirements listed above, for each System, provide the following:
1. Overview of system and description of unit or system and component parts. Identify function, normal operating characteristics and limiting conditions. Include performance curves, with engineering data and tests and complete nomenclature and commercial number of replaceable parts.
 2. Panelboard circuit directories including electrical service characteristics, controls and communications and color coded wiring diagrams as installed.
 3. Operating procedures: include start-up, break-in and routine normal operating instructions and sequences; regulation, control, stopping, shut-down and emergency instructions; and summer, winter and any special operating instructions.
 4. Maintenance Requirements
 - a. Procedures and guides for trouble-shooting; disassembly, repair, and reassembly instructions
 - b. Alignment, adjusting, balancing and checking instructions
 - c. Servicing and lubrication schedule and list of recommended lubricants
 - d. Manufacturer's printed operation and maintenance instructions
 - e. Sequence of operation by instrumentation and controls manufacturer
 - f. Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance
 5. Control diagrams by controls manufacturer as installed (as-built)
 6. Contractor's coordination drawings, with color coded piping diagrams, as installed (as-built)
 7. Charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams. Include equipment and instrument tag numbers on diagrams.
 8. List of original manufacturer's spare parts and recommended quantities to be maintained in storage
 9. Test and balancing reports, as required
 10. Additional Requirements as specified in individual product specification
 11. Design data for systems engineered by the Contractor or its Suppliers

D. Electronic Transmission of O&M Manuals

1. Unless otherwise approved by the Engineer, O&M manuals may not be transmitted by electronic means other than by CD-ROM. Electronic O&M manuals shall meet the following conditions:
 - a. The above-specified transmittal form is included.
 - b. All other requirements specified above have been met, including, but not limited to, coordination by the Contractor, review and approval by the Contractor.
 - c. The submittal contains no pages or sheets large than 11 x 17 inches.
 - d. With the exception of the transmittal sheet, the entire submittal is included in a single file.
 - e. Files are Portable Document Format (PDF) – with the printing function enabled.
2. When electronic copies are provided, transmit two hard-copy (paper) originals to the Engineer with an electronic copy on CD-ROM.
3. The electronic copy of the O&M manual must be identical in organization, format and content to the hard copies of the manual.

1.04 SERVICES OF MANUFACTURERS' REPRESENTATIVE

- A. All electrical, mechanical, and instrumentation & controls equipment furnished under various technical specifications Sections shall include the cost of a competent representative of the manufacturers of all equipment to supervise the installation, adjustment and testing of the equipment; and, to instruct the Owner's operating personnel on operation and maintenance. This supervision may be divided into two or more time periods to suit the Contractor's schedule and/or the Owner's personnel availability.
- B. See the detailed specifications for additional requirements for furnishing the services of manufacturer's representatives.
- C. The manufacturer's representative shall certify that the installation of the equipment is satisfactory; that the unit has been satisfactorily tested; that the equipment is ready for operation; and, that the operating personnel have been suitably instructed in the operation, maintenance, care, and safe operation of the equipment. The *Equipment Manufacturer's Certificate of Installation, Testing, and Instruction* attached to this Section shall be used for this certification.
- D. For other materials furnished under other specification Sections, furnish the services of approved representative(s) of the manufacturer when, in the opinion of the Engineer, some evident product failure or malfunction makes such services necessary.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 SUBMITTAL SCHEDULE

- A. Operation and maintenance manuals shall be delivered directly to the office of the Engineer, as follows:
 - 1. Preliminary copies of manuals shall be submitted to the office of the Engineer, no later than 30 days following approval of the respective shop drawings.
 - 2. Provide three(3) final copies of complete manuals prior to testing and start-up.
- B. The Engineer will review Operation and Maintenance manuals submittals on operating equipment for conformance with the requirements of the applicable specification Section. The review will generally be based on the *O&M Manual Review Checklist* appended to this Section.
- C. If during test and start-up of equipment, any changes were made to the equipment, provide copies (3) of as-built drawings or any other amendments for insertion in the final manuals. Submit the required number within 30 days of start-up and testing of the facility.

3.02 VENDOR TRAINING/INSTRUCTIONS (TO OWNER'S PERSONNEL)

- A. Before final initiation of operation, Contractor's vendors shall train/instruct Owner's designated personnel in the operation, adjustment, and maintenance of products, equipment and systems at times convenient to the Owner.
- B. Unless specified otherwise under the respective equipment specification section, vendor training/instruction shall consist of eight hours of training for each type of equipment. Such training/instruction shall be scheduled and held at times to accommodate the work schedules of Owner's personnel, including splitting the required training/instruction time into separate sessions and/or presented at reasonable times other than the Contractor's "normal working hours" or the Owner's normal day shift.
- C. Use operation and maintenance manuals as basis for instruction. Train/instruct the Owner's personnel, in detail, based on the contents of manual explaining all aspects of operation and maintenance of the equipment. If the respective equipment is inter-related to the operation of other equipment, all interlock, constraints, and permissives shall be explained.
- D. At least two weeks prior to the schedule for vendor training, a detailed lesson plan, representative of the material to be covered during instruction, shall be submitted to the Engineer for approval. Lesson plans shall consist of in-depth outlines of the training material, including a table of contents, resume of the instructor, materials to be covered, start-up procedures, maintenance requirements, safety considerations, and shut-down procedures.
- E. Prepare and insert additional data in each Operation and Maintenance Manual when the need for such data becomes apparent during training/instruction.
- F. Vendor's training/instruction will be considered acceptable based on the completed *Owner's Acknowledgement of Manufacturer's Instruction* as indicated on the Equipment Manufacturer's Certification of Installation, Testing, and Instruction appended to this Section.

3.03 VIDEOGRAPHY OF VENDOR TRAINING/INSTRUCTION

- A Audio/video (A/V) record (in DVD format) training/instructions as they are being provided to the Owner's personnel. Such recording shall include the entire training/instruction session(s) as well as all questions and answers. A/V recording shall be performed by a professional organization experienced in the production of such recordings. Self-recording by the Contractor may be considered, provided that Contractor can demonstrate, in advance, proficient examples of such recordings.
- B To avoid audio problems, training/instruction shall be held in a location sufficiently removed from construction activity, insulated from the noise of construction activity, or during a time when construction activity is not occurring in the vicinity.
- C The audio portion of the A/V recording should be done with a microphone (wired or wireless) attached to the trainer/instructor to maximize the quality of speech.
- D Each A/V recording should have "chapters" to segregate the distinct portions of the training/instruction, or have visual cues at the start of a change in subject.
- E Two copies of the A/V recordings shall be submitted to the Engineer on DVD disk(s). The DVDs will become the property of the Owner.

END OF SECTION

EQUIPMENT MANUFACTURER'S CERTIFICATE OF INSTALLATION, TESTING AND INSTRUCTION

Owner: _____

Project: _____

Contract No. _____

CDM Project No. _____

EQUIPMENT SPECIFICATION SECTION _____

EQUIPMENT DESCRIPTION _____

I _____, Authorized representative of
(Print Name)

_____ (Print Manufacturer's Name)

hereby CERTIFY that _____
(Print equipment name and model with serial No.)

installed for the subject project [has] [have] been installed in a satisfactory manner, [has] [have] been satisfactorily tested, [is] [are] ready for operation, and that Owner assigned operating personnel have been suitably instructed in the operation, lubrication, and care of the unit[s] on Date: _____ Time: _____.

CERTIFIED BY: _____ DATE: _____
(Signature of Manufacturer's Representative)

OWNER'S ACKNOWLEDGMENT OF MANUFACTURER'S INSTRUCTION

[I] [We] the undersigned, authorized representatives of the _____ and/or Plant Operating Personnel have received classroom and hands on instruction on the operation, lubrication, and maintenance of the subject equipment and [am] [are] prepared to assume normal operational responsibility for the equipment:

_____ DATE: _____

_____ DATE: _____

_____ DATE: _____

O&M Manual Review Checklist

Submittal No.: _____

Project No.: _____

Manufacturer: _____

Equipment Submitted: _____

Specification Section: _____

Date of Submittal: _____

General Data

- _____ 1. Are the area representative's name, address, e-mail address and telephone number included?
- _____ 2. Is the nameplate data for each component included?
- _____ 3. Are all associated components related to the specific equipment included?
- _____ 4. Is non-pertinent data crossed out or deleted?
- _____ 5. Are drawings neatly folded and/or inserted into packets?

Operations and Maintenance Data

- _____ 6. Is an overview description of the equipment and/or process included?
- _____ 7. Does the description include the practical theory of operation?
- _____ 8. Does each equipment component include specific details (design characteristics, operating parameters, control descriptions, and selector switch positions and functions)?
- _____ 9. Are alarm and shutdown conditions clearly identified? Does it describe possible causes and recommended remedies?
- _____ 10. Are step procedures for starting, stopping, and troubleshooting the equipment included?
- _____ 11. Is a list of operational parameters to monitor and record for specific equipment included?
- _____ 12. Is a proposed operating log sheet included?
- _____ 13. Is a spare parts inventory list included for each component?
- _____ 14. Is a lubrication schedule for each component included - or does it clearly state "No Lubrication Required"?
- _____ 15. Is a maintenance schedule for each component included?
- _____ 16. Is a copy of the warranty information included?

Review Comments

Is the submittal fully approved (yes/no)?

If not, see the following are the points of rejection that must be addressed and require resubmittal by the Contractor:

Item No.

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____
- 6. _____
- 7. _____
- 8. _____
- 9. _____
- 10. _____
- 11. _____
- 12. _____
- 13. _____
- 14. _____
- 15. _____

Reviewed By: _____ Date: _____

Legend

- 1 = OK
- 2 = Not Adequate
- 3 = Not Included

Note: This submittal has been reviewed for compliance with the Contract Documents.

SECTION 01740
WARRANTIES AND BONDS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. This Section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturer's standard warranties on products and special warranties.

1.02 RELATED WORK

- A. Refer to Conditions of Contract for the general requirements relating to warranties and bonds.
- B. General closeout requirements are included in Section 01700 Project Closeout.
- C. Specific requirements for warranties for the work and products and installations that are specified to be warranted are included in the individual Sections.
- D. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.

1.03 SUBMITTALS

- A. Submit written warranties to the Owner prior to the date fixed by the Engineer for Substantial Completion. If the Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the work, or a designated portion of the work, submit written warranties upon request of the Owner.
- B. When a designated portion of the work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Owner within 15 days of completion of that designated portion of the Work.
- C. When a special warranty is required to be executed by the Contractor, or the Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner for approval prior to final execution.
- D. Refer to individual Sections for specific content requirements, and particular requirements for submittal of special warranties.

1.04 WARRANTY REQUIREMENT

- A. Related Damages and Losses: When correcting warranted work that has failed, remove and replace other work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted work.
- B. Reinstatement of Warranty: When work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

- C. Replacement Cost: Upon determination that work covered by a warranty has failed, replace or rebuild the work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective work regardless of whether the Owner has benefited from use of the work through a portion of its anticipated useful service life.
- D. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.
- E. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the contract Documents.
- F. The Owner reserves the right to refuse to accept work for the project where a special warranty, certification, or similar commitment is required on such work or part of the work, until evidence is presented that entities required to countersign such commitments are willing to do so.
- G. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the work that incorporates the products, nor does it relieve suppliers, manufacturers and subcontractors required to countersign special warranties with the Contractor.

1.05 MANUFACTURERS CERTIFICATIONS

- A. Where required, the Contractor shall supply evidence, satisfactory to the Engineer, that the Contractor can obtain manufacturers' certifications as to the Contractor's installation of equipment.

1.06 DEFINITIONS

- A. Standard Product Warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.
- B. Special Warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 02100
SITE PREPARATION

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials and equipment required and perform all site preparation, complete as shown on the Drawings and as specified herein.
- B. Owner will provide all permits required for site preparation work prior to proceeding with the work.
- C. The areas to be cleared, grubbed and stripped within public rights-of-way, limits of work, and utility easements shall be minimized to the extent possible for the scope of work and in consideration of the actual means and methods of construction used. No unnecessary site preparation within these areas shall be performed.

1.02 RELATED WORK

- A. Environmental Protection is included in Section 01110.
- B. Trenching, backfilling and compaction is included in Section 02221.
- C. Landscaping is included in Section 02900.
- D. Loaming and Seeding is included in Section 02930.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 CLEARING

- A. Cut and remove all timber, trees, stumps, brush, shrubs, roots, grass, weeds, rubbish and any other objectionable material resting on or protruding through the surface of the ground. All clearing work shall be coordinated with and approved by the Owner prior to the start of construction.
- B. Preserve and protect trees and other vegetation designated on the Drawings or directed by the Engineer to remain as specified below.
- C. Unless otherwise noted, Owner shall be responsible for cutting of any roots needed to be removed or pruning of vegetation and trees.

3.02 GRUBBING

- A. Grub and remove all stumps, roots in excess of 1-1/2-in in diameter, matted roots, brush, timber, logs, concrete rubble and other debris encountered to a depth of 18-in below original grade or 18-in beneath the bottom of (foundations) (and) (roadway subbase) whichever is deeper.

- B. Refill all grubbing holes and depressions excavated below the original ground surface with gravel borrow and compact to a density conforming to the surrounding ground surface as specified below and in accordance with Section 02221.

3.03 STRIPPING

- A. Strip topsoil from all areas to be occupied by buildings, structures, and roadways and all areas to be excavated or filled.
- B. Topsoil shall be free from brush, trash, large stones and other extraneous material. Avoid mixing topsoil with subsoil.
- C. Stockpile and protect topsoil until it is used in landscaping, loaming and seeding operations. Surplus topsoil shall be delivered to Owner at 1105 Shawmut Avenue after all work is completed.

3.04 DISPOSAL

- A. Dispose of material and debris from site preparation operations by hauling such materials and debris to an approved offsite disposal area. No rubbish or debris of any kind shall be buried on the site.
- B. Burning of cleared and grubbed materials or other fires for any reason will not be permitted.

3.05 PROTECTION

- A. Existing trees and vegetation shall be protected as follows:
 - 1. All trees designated for preservation shall be protected from vehicular traffic. Construction materials shall not be piled/stored within the limits of the canopy. Contractor shall take special care to protect root zone areas of all trees from compaction and disturbance.
 - 2. Vegetation and/or trees to be temporarily removed shall be carefully removed with root masses substantially intact, stored heeled in with roots covered with wet burlap or mulch, and watered regularly until reinstallation. Coordinate with Owner for those items to be temporarily removed and location of storage of temporarily removed vegetation/trees.
 - 3. Dead, damaged, or unhealthy branches/trees shall be removed by a certified arborist or tree care professional. Coordinate with the City of New Bedford Department of Public Infrastructure to determine the condition of trees. If Owner directs contractor to remove the tree, it shall be done so as indicated herein. The Owner may elect to conduct the work using City crews. Low hanging branches that impede emergency vehicles and construction equipment shall be trimmed or removed prior to construction or after consultation with the Owner/Engineer and the Contractor. Trimming and branch removal shall only be done by a certified arborist or tree care professional and only done with permission by the Owner.
 - 4. Trees and other vegetation designated on the Drawings or directed by the Owner and Engineer to remain shall be protected from damage by all construction operations by erecting suitable barriers, guards, enclosures, or by other approved means. Under no circumstances shall nails or other fasteners be allowed to enter the trees. Conduct clearing operations in a manner to prevent falling trees from damaging trees and vegetation

designated to remain and to the work being conducted and so as to provide for the safety of employees and others.

5. Immediately repair any damage to existing tree crowns, trunks or root systems. Roots exposed and/or damaged during the work shall immediately be cut off cleanly inside the exposed or damaged area. Temporarily cover all exposed roots with wet burlap to prevent roots from drying out and providing earth cover as soon as possible. Coordinate with City Arborists on any needed repair work. City shall complete any needed repair work. The Contractor is liable for damage to City trees and the cost to repair or replace will be deducted from the related job retainage.
6. Restrict construction activities to those areas within the limits of construction designated on the Drawings within public rights-of-way, and within easements provided by the Owner. Adjacent properties and improvements thereon, public or private, which become damaged by construction operations shall be promptly restored to original condition, to the full satisfaction of the property owner at no cost to the Owner.
7. Fill holes/depressions caused by clearing and grubbing operations with gravel borrow conforming to MassDOT standard specifications unless earthwork is done at a location of hole/depression. Place fill in horizontal layer, 6-in loose depth and compact to a density equal to adjacent undisturbed material.
8. Planks shall be strapped around trunks of street trees to provide additional protection from construction.
9. Maintain protection until all work in the vicinity of the trees being protected has been completed and approved by the Owner.
10. When work is completed, remove all dead and downed trees. Live trees shall be trimmed of all dead and diseased limbs and branches. All cuts shall be cleanly made at their juncture with the trunk or preceding branch without injury to the trunk or remaining branches. Coordinate with City Arborist for any work required which shall be performed by the City.

B. Protection and Preservation of Private Property

1. Any damage to on-site structures, paving, gas, water, sewer, electric, telephone, fiberoptic, cable, sewer, drain, electric light, sprinkler systems, or any other pipe, mains, conduits, overhead or underground utility, wire, fences, buildings, building thresholds, building overhangs, retaining walls, garden buffers/borders, and any other property shall be corrected at no additional cost to the Owner to pre-existing conditions or better and to the satisfactory condition of the Owner or operator. Should any damage or injury be caused by the Contractor or anyone under his/her employment, or by work under this Contract, the Contractor shall at his/her own expense, make good such damage and assume responsibility for such damage and assume responsibility for such injury without cost to the Owner.
2. Contractor should be aware that sprinkler systems privately owned may exist within the public right-of-way. These locations shall be marked in the field jointly by the Owner/Engineer and Contractor prior to construction. Regardless if shown on the Drawings, these systems shall be protected. Any damage to these systems that have been pre-marked by the Contractor and Owner shall be repaired/replaced at no additional cost to the Owner. If Owner determines that these systems need to be relocated as a result of the

Contract work, and the work has not been previously identified on the Drawings or specifications and included in the Bid Price, the Owner may direct the contractor in writing to relocate the systems.

3. In case of an emergency, which threatens loss or injury of property and or safety of life, the Contractor will be allowed to act, without previous instructions from the Owner, in a diligent manner. It shall notify the Owner immediately thereafter. Any claim for compensation by the Contractor due to such extra work shall be promptly submitted to the Owner in accordance with Article 10 of the General Conditions.
 4. Where the Contractor has not taken action but has notified the Engineer of an emergency threatening injury to persons or damage to the work or any adjoining property, it shall act as instructed or authorized by the Owner. The amount of reimbursement claimed by the Contractor on account of any emergency action shall be determined in the manner in accordance with Article 10 of the General Conditions.
- C. Restrict construction activities to those areas within the limits of construction designated on the Drawings, within public rights-of-way, and within easements provided by the Owner. Adjacent properties and improvements thereon, public or private, which become damaged by construction operations shall be promptly restored to their original condition, to the full satisfaction of the property owner.

END OF SECTION

SECTION 02140
DEWATERING AND DRAINAGE

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Design, furnish, install, operate, monitor, maintain and remove a temporary dewatering system as required to lower and control water levels at least 2-ft below subgrades of excavations and to permit construction to proceed in-the-dry.
- B. Furnish, maintain and remove temporary surface water control measures adequate to drain and remove surface water entering excavations.
- C. Retain the services of a professional engineer registered in the State in which the work will occur to prepare dewatering and drainage system designs and submittals described herein.
- D. Work shall include the design, equipment, materials, installation, protection, and monitoring of geotechnical instrumentation required to monitor the performance of the dewatering and drainage system as required herein.
- E. Collect and properly dispose of all discharge water from the dewatering and drainage systems in accordance with the provisions of Section 01110 and Section 01170. Under no circumstances shall water from dewatering systems be discharged into the existing or new sanitary sewer systems.
- F. Obtain and pay for all permits required for dewatering and drainage systems.
- G. Repair damage caused by dewatering and drainage system operations.

1.02 RELATED WORK

- A. Submittals are included in Section 01300.
- B. Site Preparation is included in Section 02100.
- C. Rock and Boulder Excavation are included in Section 02213.
- D. Trenching, Backfilling and Compaction is included in Section 02221.
- E. Granular Materials are included in Section 02230.
- F. Sedimentation and Erosion Control are included in Section 02270.
- G. Pavement, Pavement Repair and Resurfacing is included in Section 02576.
- H. Landscaping is included in Section 02900.
- I. Loaming and Seeding are included in Section 02930.

1.03 SUBMITTALS

- A. Dewatering and drainage system designs shall be prepared by a licensed professional engineer in the Commonwealth of Massachusetts retained by the Contractor. The Contractor shall submit an original and three copies of the licensed professional engineer's certification on the PE form specified in Section 01300. The Contractor shall also submit qualifications as required herein.
- B. The Contractor shall submit a dewatering and drainage system design plan. The plan shall include a description of the proposed dewatering system and include the proposed installation methods to be used for dewatering and drainage system elements and for observation wells. The plan shall include equipment, drilling methods, holes sizes, filter sand placement techniques, sealing materials, development techniques, the number and location of dewatering points and observations wells, etc. Include the dewatering system design calculations in the plan.
- C. The plan shall identify the anticipated area influenced by the dewatering system and address impacts to adjacent existing and proposed structures. If required pending the location of work, the report shall also include detailed plans for pre-construction surveys of existing structures in the vicinity of the dewatering system, settlement monitoring of existing structures during construction, and provisions to address settlement of existing structures resulting from dewatering activities.
- D. Coordinate dewatering and drainage submittals with the excavation and support of excavation submittals. The submittal shall show the areas and depths of excavation to be dewatered.
- E. Do not proceed with any excavation or dewatering activities until the dewatering submittals has been reviewed, approved, accepted by the Engineer.

1.04 REFERENCES

- A. Prior to issuance of work assignment that will require dewatering, Owner will provide to contractor the necessary subsurface geotechnical information to design and implement dewatering and drainage system.

1.05 QUALITY ASSURANCE

- A. Regulations: Perform all work in accordance with current applicable regulations and codes of all Federal, State and local agencies.
- B. The Contractor shall have at least 5 years of experience with work compatible to the Work shown and specified, employing labor and supervisory personnel who are similarly experienced in this type of Work.
- C. The Contractor's design engineer shall be registered in the State in which the work is located and have a minimum of 5 years of professional experience in the design and construction of dewatering and drainage systems and shall have completed not less than 5 successful dewatering and drainage projects of equal type, size, and complexity to that require for the work.

1.06 DESIGN REQUIREMENTS

- A. The Contractor is responsible for the proper design and implementation of methods for controlling surface water and groundwater.
- B. The primary purpose of the groundwater control system is to preserve the natural undisturbed condition of the subgrade soils in the areas of the proposed excavations. Prior to excavation, the Contractor shall lower the groundwater to at least 2-ft below the lowest excavation subgrade elevation. Additional groundwater lowering may be necessary beyond the 2-ft requirement, depending on construction methods and equipment used and the prevailing groundwater and soil conditions. The Contractor is responsible for lowering the groundwater as necessary to complete construction in accordance with the plans and specifications at no additional cost to the Owner.
- C. Design deep wells, well points and sumps, and all other groundwater control system components to prevent loss of fines from surrounding soils. Sand filters shall be used with all dewatering installations unless screens are properly sized by the Contractor's design engineer to prevent passage of fines from surrounding soils.
- D. The Contractor shall be responsible for damage to properties, buildings or structures, sewers and other utility installations, pavements and work that may result from dewatering or surface water control operations.
- E. Design review and field monitoring activities by the Owner or by the Engineer shall not relieve the Contractor of his/her responsibilities for the work.

1.07 DEFINITIONS

- A. Where the phrase "in-the-dry" is used in this Section, it shall be defined as an excavation subgrade where the groundwater level has been lowered to at least 2-ft below the lowest level of the excavation, is stable with no ponded water, mud, or muck, is able to support construction equipment without rutting or disturbance and is suitable for the placement and compaction of fill material, pipe or concrete foundations.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Pipe for observation wells shall consist of minimum 1-in I.D., Schedule 80 PVC pipe and machine slotted PVC wellpoints, maximum slot size 0.020-in. Contractor shall confirm slot size is appropriate for the anticipated subsurface conditions.
- B. Piping, pumping equipment and all other materials required to provide control of surface water and groundwater in excavations shall be suitable for the intended purpose.
- C. Standby pumping systems and a source of standby power shall be maintained at all sites.

PART 3 EXECUTION

3.01 GENERAL

- A. Control surface water and groundwater such that excavation to final grade is made in-the-dry, the natural undisturbed condition of the subgrade soils are maintained, and softening and/or instability or disturbance due to the presence or seepage of water does not occur. All construction and backfilling shall proceed in-the-dry and flotation of completed portions of work shall be prohibited.
- B. Methods of groundwater control may include but are not limited to perimeter trenches and sump pumping, perimeter groundwater cutoff, well points, ejectors, deep wells and combinations thereof.
- C. Where groundwater levels are above the proposed bottom of excavation level, a pumped dewatering system will be required for pre-drainage of the soils prior to excavation, and for maintaining the lowered groundwater level until construction has been completed to such an extent that the structure, pipeline or fill will not be floated or otherwise damaged.
- D. It is expected that the type of system, spacing of dewatering units and other details of the work will have to be varied depending on soil/water conditions at a particular location.
- E. All work included in this Section shall be done in a manner which will protect adjacent structures and utilities and shall not cause loss of ground or disturbance to the pipe bearing soils or to soils which support overlying or adjacent structures.
- F. Install, monitor and report data from observation wells. Evaluate the collected data relative to groundwater control system performance and modify systems as necessary to dewater the site in accordance with the Contract requirements.
- G. Locate groundwater control system components where they will not interfere with construction activities adjacent to the work area or interfere with the installation and monitoring of geotechnical instrumentation including observation wells. Excavations for sumps or drainage ditches shall not be made within or below 1H:1V slopes extending downward and out from the edges of existing or proposed foundation elements or from the downward vertical footprint of the pipe.

3.02 SURFACE WATER CONTROL

- A. Construct surface water control measures, including dikes, ditches, sumps and other methods to prevent, as necessary, flow of surface water into excavations and to allow construction to proceed without delay.

3.03 EXCAVATION DEWATERING

- A. At all times during construction, provide and maintain proper equipment and facilities to promptly remove and properly dispose of all water entering excavations. Excavations shall be maintained in-the-dry. Groundwater levels shall be kept at least 2-ft below the lowest excavation level.

- B. Excavation dewatering shall maintain the subgrade in a natural undisturbed condition and until the fill, structure or pipes to be built thereon have been completed to such extent that they will not be floated or otherwise damaged by allowing water levels to return to natural elevations.
- C. Pipe, masonry, and concrete shall not be placed in water or be submerged within 24 hours after being installed. Water shall not flow over new masonry or concrete within four days after placement.
- D. In no event shall water rise to cause unbalanced pressure on structures until the concrete or mortar has set at least 24 hours. Prevent flotation of the pipe by promptly placing backfill.
- E. Dewatering shall at all times be conducted in such a manner as to preserve the natural undisturbed condition of the subgrade soils at the proposed bottom of excavation.
- F. If the subgrade of the trench or excavation bottom becomes disturbed due to inadequate dewatering or drainage, excavate below normal grade as directed by the Engineer and refill with structural fill, screened gravel or other material as approved by the Engineer at the Contractor's expense.
- G. It is expected that the initial dewatering plan may have to be modified to suit the variable soil/water conditions to be encountered during construction. Dewater and excavate, at all times, in a manner which does not cause loss of ground or disturbance to the pipe bearing soil or soil which supports overlying or adjacent structures [or instability of the excavation or tunnel face conditions].
- H. If the method of dewatering does not properly dewater the excavation as specified, install groundwater observation wells as directed by the Engineer and do not place any pipe or structure until the readings obtained from the observation wells indicate that the groundwater has been lowered a minimum of 2-ft below the bottom of the final excavation within the excavation limits.
- I. Dewatering units used in the work shall be surrounded by suitable filter sand and no fines shall be removed by pumping. Pumping from the dewatering system shall be continuous until pipe or structure is adequately backfilled. Stand-by pumps shall be provided.
- J. Water entering the excavation from precipitation or surface runoff shall be collected in shallow ditches around the perimeter of the excavation, drained to a sump and pumped from the excavation to maintain a bottom free from standing water.
- K. Drainage shall be disposed of in an approved area as specified in Section 01110 and Section 01170. Existing or new sanitary sewers shall not be used to dispose of drainage.

3.04 REMOVAL OF SYSTEMS

- A. At the completion of the excavation and backfilling work, and when approved by the Engineer, all pipe, deep wells, wellpoints, pumps, generators, observation wells, other equipment and accessories used for the groundwater and surface water control systems shall be removed from the site. All materials and equipment shall become the property of the Contractor. All areas disturbed by the installation and removal of groundwater control systems and observation wells shall be restored to their original condition.

- B. Where casings are pulled, holes shall be filled with sand. Where left in place, casings should be filled with cement grout and cut off a minimum of 4-ft below finished ground level or 1-ft below foundation level so as not to interfere with finished structures or pipelines.

END OF SECTION

SECTION 02213
ROCK AND BOULDER EXCAVATION

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and excavate and dispose of rock and boulders as shown on the Drawings and as specified herein. The Contractor shall furnish acceptable material for backfill in place of the excavated rock to bring the limits of the trench and/or excavation to those required on this project.
- B. Blasting will not be permitted on this project.
- C. Protect existing structures, utilities, roadway, adjacent property, workers, Engineer, Owner, all abutters and the public from damage or injury from excessive ground vibrations and rock block movements.

1.02 RELATED WORK

- A. Earthwork excavation and backfill is included in Section 02221.
- B. Granular Fill Materials are included in Section 02230.
- C. Sedimentation and Erosion Control is included in Section 02270.
- D. Excavation Support and Protection is included in Section 02221.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, at least two weeks prior to commencing rock and boulder excavation the following:
 - 1. A description of the means and methods of rock and boulder excavation techniques including size and energy of any impact equipment and chemical properties of any chemical agents to be used for chemical splitting.
 - 2. Name and qualifications of the person(s) responsible for monitoring and reporting rock excavation vibrations.
- B. Review by the Engineer of material submitted by the Contractor shall not relieve the Contractor of responsibility for the accuracy, adequacy and safety of the rock and boulder excavation, exercising proper supervision and field judgment and producing the results within the limits required by this Section.

1.04 DEFINITIONS

- A. Rock: Any large mass of stone, bedrock, or ledge rock.

- B. Boulder: Rock fragments exceeding 1 cubic yard in volume.
- C. Rock Excavation: The removal of rock, which, in the opinion of the Engineer, cannot be removed by conventional mechanical excavation equipment and requires continuous, systematic drilling, blasting, wedging, sledging, cutting, barring, jack hammering, hoe ramming or expansive chemical splitting and which can not be removed by a tracked excavator with a bucket curling force of at least 18,300 pounds.
- D. Boulder Excavation: The removal of boulders exceeding 1 cubic yard in volume which can be removed by conventional mechanical excavation equipment.
- E. Conventional Mechanical Excavation Equipment: a bulldozer or tractor, drawing a single tooth hydraulic ripper with a minimum drawbar pull of 56,000/18,300 pounds.
- F. Rock fragments less than 1 cubic yard which can be removed without resorting to rock excavation shall be considered as "Soil Excavation".
- G. Soil Excavation: The removal of earth, including boulder less than 1 cubic yard in volume, weathered rock and rock fragment that can be removed by conventional mechanical excavation. Soil Excavation shall include all excavation of earth materials that are not considered as rock excavation or boulder excavation.
- H. Loose or disintegrated rock, loose or rotted shale, nested stones, hardpan and the like shall not be considered as rock or boulder.
- I. Concrete roadway or concrete roadway base, manholes, or structures removals called out to be paid for under other items shall not be considered rock or boulder removal.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 GENERAL

- A. When rock is encountered, it shall be uncovered, but not excavated, until measurements are made by the Engineer.

3.02 ROCK EXCAVATION

- A. Rock excavation may be performed by drilling, wedging, sledging, cutting, barring, jack hammering, hoe ramming, expansive chemical splitting, or other similar process in a manner, which does not cause damage to the existing structures or new construction.
- B. Blasting is not allowed.
- C. All rock excavation operations shall comply with the project, state and local noise and dust regulations and vibration limits. Material shall not be stored within the roadway or city right-of-way.

- D. If rock below grade is shattered by rock excavation methods, and if, in the opinion of the Engineer, the shattered rock is unfit for subgrade, the rock shall be removed and the excavation refilled with thoroughly compacted screened gravel or structural fill at no additional cost.

3.03 BOULDER EXCAVATION

- A. Boulders and rock fragments up to 1 cubic yard in volume may be reduced in size by rock excavation methods to simplify its removal.

3.04 DISPOSAL OF ROCK AND BOULDERS

- A. Fragmented rock with dimensions not exceeding 6 inches in any direction may be mixed with common fill and used as common fill in accordance with Section 02230.
- B. Rock and boulders may be crushed and screened for reuse in the work, provided that the resultant materials meet the requirements for gravel, crushed stone, or structural fill as specified in Section 02230.
- C. Excavated material shall be stacked without excessive surcharge on the excavation or obstructing free access to hydrants and gate valves. Inconvenience to traffic and abutters shall be avoided as much as possible.
- D. Should conditions make it impracticable or unsafe to stack material adjacent to the excavation, the material shall be hauled and stored at a location provided. When required, it shall be re-handled and used in backfilling the trench at no additional cost to the Owner.
- E. Unused rock and boulders shall be removed and disposed of off-site.

END OF SECTION

SECTION 02221
TRENCHING, BACKFILLING AND COMPACTION

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and perform all clearing and stripping, excavation, backfill, fill and grading required to complete the work as shown on the Drawings and as specified herein. The work shall include, but not necessarily be limited to excavation for pipelines and appurtenances, structures and manholes, conduit, cables and ducts; excavation for repair or modification to existing structures, roadways and paving; all backfilling and fill; compaction; embankment and grading; disposal of unsuitable waste and surplus materials; restoration of excavation and trench surface and easements, and all related work such as excavation support systems.
- B. Excavation shall extend to the width and depth shown on the Drawings or as specified herein and shall provide suitable room for installing pipe, structures and appurtenances.
- C. Furnish and place all sheeting, bracing and supports and shall remove from the excavation all materials which the Engineer may deem unsuitable for backfilling. The bottom of the excavation shall be firm, dry and in all respects, acceptable. If conditions warrant, deposit gravel for pipe bedding, or gravel refill for excavation below grade, directly on the bottom of the trench immediately after excavation has reached the proper depth and before the bottom of the trench has become softened or disturbed by any cause whatever. The length of open trench shall be related closely to the rate of pipe laying. All excavation shall be made in open trenches.
- D. All excavation, trenching and related sheeting, bracing, etc., shall comply with the requirements of OSHA excavation safety standards (29 CFR Part 1926 Subpart P) 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.) and State requirements including but not limited to Massachusetts General Law Chapter 82A. Where conflict between OSHA and State regulations exists, the more stringent requirements shall apply.
- E. Wherever the requirement for percent compaction is referred to herein it shall mean the "the minimum percent of maximum density as determined by ASTM D1557, Method D". If no minimum compaction density is listed, 92 percent shall be required as the minimum.
- F. Prior to the start of work submit the proposed method of backfilling and compaction to the Engineer for review.

1.02 RELATED WORK

- A. Dewatering is included in Section 02140.
- B. Granular Fill Material is included in Section 02230.
- C. Rock and Boulder Excavation is included in Section 02213.
- D. Pavement Repair and Resurfacing is included in Section 02576.

- E. Landscaping is included in Section 02900.
- F. Loaming and Seeding is included in Section 02930.

1.03 SOILS TESTING

- A. The Engineer or Owner shall select areas within the limits of the compacted backfill material for testing the degree of compaction obtained. In general, test locations shall be along the centerline of the pipe, service connection or roadway at a frequency determined by the Engineer or Owner and test depths shall be approximately 2 to 3-feet below grade and at mid-depth of the trench for pipe, at the roadway sub-base or base, or other depths as selected by the Owner or Engineer. Refer to Section 01005 for additional information.
- B. The Owner will be responsible for paying all costs associated with soils testing unless specifically specified to be paid for by the Contractor.
- C. If test results are unsatisfactory, all costs involved in correcting deficiencies in compacted material to the satisfaction of the Engineer, including all subsequent testing, shall be borne by the Contractor.
- D. The Contractor is responsible for excavation and backfill during the Nuclear Density Test, and any other tests as required. All work associated therewith shall be considered incidental to the cost of the project.

1.04 SUBMITTALS

- A. Submit, in accordance with Section 01300, complete product data for materials specified in this Section and the following:
 - 1. The proposed methods of construction, including excavation, excavation support system design, dewatering, backfilling and filling and compaction for various portions of the Work.
 - 2. Dewatering and drainage system designs shall be prepared as specified in Section 02140.
 - 3. Excavation support system design shall be prepared as specified herein.
- B. Engineer will submit to Contractor compaction test documentation of backfill material under structures, pipelines and pavements.

1.05 REFERENCED STANDARDS

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO M 288 - Geotextiles.
- B. ASTM International:
 - 1. ASTM C33 – Standard Specification for Concrete Aggregates

2. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
 3. ASTM D422 – Test Method for Particle Size Analysis of Soils
 4. ASTM D2922 – Density of Soil in Place by Nuclear Methods (Shallow Depth)
 5. ASTM D3017 – Standard Test Method for Water Content of Soil in Place by Nuclear Methods (Shallow Depth).
- C. Code of Massachusetts Regulations:
1. 454 CMR 10.00 et. seq. – Construction Industry Rules and Regulations.
- D. Occupational Safety and Health Administration (OSHA):
1. 29 CFR Part 1926 Subpart P.
- E. MassDOT Standard Specification for Highways and Bridges (MSSHB), latest edition, all addenda.
- F. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.06 PROTECTION

- A. All existing facilities which include but is not limited to structures, utilities, pavements, sidewalks, curbing, driveway aprons, fencing, landscaping and other improvements in the vicinity of the Contractor’s operations shall be adequately protected. If necessary, curing, driveway aprons and fencing shall be removed and restored or replaced after backfilling. All existing facilities damaged by the construction shall be replaced with material fully equal to that existing prior to construction to the satisfaction of the Owner.
- B. Furnish, install, monitor and maintain dewatering and drainage systems as required and as specified in Section 02140.

1.07 QUALITY ASSURANCE

- A. Regulations: Perform all work in accordance with current application regulations and code of all Federal, State and local agencies.
- B. The Contractor shall have at least five (5) years of experience with comparable work to the Work shown and specified, employing labor and supervisory personnel who are similarly experienced in this type of work.
- C. Should the Contractor require an Engineer, he/she shall be a Professional Engineer, registered in the Commonwealth of Massachusetts, and shall have five (5) years experience in the design and construction of excavation support systems.
- D. Prior to and during placement of backfill and fill, coordinate with the Engineer to perform in-place density tests to verify that the backfill/fill material has been compacted in accordance with

the compaction requirements specified elsewhere. The Engineer may designate areas to be tested.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Granular materials designated for use in this Section are specified in Section 02230.
- B. Filter fabric shall be non-woven geotextiles as specified in Section 02230.
- C. All materials for excavation support designated for use in this section shall be as specified herein.

PART 3 EXECUTION

3.01 TRENCH EXCAVATION

- A. Trench excavation shall include material of every description and of whatever substance encountered, except rock and boulders. Pavement shall be cut with a saw, wheel or pneumatic chisel along straight lines before excavating.
- B. Strip and stockpile topsoil from grassed areas crossed by trenches. At the Contractor's option, topsoil may be otherwise disposed of and replaced, when required, with approved topsoil of equal quality.
- C. While excavating and backfilling is in progress, traffic shall be maintained, and all utilities and other property protected as provided in the General Conditions of the Contract and General Requirements.
- D. Trenches shall be excavated to the depth indicated on the Drawings and in widths sufficient for laying the pipe, bracing and for pumping and drainage facilities. The bottom of the excavations shall be firm and dry and in all respects acceptable to the Engineer. Trench width shall be practical minimum.
- E. Existing fills and organic soils shall be over excavated to the naturally deposited, undisturbed inorganic soil below the pipelines as shown on the Drawings or as directed by the Engineer, and be replaced with compacted structural fill, screened gravel or other materials approved by the Engineer.
- F. Excavation and dewatering shall be accomplished by methods which preserve the undisturbed state of subgrade soils. The trench may be excavated by machinery to, or just below the designated subgrade, provided that material remaining in the bottom of the trench is no more than slightly disturbed. Subgrade soils which become soft, loose, "quick", or otherwise unsatisfactory as a result of inadequate excavation, dewatering or other construction methods shall be removed and replaced by screened gravel fill as required by the Engineer at the Contractor's expense.
- G. Clay and organic silt soils are particularly susceptible to disturbance due to construction operations. When excavation is to end in such soils, use a smooth-edge bucket to excavate the last 1-ft of depth. No excavation shall end in organic silts or peat.

- H. Rock shall be removed to a minimum of 8-inch clearance around the bottom and sides of all pipes being laid. Rock and boulder excavation shall be made in accordance with Section 02213.
- I. Where pipe is to be laid in screened gravel bedding, the trench may be excavated by machinery to the normal depth of the pipe provided that the material remaining in the bottom of the trench is no more than slightly disturbed.
- J. Where pipe is to be laid directly on the trench bottom, final excavation at the bottom of the trench shall be performed manually, providing a flat-bottom true to grade upon undisturbed material. Bell holes shall be made as required.
- K. If the Contractor excavates below grade through error or for the Contractor's own convenience, or through failure to properly dewater the trench, or disturbs the subgrade before dewatering is sufficiently complete, he/she may be directed by the Engineer to excavate below grade as set forth in the following paragraph, in which case the work of excavating below grade and furnishing and placing the refill shall be performed as his/her own expense.
- L. If the material at the level of trench bottom consists of fine sand, sand and silt or soft earth which may work into the screened gravel notwithstanding effective drainage, the subgrade material shall be removed to the extent directed by the Engineer and a geotextile filter fabric shall be placed. Screened gravel shall then be placed in 6-in layers thoroughly compacted up to the normal grade of the pipe.
- M. Geotextile filter fabric shall be placed where shown on the Drawings and/or as specified by the Engineer as follows:
 - 1. The filter fabric shall be unrolled and placed onto the prepared trench bottom as shown on the Drawings or directed by the Engineer. The filter fabric shall be carried up the trench sidewall to the top of the pipe bedding.
 - 2. Filter fabric shall be unrolled and placed on the prepared subgrade beneath structures and manholes on pipelines requiring use of filter fabric. Fabric shall extend 6-in beyond the structure and manhole foundation.
 - 3. Where more than one section of fabric is required, the fabric shall be overlapped no less than 12-in to assure the continuity of the filter.
 - 4. The subgrade shall be inspected and acceptable to the Engineer prior to the placement of the filter fabric. The subgrade shall be maintained in a smooth, uniform, and compacted condition during the installation of the filter fabric. No mechanical equipment shall be driven directly over the top of the filter fabric unless permitted by the Engineer. The fabric shall be stored in a way that it is protected from prolonged exposure to ultraviolet radiation.
 - 5. If the fabric is damaged during installation, it shall be immediately repaired. All gravel shall be removed from the affected area and a patch of repair fabric large enough to cover the damage plus an 18-in overlap shall be placed on top of the damaged section.

3.02 STRUCTURE EXCAVATION PROCEDURES

- A. Excavation for structures shall be suitably wide for construction of structures, including excavation supports, dewatering and drainage systems and work clearances.

- B. Excavation shall be performed in the dry and shall be accomplished by methods which preserve the undisturbed state of subgrade soils. Drainage and dewatering system shall be in place and the groundwater predrained to at least 2-feet below the lowest level of the excavation prior to beginning excavation work.
- C. In no case shall the earth be plowed, scraped, or excavated by any means so near to the finished subgrade that would disturb the finished subgrade. Hand excavation or use of a smooth edge bucket for the final 3-in to 6-in may be required to obtain a satisfactory, undisturbed subgrade. Subgrade soils which become soft, loose, “quick”, or otherwise unsatisfactory for support of structures as a result of inadequate excavation, dewatering, or other construction methods shall be removed and replaced with lean concrete, compacted structural fill, screened gravel or crushed stone, subject to prior approval of the Engineer, at no additional cost to the Owner.
- D. Subgrade Preparation
 - 1. Compact the top 12-in of subgrade to a minimum of 95-percent modified proctor (ASTM D1557).
 - 2. Where the subgrade consists of existing fill, existing utilities, or over blasted rock or organic soils, the unsuitable material shall be removed down to naturally deposited in organic soils or competent bedrock as shown on the Drawings or directed by the Engineer and be replaced with structural fill, screened gravel, lean concrete, controlled low strength material (CLSM) or other suitable material as directed by the Engineer. Prior to placement of the working mat, compact the top 12-in of existing subgrade to a minimum of 95-percent modified proctor (ASTM D1557).
 - 3. Where the subgrade consists of fine sands or silts below the natural groundwater level, remove all disturbed soils with a smooth-edge bucket or by hand down to a firm and stable soil immediately place a filter fabric, Mirafi 140N, or equivalent then place and compact the bedding material.
 - 4. Rock shall be removed to a minimum of 12-in clearance around the bottom and sides of all foundations and structures. Rock and boulder excavation shall be made in accordance with Section 02213.
- E. When excavations have reached the required subgrade, including any allowances for working mats or base materials, prior to placement of working mats or base materials, notify Engineer so that the soils testing laboratory may verify the suitability of the existing subgrade soils for the anticipated foundation and structural loadings. If the existing subgrade soils are determined to be unsuitable, direction will be provided by the Engineer regarding removal and replacement with suitable materials. If Contractor believes that such direction would increase Contractor’s cost and would thereby entitle the Contractor to a change in Contract cost, Contractor shall notify the Engineer in accordance with the applicable article(s) in the General Conditions of the Contract pertaining to changes in work.
- F. Over excavation beyond the limits and depths required by the Contract Documents or direction given by the Engineer shall be replaced at no additional cost to the Owner buy lean concrete, structural fill, bedding rock or other approved material subject to the approval of the Engineer.

3.03 DISPOSAL OF MATERIALS

- A. Excavated material shall be stacked without excessive surcharge on the trench bank or obstructing free access to hydrants and gate valves. Inconvenience to traffic and abutters shall be avoided as much as possible. Excavated material shall be segregated for use in backfilling as specified below.
- B. It is expressly understood that no excavated material shall be removed from the site of the work or disposed of, except as directed by the Engineer. When removal of surplus materials has been approved by the Engineer, dispose of such surplus material in approved designated areas.
- C. Should conditions make it impracticable or unsafe to stack material adjacent to the trench, the material shall be hauled and stored at a location provided. When required, it shall be re-handled and used in backfilling the trench.
- D. Refer to Section 01005, 01570 and 01046 for additional requirements regarding storage of materials within the project limits.
- E. All excess surplus material shall become property of the Contractor unless specifically designated to remain property of the Owner.

3.04 EXCAVATION SUPPORT

- A. Furnish, put in place and maintain sheeting and bracing required by Federal, State or local safety requirements to support the sides of the excavation and prevent loss of ground which could endanger personnel, damage or delay the work or endanger adjacent structures. If the Engineer is of the opinion that at any point sufficient or proper supports have not been provided, he/she may order additional supports placed at the expense of the Contractor. Compliance with such order shall not relieve the Contractor from his/her responsibility for the sufficiency of such supports. Care shall be taken to prevent voids outside of the sheeting, but if voids are formed, they shall be immediately filled and rammed.
- B. Where sheeting and bracing is required to support the sides of trenches, engage a professional engineer, registered in the Commonwealth of Massachusetts, to design the sheeting and bracing. The sheeting and bracing installed shall be in conformity with the design and certification of this shall be provided by the professional engineer. Submit P.E. Certification Form contained in Section 01300 to show compliance with this requirement.
- C. When moveable trench bracing such as trench boxes, moveable sheeting, shoring or plates are used to support the sides of the trench, care shall be taken in placing and moving the boxes or supporting bracing to prevent movement of the pipe, or disturbance of the pipe bedding and the screened gravel backfill.
 - 1. When installing rigid pipe (R.C., V.C., A.C., etc.), any portion of the box extending below mid diameter shall be raised above this point prior to moving the box ahead to install the next pipe. This is to prevent the separation of installed pipe joints due to movement of the box.
 - 2. When installing flexible pipe (PVC, etc.), trench boxes, moveable sheeting, shoring or plates shall not be allowed to extend below mid-diameter of the pipe. As trench boxes, moveable sheeting, shoring or plates are moved, screened gravel shall be placed to fill any

voids created and the screened gravel and backfill shall be re-compacted to provide uniform side support for the pipe.

- D. Permission will be given to use steel sheeting in lieu of wood sheeting for the entire job wherever the use of sheeting is necessary. The cost for use of sheeting will be included in the bid items for pipe and shall include full compensation for driving, bracing and later removal of sheeting.
- E. All sheeting and bracing shall be carefully removed in such manner as not to endanger the construction of other structures, utilities, or property, whether public or private. All voids left after withdrawal of sheeting shall be immediately refilled with sand by ramming with tools especially adapted to that purpose, by watering or otherwise as directed.
- F. No payment will be given for sheeting, bracing, etc, during the progress of the work. No payment will be given for sheeting which has actually been left in the trench for the convenience of the Contractor.
- G. Sheeting driven below mid-diameter of any pipe shall remain in place from the driven elevation to at least 1-ft above the top of the pipe.

3.05 TEST PITS

- A. Excavation of test pits may be required for the purpose of locating underground utilities or structures as an aid in establishing the precise location of new work.
- B. Test pits shall be backfilled in compacted lifts as soon as the desired information has been obtained. The backfilled surface shall be maintained in a satisfactory condition for travel until resurfaced as specified.

3.06 EXCAVATION BELOW GRADE AND REFILL

- A. Whatever the nature of unstable material encountered or the groundwater conditions, trench drainage shall be complete and effective.
- B. If the Contractor excavates below grade through error or for the Contractor's own convenience, or through failure to properly dewater the trench, or disturbs the subgrade before dewatering is sufficiently complete, he may be directed by the Engineer to excavate below grade as set forth in the following paragraph, in which case the work of excavating below grade and furnishing and placing the refill shall be performed at his own expense and at no additional cost to the Owner.
- C. If the material at the level of trench bottom consists of fine sand, sand and silt or soft earth which may work into the screened gravel notwithstanding effective drainage, the subgrade material shall be removed to the extent directed and the excavation refilled with a 6-in layer of coarse sand, or a mixture graded from coarse sand to the fine pea stone, as approved by the Engineer, to form a filter layer preserving the voids in the gravel bed of the pipe. The composition and gradation of gravel shall be approved by the Engineer prior to placement. Screened gravel shall then be placed in 6-in layers thoroughly compacted up to the normal grade of the pipe. If directed by the Engineer, bank-run gravel shall be used for refill of excavation below grade.

- D. Geotextile non-woven filter fabric may be substituted for filter layer if approved by the Engineer.

3.07 BACKFILLING

- A. As soon as practicable after the pipe has been laid and jointed, backfilling shall begin and thereafter be prosecuted expeditiously. Bedding gravel, as specified for the type of pipe installed, shall be placed up to 1-ft over the pipe. Where indicated on the Drawings or specified herein, backfill trench with CLSM.
- B. An impervious dam or bulkhead cutoff of clay or other impervious material shall be constructed in the trench as directed, to interrupt the unnatural flow of groundwater after construction is completed. The dam shall be effectively keyed into the trench bottom and sidewalls. Provide at least one clay or other impervious material dam in the pipe bedding between each manhole where directed or every 300-ft, whichever is less.
- C. Where the pipes are laid cross-country, the remainder of the trench shall be filled with common fill material or non-organic trench excavate as approved by the Engineer in layers not to exceed 1-ft and mounded 6-in above the existing grade or as directed. Where a loam or gravel surface exists prior to cross-country excavations, it shall be removed, conserved and replaced to the full original depth as part of the work under the pipe items. In some areas it may be necessary to remove excess material during the clean-up process, so that the ground may be restored to its original level and condition.
- D. Where the pipes are laid in streets, the remainder of the trench up to a depth of 12-in below the bottom of the specified permanent paving shall be backfilled with common fill material in layers not to exceed 1-ft and thoroughly compacted to a minimum of 95-percent compact as determined by ASTM D1557 unless otherwise specified herein. The subbase layer for paving shall be of reclaimed pavement base course thoroughly compacted in 6-in layers to a minimum of 95 percent as determined by ASTM D1557. Where shown on the Drawings or specified, trenches shall be backfilled with CLSM Type 2E Control Density Fill to 12-in below the bottom of the specified permanent paving. Contractor shall allow CLSM to completely set prior to placement of roadway base and pavement.
- E. To prevent longitudinal movement of the pipe, dumping backfill material into the trench and then spreading will not be permitted until selected material or screened gravel has been placed and compacted to a level 1-ft over the pipe.
- F. Backfill shall be brought up evenly on all sides. Each layer of backfill material shall be thoroughly compacted by rolling, tamping, or vibrating with mechanical compacting equipment or hand tamping, to 95 percent compaction as determined by ASTM D1557 in lifts not exceeding 12-in unless otherwise indicated on the Drawings, specified herein, or directed by the Engineer. If rolling is employed, it shall be by use of a suitable roller or tractor, being careful to compact the fill throughout the full width of the trench. If select common fill is used, it shall be placed in lifts not exceeding 8-in and compacted to a minimum of 95-percent as determined by ASTM D1557.
- G. Compaction by puddling or water jetting shall not be permitted.
- H. Where other methods are not practicable, compaction shall be use of hand or pneumatic ramming with tools weighing at least 20 lbs. The material being spread and compacted in

layers not over 6-in thick. If necessary, sprinkling shall employed in conjunction with rolling or ramming.

- I. Backfill required beneath foundations or slabs on grade shall be structural fill. Structural fill shall be placed and compacted in lifts with a maximum thickness of 8-in. Lift thickness shall be reduced to 4-in where hand operated vibratory equipment is used. Thickness of compacted structural fill shall be as shown on the Drawings, but in no case less than 12-in. Compact structural fill to a minimum of 95 percent or near its optimum moisture content (minus 2 to 3 plus percent) as determined by ASTM D1557).
- J. Backfill around structures shall be structural fill or selected common fill material and shall be compacted with approved compaction equipment. All backfill shall be compacted, especially under and over pipes connected to the structures.
- K. Fill and backfill shall not be placed and compacted when the materials are too wet to properly compact (i.e., the in place moisture content of the soils at the time is more than three percentage points above the optimum moisture contact of that soil as determined by ASTM D1557).
- L. Fill and backfill shall not be placed over frozen surfaces or one covered by snow, or ice nor shall snow, ice or frozen earth be incorporated into the compacted fill.
- M. Subject to the approval of the Engineer, fragments of ledge and boulders smaller than 6-in may be used in trench backfill providing that the quantity in the opinion of the Engineer is not excessive. Rock fragments shall not be placed until the pipe has at least 2-ft of earth cover. Small stones and rocks shall be placed in thin layers alternating with earth to ensure that all voids are completely filled. Fill shall not be dropped into the trench in a manner to endanger the pipe.
- N. Bituminous paving shall not be placed in backfilling unless specifically permitted, in which case it shall be broken up as directed. Frozen material shall not be used under any circumstances.
- O. All road surfaces shall be broomed and hose-cleaned immediately after backfilling. Dust control measures shall be employed at all times.
- P. Where required on the Drawings, CLSM shall be used as required or directed.
- Q. At the completion of each work day, the trench shall be fully backfilled and compacted. With permission of the Engineer, the Contractor will be allowed to plate the trench and shall install lighted barrels with cones and ramp the plates with pavement or recess them into the pavement as directed by the Engineer.

3.08 STOCKPILING AND PLACEMENT OF ENGINEERED SOILS

A. General Requirements

- 1. Prior to procurement of Engineered Soil and starting delivery of soil, all approvals for those items required in Section 02230 must have been given in writing to and accepted by the Engineer.
- 2. Engineered Soil shall not be installed until all plant materials are approved by the Engineer and planting will occur within the next 5 days. Coordinate with Sections 02900 and 02930.

3. Prior to the placement of Engineered Soil, the subgrade must be accepted by the Engineer.
4. Engineered Soil must be evenly placed to the thickness and configuration as directed by the Engineer or as shown on the Drawings. Engineered Soil must not be placed when the subgrade or Engineered Soil is frozen, excessively wet, extremely dry, or in a condition otherwise detrimental to the proposed seeding, planting or soil structure.
5. The spreading shall be performed in such a manner that seeding or planting can proceed with little additional soil preparation or tillage. Irregularities in the soil surface resulting from spreading or other operations shall be corrected to prevent the formation of depressions where water will stand.
6. The material delivered to the Site must be visually and continuously inspected by the Engineer during construction to ensure that it is consistently the same material previously approved and delivered to the Site. If any foreign or odor (organic, chemical, etc.) are detected, the Engineers reserves the right to refuse the material. If changes in material occur, such as texture, composition, moisture levels, etc., soil delivery must cease immediately and the Contractor shall not incorporate the new material into the Work until the material meets these specifications and approved by the Engineer. The Contractor shall test the new material at his/her own cost as a new source and submit its results to the Engineer for his approval. If Engineer rejects the material, the Contractor shall immediately remove the material off the project Site at no additional cost to Owner.
7. Engineered Soil must be placed by gravity with no additional compaction. After Engineered Soil placement and initial grading, the green infrastructure practice will be fully saturated, allowed to drain down and then fully saturated again. Then more Engineered Soil will be placed as necessary to bring to final grade. After final grading, no heavy equipment, pickup trucks, or other construction vehicles will be permitted to travel on these completed areas. The Contractor shall, through mechanical raking and hand grading with rakes and shovels, grade all areas around fences, pipes and other structures in preparation for seeding or planting.
8. The Contractor shall, as part of the Engineered Soil spreading operation, mechanically rake and clean all undesirable materials from the Engineered Soil prior to planting operations.
9. The Contractor shall dispose of all undesirable materials raked from the Engineered Soil.
10. The Contractor shall pay all costs, fees, etc. to rectify any deficiencies in placement of the Engineered Soil layer, to the acceptance of the Engineer.

B. Subsurface Conditions

1. Notify the Engineer of subsurface conditions, which will affect the Contractor's ability to complete the work.
2. Locate and confirm the location of all underground utility lines and structures prior to the start of any excavation.
3. Repair any underground utilities or foundations damaged by the Contractor during the progress of this work. The cost of all repairs shall be at the Contractor's expense.

C. Site Preparation

1. Do not proceed with the installation of the Structural Soil material until all walls, curb footings and utility work in the area has been installed. For site elements dependent on Structural Soil for foundation support, postpone installation until immediately after the installation of Structural Soil.
2. Excavate and compact the proposed subgrade to depths, slopes and widths as shown on the Contract Documents. Maintain all required angles of repose of the adjacent materials as shown on the Contract Documents. Do not over excavate compacted subgrades of adjacent pavement or structures. Any over excavation shall be refilled to the required grade at no cost to the Owner per requirements of the Engineer.
3. Confirm that the subgrade is at the proper elevation and compacted as required. Subgrade elevations shall slope parallel to the finished grade and or toward the subsurface drain lines as shown on the Contract Documents.
4. Clear the excavation of all construction debris, trash, rubble and any foreign material. In the event that fuels, oils, concrete washout silts or other material harmful to plants has been spilled into the subgrade material, excavate the soil sufficiently to remove the harmful material. Fill any over excavation with approved fill and compact to the required subgrade compaction.
5. Protect adjacent walls, walks and utilities from damage or staining by the soil. Use plywood and or plastic sheeting as directed to cover existing concrete, metal and masonry work and other items as directed during the progress of the work.
6. Clean up all trash and any soil or dirt spilled on any paved surface at the end of each working day. Any damage to the paving or Architectural work caused by the soils shall be repaired at Contractor's expense to the satisfaction of the Engineer.
7. Maintain all silt and sediment control devices required by applicable regulations. Provide adequate methods to assure that trucks and other equipment do not track soil from the site onto adjacent property and the public right of way.

D. Placement of Sand-Based Structural Soil

1. Prior to procurement of Engineered Soil and starting delivery of soil, all approvals for those items required in Section 02230 must have been given in writing to and accepted by the Engineer.
2. Immediately prior to dumping and spreading the Structural Soil, the subgrade shall be cleaned of all debris or rubbish. Such material shall be removed from the site. After subgrade levels have been reached, and immediately prior to placing Sand-Based Structural Soil the entire subgrade area shall be thorough compacted, then loosened to a minimum depth of four inches utilizing the teeth on the bucket of a backhoe or by deep raking.
3. After loosening, Sand-Based Structural Soil shall be spread in lifts not greater than eight inches and compacted with a minimum of two passes of vibratory compaction equipment to a density between 90 and 94 percent Standard Proctor Maximum Dry Density in accordance with compaction standards of ASTM D1557 Method D. During the compaction process, all depressions caused by settlement or compaction shall be filled with additional Structural Soil and the surface shall be regraded and rolled until presenting a

smooth and even finish corresponding to the required grades. Sand-Based Structural Soil shall be placed to a depth of two feet within the areas shown on the Drawings.

4. Phase the installation of the Structural Soil such that wheeled equipment does not have to travel over already installed soil. If it is determined by the Engineer that equipment must travel over already installed Structural Soil, provide one- inch thick steel plate ballast over the length and width of travel to cover Structural Soil and protect it from compaction.

3.09 RESTORING TRENCH SURFACE

- A. Where the trench occurs adjacent to paved streets, in shoulders, sidewalks, or in cross-country areas, thoroughly consolidate the backfill and shall maintain the surface as the work progresses. If settlement takes place, immediately deposit additional fill to restore the level of the ground.
- B. CLSM shall be used where indicated on the Drawings. Exercise caution when excavating adjacent to existing foundations. In some cases, foundations may be constructed of stone and mortar and are susceptible to damage when working adjacent to. Any damage caused during the excavation to foundations shall be repaired at no additional cost to the Owner.
- C. In and adjacent to streets, the 12-in of trench backfill below the specified initial pavement shall consist of compacted reclaimed pavement base course. Only material which has been tested and approved by the Engineer shall be allowed to be incorporated into the work.
- D. The surface of any driveway or any other area which is disturbed by the trench excavation and which is not a part of the paved road shall be restored to a condition at least equal to that existing before work began.
- E. In sections where the pipeline passes through grassed areas, and at the Contractor's own expense, remove and replace the sod, or loam and seed the surface to the satisfaction of the Engineer.

END OF SECTION

SECTION 02230
GRANULAR FILL MATERIALS

PART 1 GENERAL

1.01 DESCRIPTION

- A. Furnish all labor, materials, equipment and incidentals required and obtain materials for filling and backfilling, grading, and miscellaneous site work, for uses shown on the Drawings and specified herein.
- B. Granular fill materials are specified in this Section, but their use for bedding pipe, replacement of unsuitable materials, green infrastructure best management practices, gravel cushion in ledge excavation, pavement base, foundation support and similar uses are specified in detail elsewhere. The Engineer may order the use of fill materials for purposes other than those specified in other Sections if, in his/her opinion, such use is advisable.

1.02 RELATED WORK

- A. Submittals are included in Section 01300.
- B. Trenching, Backfilling and Compaction is included in Section 02221.
- C. Erosion and sedimentation control is included in Section 02270.
- D. Concrete walkways is included in Section 02515.
- E. Pavement, repair and resurfacing is included in Section 02576.
- F. Brick, Bluestone and Cobblestone Paving is included in Section 02580.
- G. Landscaping is included in Section 02900.
- H. Loaming and seeding is included in Section 02930.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, complete product data for materials specified in this Section.
- B. Submit conformance testing performed by a certified independent laboratory engaged by Contractor for all fill materials. Verify maximum density, gradation, Atterberg limits, sand equivalent, and other applicable criteria at least 72 hours prior to importing or placing any fill. Perform additional conformance testing at a minimum frequency of 1 per every 2000 cubic yards or change in material. The Contractor is responsible for ensuring that all material used within the project meets the specified gradation and can achieve the optimum moisture-maximum density curve.
- C. For each source of fill material, provide written documentation of the source of the fill/granular material and certification that the fill material is clean and in compliance with applicable standards and regulations.

- D. For Engineered Soils used in green infrastructure best management practices or where directed by the Engineer, submit 5-gallon air-tight containers, 50 lbs sample of each type to a certified testing laboratory and provide Engineer with the following information. This should be provided to the Engineer prior to procurement of the Engineered Soils for review and approval.
1. Proposed material source and vendor including name and location of imported materials suppliers.
 2. A sample of the proposed material, taken with Owner and Engineer, indicating the method of sampling and location of the sample.
 3. Certify that materials meet or exceed the specified requirements.
 4. The Contractor shall submit to the Engineer the name and location of the borrow (source) or stockpile site(s) and the estimated quantity of material available. The Contractor shall provide a notarized letter from the owner(s) of the proposed borrow site and/or stockpile site(s) indicating ownership of the proposed site(s) and a commitment to supply a specified minimum quantity of material for this project. To avoid delays in planting and seeding, the Contractor shall immediately begin to secure and test Engineered Soil at least two (2) months in advance of the material actually being needed on Site. This will allow sufficient time to blend the specified soil mix and make all the necessary adjustments in the mixing process.
 5. Results of the organic content analyses conducted in accordance with the above referenced standard, *Recommended Soil Testing Procedures for The Northeastern United States, 3rd Edition*, Northeast Regional Publication, Agricultural Experiment Station, University of Delaware. Bulletin #493, Revised July 2011 or latest.
 6. Results of the USDA soil texture gradation (sand, silt and clay) analyses and sand sieve analyses, with full reporting of all information in USDA sieve sizes, in accordance with the *USDA Kellogg Soil Survey Laboratory Methods Manual, Soil Survey Investigations Report No. 42 Version 5.0 2014*.
 7. Results of the pH tests conducted in accordance with the above referenced standard, *USDA Kellogg Soil Survey Laboratory Methods Manual, Soil Survey Investigations Report No. 42 Version 5.0 2014*.
 8. Results of the soluble salts test conducted in accordance with the above referenced standard, *Recommended Soil Testing Procedures for The Northeastern United States, 3rd Edition*, Northeast Regional Publication, Agricultural Experiment Station, University of Delaware. Bulletin #493, Revised July 2011 or latest.
 9. Results of the nutrient analyses test conducted in accordance with the above referenced standard, *Recommended Soil Testing Procedures for The Northeastern United States, 3rd Edition*, Northeast Regional Publication, Agricultural Experiment Station, University of Delaware. Bulletin #493, Revised July 2011 or latest.
 10. Results of the inorganic nitrogen and total Kjeldahl nitrogen tests conducted in accordance with the above referenced standard, *USDA Kellogg Soil Survey Laboratory Methods Manual, Soil Survey Investigations Report No. 42 Version 5.0 2014*.

11. Results of the acid-producing (iron sulfide) test conducted in accordance with the methodologies utilized by the USDA *Kellogg Soil Survey Laboratory Methods Manual, Soil Survey Investigations Report No. 42 Version 5.0* 2014.
12. NOTE: Due to the agricultural nature of some of the Quality Control testing the Contractor is notified that both Rutgers University and Cornell University can perform nearly all agricultural testing required (one exception may be the acid-producing test). Turnaround times for results may vary from standard soils testing. However, all agricultural testing procedures must be performed in accordance with the above referenced standards and the *Recommended Soil Testing Procedures for The Northeastern United States, 3rd Edition, Northeast Regional Publication, Agricultural Experiment Station, University of Delaware. Bulletin #493, Revised July 2011* and the USDA *Kellogg Soil Survey Laboratory Methods Manual (No. 42, Version 5, 2014)* or latest. If another lab is proposed, the Contractor can submit written certification from the proposed lab certifying that the lab will utilize the same methodologies for soil testing as outlined in these specifications.
13. The Contractor shall submit to Engineer the materials and procedures for amending soil, if appropriate. Amendment of soil is only permitted to meet the nutrient and organic requirements of the specifications. Nutrient modifications are only permitted through the use of the approved contract-specified organic fertilizer and the organic amendment permitted is leaf compost. No other organic amendment is permitted.

1.04 REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM)
 1. ASTM C33 - Standard Specification for Concrete Aggregates.
 2. ASTM D698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³))
 3. ASTM D1557 – Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort
 4. ASTM D422 – Test Method for Particle Size Analysis of Soils
- B. Massachusetts Department of Transportation Highway Division Standard Specifications for Highways and Bridges, and all addendum and supplemental, latest edition (MSSH B).
- C. American Association of State Highway and Transportation Officials (AASHTO)
- D. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

- A. Laboratory Testing
 1. If requested by the Engineer, at least 7 days prior to the placement of any backfill or fill materials, deliver a representative sample of the proposed materials weighing at least 50 lbs to the Engineer for submittal to soils testing laboratory in accordance with Section 01300.

Engineered soils used in green infrastructure best management practices shall be analyzed by the Contractor with results submitted to the Engineer for review and approval.

2. The Engineer shall be responsible to engage the services of a soils testing laboratory to perform:
 - a. Grain size analyses (ASTM D 422) of the samples to determine their suitability for use as backfill or fill material in conformance to the materials requirements specified herein.
 - b. The appropriate Proctor analyses (ASTM D 1557) to determine the maximum dry densities required for compaction testing as specified elsewhere in the Contract Documents.
 3. Test results and determinations of suitability shall be delivered to the Contractor no later than 5 days prior to the placement of backfill or fill materials.
- B. Furnish each subsoil and topsoil material from single source throughout the Work, unless an alternate source is approved by the Engineer.
- C. Furnish each coarse and fine aggregate material from single source throughout the Work, unless an alternate source is approved by the Engineer.
- D. Perform Work according to Massachusetts DOT and Massachusetts Department of Environmental Protection standards.
- E. Quality Control and Quality Assurance consists of laboratory conformance testing of samples supplied from each coarse and fine aggregate source and quality control during installation.
1. Geotechnical Testing Agency Qualifications: Qualified according to ASTM E329 and ASTM D3740 for testing indicated.

1.06 DELIVERY, STORAGE AND HANDLING

- A. If granular fill materials are delivered to the site prior to placement approval, materials shall be stockpiled on site in areas as directed by the Engineer. Provision shall be implemented to minimize surface water impact on the stockpile. Removal and placement of granular fill material shall be done in a manner to minimize intrusion of soils adjacent to and beneath the stockpile.

PART 2 PRODUCTS

2.01 SOIL MATERIALS

- A. Backfill and fill materials shall be suitable excavated materials, natural or processed mineral soils obtained from off-site sources or graded crushed stone or gravel. Backfill and fill materials shall be free of all organic materials, trash, snow, ice, frozen soil, or other objectionable materials which may be compressible or which cannot be properly compacted. Soft, wet, plastic soils which may be expansive, clay soils having a natural in-place water content in excess of 30-percent, soils containing more than 5-percent (by weight) fibrous organic material, and soils having a plasticity index greater than 30 shall be considered unsuitable for use as backfill and fill. Backfill and fill materials shall have a maximum of 1 percent expansion when testing is

performed on a sample remolded by 95 percent of maximum dry density (per ASTM D698) at 2 percent below optimum moisture content under 100 lbs/sq ft surcharge.

- B. Reclaimed pavement borrow material (M1.09.0 of the MSSHB) shall consist of crushed asphalt pavement and/or crushed cement concrete, and gravel borrow meeting M1.03.0 of the MSSHB. The material shall be free of loam, clay, and deleterious materials such as brick, reinforcing steel, wood, paper, plaster, lathing, and building rubble, etcetera.

The coarse aggregate shall have a percentage of wear not greater than 50 as measured by the Los Angeles Abrasion Test.

Gradation requirements shall be determined by AASHTO T11 and T27 except the material shall not be oven dried. It shall be air dried, fan dried at low speed, or other low temperature heat so as to not liquefy the asphalt or cause the asphalt to adhere to the sieves. Water used for the #200 sieve analysis shall be cold tap water.

The grading shall conform to the following requirements:

<u>Sieve Size</u>	<u>Percent Finer by Weight</u>
3-in	100
1 1/2-in.	70 to 100
3/4-in	50 to 85
No. 4	30 to 60
No. 50	8 to 24
No. 200	0 to 10

No portion of the materials passing the No. 40 sieve shall have a liquid limit not greater than 25 and a plasticity index not greater than 6. The reclaimed pavement borrow shall be compacted to a minimum of 95-percent. Liquid limits shall be determined by AASHTO T 90.

Reclaimed pavement borrow material shall be processed by mechanical means and blended to form a homogeneous material. The equipment for producing crushed material shall be adequate size and have sufficient adjustments to produce the desired materials. Blended materials that are stockpiled for more than 3-months shall be reworked to a uniform material and retested prior to use; however, the Engineer may require additional testing any time the material appears excessively hard, wet and/or segregated. The processed material shall be stockpiled in such a manner as to minimize segregation of particle sizes. All reclaimed pavement borrow material shall come from approved sources and stockpiles.

The amount of combined crushed asphalt pavement and crushed cement concrete shall not exceed 50-percent by volume as determined by the Engineer and/or by laboratory tests required by the Engineer.

- C. Screened Gravel and Crushed Stone

1. Screened gravel and crushed stone shall consist of sound, durable stone, free of any foreign material, angular in shape, free from structural defects and comparatively free of chemical decay.
2. The crushed stone for access ways and staging areas shall conform to Section M2.01.0, 2.01.1 and M 2.01.2 of the MSSHB.

3. The crushed stone for use underneath manholes, catch basins, concrete encased conduit, riprap setting bed and pipe bedding shall conform to Section M2.01.4 of the MSSHB.
 4. Crushed stone used below concrete mats and slabs, or as drainage material shall meet the requirements of MSSHB M2.01.1 and M2.01.2.
 5. Leveling Course and Stone Joint filler Material shall meet the requirements of M2.01.6 of the MSSHB.
 6. Choker or Reservoir Course Material shall meet the requirements of M2.01.4 of the MSSHB.
 7. Reservoir Course Material shall meet the requirements of M2.01.1 of the MSSHB.
 8. Crushed Stone Base Material shall meet the requirements of M2.01.5 of the MSSHB.
 9. Crushed stone and screened gravel fill shall be placed in maximum 12-in thick lifts and be separated from the subgrade by a non-woven filter fabric where shown on the Drawings or specified herein.
 10. Where crushed stone is to be used for surfacing, it shall be reasonably free from clay, loam or deleterious material and not more than 0.50 percent of satisfactory material passing the No. 200 sieve.
 11. Crushed stone for blending with reclaimed material used to correct gradation deficiencies shall conform to M2.01.0 through M2.01.6 of the MSSHB.
 12. Quarry stone shall conform to M2.01.0 through M2.01.6 of the MSSHB.
- D. Ordinary Borrow (Common Fill) shall consist of mineral soil substantially free from organic materials, loam, wood, trash and other objectionable materials which may be compressible or which cannot be properly compacted. Ordinary Borrow shall not contain stones larger than 6-in in largest diameter and shall have a maximum of 75 percent passing the No. 40 sieve and a maximum of 30 percent passing No. 200 Sieve. Ordinary borrow shall not contain granite blocks, broken concrete, masonry rubble or other similar materials. It shall have physical properties such that it can be readily spread and compacted during filling. Snow, ice and frozen soil will not be permitted. Soil excavated from the structure areas and which meets the above requirements may be used in embankments.
- The use of Processed Glass Aggregates meeting the requirements of M2.01.8 of the MSSHB may be homogeneously blended with the borrow material up to an addition rate of 10-percent by mass in areas that will not be exposed, providing the AASHTO M 145 physical characteristic are maintained.
- E. Sand for pipe, and other miscellaneous bedding, concrete, grout, and masonry shall conform to ASTM C33 for fine aggregate.
1. General purpose sand shall be Ordinary Borrow with stones no larger than 2-in (Select Common Fill).

2. Jointing sand for brick and bluestone paving shall be natural or manufactured masonry sand and meet the requirements of ASTM C144. Care shall be taken to protect the sand against rain when stockpiled on the site prior to setting.

F. Gravel borrow/bank run gravel shall consist of inert material that is hard, durable stone and coarse sand, free from loam and clay, surface coatings and deleterious material and shall conform to the MSSHB M1.03 Type “B” and all supplemental addenda and versions. The use of Processed Glass Aggregate shall not be allowed. Gradation requirements shall conform to AASHTO T11 and T27. Gradation for gravel borrow shall conform to the following:

<u>Sieve</u>	<u>Percent Finer by Weight</u>
1/2-in	50 - 85
No. 4	40 – 25
No. 50	8 – 28
No. 200	0 – 10

Maximum size of stone in gravel shall be as follows:

Type “A”	6-in largest diameter
Type “B”	3-in largest diameter
Type “C”	2-in largest diameter
Type “D”	1.5-in largest diameter

G. Dense Graded Crushed Stone

1. Course aggregate shall consist of hard, durable particles of fragments of stone. Materials that break up when alternately frozen and thawed or wetted and dried shall not be used.
2. Course aggregate shall have a percentage of wear, by the Los Angeles test, of not more than 45.
3. Fine aggregate shall consist of natural or crushed sand.
4. The composition material shall be free from clay, loam, or other plastic material, and shall conform to the following grading requirements.

<u>Sieve Size</u>	<u>Percent Finer by Weight</u>
2-in	100
1-1/2-in.	70 to 100
3/4-in	50 to 85
No. 4	30 to 55
No. 50	8 to 24
No. 200	3 to 10

H. Modified Rockfill shall conform to M2.02.4 in accordance with MSSHB and shall consist of hard, durable angular shaped stones which are the product of the primary crushing of a stone crusher. Rounded stones, boulders, sandstone and similar soft stone or relatively thin slabs will not be accepted. Stone shall be free from overburden, spoil, shale, organic material and meet the following gradation requirements:

<u>Sieve Size</u>	<u>Passing Percentages</u>
8-in	95 to 100
4-in.	0 to 25
2-1/2-in	0 to 5

I. Processed Gravel

1. Processed gravel shall conform to M.1.03.1 of the MSSHB and consist of inert material that is hard, durable stone and coarse sand, free from loam and clay, surface coatings, and deleterious material.
2. The coarse aggregate shall have a percentage of wear, by the Los Angeles Abrasion Test of not more than 50.
3. The gradation shall conform to the following:

<u>Sieve Size</u>	<u>Percent Finer by Weight</u>
3-in	100
1-1/2-in.	70 to 100
¾-in	50-85
No. 4	30 to 60
No. 200	0 to 10

4. The approved source of processed gravel material shall be processed by mechanical means. The equipment for producing crushed gravel shall be of adequate size and with sufficient adjustments to produce the desired materials. The processed material shall stockpiled in such a manner to minimize segregation of particle size. All processed gravel shall come from approved stockpiles.

J. Stone dust shall confirm to Section M2.05.0 of the MSSHB.

K. Filter fabric shall be Mirafi, Type 140N; Dupont, Type PAR, Style 3401 or equal product by Amoco and shall confirm to the following requirements:

1. Minimum grab strength of 120 lbs per ASTM D4632.
2. Equivalent open size (EOS) to be equal to or greater than the U.S. Standard Sieve No. 100 (0.210 mm) per ASTM D4751.
3. Percent open area not to exceed about 25 percent. The percent open area is defined as the ratio of the sum of 20 or more individual open areas (times 100) to the sum of the corresponding 20 or more individual total areas.
4. Coefficient of permeability shall not be less than 10^{-2} cm/sec.

L. Staples for installing Erosion Control Blanket shall be made of wire, 0.091-in in diameter or grater, “U” shaped , with legs 6-in in length and a 1-in crown.

M. Impermeable Fill (Clay)

1. Impermeable fill material shall be from an off-site source accepted by the Owner and tested to ensure a permeability coefficient of less than or equal to 1×10^{-7} cm/sec after compaction. The material shall be as specified under the Unified Soil Classification

System CL, CH, SC or OH in ASTM D2487. Prior to acceptance of the material it shall be tested by an outside independent soils analysis company for the maximum dry density as determined by the modified proctor test, ASTM D1557, Method B, C or D as applicable. Moisture content must be not wetter than 5 percentage points above nor less than 2 percentage points below the optimum moisture content as determined by ASTM D1557, Method B, C or D as applicable. Certified results shall be sent to the Engineer for approval and acceptance.

2. Impermeable clay fill material shall be reasonably free of stumps, brush, or stones larger than 3-in in diameter.

N. Controlled Low Strength Material (CLSM)

1. CLSM used as backfill shall be comprised of a mixture of Portland cement, coarse aggregate, fine aggregate and water. Material methods and placement techniques shall comply with current standards. Design mix shall result in a flowable and excavatable material with a 28-day compressive strength of approximately 30 psi to 80 psi and a 90 day compressive strength of less than 100 psi.
2. CLSM should be Controlled Density Fill, Type 2E, in accordance with M4.08.0 of the MSSHB. CLSM shall contain NO fly ash.

- O. Pea gravel/rice stone used to pack drain holes in concrete slab for construction of brick pavers shall meet the following:

<u>Sieve Size</u>	<u>Percent Finer by Weight</u>
3/8-in	100
1/4-in.	95 to 98
No. 4	50 to 60
No. 6	5 to 10
No. 7	2.5 to 5
No. 8	2 to 2.5
No. 10	0 to 2

2.02 SAND BASED STRUCTURAL SOIL

- A. Loam borrow for loaming and seeding areas shall be specified in Section 02930.
- B. Base loam for mixing as required for the work shall be free of subsoil, large stones, earth clods, sticks, stumps, clay lumps, roots or other objectionable, extraneous matter or debris. Base Loam shall also be free of quack-grass rhizomes, Agropyron Repens, and the nut-like tubers of nutgrass, *Cyperus Esculentus*, and all other primary noxious weeds. Base Loam shall not be delivered or used for planting while in a frozen or muddy condition. Base Loam for mixing shall conform to the following grain size distribution for material passing the #10 sieve:

<u>Sieve Size</u>	<u>Percent Finer by Weight</u>
No. 10	100
No. 18	87 to 100
No. 35	65 to 92
No. 60	45 to 80

No. 140	26 to 46
No. 270	16 to 32
0.002 mm	2 to 5

1. The ratio of the particle size for 80% passing (D80) to the particle size for 30% passing (D30) shall be 5 or less. ($D80/D30 < 5$).
2. Maximum size shall be one inch largest dimension. The maximum retained on the #10 sieve shall be 20% by weight of the total sample.
3. Tests shall be by combined hydrometer and wet sieving in compliance with ASTM D422 after destruction of organic matter by ignition.
4. The organic content shall be between 3.5 and 6.0 percent.

C. Sand for Sand-Based Structural Soil, for Planting Pit Medium, for amending loam shall be uniformly graded medium to coarse sand consisting of clean, inert, rounded grains of quartz or other durable rock free from loam or clay, surface coatings and deleterious materials with the following gradation:

<u>Sieve Size</u>	<u>Percent Finer by Weight</u>
No. 10	100
No. 18	60 to 80
No. 35	25 to 45
No. 60	8 to 20
No. 140	0 to 8
No. 0	0 to 3
0.002 mm	0 to 0.5

1. Maximum size shall be (25mm) one inch largest dimension. The maximum retained on the #10 sieve shall be 10% by weight of the total sample.
2. The ratio of the particle size for 70% passing (D70) to the particle size for 20% passing (D30) shall be 3.0 or less. ($D70/D20 < 3.0$)
3. Tests shall be by combined hydrometer and wet sieving in compliance with ASTM D422 after destruction of organic matter by ignition.

D. Compost (Organic Amendment Materials)

1. Compost for amending planting media shall be a stable, humus-like material produced from the aerobic decomposition of organic residues. The residues, if biosolids, shall consist of compost meeting the required criteria as listed herein this Section or approved equal. The compost shall be a dark brown to black color and be capable of supporting plant growth with appropriate management practices in conjunction with addition of fertilizer and other amendments as applicable, with no visible free water or dust, with no unpleasant odor, and meeting the following criteria as reported by the producer.
2. The ratio of carbon to nitrogen shall be in the range of 10:1 to 25:1.
3. Stability shall be assessed by either a CO₂ evolution test, a re-heating test, or the Solvita procedure. Protocols for each are specified by the coalition of Northeastern Governors Source Reduction Task Force (CONEG) in their 1966 report, "Model Procurement Specifications for Source Separated Compost." and the Solvita manual (version 3.5). For the CO₂ test, the compost respiration shall be no more than 6 mg CO₂-C/gBVS day. For re-heating using the Dewar self-heating test, the maximum heat rise shall be no greater than

9 degree C above room temperature (20 to 25 degrees C). For the Solvita test, the compost must achieve a maturity index of 6 or more. Stability tests shall be conducted by Woods End Research Laboratory, Mt. Vernon, Maine.

4. Pathogens/Metals/Vector Attraction reduction shall meet 40 CFR Part 503 rule, Table 3, page 9392, Vol. 58 No. 32, and Commonwealth of Massachusetts 310 CMR 32.00 (for applications to soils with human activity).
5. Organic Content shall be at least 40 percent (dry weight). One hundred percent of the material shall pass a (9mm) 3/8-inch (or smaller) screen. Debris such as metal, glass, plastic, wood (other than residual chips), asphalt or masonry shall not be visible and shall not exceed one percent dry weight. Organic content shall be determined by weight loss on ignition for particles passing a number 10 sieve according to procedures performed by a soil testing agency recommended by the Ohio State University Extension Program and approved by the Landscape Architect and Department. A 50-cc sub-sample of the screened and mixed compost is ground to pass the number 60 sieve. Two to three grams (+ 0.001g) of ground sample, dried to a constant weight at 105 degrees C is placed into a muffle furnace. The temperature is slowly raised (5C/minute) to 450C and maintained for three hours. The sample is removed to an oven to equilibrate at 105C and the weight is taken. Organic matter is calculated as loss on ignition.
6. PH: The pH shall be between 5.5 to 8.0 as determined from a 1:1 soil-distilled water suspension using a glass electrode pH meter American Society of Agronomy Methods of Soil Analysis, Part 2, 1986.
7. Salinity: Electrical conductivity of a one to two soil to water ratio extract shall not exceed 2.0 mmhos/cm (dS/m).
8. The compost shall be screened to 3/8 inch maximum particle size and shall contain not more than 3 percent material finer than 0.002mm as determined by hydrometer test on ashed material.
9. Nutrient content shall be determined by the University of Massachusetts Soil Testing Laboratory or equivalent laboratory and utilized to evaluate soil required amendments for the mixed soils. Chemical analysis shall be undertaken for Nitrate Nitrogen, Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Aluminum, Magnesium, Iron, Manganese, Lead, Soluble Salts, Cation Exchange Capacity, and soil reaction (pH).

E. Soil Additives

1. Acidulant for adjustment of Structural Soil and Planting Pit Medium pH shall be commercial grade flours of sulphur, ferrous sulfate, or aluminum sulfate that are unadulterated. Acidulants shall be delivered in unopened containers with the name of the manufacturer, material, analysis and net weight appearing on each container.
2. Ground limestone for adjustment of Structural Soil pH shall contain not less than 85 percent of total carbonates and shall be ground to such fineness that 40 percent will pass through 100 mesh sieve and 95 percent will pass through a 20 mesh sieve.

F. The Sand-Based Structural Soil shall consist of a blend of five parts by volume of Sand, one part by volume of Base-Loam and two parts by volume of Organic Amendment. Blending of the components shall be carried out with earth moving equipment prior to placement. The

components shall be blended to create a uniform mixture as determined by the Engineer. The final mix shall have an organic content between 2.5 and 3.5 percent and conform to the following gradation requirements for material passing a Number 10 sieve.

G. The Structural Soil design mix shall meet the following criteria:

<u>Sieve Size</u>	<u>Percent Finer by Weight</u>
No. 10	100
No. 18	68 to 90
No. 35	38 to 63
No. 60	18 to 39
No. 140	9 to 18
No. 270	4 to 9
0.002 mm	1 to 2

1. Maximum size shall be one inch largest dimension. The maximum retained on the #10 sieve shall be 15% by weight of the total sample.
2. The ratio of the particle size for 70% passing (D70) to the particle size for 20% passing (D20) shall be 3.5 or less. (D70/D20 <3.5)
3. Tests shall be by combined hydrometer and wet sieving in compliance with ASTM D422 after destruction of organic matter by ignition.

2.03 ENGINEERED SOILS

A. Engineered soils must conform to the following standards:

1. *Recommended Soil Testing Procedures for The Northeastern United States, 3rd Edition*, Northeast Regional Publication, Agricultural Experiment Station.
2. USDA Kellogg Soil Survey Laboratory Methods Manual, Soil Survey Investigations Report No. 42 Version 5.0 2014.

B. Chemical and Physical Requirements

1. Engineered Soil is an integral part of the Green Infrastructure System; as such, certification of its material properties is subject to the testing protocols of the Quality Assurance/Quality Control (QA/QC) plan. The QC requirements of the QA/QC Plan are detailed below. **The Contractor shall strictly comply with all requirements of the QA/QC Plan.** Sufficient lead time is required to develop an appropriate plan for mixing methodologies and ratios that will provide reliable results to meet the parameters listed below.

C. Engineered Soils

1. Engineered Soil shall be a *loamy sand or sandy loam* using the USDA textural classification systems based on the percentage of clay (<0.002 mm), silt (0.05 to 0.002 mm) and sand (2 mm-0.05 mm) of the fine earth fraction of less than 2 mm. The gravel content (material greater than 2mm) shall be less than 8 percent.

Sand: 75 - 85% (No more than 25% of sand classified as fine or very fine)

Silt: 5 - 15%

Clay: 5 - 10%

2. The gradation of the engineered soil mix shall be determined by a qualified laboratory using the USDA *Kellogg Soil Survey Laboratory Manual*.
 3. Engineered Soil must be free of refuse, hard clods, woody vegetation, stiff clay, construction debris (of any kind), boulders, stones larger than 1-1/2 inches, chemicals, or other deleterious material toxic to any vegetation used on this project.
 4. Engineered Soil must have a minimum organic content of four (4.0%) percent and a maximum of eight (8.0%) percent. If the source soil requires amendment to meet the Engineered Soil organic content requirement, leaf compost will be the only approved admixture. No soil mixing will be permitted during or after Engineered Soil placement. Engineered Soil must be tested for compliance with Contract specifications and submitted for approval prior to delivery to the Site.
- D. The organic content of soils must be determined by a laboratory using the loss on ignition method as described in the *Recommended Soil Testing Procedures for The Northeastern United States, 3rd Edition*, Northeast Regional Publication, Agricultural Experiment Station, University of Delaware. Bulletin #493, Revised July 2011 or latest.
- E. The pH value of Engineered Soil will be (5.5 to 7.0) as determined by an approved laboratory using soil pH (Water (1:1. V:V) procedures as described in the USDA *Kellogg Soil Survey Laboratory Methods Manual, Soil Survey Investigations Report No. 42 Version 5.0*, 2014. Amendment of soil to lower pH to meet Contract requirements is not permitted.
- F. The soluble salt value of the Engineered Soil will be 0.0 to 0.5 dS/m as determined by an approved laboratory using the soluble salt (1:2(V:V)) procedures as described in the *Recommended Soil Testing Procedures for The Northeastern United States, 3rd Edition*, Northeast Regional Publication, Agricultural Experiment Station, University of Delaware, Bulletin #493, Revised July 2011 or latest.
- G. The value for Kjeldahl Nitrogen will be as outlined below as determined by an approved laboratory using the USDA *Kellogg Soil Survey Laboratory Methods Manual, Soil Survey Investigations Report No. 42 Version 5.0*; 2014. Kjeldahl N acceptable range is 0.06% to 0.25% (with nitrate (NO-3) form of nitrogen not to exceed 20 ppm).
- H. The value for Macro (P, K) Nutrients will be determined by an approved laboratory using the procedures as described in the *Recommended Soil Testing Procedures for the Northeastern United States, 3rd Edition*, Northeast Regional Publication, Agricultural Experiment Station, University of Delaware, Bulletin #493, Revised July 2011. Ideal values for macro nutrients shall fall within the ranges indicated below:

P	80 lbs/acre to 100 lbs/acre
K	100 lbs/acre to 300 lbs/acre

- I. The value for Micro Nutrients (Mg, Ca, Mn, Zn, Cu and B) will be determined by an approved laboratory using the procedures as described in the *Recommended Soil Testing Procedures for The Northeastern United States, 3rd Edition*, Northeast Regional Publication, Agricultural Experiment Station, University of Delaware, Bulletin #493, Revised July 2011. Test reports for Micro Nutrients must be approved in writing by the Engineer prior to delivery of any soil to the Work Site.

Ca acceptable range is 900 to 2800 lbs/ acre

Mg acceptable range is 300 to 600 lbs/ acre
K+Ca+Mg not greater than 3,700 lbs/ acre
Mn acceptable range of 2 ppm to 20 ppm
B acceptable range of 0.8 ppm to 3 ppm
Cu acceptable range of 0.1 ppm to 4.0 ppm
Zn acceptable range of 1 ppm to 12 ppm

- J. An acid-producing soil test is required to determine the potential for decreases in soil pH after oxidation. The pH value of the solution shall be greater than 4.5 as determined by the USDA *Kellogg Soil Survey Laboratory Methods Manual, Soil Survey Investigations Report No. 42 Version 5.0*, 2014.
- K. Engineered Soil must not contain any traces of hydrocarbons, petroleum products, chemically prohibited substances or any other elements considered to be toxic to any vegetation used on this project. The Engineered Soil must not smell of petroleum or give off other unnatural or toxic odors. Regardless of prior acceptance of sample material, if the Engineered Soil delivered to the Site seems suspicious in any way the Resident Engineer may reject the material. Engineer's decision is final and shall have the sole decision making authority.

END OF SECTION

SECTION 02270
EROSION AND SEDIMENTATION CONTROL

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and perform all installation, maintenance, removal and area cleanup related to erosion and sedimentation control work as required to meet Federal, State and local permit requirements, shown on the Drawings and as specified herein. The work shall include, but not necessarily be limited to; installation of stabilized construction entrance and staging areas, erosion control blankets, compost socks and catch basin sediment filters, sediment removal and disposal, device maintenance, removal of temporary devices, temporary mulching, and final cleanup.
- B. Depending on the location of the project, an Order of Conditions may be required from the Local Conservation Commission. Should an Order of Conditions be required, the Owner will apply and obtain the Order of Conditions. Contractor will be required to comply with all conditions outlined within the approved permit.
- C. If the project area is larger than 1 acre of disturbance, the Owner will prepare and submit to the Contractor for implementation a Stormwater Pollution Prevention Plan (SWPPP) to prevent storm water and air pollution from project construction activities. The Plan shall at a minimum, meet the requirements of the National Pollutant Discharge Elimination System (NPDES) Permit issued for this project by the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MADEP).
 - 1. If required, all work shall be performed in accordance with the erosion control measures developed as part of the contract documents, wetland Notice of Intent and associated amendments submitted to the local Conservation Commission.
 - 2. If required, Contractor shall become thoroughly familiar with regulations and permit conditions issued by the local Conservation Commission and shall comply with all requirements set forth therein.
 - 3. Best management practices (BMP) shall be used to address storm water pollution prevention and shall be included in the SWPPP prepared by the Contractor in accordance with NPDES requirements.
 - 4. The Erosion Control Plan shall be submitted by the Engineer for review by the Contractor prior to the start of earth working activities on the site.
- D. All earthwork, grading moving of equipment and other operations likely to cause disturbed soil conditions and erosion and siltation and tracking of sediments, shall be planned and performed in a sequence as to avoid or reduce pollution in adjacent wetland resource areas and public roadways.

1.02 RELATED WORK

- A. General Requirements are included in Section 01005.

- B. Environmental protection procedures is included in Section 01110.
- C. Dust control is included in Section 01562.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, within 10 days after award of Contract, technical product literature for all commercial products, including straw mulch tackifier, to be used for erosion and sedimentation control.
- B. For projects larger than 1 acre in disturbance, prior to the start of construction, Engineer shall prepare and submit to the Contractor and required agencies a Stormwater Pollution Prevention Plan (SWPPP) in accordance with the U.S. Environmental Protection Agency (EPA) National Pollution Discharge Elimination System (NPDES) General Permit applicable to this work. Engineer will submit one copy of the approved permit to the Contractor for implementation. Engineer will submit the required number of copies to the appropriate EPA Office in accordance with EPA regulations. At a minimum, the SWPPP shall include the following:
 - 1. Project and site description with site map.
 - 2. Schedule of construction milestones including anticipated start and end dates.
 - 3. Sequence of construction activities.
 - 4. Description of potential pollution sources.
 - 5. Description of site planning.
 - 6. Soil stabilization practices.
 - 7. Erosion and sedimentation control and water quality control measures.
 - 8. Best management practices to be used on-site to reduce pollution potential.
 - 9. Description of equipment, procedures.
 - 10. Schedule for street sweeping.
 - 11. Copies of monitoring records and logs.
 - 12. Locations of proposed storm water control measures including, but not limited to, sediment fence, haybales, construction entrance and staging area, and inlet protection.
 - 13. Technical product literature for all commercial products to be used.
- C. The erosion and sediment control plan which shall include drawings produced by the Engineer in conjunction with assistance from the Contractor, illustrative of the overall intent to minimize or prevent erosion, control sediment movement, and stabilize exposed soils during construction. At his/her option, the Contractor may submit alternative materials and installation methods to the Engineer for review and approval.

1. Performance requirements shall include performing periodic monitoring of the SWPPP to ensure work is in conformance with the following:
 - a. Provide on-site treatment as necessary to prevent the discharge of contaminated water into existing surface water areas caused by Contractor's operations, or contaminated water that passes through an erosion and sediment control system installed by the Contractor such that treatment systems are designed to remove particles 40 microns and larger with discharges not to exceed 15 NTU or 25 ppm TSS.
 - b. Delineation and brief description of the measures to be undertaken to retain sediment on the site, including, but not limited to designs and specifications for sediment detention basins and traps, and a schedule for their maintenance and upkeep.
 - c. Delineation and brief description of the surface runoff and erosion control measures to be implemented, including, but not limited to, materials and installation methods of applying mulches, and designs and specifications for diversions and drains and a schedule for their maintenance and upkeep.
 2. The Contractor may propose the use of any erosion and sediment control techniques in the SWPPP provided such materials and installation techniques are proven to be as or more effective than the equivalent practices contained herein.
- D. For projects larger than 1 acre in disturbance, prior to the start of construction, Engineer shall prepare and submit to EPA NPDES Notice of Intent to Discharge to the applicable EPA Office in accordance with EPA regulations.

1.04 REFERENCED SPECIFICATIONS

- A. Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas by Franklin, Hampden, Hampshire Conservation Districts, Northampton, MA dated March 1997.
- B. MassDOT Standards and Specifications for Highways and Bridges, (MSSHB), latest edition including all addenda.
- C. EPA Document titled "Stormwater Management for Construction Activities – Developing Pollution Prevention and Best Management Practices" document number EPA 832-R-92-005, dated 1992 or most recent edition. State, County Conservation Districts, or local Conservation Commission Standards can be substituted for the EPA standards if the State, County, or local Conservation Commission standard is equal to or more detailed than the EPA standard.
- D. City of New Bedford Construction Standards and Specifications

1.05 QUALITY ASSURANCE

- A. Be responsible for the timely installation and maintenance of all sedimentation control devices necessary to prevent the movement of sediment from the construction site to off site areas or into the stream system via surface runoff or underground drainage systems. Measures in addition to those shown on the Drawings necessary to prevent the movement of sediment off site shall be installed, maintained, removed, and cleaned up at the expense of the Contractor. No additional charges to the Owner will be considered.
- B. Sedimentation and erosion control measures shall conform to the submittal requirements above and where required, in the approved Order of Conditions from the New Bedford Conservation

Commission, the Massachusetts Department of Environmental Protection Guidelines for Erosion and Sedimentation Control, latest edition.

- C. Contractor shall keep all road surfaces and adjacent properties free of tracked mud and soil from Contractor's activities. Refer to Section 01005 and 01562 for additional street sweeping requirements.
- D. Where Contractor's efforts to control erosion and sediment have been demonstrated to be ineffective or potentially ineffective in the opinion of the Engineer, the Engineer may order that additional measures be implemented and constructed at no additional cost to the Owner.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Crushed stone for sediment filtration devices shall conform to Massachusetts Department of Transportation (MassDOT) "Standards and Specifications for Highway and Bridges" Section M2.01.3, latest revision.
- B. Berm structural stone shall be rip-rap as follows:
 - 1. Rip-rap shall be sound, durable rock which is roughly rectangular shape and of suitable quality to insure permanence in the condition in which it is to be used. Rounded stones, boulders, sandstone or similar soft stone will not be acceptable. Material shall be free from overburden, spoil, shale and organic material, meet the Engineer's approval and be well graded within the following limits:

Weight of Stone	Percent Finer by Weight
40 lb	100
12 lb	50
3 lb	0

- C. Compost Sock
 - 1. Compost sock shall be a mesh tube, oval to round in cross section, 12 inches in diameter. Sock shall have a minimum durability of one year after installation. Sock shall be composed of biodegradable jute, burlap, or coir fabric. Fabric shall be clean, evenly woven, and free of encrusted concrete or other contaminating materials and free from cuts, tears, broken or missing yarns and thin, open, or weak places.
 - 2. Compost sock shall be securely anchored by wood stakes driven 8-ft on center. Wood stakes shall be untreated fir, redwood, cedar, or pine and cut from sound timber, and shall be straight and free of loose or unsound knots and other defects which would render the stakes unfit for use. Stakes shall be pointed on the end to be driven into the ground, and at least 1" x 1" x 24" in size.
 - 3. Compost socks shall be filled with compost be derived from any single or mixture of the following feedstock material: green material consisting of chipped, shredded, or ground vegetations, or clean recycled wood products, biosolids, manure, or mixed food waste. Compost feedstock material to reduce weed seeds, pathogens and deleterious materials to

comply with state and local regulations. Compost shall not be derived from mixed municipal solid waste and be reasonably free of visible contaminants. Compost shall not contain paint, petroleum products, pesticides or any other chemical residues harmful to animal life or plant growth. Compost shall not possess objectionable odors.

4. A stockpile of compost socks will be stored in an easily accessible location for routine maintenance and emergency repairs.
- D. For inlet protection, use prefabricated materials specially designed for this purpose such as “Silt Sack” manufactured by ACF Environmental, Inc, www.acfenvironmental.com, or equal.
- E. Straw mulch shall be utilized on all newly graded areas to protect areas against washouts and erosion. Straw mulch shall be comprised of threshed straw of oats, wheat, barley, or rye that is free from noxious weeds, mold or other objectionable material. The straw mulch shall contain at least 50 percent by weight of material to be 10-in or longer. Straw shall be in an air-dry condition and suitable for placement with blower equipment.
- F. Latex acrylic copolymer or organic tackifier shall be a commercial product specifically manufactured for use as straw mulch tackifier.
- G. An asphalt tackifier shall only be used when temperatures are too low to allow the use of a latex acrylic copolymer and only with prior written approval from the Engineer.
- H. Erosion control blanket shall be installed in all seeded drainage swales and ditches as shown on the Drawings or as directed by the Engineer. Erosion control blanket shall be 100 percent agricultural straw matrix stitch bonded with degradable thread between two photodegradable polypropylene nettings, such as Model S150 Double Net Short-Term Blanket (10 months) by North American Green, Evansville, IN or equal.
- I. Spill control measures shall be as follows:
 1. The Contractor shall maintain a supply of “speedy dry”, oil sorbent pads, or an approved equivalent with the construction equipment at all times. This material will be used to contain any accidental release of oil or other petroleum products during the field work. Should there be an accidental release, the proper authorities (e.g., MassDEP, New Bedford Fire Department, New Bedford Conservation Commission, Engineer, etc.) will be notified in accordance with applicable federal, state and local requirements.
 2. To minimize the possibility of leakage of hydraulic fluid, all hydraulic lines on all construction equipment and vehicles will be inspected at the end of each workday. If any excessive wear or leakage is observed, the line will be replaced prior to future use.

PART 3 EXECUTION

3.01 GENERAL

- A. The Contractor shall install and maintain all erosion and sedimentation control devices necessary to prevent the movement of sediment from the construction site to off site areas or into the surface water via surface runoff, windblown dust or underground drainage systems. Measures in addition to those herein necessary to prevent the movement of sediment shall be installed, maintained, removed, and cleaned up at no additional cost to the Owner.

- B. The Contractor shall submit the names, addresses, and telephone numbers of any and all contractors, subcontractors or persons responsible for doing the land-disturbing and land filling activities and their respective tasks.
- C. An on-site preconstruction meeting shall take place involving all concerned parties including Contractor's erosion control personnel at which time plans will be reviewed, schedules discussed and responsibilities assigned.

3.02 INSTALLATION

- A. A stabilized construction entrance, if shown on the Drawings, will be constructed where indicated.
- B. Compost Sock Installation
 - 1. To ensure optimum performance, cut down or remove heavy vegetation, and level uneven surfaces to ensure that the compost sock uniformly contacts the ground surface.
 - 2. Prior to installation, clear the bedding area of obstructions including rocks, clods, and debris greater than one inch.
 - 3. Fill socks uniformly with compost to the desired length such that the logs do not deform and secure ends. When more than one compost sock is required to achieve desired length, join socks longitudinally with a 1 foot 6 inch overlap. Stakes will be installed 24 inches apart along the length of the compost sock and stopped 6 inches from each end of the sock. Stakes shall be driven to a maximum of 2 inches above, or flush with the top of the sock.
 - 4. Installation.
 - a. Place directly on the ground with good contact with the finish grade.
 - b. Secure with wood stakes every 8 feet along the length of the compost sock.
 - c. Secure ends of the compost sock by placing a stake 6 inches from the end of the compost sock.
 - d. Drive the stakes into the soil so that the top of the stake is less than 2 inches above the top of the compost sock.
 - e. Any stockpiled material shall have a compost sock installed around it.
- C. Catch basin sediment control devices shall be cleaned of sediment in a manner as recommended by the manufacturer and as directed by the Engineer.
- D. Staging areas and access ways shall be surfaced with a minimum depth of 4-in of crushed stone conforming to M.2.01.0, 2.01.1 and M 2.01.2 of the MSSHB.
- E. Stone Filter Berm Installation
 - 1. Place berm structural stone across channel just below lower sandbag wall at the work area. Face upstream side of structural berm with crushed stone.

3.03 MAINTENANCE AND INSPECTIONS

- A. Inspections

1. Make a visual inspection of all erosion and sedimentation control devices once per week and promptly after every rainstorm. If such inspection reveals that additional measures are needed to prevent movement of sediment to offsite areas, promptly install additional devices as needed. Sediment controls in need of maintenance shall be repaired promptly.
2. On projects larger than 1 acre in disturbance requiring a SWPPP, the Engineer will complete inspections at the above noted intervals or more frequent depending on specific requirements of the Contractors erosion and sedimentation control requirements. Any identified deficiencies identified during the inspection shall be corrected at no additional cost to the Owner.

B. Device Maintenance

1. Compost Sock
 - a. Remove accumulated sediment once it builds up to 1/2 of the height of the sock or if it interferes with the functionality of the sock.
 - b. Repair and replace split, torn, or unraveling socks. Replace broken or split stakes. Sagging or slumping compost socks must be repaired with individual stakes or replaced. Correct locations where rills or other evidence of concentrated runoff have occurred beneath the socks. Compost socks must be repaired or replaced within 24 hours of identifying deficiencies.
 - c. Make other repairs as necessary to ensure that the compost sock is filtering all runoff directed to the fence.
2. Catch basin sediment control devices shall be checked and cleaned at the above noted frequency. Remove accumulated sediment from the bag when saturated with sediment and as directed by the Engineer.
 - a. Should the Engineer determine that a sediment control device intended to protect an inlet (e.g., catch basin) has failed to perform resulting in sediment being deposited in the catch basin, the Contractor shall clean the catch basin by removing any and all debris at no additional cost to the Owner.
3. Stone Filter Berm
 - a. Muck out trapped silt from dewatering operations when it has built up to within 6-in of the top of the berm.
 - b. Replace crushed stone filter when saturated with silt.
4. Add crushed stone to access ways and staging area as necessary to maintain a firm surface free of ruts and mudholes.
5. Adjacent streets shall be cleaned or swept of debris and soil as required or as directed by the Engineer. Refer to Section 01005 and 01562.
6. Washing of the hauling vehicles wheels shall be performed as required or as directed by the Engineer. Washing includes spraying all wheels of the hauling vehicle with a high pressure washer. Wash water to be provided by Contractor.

C. Notifications

1. Should major erosion and sedimentation control measures fail, the Contractor shall give immediate attention to correcting the failure and to rectifying adverse impacts from the failure, and shall immediately notify the Engineer of the failure.

3.04 TEMPORARY MULCHING

- A. Apply temporary mulch to areas where rough grading has been completed but final grading is not anticipated to begin within 30 days of the completion of rough grading.
- B. Straw mulch shall be applied at rate of 100 lbs/1000 sq ft and tackified with latex acrylic copolymer at a rate and diluted in a ratio per manufacturer's instructions.

3.05 EROSION CONTROL BLANKETS

- A. Erosion control blankets shall be installed in all seeded drainage swales and ditches as shown on the Drawings and as directed by the Engineer in accordance with manufacturer's instructions. The area to be covered shall be properly prepared, fertilized and seeded with permanent vegetation before the blanket is applied. When the blanket is unrolled, the netting shall be on top and the fibers in contact with the soil over the entire area. The blankets shall be applied in the direction of water flow and stapled. Blankets shall be placed a minimum of three rows (of 4-ft) wide (total approx. 12-ft width) within the drainage swale/ditch and stapled together in accordance with manufacturer's instructions. Side overlaps shall be 4-in minimum. The staples shall be made of wire, .091-in in diameter or greater, "U" shaped with legs 10-in in length and a 1-1/2-in crown. Commercial biodegradable stakes may also be used with prior approval by the Engineer. The staples shall be driven vertically into the ground, spaced approximately two linear feet apart, on each side, and one row in the center alternately spaced between each size. Upper and lower ends of the matting shall be buried to a depth of 4-in in a trench. Erosion stops shall be created every 25-ft by making a fold in the fabric and carrying the fold into a silt trench across the full width of the blanket. The bottom of the fold shall be 4-in below the ground surface. Staple on both sides of fold. Where the matting must be cut or more than one roll length is required in the swale, turn down upper end of downstream roll into a slit trench to a depth of 4-in. Overlap lower end of upstream roll 4-in past edge of downstream roll and staple.
 1. To ensure full contact with soil surface, roll matting with a roller weighing 100 lbs/ft of width perpendicular to flow direction after seeding, placing matting and stapling. Thoroughly inspect channel after completion. Correct any areas where matting does not present a smooth surface in full contact with the soil below.

3.06 REMOVAL AND FINAL CLEANUP

- A. Once the site has been fully stabilized against erosion, remove sediment control devices and all accumulated silt. Dispose of silt and waste materials in proper manner. Regrade all areas disturbed during this process and stabilize against erosion with surfacing materials.
- B. Work with the Engineer to file for Final Notice of Termination in accordance with the requirements of NPDES and an approved by the Engineer if NPDES permit is required.
- C. Engineer will check all catch basins and manholes for the accumulation of debris as a result of construction operations and/or improper maintenance of sedimentation and erosion control

devices. Refer to Section 01005 for specific requirements regarding inspection and subsequent cleaning.

END OF SECTION

SECTION 02510
TRAFFIC AND STREET NAME SIGNS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, material, equipment and incidentals required to remove and reset existing traffic and street name signs and furnish and install new street name signs as shown on the Drawings and as directed by the Engineer.
- B. Existing signs shall not be removed until the new signs and structures replacing them are ready for installation or until the Engineer orders their removal. If the Contractor elects to remove traffic signs (i.e. stop signs, handicap parking, Tow Zone, etc.) prior to immediate install/reset, the Contractor is responsible for furnishing temporary traffic signs.
- C. For the purpose of this scope, traffic signs shall include parking regulation signs, which shall also be reset.

1.02 RELATED WORK

- A. Concrete Sidewalks are included in Section 02515.
- B. Pavement Markings is included in Section 02581.
- C. Pavement Repair and Resurfacing is included in Section 02576.
- D. Traffic Regulations are included in Section 01570.

1.03 REFERENCE SPECIFICATIONS

- A. Except as otherwise specified herein, the current Massachusetts Department of Transportation, Highway Division Standard Specifications for Highways and Bridges (MSSHB) including all addenda and supplements thereto, latest edition shall apply to materials and workmanship required for the work of this Section. See sections 828 and 840 of the MSSHB for Traffic Signs and Sign Supports (Latest Edition).
- B. The latest edition of the Massachusetts Highway Department Construction and Traffic Standard Details as amended.
- C. All signs shall conform to the latest edition of the Manual on Uniform Traffic Control Devices including all addendum and revisions.
- D. The AASHTO publication entitled "Specifications for Design and Construction of Structural Supports for Highway Signs, Luminaries and Traffic Signals" (Current Edition).
- E. The 1990 Standard Drawings for Signs and Supports (Current Edition).

PART 2 PRODUCTS

- A. All material shall be as specified in the MSSHB.

- B. All street name signs shall be fabricated with high intensity encapsulated lens reflective sheeting (see section M9.30.0) Type III or High Intensity Unmetalized Microprismatic Element Type IV.
- C. All signs shall be aluminum. Aluminum sign panels shall either be Type A or Type B and predrilled with two holes for mounting as specified herein.
- D. Sign supporting hardware shall be heavy duty galvanized steel.
- E. Each sign shall be mounted above finish grade as specified herein. Furnish corrosion and vandal resistant mounting hardware, as recommended by the manufacturer and approved by the Engineer.
- F. Sign posts shall be as specified in the MSSHB. Sign posts shall be Type P-5. Square posts shall be provided. Sign posts to be used where ornamental street signs are to be placed shall be 2-in square black colored backed enamel aluminum posts mounted on a breakaway.
- G. All signs noted on the Drawings to be removed and reset, shall be mounted as specified in the MSSHB unless otherwise noted or directed by the Engineer.
- H. Replacements for Non-MUTCD signs, such as custom parking regulation signs, shall be fabricated in like size, font, color, etc. as the existing unless otherwise noted or directed by the Engineer.
- I. Ornamental Street Signs.
 - 1. Ornamental street signs shall be detailed in Appendix D.
 - 2. Signs shall be powder coated black aluminum frame with color to match adjacent signal equipment in color in finish.
 - 3. Stainless steel hardware shall be provided.
 - 4. Sign panel shall be dark Avery blue series (6900) with white lettering per MUTCD.

PART 3 EXECUTION

3.01 GENERAL

- A. The Contractor shall adhere to sections 828 and 840 of the MSSHB.
- B. The Contractor shall adhere to the 1990 Standard Drawings for Signs and Supports.
- C. All sign locations (new and reset) shall be marked in the field by the Contractor and reviewed and approved by the Engineer for sight distance prior to installation.
- D. The Contractor shall exercise particular care in dismantling, removal and transporting and resetting of any existing signs designated to be reused. Signs that are to be removed but not reused shall be delivered to the City of New Bedford – DPI at 1105 Shawmut Avenue. Any sign panel damaged through carelessness or lack of protection by the Contractor shall be replaced at the Contractor’s expense.

END OF SECTION

SECTION 02515
CONCRETE WALKWAYS AND DRIVEWAYS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment, and incidentals required and install concrete walkways, accessible curb ramps, driveway aprons, and pads, as shown on the Drawings and as specified herein.
- B. Street, driveway, curb or sidewalk pavements, walls, fences, mailboxes, planters, or other structures damaged or disturbed by the Contractor's operations shall be repaired, replaced or restored in accordance with the requirements specified herein and as directed for the respective type of pavement, structure or surface replacement and in a manner satisfactory to the Owner.
- C. Coordinate concrete walkway construction with specialty pavement construction in sidewalk, crosswalks or driveway apron areas (e.g., Belgian pavers, Boston pavers, etc.) and other paver/cobble types installation. Walkways may be formed to include concrete base and drainage holes for paver band.
- D. Furnish all labor, materials, equipment, forms, colorants and incidentals required and perform all integrally colored pressed concrete work.
- E. Integral concrete curbing is included in this section.
- F. Hot mix asphalt sidewalks and driveways are included in Section 02576.
- G. It is the Contractor's sole responsibility to ensure that sidewalks, ADA access ramps and driveways are constructed in accordance with ADA and AAB requirements. Any ADA access ramp, sidewalk or driveway not constructed in accordance with the above referenced requirements shall be removed and replaced at no additional cost to the Owner.

1.02 RELATED WORK

- A. Traffic control and pedestrian access is included in Section 01570.
- B. Granular fill materials are included in Section 02230.
- C. Paving, pavement repair and resurfacing is included in Section 02576.
- D. Brick paving is included in Section 02580.
- D. Concrete and reinforcing steel is included in Section 03301.

1.03 SUBMITTALS

- A. All submittals shall be in accordance with Section 01300.
- B. Submit a schedule of sidewalk work. Schedule should include a breakdown for sidewalk replacement at driveways and accessible curb ramps.

- C. Submit product data, samples, test reports, certifications, and qualifications as required by Section 01005, 01300, and 03301 for concrete.

1.04 REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM)
 - 1. ASTM A185 - Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.
 - 2. ASTM C150 – Standard Specification for Portland Cement
 - 3. ASTM 979 – Specification for Pigments for Integrally Colored Concrete
 - 4. ASTM D1557 – Standard Specification for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³).
- B. American Association of State Highway and Transportation Officials (AASHTO)
 - 1. AASHTO M213 - Standard Specification for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types)
- C. Except as otherwise specified herein, the material and construction shall be in accordance with the MASSDOT, Standard Specifications for Highways and Bridges, latest edition, including all addenda (MSSHB).
- D. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Concrete shall be as specified in Section 03301, but in no case, less than 4,000 psi at 28 days, 4” +/- 1” slump, ¾” aggregate size, and 610 cement ratio meeting the requirements of M4.02.00 of MSSHB.
- B. Fiber reinforce concrete shall be used when reinforced concrete is required conforming to ASTM C1116. Fiber reinforcement shall be used on all commercial driveway aprons and wheelchair ramps. Fiber reinforcement may be used in other locations per the Drawings such as wheelchair ramps, sidewalks, and under brick pavers.
 - 1. Synthetic reinforcing fibers for concrete shall be 100 percent polypropylene collated, fibrillated fibers as manufactured by Fibermesh Company of Synthetic Industries, Inc., Chattanooga, TN – Fibermesh or approved equal. Fiber length and quantity for the concrete mix shall be in strict compliance with the manufacture’s recommendations as approved by the Engineer. Add fibers from the manufacturer’s pre-measured bags and according to the manufacture’s recommendations to ensure complete dispersion of the fiber bundles as single monofilaments within the cement grout.

- C. Welded wire fabric shall conform to ASTM A185 and be used on commercial/residential driveway aprons, wheelchair ramps, sidewalks, and under brick, Belgium pavers or bluestone pavers subject to vehicular traffic.
- D. Preformed Expansion Joint filler shall be grey and meet the requirements of M9.14.0 of MSSHB.
- E. Materials for reclaimed pavement borrow material base course shall be specified in Section 02230.
- F. Detectable Warning Pads for accessible curb ramps shall be 2 ft x 4 ft, federal yellow composite tile with fiberglass reinforced truncated domes, designed to be cast in place into the concrete model ADATILE as manufactured by ADA Solutions, Billerica, MA (800) 372-0519 www.adatile.com or equal. Glue on panels will not be accepted.
- G. Refer to Section 03301 for reinforcing steel, admixtures and working with concrete in adverse hot or cold weather conditions.
- H. Concrete color for sidewalks, driveways or ADA ramps where required by the Engineer or shown on the Drawings shall be integral concrete color by Butterfield Color a Sika Brand – Color Type Ash GO332/LO322.

2.02 FORMS

- A. Forms shall be free from roughness and imperfections, substantially watertight and adequately braced and tied to prevent motion when concrete is placed. No wooden spreaders will be allowed in the concrete.
- B. Wire ties will not be allowed. Metal ties or anchorages which are required within the forms shall be so constructed that the metal work can be removed for a depth of at least 1-in from the surface of the concrete without injury to such surface by spalling or otherwise. Forms shall be thoroughly cleaned before using and shall be treated with oil, or other approved material.

PART 3 EXECUTION

3.01 INSTALLATION

- A. The subgrade for walkways shall be thoroughly compacted to a minimum of 95 percent per ASTM D1557. All depressions occurring shall be filled and again compacted until the surface is smooth and hard. Where roots are encountered, Contractor shall coordinate with the City Arborists before cutting and removing roots as specified in 01005.
- B. After the subgrade has been prepared, a reclaimed pavement borrow base shall be placed. After being thoroughly compacted, the base course shall be at least 6-in thickness and parallel to the proposed surface of the walkway.
- C. Work will be taking place adjacent to existing walls, landscaping, fences, trees, and buildings. Utilize extreme caution while working adjacent to existing facilities. See specification Section 01005, 01046 and 01170 for requirements regarding removing, handling, reinstalling, or delivering specialty driveway and walkway materials within the right-of-way. Specialty materials removed on private property to facilitate proper site grading shall be reset once final grades have been established. Any damage to existing facilities not proposed to be removed as part of the work shall be repaired or replaced to existing conditions or better at no additional

cost to the Owner. Coordinate with property owners and Engineer for work on private property. Notify property owner 72-hour in advance (Saturdays, Sundays, and legal holidays excluded) prior to performing work on private property. See specification Section 01570 for additional requirements.

- A. The finished surface of the base shall be uniformly flat and shall not deviate by more than plus 0 and minus ½-in over 10-ft when measured by a straight edge laid in any direction and shall have a pitch or crown as directed on the Drawings. When compacting the base under concrete base, the base shall be set at an elevation such that the desired finished grade is accommodated when the setting bed is screened to a thickness of ¾-in.
- B. The base shall extend to not less than the rear face of all edge restraints or to the edge of suitable established structures. Along free edges, the base shall extent to 6-in beyond the paver edge.
- F. Forms
 - 1. Side and transverse forms shall be smooth, free from warp, of sufficient strength to resist springing out of shape, of a depth to conform to the thickness of the walkway and of a type satisfactory to the Engineer.
 - 2. All mortar or dirt shall be completely removed from forms that have been previously used. The forms shall be well staked and thoroughly braced and set to the established lines with their upper edge conforming to the grade of the finished walk which shall have sufficient pitch to provide for surface drainage.
 - 3. All forms shall be oiled as specified in Section 03301 before placing concrete.
- G. If wire fabric reinforcement is used in lieu of fiber reinforced concrete:
 - 1. All wire fabric shall be stored off the ground and shall be protected from moisture and be kept free from dirt, oil, or injurious coatings.
 - 2. Splices in welded wire fabric shall be lapped not less than 1-1/2 courses or 12-in, whichever is greater. Wire fabric splices shall be tied together with wire ties as approved spaced no more than 24-in on center. Support as approved in middle of slab.
 - 3. Before being placed in position, wire fabric shall be thoroughly cleaned of loose mill and rust scale, dirt and other coatings, including ice, that reduce or destroy bond. Where there is delay in depositing concrete after reinforcement is in place, fabric shall be reinspected and cleaned when necessary.
 - 4. In no case shall wire fabric be covered with concrete until the amount and position of the fabric have been checked by the Engineer and his/her permission given to proceed with the concreting.
- H. Placing and Finishing Concrete
 - 1. Concrete walkways shall be placed in alternate slabs not exceeding 30-ft in length, except as otherwise ordered. The slabs shall be separated by transverse, preformed expansion joint filler.
 - 2. Where shown on the Drawings or directed by the Engineer, install colored concrete of the color specified.

3. No concrete shall be poured after 2:00 pm to ensure adequate setting time.
3. Preformed expansion joint filler shall be placed adjacent to curbs and structures as directed.
4. Concrete shall be placed in such quantity that, after being thoroughly consolidated in place, it shall be 4-in in depth at sidewalks and 6-in depth at residential/commercial driveways and accessible curb ramps. Finishing operations shall be delayed until all bleed water and water sheen has left the surface and concrete has started to stiffen. After water sheen has disappeared, edging operations shall be completed. After edging and jointing operations, the surface shall be floated with an aluminum or magnesium float. Immediately following floating, the surface shall be steel troweled. If necessary, tooled joints and edges shall be rerun before and after troweling to maintain uniformity. Finish with broom at right angles to alignment of walk, then round all edges with 1/4-in radius and 2 inch troweled edge after brooming (Front face adjacent to curbing shall not receive the 1/4-in radius or 2 inch troweled edge). Surface shall be uniformly scored into block units of area not more than 36 square feet. Depth of scoring shall be at least 1/2 inch deep and no more than 1/2 inch wide.
5. When completed, the walkways shall be kept moist and protected from traffic and weather for at least 3 days. Maintain temporary access to private property as specified in Section 01570. Contractor shall provide oversight of the concrete using on-site staff or police details to ensure protection of the concrete until it has set to a point that no imprints can be made. Any panels damaged as a result of the lack of oversight during the setting process shall be replaced at no additional cost to the Owner.
6. Detectable warning panels shall be installed into the accessible curb ramps while the concrete is still wet, after finish has been troweled and broomed. Detectable warning panels shall be installed straight and level with the adjacent concrete. Glue and screws to install panels will not be allowed.
7. Coordinate placement of concrete for brick pavers, blue stone or Belgian pavers and drain holes with concrete sidewalks.
8. Coordinate with Section 01570 for maintaining access to properties.
9. Refer to Section 03301 for curing concrete in adverse hot or cold weather conditions.

3.04 CONCRETE CURBING

- A. Place and compact gravel borrow Type "B" to 95-percent compaction.
- B. Form concrete and align with existing curbing. Concrete curbing shall be a minimum of 18-in in depth and 6-in in width at the top and 7-in in width at the base.
- C. Reinforce with two No. 4 bars.
- D. All concrete to adequately set prior to removing forms.

3.05 STRIPPING AND FINISHING CONCRETE

- A. Do not remove forms before the concrete has attained a strength of at least 30 percent of the specified design strength not before reaching approximately 100 day degrees of moist curing (whichever is the longer). Degree days are defined as the total number of 24 hour periods

multiplied by the weighted average daily air temperature at the surface of the concrete (e.g., y days at an average of 50 degrees F = 350 degree-days).

- B. Exercise care to prevent damaging edges or obliterating the lines of chamfers, rustications or corners when removing the forms or doing any other work adjacent thereto.
- C. Sidewalk panels, ADA access ramps, or driveway that are otherwise broken, defective or non-ADA/AAB conforming shall be replaced at no additional cost to the Owner.

END OF SECTION

SECTION 02520
CURBING

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, material, equipment and incidentals required to install and reset granite curbing as shown on the Contract Drawings and as directed by the Engineer.

1.02 RELATED WORK

- A. Trenching, Backfilling and Compaction is included in Section 02221.
- B. Pavement Repair and Resurfacing is included in Section 02576.
- C. Brick, Bluestone and Cobblestone Paving is included in Section 02580.

1.03 REFERENCE SPECIFICATIONS

- A. Except as otherwise specified herein, the current Massachusetts Department of Transportation, Highway Division, Standard Specifications for Highways and Bridges (MSSHB) including all addenda shall apply to materials and workmanship required for the work of this Section. See Sections 501 and 580 of the MSSHB for curbs.

1.04 SUBMITTALS

- A. Location of Quarry (must be MassDOT approved), color, texture and finish shall be within the range of samples approved by the Engineer and shall be Shop Drawing submittals.

PART 2 PRODUCTS

- A. Vertical granite curb shall be 6" curbing Type VA-4 as specified in the MSSHB, Section M.9.04.0 and M.9.04.1.
- B. Curbing shall be light gray in color similar to Williams Stone of East Otis Massachusetts (www.williamsstone.com) – Williams Blue Sky or approved equal.

PART 3 EXECUTION

3.01 GENERAL

- A. The Contractor shall adhere to Sections 501 and 580 of the MSSHB.
- B. Installation shall be in accordance with Detail 106.3.0 of the MSSHB. In addition, concrete shall also be placed behind the curbing for additional support in areas where curb does not directly abut concrete sidewalk or wheelchair ramp (i.e. grass strips and tree wells).
- C. Transition curb for curb ramps and driveways or for varying the curb reveal shall be as specified in MSSHB Section 501.68.

END OF SECTION

SECTION 02576
PAVING, PAVEMENT REPAIR AND RESURFACING

PART 1 GENERAL

1.00 GENERAL

- A. Furnish all labor, materials, equipment, and incidentals required and replace all pavement removed over trenches or otherwise disturbed by the Contractor's operations and provide new pavement where shown on the Drawings, where directed by the Engineer, or specified herein.
- B. Hot mix asphalt (HMA) depths and typical cross sections are shown on the Drawings, will be provided to the Contractor and/or are specified herein. HMA pavement shall be comprised of mineral aggregate, reclaimed asphalt pavement (RAP), asphalt binder material, and an anti-strip additive (if required) that are mixed in a central mixing plant and then placing the mix on a prepared course in accordance with these specifications and conforming to the lines, grades and typical cross sections shown on the Drawings.
- C. Streets, driveways, parking areas, or sidewalk pavements damaged or disturbed by the Contractor's operations shall be repaired, replaced, or restored in accordance with the requirements specified herein and as directed for the respective type of pavement replacement and in a manner satisfactory to the Owner.
- D. Contractor shall contact the City of New Bedford Department of Public Infrastructure to arrange for an inspection at least one full day in advance of placing the HMA. Patch paving shall be repaired and rolled flush with the surface of the existing pavement. No "feathering" overlap of paving will be allowed.
- E. Contractor may elect to have their pavement repairs completed by a secondary or sub-paving contractor (who must also be bonded and approved by DOT per Chapter 90 requirements), but the Contractor initially cutting the pavement shall nevertheless remain responsible for the completion of the pavement repairs within the time period specified herein.
- F. Between November 15 and April 1, street paving cuts will be allowed for the installation of new water, sewer, and drain lines. If no HMA is available from an asphalt plant, Contractor will be required to backfill the trench as specified and place Portland cement concrete in the place of pavement to the specified depth for pavement within City Streets. Portland cement concrete shall remain in place until such time as HMA is available for installation at which time Contractor shall remove the Portland cement concrete and install HMA as specified.
- G. The Engineer and Contractor will jointly develop a Traffic Management Plan prior to starting roadway work as specified in Section 01570.
- H. All pavement thicknesses referred to herein are compacted thicknesses. The Contractor shall place sufficient material to ensure that the specified thickness of pavement results.

- I. Spot elevations and profiles shown on the Drawings are for quantity estimation purposes only. Prior to construction, the Engineer, for the convenience of the Contractor, shall establish survey control, stake proposed elevations for the purposes of grading and make all adjustments to final line and grade.
- J. Work under this Section shall conform to the relevant provisions of the Massachusetts Highway Standard Specifications for Highways and Bridges (MSSHBS), including all addenda, issued by the Commonwealth of Massachusetts, Department of Transportation including Section 415 – Pavement Milling, Section 450 – Hot Mix Asphalt Pavement, Section 460 – Hot Mix Asphalt Pavement for Local Streets, Section 470 – Class I Bituminous Concrete Berms, Section 472 – Temporary Asphalt Patching, Section 482 – Sawcutting and Section M3 included therein by reference.

1.01 SCOPE OF WORK

- A. Furnish all labor, material, equipment and incidentals required to install initial and final HMA to the line and grade shown on the Drawings or as specified by the Engineer.
- B. Furnish all labor, materials, equipment and incidentals required to mill or micro-mill existing HMA surfaces as shown on the Drawings or specified by the Engineer.
- C. Furnish all labor, materials, equipment and incidentals required to reclaim pavement for use as base course as shown on the Drawings.
- D. Furnish all labor, materials, equipment and incidentals required to place pavement on milled pavement surfaces.
- E. Furnish all labor, materials, equipment and incidentals required to place subbase material in areas where existing roadway section is to be repaired to full depth.
- F. Furnish all labor, materials, equipment and incidentals required to blend crushed stone with reclaimed pavement material where required to conform to material specifications.
- G. Furnish all labor, materials, equipment and incidentals required to complete permanent pavement patch repairs.
- H. Furnish all labor, materials, equipment and incidentals required to install HMA sidewalks and driveway aprons.
- I. Furnish all labor, material, equipment and incidentals required to place leveling course as shown on the Drawings and as directed by the Engineer.
- J. Furnish all labor, materials, equipment and incidentals required to conduct infra-red pavement repairs.
- K. Furnish all labor, materials, equipment and incidentals required to install HMA berm.
- L. Furnish all labor, materials, equipment and incidentals required to install HMA warm mix thin overlay as specified herein and shown on the Drawings.

1.02 RELATED WORK

- A. Dust Control is included in Section 01562.
- B. Traffic Regulation and Pedestrian Access is included in Section 01570.
- C. Trimming edges of existing pavement is included in Section 01005.
- D. Curbing is specified in Section 02520.
- E. Pavement markings is included in Section 02581.

1.03 SUBMITTALS

- A. Crushed stone for blending with the reclaimed pavement for base course documenting that it meets the required gradation and origin of materials.
- B. Reclaimed pavement borrow material gradation and proctor values.
- C. A minimum of 14 days prior to the proposed start of reclamation work, submit a description of equipment and the construction methods to be used for scarifying and pulverizing the existing pavement. The Contractor will be required to demonstrate to the Engineer the ability of the work crew and equipment to produce reclaimed material conforming the specification at a rate of production consistent with the time allowed under the Contract.
- D. Job Mix Formula (JMF): No HMA shall be produced until a JMF has been submitted by the Contractor and reviewed by the Owner's representative. The HMA shall be designed in accordance with the volumetric mixture design specifications contained in AASHTO M 323 and procedures contained in AASHTO R 35, as modified therein, and shall meet the requirements of Table 3 and Table 4 and to the relevant provisions of MassDOT Section 450.
- B. JMF Submittal: The job mix formula shall be submitted in writing by the Contractor at least 30 days prior to the start of paving operations and shall include as a minimum:
 - 1. Percent passing each sieve size.
 - 2. Gradation and percent of each individual aggregate or mineral filler, including source, location, and bulk specific gravity.
 - 3. Percent of asphalt binder.
 - 4. Performance graded asphalt binder certified test results and Material Certificate certifying the PG grade, including source and location.
 - 5. Mixing temperature.
 - 6. Compaction temperature
 - 7. Temperature of mix when discharged from the mixer.
 - 8. Plot of the combined gradation on the Federal Highway Administration (FHWA) 0.45 power gradation curve.
 - 9. Percent natural sand.
 - 10. Percent fractured faces.
 - 11. Percent elongated particles.
 - 12. Tensile Strength Ratio (TSR)
 - 13. Anti-strip agent (anti-stripping additive) – type, quantity, supplier and location.

14. Sand equivalent value.
 15. Sulfate soundness loss.
 16. Individual and combined aggregate specific gravity.
 17. Dust to effective asphalt ratio.
 18. Graphical plot of air voids, voids in mineral aggregate (VMA), and voids filled with asphalt (VFA) versus asphalt content. The Superpave mixes shall also show density at Ninitial, density at Ndesign, and density at Nmaximum versus asphalt content.
- C. Performance Graded Asphalt Binder Material: The certification(s) shall show the appropriate AASHTO and/or ASTM test(s) for each material, the test results, and a statement that the material meets the specification requirement.
- D. Asphalt Anti-Stripping Additive: This specification provides for an additive to asphalt to assist in the coating of wet aggregate and to increase the resistance of the asphalt binder coating to stripping in the presence of water. The additive shall be chemically inert to asphalt (heat stable) and when blended with asphalt shall withstand storage at a temperature of 400°F. for extended periods without loss of effectiveness.
1. Composition: Anti stripping compound shall be an organic chemical compound, free from inorganic mineral salts or inorganic mineral soaps. It shall contain no ingredient harmful to the binder material or to the operator, and shall not appreciably alter the specified characteristics of the binder material.
 2. Anti stripping additive shall be incorporated and thoroughly dispersed in the asphalt binder material in an amount equal to the percent by weight established by the job mix formula. This percent is based on the efficiency of the additive as determined by laboratory tests. The treated composite mixture shall have a minimum tensile strength ratio (TSR) of not less than 80, when tested in accordance with AASHTO T283 with the freeze/thaw cycle. The specimens for the AASHTO procedure shall be 4" (100mm) in diameter, compacted the Superpave gyratory compactor to the desired air void level of 7.0 + 1.0%. If the TSR ratio is less than 80, the aggregates shall be treated with an approved antistrip in sufficient quantity to produce acceptable results. The hot mix asphalt materials and asphalt binder material that require antistrip additives (either liquid or mineral) shall continue to meet all requirements specified therein for binder and HMA. The anti-strip agent shall be included in the bid price.
- E. Testing Laboratory: The laboratory used to develop the JMF shall meet the requirements of ASTM D3666. A certification signed by the manager of the laboratory stating that it meets these requirements shall be submitted with the JMF.
- F. Certified Test Reports: Submit certified test report(s) signed by the material producer and Contractor certifying that materials comply with, or exceed, the requirements therein. Owner reserves the right to employ an independent testing laboratory for testing materials included in the JMF, and Contractor shall, upon request of Owner, supply suitable quantities of these materials for such testing.
- G. Quality Control (QC) plan as outlined in Section 460 of the MSSHB.

1.04 REFERENCE STANDARDS

- A. Except as otherwise specified herein, the current Standard Specifications for Highways and Bridges, including all addenda, issued by the Commonwealth of Massachusetts, Department of Transportation (MSSH), shall apply to materials and workmanship required for the work of this Section.
- B. American Association of State Highways and Transportation Officials (AASHTO) Standard Specifications for Transportation Materials and Methods of Sampling and Testing.
- C. ASTM International (ASTM)
- D. Asphalt Institute (AI).
- E. U.S. Department of Transportation Federal Highway Administration (FHWA).
- F. NorthEast Transportation Training and Certification Program (NETTCP)
- G. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

- A. The Contractor shall also be capable of providing multiple crews as needed to complete the work without undue delay and shall begin work within 48-hours from authorized notice to proceed.
- B. The Owner reserves the right to approve or disapprove the paving Contractor, based on the submitted qualifications and a follow up interview. The work within this Contract is funded, in part, by "Chapter 90" funds. The MassDOT prequalifies contractors for horizontal construction in accordance with Massachusetts General Law Chapter 81, Section 8B and 700 CMR 14.00. All municipal "Chapter 90" projects are subject to the requirements of Massachusetts General Law Chapter 6C; Section 4(b) whereby each prospective bidder proposing to bid on any work (with an estimated construction value of \$50,000 or more) to be awarded by a municipality must be prequalified by MassDOT prior to bidding. Regardless of the funding source, once a project requiring MassDOT prequalification's is advertised for Bids, only Contractors that appear on the eligible approved prequalified bidders list for the Class of Work chosen by MassDOT and for the Total Project Value (inclusive of any cost associated with alternates and extensions) may submit a Bid. Because the City of New Bedford is proposing two (2) additional 12-month extensions, the valuation for the purposes of MassDOT prequalification is based on the Contract Value times three (3) at the estimated total prequalification contract value. Contractors who are NOT prequalified to provide the services listed for the Total Prequalification Contract Value, but meet the single year waiver threshold, without documented poor performance issues, and want to bid, should submit a waiver request at least two (2) weeks prior to the opening of Bids to allow for time to appeal in the event the waiver is not granted. The estimated value in this Invitation to Bid is for one year. Vendors are expected to be able to provide their services for three (3) years at three (3) times the initial estimated value.
- C. The Owner reserves the right to perform inspections and testing at the plant and in the field at any time during the execution of the work.

- D. The infra-red bituminous concrete pavement replacement and repairs shall be performed by a fully qualified, experienced paving subcontractor. Submit the following information for the proposed paving subcontractor to the Engineer for review and approval before any infra-red repair work is performed:
1. The number of years of experience in performing specialized work of this nature.
 2. A list of municipal clients that the Contractor has performed this type of work for without any pavement deterioration resulting from heat treatment for a period of 5 years after repair.
 - a. The list shall contain names and telephone numbers of persons who can be called to verify previous satisfactory performance.
 - b. Work performed for utility companies will not be acceptable.
 3. The size, number, type and BTU rating of the operational infra-red heating equipment and heated storage units owned that would be available for this project.
 - a. The Contractor shall be capable of providing a variety of infra-red units having different shield sizes in order not to needlessly oxidize pavement beyond the limits of the repair.
 4. Contractor shall supply an approved dial type thermometer with a temperature range of 50 degrees to 500 degrees and an infra-red pistol thermometer for each paving machine in operation of the project. The infra-red pistol thermometer shall be Fahrenheit or Celsius selectable and conform to the following requirements:
 - a. Portable and battery operated
 - b. Repeatability to +/- 5 degrees F
 - c. LCD display to nearest 1 degree
 - d. Accuracy of +/- 2 percent
 - e. Emissivity preset at 0.95
 - f. Temperature operating range of 0 degrees F to 750 degrees F
 - g. The thermometers shall remain the property of the Contractor upon completion of the project.

1.06 QUALITY CONTROL

- A. The Owner shall engage the services of a qualified independent testing agency to perform quality-control testing in the field. All work shall conform to the relevant provisions. Engineer will forward results to Contractor. Any deficiencies identified shall be corrected at no additional cost to the Owner.

1. Pavement thickness cores – conduct thickness cores within the project area to verify the required thickness of pavement.
2. Pavement compaction tests – conduct compaction tests in accordance with AASHTO standards.
3. Coordinate collection of pavement cores with requirements for pavement compaction testing.

B. Job Mix Formulae – SUPERPAVE HMA pavement

1. The composition limits specified in Section 450 and Section M3 (Table M2.21 for Bituminous Concrete Berm) are master ranges of tolerances of materials in general. In order to obtain standard texture, density, and stability, furnish to the Engineer for approval a specific job mix formula for the particular uniform combination of materials and sources of supply to be used on each project. Establish the job mix formula in accordance with the requirements of the Massachusetts Department of Transportation (MassDOT) Standard Specifications Section M3.
2. Should a change of sources of materials be made, furnish a new job mix formula for approval before using the new material.
3. Two or more job mix formulae may be approved for a particular plant. If the Contractor elects to furnish bituminous concrete from more than one plant, the job mix formulae shall be adhered to by all plants.
4. When unsatisfactory results or other conditions make it necessary, the Engineer may establish new job mix formulae.

C. Methods of Sampling and Testing – All work shall conform to the relevant provisions of Section 450 and 460 and the requirements contained therein.

D. Composition and Compaction Acceptance Tests – All work shall conform to the relevant provisions of Section 450 therein with the following exceptions:

1. There will be no disincentive value applied to sublots that are not within the Specification Limits. Sublots outside of the Engineering Limits are still subject to rejection at the discretion of the Engineer.

E. If all HMA lots fall under Category E as defined in the MSSHB, then a QC plan is not required. However, if any lots on the project fall under Category D as defined in the MSSHB, then any Category E lots must be addressed in the QC plan. If a QC plan is not required, it is still the responsibility of the Contractor to provide to the Engineer any information that is designated as “Per QC Plan” as found in this specification or as may be required by the Engineer.

1.07 GUARANTEE

- A. All permanent pavement placed shall be maintained by the Contractor for a period of 3 years upon final acceptance of the work. During this period, all areas that have settled or are

unsatisfactory for traffic shall be refilled and replaced within 30 days of notification by the Owner, to the satisfaction of the Owner, and at no additional cost to the Owner.

1.08 WEATHER LIMITATIONS

- A. HMA shall not be placed when weather conditions of fog or rain prevail or when the pavement surface or base shows signs of free moisture (film of water) or when surface temperature is less than 40°F measured in the shade. HMA shall only be placed on dry, unfrozen surfaces and only when the temperature requirements contained in table 450.4 of the MSSHB are met. If the temperature requirements are not met at any point throughout the paving shift, HMA placement shall cease, except as determined and directed in writing by the Authority depending upon the necessity and emergency of attendant conditions, and weather conditions.

1.09 COORDINATION

- A. The contractor shall coordinate paving with Owner, especially underground utility construction, to prevent covering up unfinished or uninspected work and loss of time or labor by improper scheduling. Any repaving required shall be done at no cost to Owner.
- B. Refer to Section 00100 and Section 00800 on quantities of work and coordination required for this work.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Calcium chloride shall conform to AASHTO M144, Type I or Type II.
- B. Reclaimed pavement borrow material shall be as specified in Section 02230.
- C. Crushed stone for blending with reclaimed materials shall be as specified in in Section 02230.
- D. Aggregate
 - 1. Aggregate shall consist of crushed stone, with or without sand or other inert finely divided mineral aggregate. The portion of the materials retained on the #4 sieve (4.75 mm) shall be known as coarse aggregate, the portion passing the #4 sieve (4.75 mm) and being retained by the #200 sieve (0.075 μm) as fine aggregate, and the portion passing the #200 sieve (0.075 μm) as mineral filler.
 - 2. Course Aggregate
 - a. Coarse aggregate shall consist of sound, tough, durable particles, free from adherent coatings of clay, organic matter, and other deleterious substances. It shall show no more wear than thirty (30) percent loss when tested in accordance with AASHTO - T96, nor shall the sodium sulfate soundness loss exceed nine (9) percent, or the magnesium soundness loss exceed twelve (12) percent, after five cycles, when tested in accordance with AASHTO T104.

- b. The coarse aggregate shall not contain more than ten (10) percent, by weight, of flat or elongated pieces, when tested in accordance with ASTM D4791 at a ratio stated within the standard specifications, or in lieu of, 3:1. A flat particle is one having a ratio of width to thickness greater than the stated ratio; an elongated particle one having a ratio of length to width greater than the stated ratio. An aggregate particle whose maximum length is the stated ratio times its maximum thickness is considered flat and elongated.
- c. For design ESALs less than 3 million, the coarse aggregate shall contain a minimum of 75% by weight having at least one or more fractured faces, when tested in accordance with ASTM D5821. For design ESALs greater than or equal to 3 million, the coarse aggregate shall contain a minimum of 90% by weight having at least two or more fractured faces and 95% by weight having at least one fractured face, when tested in accordance with ASTM D5821. When two fractured faces are continuous, the angle between the planes of fracture shall be at least 30 degrees to count as two fractured faces.

3. Fine Aggregate

- a. Fine aggregate shall consist of clean, sound, durable, angular particles produced by crushing natural stone, or gravel that meets the requirements for wear and soundness specified for the coarse aggregate. The aggregate particles shall be free from coatings of clay, silt, or other objectionable matter and shall contain no clay balls. The fine aggregate, including any blended material for the fine aggregate, shall have a plasticity index of not more than 6 and a liquid limit of not more than 25 when tested in accordance with AASHTO T 89 and T 90.
- b. Fine aggregates shall have sand equivalent values of 40 or greater when tested in accordance with AASHTO T 176. The sand equivalent value shall be determined for the combined mix aggregates, including coarse and fine aggregates and mineral filler portions.
- c. In the fine aggregate sieve analysis passing #4 (4.75mm), the amount between two successive sieves #16, #30, #50, and #100 shall not exceed 33% of the fine aggregate total.
- d. The aggregate shall have a fine aggregate angularity value of 40% or greater when tested in accordance with AASHTO T304, Method A. The uncompacted void content shall be evaluated for the combined mix aggregates including both coarse and fine aggregate portions.
- e. Mineral Filler: If filler, in addition to that naturally present in the aggregate, is necessary, it shall meet the requirements of AASHTO M 17.

4. Mineral Filler

- a. If filler, in addition to that naturally present in the aggregate, is necessary, it shall meet the requirements of AASHTO M 17.

E. Recycled Asphalt Pavement (RAP)

1. The use of a maximum of 15% recycled asphalt pavement (RAP) will be allowed in the HMA surface courses. All other HMA mixtures may contain a maximum of 25% RAP by mass of the entire mixture.
2. The RAP, incorporated into the HMA mixtures, shall be maintained as a separate captive stockpile and shall not be added to without prior approval. RAP shall consist of asphalt pavement recovered by cold milling or other removal techniques. The RAP shall be crushed so that 100 percent passes the 3/4 inch sieve, or a smaller size depending on the mixture being produced. The Contractor shall assure that the RAP is free from contaminating substances such as joint seal compound.
3. The coarse aggregate in the RAP shall be crushed stone and the top-size shall not exceed the maximum aggregate size established by the JMF. The final HMA mixture containing RAP shall conform to all the specification requirements contained therein.
4. For mixtures containing 5% or less RAP, the asphalt binder shall be a PG 64-28. For mixtures containing greater than 25% and up to 40% RAP, the asphalt binder grade shall be as determined per AASHTO M323. The Contractor shall not use any RAP stockpile that has not been tested in this manner. All proposed RAP stockpile changes shall be submitted to the Engineer in writing and shall be retested for gradation and binder aging. The mixture shall then have the binder grade determined again per AASHTO M323.
5. For design purposes, the specific gravity of the combined aggregate blend with RAP used in an HMA mixture shall be determined in accordance with the test method for BULK SPECIFIC GRAVITY OF AGGREGATE BLENDS WITH RAP.

F. Asphalt Binder Material

1. The types, grades, controlling specifications, and maximum mixing temperatures for the asphalt binder materials shall conform to the following:
 - a. The PGAB Grade selected for this Contract is PG 64-28. If traffic speed and/or level warrant, the "P" designation of the relevant SUPERPAVE item may be selected by the Engineer which specifies 64E-28 PGAB.
 - b. The blending at the HMA plants of PG binder from different suppliers is strictly prohibited. Contractors may switch to another approved source of PG binder, upon written notification to the Owner, and by certifying that the tank to be utilized has been drained to an un-pumpable condition. The tank shall not retain more than 0.5% in volume capacity of previous residue source. Contractors who blend PG binders will be reclassified as a supplier and required to certify the binder in accordance with AASHTO MP1 and AASHTO PP-26. Also, if any modifications, blending, or addition of additives occurs, the Contractor shall re-certify the material in accordance with AASHTO MP1 and AASHTO PP-26.
2. No cutback asphalts will be permitted.
3. Bituminous Emulsions
 - a. Asphaltic Emulsions: AASHTO M140, grade as indicated. Use grade RS-1h for prime coat or tack coat.

- b. Cationic Emulsified Asphalt: AASHTO M208, grade as indicated.
- c. Clay-Type Asphalt Emulsion: A mineral colloid type of asphalt emulsion containing no chemical emulsifiers and meeting the following requirements:
 - 1) Percent water, per AASHTO T59: 40 to 55
 - 2) Percent residue by evaporation, per AASHTO T59: 45 to 60
 - 3) Percent ash in residue, per ASTM D1010: 5 to 15
 - 4) Curing time, per Massachusetts DOT standard test procedures: firm set in 48 hours maximum
 - 5) Resistance to water, per Massachusetts DOT standard test procedures: no re-emulsification.
- d. Protective Seal Coat Emulsion: a homogeneous emulsion consisting of coat tar pitch dispersed in water by means of a mineral colloid, containing no asphaltic materials or chemical emulsifiers; capable of overcoming any separation or coagulation of its components by moderate stirring; meeting the following requirements:
 - 1) Percent Water, per AASHTO T59: 50 maximum
 - 2) Percent non-volatile matter, per ASTM D1010: 48 minimum
 - 3) Percent ash in non-volatile matter, per ASTM D1010: 20 to 45
 - 4) Percent solubility on non-volatile matter in carbon disulfide: 40 minimum
 - 5) Resistance to water, per ASTM D466: no blistering, loss of adhesion, or re-emulsification
 - 6) Resistance to petroleum solvents, per ASTM D466 with solvents substituted for water: no penetration nor loss of adhesion.

G. Asphalt Anti-Stripping Additive

- 1. General: An additive to asphalt to assist in the coating of wet aggregate and to increase the resistance of the bituminous coating to stripping in the presence of water; shall be chemically inert to asphalt (heat stable) and when blended with asphalt shall withstand storage at a temperature of 400 degrees F for extended periods without loss of effectiveness.
- 2. Composition: An organic chemical compound free from inorganic mineral salts or inorganic mineral soaps, containing no ingredient harmful to the bituminous material or to the operator, and not appreciably altering the specified characteristics of the bituminous material; chemically inert to asphalt.
- 3. Heat Stability: The compound shall retain its effectiveness after heating in asphalt according to the prescribed method for 24 hours at 350°F.
- 4. Resistance to Stripping. Treated Bitumen shall coat wet aggregate and shall retain at least 90 percent of the coating after 24 hours of static immersion. There shall be no loss of the retained coating after the immersion has been extended to one week.

H. Superpave HMA Pavement Mixes shall conform to the relevant provisions of Section 460 and Section M3 of the MSSHB and the following:

- 1. Construction of Superpave HMA Pavement on prepared subgrade or aggregate subbase or base course to the lines, grades, compacted thickness, and cross sections indicated by the

Engineer and below. Work under SUPERPAVE Items shall conform to the relevant provisions of MassDOT Section 460, Section 472 and Section M3 Superpave requirements and the following:

- a. The Equivalent Single Axle Loads (ESALs) for Shared Use Paths, Sidewalks, Driveways, and Small Parking Lots over a 20-year period, is <0.3 Million 18-kip (80-kn) ESALs.
 - b. The Equivalent Single Axle Loads (ESALs) for Large Parking Lots and Local Roads, over a 20- year period, are estimated to be between 0.30 and <3.0 Million 18-kip (80-kn) ESALs.
 - c. The Equivalent Single Axle Loads (ESALs) for the design travel lane of Local Roads over a 20- year period are estimated to be between 3.0 and <10 Million 18-kip (80-kn) ESALs.
 - d. The Equivalent Single Axle Loads (ESALs) for the design travel lane of Arterials and Collectors over a 20-year period are estimated to be between 10 and <30 Million 18-kip (80-kn) ESALs.
 - e. Any pavement section anticipated to receive consistent bus or truck traffic shall be a minimum of a traffic level 3 design (3.0 to <10 Million 18-kip (80-kn) ESALs.
 - f. If the traffic volume or functional classification is unknown or in disagreement, the ESALs shall be determined by the Owner.
2. Functional Classifications, as described above, shall be obtained from the MassDOT road inventory map, as applicable:
<http://services.massdot.state.ma.us/maptemplate/roadinventory/>
 3. The PGAB Grades selected for this Contract are PG 64-28 for design travel lanes less than 3 million ESALs and PG 64E-28 for all design travel lanes with greater than 3 million ESALs and as directed by the Engineer.
 4. The following summarizes the proposed mix intended to be used under this Contract:
 - a. Temporary trench pavement shall be Superpave Intermediate Course 12.5 (SIC 12.5).
 - b. Permanent trench pavement shall consist of Superpave Intermediate Course 19.0 (SIC 19.0) and Superpave Surface Course 12.5 (SSC 12.5).
 - c. Full width pavement in areas designated to be milled and overlaid shall consist of Superpave Surface Course 12.5 (SSC 12.5).
 - d. Full width pavement on roadways designated to be reconstructed or reclaimed shall consist of Superpave Intermediate Course 19.0 (SIC 19.0) and Superpave Surface Course 12.5 (SSC 12.5).
 - e. HMA sidewalks and driveways shall consist of Superpave Intermediate Course 12.5 (SIC 12.5) and Superpave Surface Course 9.5 (SSC 9.5).

- f. Level course shall consist of Superpave Leveling Course 4.75 (SLC 4.75)
- I. Placement of small quantities of HMA shall be as specified in Section 472 of the MSSHB.
- J. Pavement markings shall be as specified in in Section 02581.
- K. Tack Coat shall be specified in M3.03.
- L. Concrete used for temporary trenches during shutdown of asphalt plants shall be Type II – 4,000 psi as specified in Section 03301.
- M. Warm Mix Asphalt (WMA) Pavement
 - 1. All Superpave HMA Mixture shall be modified using a WMA additive capable of lowering plant production temperatures to below 260°F. Warm Mix Asphalt additives reduce compaction effort and permit lower production temperatures than conventional hot mix asphalt. The WMA additive shall be a product listed on the Northeast Asphalt User Producer Group (NEAUPG) website (<http://www.superpave.psu.edu/NEAUPG.html>), except that no WMA foaming technology will be permitted which requires the mechanical injection of steam or water into the liquid asphalt.
 - 2. The WMA additive must be compatible with polyphosphoric acid modified binders, polymer modified binders, and the HMA producer’s HMA anti-stripping agents. The WMA additive shall be introduced in accordance with the Manufacturer’s dosing rates and approved blending methods. The WMA additive Manufacturer shall have an on-site representative at the beginning of paving operations. The Manufacturer’s representative shall be available for additional consultation during the remaining Warm Mix production.
 - 3. All work done under this Item shall conform to the relevant provisions of Section 460 of the MSSHB. The WMA mixture design shall incorporate the requirements AASHTO R35 X2: Special Mix Design Considerations and Practices for Warm Mix Asphalt (WMA) In addition to the provisions of Sections 460, laboratory prepared samples that have been manufactured at specified temperatures with and without the WMA additive shall be submitted to Owner at least 45 days prior to placement for testing. These samples shall be subject to Hamburg Wheel testing for moisture damage and rutting for verification that the WMA is at least equal in performance to the HMA. Preparation of these samples shall be coordinated with the Owner.

PART 3 EXECUTION

3.01 GENERAL

- A. Materials for pavement shall be mixed, delivered, placed and compacted in accordance with Division III, Section M3.0 and Division II Section 400 Sub-base, Base Course, Shoulders, Pavements, and Berms of the MSSHB, and as specified herein.
- B. Existing surfaces shall be cleaned of foreign matter and loose material and shall be dry before tack coat is placed.

- C. Whenever sub-base becomes dry enough to cause dust problems, spread calcium chloride uniformly over the gravel surface in sufficient quantity to eliminate the dust as specified in Section 01562. Do not use calcium chloride in areas to be loamed and seeded as it will hinder the growth of grass; use other means of dust control as specified in Section 01562.
- D. When the air temperature falls below 50 degrees F, extra precautions shall be taken in drying the aggregates, controlling the temperatures of the materials and placing and compacting the mixtures.
- E. No mixtures shall be placed when the air temperature is below 40 degrees F, nor when the material on which the mixtures are to be placed contains frost or has a surface temperature not suitable to the Engineer.
- F. No pavement mixture shall be placed unless the breakdown and intermediate rolling can be completed by the time the material has cooled to 175 degrees F (75 degrees C), extra precautions shall be taken in drying the aggregates, controlling the temperatures of the materials, placing and compacting the mixtures.
- G. No mixture shall be placed on wet or damp surfaces. When placed on CLSM, CLSM shall be completely set.
- H. 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.
- I. All raised structures (frames and covers, gate valve boxes, etc.) within the project area as well as any saw cut pavement edges shall be spray painted safety orange to notify traffic and pedestrians of the raised structure. Contractor shall be required to check and ensure that the raised structures are painted safety orange until final pavement is complete.
- J. The binder course for permanent paving shall be placed as soon as possible after the gravel subbase has been prepared, shaped and compacted.
- K. The binder course shall be placed and compacted by steel-wheeled rollers of sufficient weight to thoroughly compact the bituminous concrete. Where necessary, the new pavement shall be rolled smooth and even with the existing pavement. Use of hand tampers to compact pavement will not be allowed. Hand vibratory compactors may be used in isolated areas at the permission of the Engineer.
- L. All manhole frames and utility boxes are to be set to the grade of the wearing course. At no time shall the manhole frames be allowed to protrude above the surface of the wearing course.
- M. The contact surfaces of curbing, castings and other structures shall be painted with a tack coat, just before any mixture is placed on them.
- N. After the final paving mixture has been properly spread, initial and intermediate compaction shall be obtained by the use of power steel wheeled rollers weighing not less than 240 lbs/in width of tread.

- O. Final compaction of the surface shall be accomplished by rollers weighing not less than 285 lbs/in width of tread. Along curbs, structures and all places not accessible with a roller, the mixture shall be thoroughly compacted with tampers. Only tampers of sufficient size and weight that are capable of producing sufficient dynamic force to compact the proposed thickness of asphalt to 95% maximum density shall be used. The surface of the mixture after final compaction shall be smooth and true to the established grade. Tampers shall only be used at the permission of the Engineer.
- P. Paving of streets shall match the limits of work with straight seams cut perpendicular to the curb line as shown on the Drawings or directed by the Engineer.
- Q. Damaged pavement beyond the limit of work shall be repaired at the Contractor's expense, unless previously authorized in writing by the Owner and Engineer.
- R. Placement of gravel borrow or reclaimed pavement base course associated with the full depth repair of sections of roadway shall be specified in the MSSHB Section 401 – Gravel Sub-Base.
- S. Contractor shall ensure that when paving through an intersection, that the depth of pavement within the intersection will match the cross street pavement depth if that depth is greater than or equal to the roadway under reconstruction or primary road being paved.
- T. The Owner reserves the right to reject any mixture deemed inappropriate for use at the time of delivery. Any mixture rejected shall be immediately removed from the project site and new mix provided at no additional cost to the Owner.

3.02 PLANT REQUIREMENTS

- A. The plant used in the production of bituminous concrete shall comply with AASHTO M156, subject to the following additional requirements.
- B. Plant Scales:
 1. Scales for measuring materials into the mixtures shall be springless dial type and shall be of standard make and design. Scale graduations and markings shall be plainly visible, and dials shall be so located as to be easily readable from the operator's normal work station by direct sight or through repeating dials. Parallax effects shall be reduced to the practical minimum with clearance between indicator index and scale graduations not exceeding 0.06 inch. Dials shall be equipped with a full complement of adjustable index pointers for marking the required weight of each material to be weighed into the batch.
 2. Digital scales will be either electric/mechanical (load cell and lever system) or fully electronic (all load cell). Digital indicators shall be of standard make and design. Scale graduations and capacity shall be plainly visible on the faceplate of the indicator, if panel mounted. If the unit is of desktop or wall-mount variety, a data sticker shall be located on the side of the unit. Indicators must be located as to be easily readable from the operator's normal workstation by sight.
 3. Bitumen scales shall be accurate to 0.05 percent, have minimum graduations not greater than 0.025 percent, and shall be readable and sensitive to 0.0125 percent or less. Scales for any weigh box or hopper shall be accurate to 0.5 percent, have minimum graduations not

greater than 0.5 percent and shall be readable and sensitive to 0.25 percent or less. The preceding percentages for both bitumen and aggregate scales are based on the maximum total batch weight of the mixtures.

C. Testing of Scales

1. All plant scales, including truck scales, shall be tested at the expense of the Contractor by a competent scale technician as follows:
 - a. Annually prior to use in Owner work.
 - b. At intervals of not more than 90 calendar days.
 - c. Any time ordered by the Engineer.
2. A cradle or platform approved by the Engineer for each scale and at least ten standard fifty-pound test weights shall be provided for testing scales whenever directed by the Engineer. The use of a set of test weights for two or more plants will be permitted only when they can be made readily available with no more than an hour's notice.

D. Automated Batching

1. Automatic proportioning: Batch type mixing plants shall be equipped with approved automatic proportioning devices. Such devices shall include equipment for accurately proportioning batches containing the various components of the mixture by weight in the proper sequence and for controlling the sequence and timing of mixing operations. Interlocks shall be provided which will hold or delay the automatic batch cycling whenever the batched quantity of any component is not within the specified weight tolerance, when any aggregate bin becomes empty or when there is a malfunction in any portion of the control system. The weight setting and time controls shall be so equipped that they may be locked when directed by the Engineer.
2. Automatic Recordation: Recordation equipment shall be provided. Each recorder shall include an automatic printer system. The printer shall be so positioned that the scale dial and the printer can be readily observed at one location by the plant inspector. Use of repeating dials or an additional printer to achieve this condition will be permitted. The printer shall print, in digital form, on a delivery ticket the following data:
 - a. Date mixed.
 - b. Time of batching.
 - c. Tare weight of aggregate weight box.
 - d. Tare weight of bitumen weight bucket.
 - e. Accumulative weights as batched for each bin (Total of last bin will be aggregate total).
 - f. Weight of bitumen.

- g. Total weight of mix in truck (Pay weight). This printed ticket shall be used in lieu of truck scale weights.
3. Equipment Failure: If at any time the automatic proportioning or recording system becomes inoperative, the plant will be allowed to batch materials manually for a period not in excess of two working days. Manual batching for longer periods will require written permission of the Engineer.
 4. Batching Controls:
 - a. The batching controls shall meet the following delivery tolerances with respect to the various components weighed in each batch:
 - 1) Tare Weight of Aggregate Weigh Box: + 0.5 percent of total batch weight.
 - 2) Tare Weight of Bitumen Weigh Bucket: + 0.1 percent of total batch weight.
 - 3) Individual Aggregate Components: + 1.0 percent of total batch weight.
 - 4) Combined Aggregate Components: + 1.5 percent of total batch weight.
 - 5) Mineral Filler: + 0.5 percent of total batch weight.
 - 6) Asphalt: + 0.1 percent of total batch weight.
 - b. The total weight of the batch shall not vary more than plus or minus 2 percent from the theoretical design weight.
 - c. If directed by the Engineer, provisions shall be made for locking controls against tampering.
- E. Plant Laboratory
1. A building shall be furnished at the site of the producing plant suitable for the housing and use of equipment necessary to carry on the various tests required and for recording and processing test results. This building shall be for the exclusive use of the Engineer or his representatives for testing and recording purposes.
 2. The building shall have a minimum floor area of 100 square feet; the least dimension to be 6 feet. Windows and doors shall be adequately screened; satisfactory lighting, heating and water shall be supplied. A table, chairs, desk and work bench shall be provided. Provision shall be made for the safe performance of extraction test determinations by providing an adequate exhaust fan and suitable means of disposing of used solvent and other waste.
 3. If the Engineer permits, the plant laboratory may be part of another building in which case it shall be entirely partitioned off from the remainder of such building.
 4. Testing equipment shall be furnished as follows and installed in the building for use in testing the materials and mixtures supplied by the Plant for the work:
 - a. One Approved Rotary Extractor.
 - b. One Coarse Aggregate Sieve Shaker, power driven with a minimum clear sieve area of 324 square inches. The shaker shall be attached to a firm anchorage.

- c. One each of the following square opening screens for coarse aggregate shaker: 2 inch, 1- 1/2 inch, 1 inch, 3/4 inch, 1/2 inch, 1/8 inch, No. 4 and No. 8.
 - d. One Fine Aggregate Sieve Shaker, power driven and independent of the coarse aggregate shaker, for eight inch minimum diameter sieves.
 - e. One each of the following standard eight inch minimum diameter square opening sieves: 3/4 inch, 1/2 inch, 3/8 inch, No. 4, No. 8, No. 16, No. 30, No. 50, No. 100, and No. 200, with pan and cover.
 - f. One Sample Splitter with a minimum capacity of one cubic foot. It shall be the clam shell type and the chute width shall be adjustable from a minimum of 1/2 inch up to 2 inches.
 - g. One Solution Balance, 20 kilogram capacity, weighing directly to 1 gram, with two weighing beams and a taring beam; tare capacity to be 2 kilograms; weighing beams to read 1000 grams by 100 gram divisions and 100 grams by 1 gram division. Additional matching weights (one 1 kg., two 2 kg., one 5 kg., and one 10 kg.) shall be provided to fulfill the capacity of 20 kilograms. The platform to be 11 inches in diameter.
 - h. One Approved Scale with a minimum capacity of 2000 grams and with a sensitivity of 0.50 grams.
 - i. Two Approved Dial Type Thermometers, range 50°F. to 500°F.
 - j. One Approved Hot Plate
5. Approval of a plant will be contingent upon approval of the aforementioned requirements for Plant Laboratory, including the building and appurtenances, furnishings, facilities including heat, light, power and water, the testing equipment, and any other incidentals.
6. The Owner from time to time may request use of Plant lab to conduct sampling and analysis of pavement mix designs. Cost of such time shall be considered incidental to the cost of the project.
- F. Sampling facilities: Adequate and convenient sampling facilities shall be provided to allow the Inspector to obtain representative samples from the full width and depth of the discharge area of each aggregate bin. The sampling tray shall be structurally supported during the sampling operation. Access to the sampling facilities shall be provided requiring no more difficulty than that to climb a ladder leading to a secure platform with railings.
- G. Inspection: The Engineer or his authorized representative shall have access at any time to all parts of the plant for:
- 1. Inspections of the conditions and operations of the plant.
 - 2. Confirmation of the adequacy of the equipment in use.
 - 3. Verification of the character and proportions of the mixture.
 - 4. Determination of temperatures being maintained in the preparation of the mixtures.
 - 5. Inspection of incidental related procedures.

- H. All work under Superpave HMA Pavement items shall conform to the relevant provisions of the MSSHB including Section 450 - Hot Mix Asphalt Pavement and Section 460 – Hot Mix Asphalt Pavement for Local Streets included therein by reference.

3.03 PREPARATION OF MIXTURES

- A. Preparation of Asphalt Cement: Place bituminous materials in the mixer at a temperature between 275°F and 375°F, as directed.
- B. Preparation of Mineral Aggregate: Thoroughly dry and heat aggregates before placing them in the mixer. Control the temperature of the aggregates so that the temperature of the complete mixture shall be within the range specified in Paragraph 3.03.C below.
- C. Preparation of Bituminous Concrete Mixtures: Combine the heated and dried aggregates and mineral filler and convey them into the mixer in the proportionate amounts of each size required to meet the job mix formula. After these materials have been mixed for the specified dry-mixing time, add the asphalt cement and mix for the specified wet-mixing time. Measure asphalt cement by weight or by an approved metering device. The temperature of the mixture when discharged shall be between 275°F and 325°F.

3.04 TRANSPORTATION AND DELIVERY OF MIXTURES

- A. Vehicles for transportation of mixtures from the plant to the jobsite shall be clean of all foreign materials, tight, and evenly and lightly coated with a suitable thin oil or approved soap solution. No excess of lubricant shall be allowed to accumulate in low spots in the body. When necessary, vehicles shall be insulated so that the mixture is delivered for placement at the proper temperature.
- B. Arrange dispatching of trucks from the plant so that all material which is delivered to the jobsite during any day shall be placed and shall have received final compaction before nightfall of the same day, unless satisfactory artificial light is provided.
- C. Do not transport mixtures such a distance that segregation of the ingredients takes place or that any crust is formed on the top, bottom, or sides of the mixture which will not crumble or flatten out when the mixture is dumped or which might otherwise be deleterious to the mixture in place on the work.
- D. During transportation of the mixture from the plant to the spreader at the jobsite, keep the mixture fully covered at all times with canvas or other suitable material of sufficient size and thickness to furnish complete protection.
- E. Deliver the mixture to the jobsite at a temperature governed by the air temperature in the shade and away from artificial heat, as follows with a tolerance of plus or minus 20 °F.:

- 1. Normal layered construction:

Air Temperature	Delivered Mix Temperature
40°F	290°F
65°F	280°F

90°F and Over	275°F
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2. Deep Lift Paving (3-inches and over), Base and Binder Courses only:

Air Temperature	Delivered Mix Temperature
40°F	270°F
65°F and Over	260°F

3.05 TACK COAT

- A. Where an existing hardened surface is used as a base for new pavement, or elsewhere where the surface to receive bituminous pavement is, in the Engineer's judgment, unsatisfactory to receive the pavement, give the surface a prime coat of bituminous material of the kind and grade indicated or directed. Where unsatisfactory conditions, requiring application of prime coat, are due to the fault of the Contractor, provide the prime coat at no additional expense to the Owner.
- B. Apply to contact surfaces of all cement concrete and other surfaces abutting or projecting into pavement.
- C. Apply tack coat to existing pavement surfaces to receive HMA overlay at a rate of 0.06 to 0.08 gallons per square yard of residual asphalt on the surface. For typical RS-1h and CRS-1 asphalt emulsions, this equates to an emulsion application rate of between 0.06 and 0.08 gallons per square yard. For milled surfaces, application rate of typical emulsions shall be not less than 0.07 gallons per square yard. Application rate shall comply with Section 450.43.G.
- D. Tack coat shall be applied evenly by spray. Hand sprinkling shall not be used.
- E. Allow to tack to dry or "break" until at proper condition to receive paving.

3.06 SAWCUTTING EXISTING PAVEMENT

- A. The pavement shall be sawcut through its full depth at all joints between existing and proposed pavements, and at all utility trenches, to provide a uniform, smooth vertical surface. Existing pavements shall be sawcut at the limits of work as shown on the plans and as required by the Engineer.
- B. Sawcut edges which become broken, ragged or undermined as a result of the Contractor's operations shall be re-cut prior to the placement of abutting proposed pavement at no additional cost to the Owner.
- C. Sawcut surfaces in asphalt pavements shall be sprayed or painted with a uniform, thin coat of asphalt emulsion tack coat immediately before placement of hot mix asphalt against the cut surfaces.
- D. Equipment
 - 1. The saw shall be capable of wet cutting to neat lines established by the Engineer. The equipment shall be approved by the Engineer prior to commencing work.
 - 2. The equipment furnished by the Contractor shall be maintained in good repair at all times.

- E. Throughout the sawcutting operation, protection shall be provided around existing catch basin inlets, manholes, utility valve boxes, and any similar structures. Any damage to such structures as a result of the sawcutting operation is the Contractor's responsibility and shall be repaired at the Contractor's expense.

3.07 SPREADING AND FINISHING – SUPERPAVE HMA PAVEMENT MIXES

- A. All work associated with spreading and finishing HMA pavements shall conform to the applicable sections of the MSSHB including but not limited to Sections 450, 460 and 472.
- B. Where conflicts exist between the MSSHB and this specification, the more stringent shall apply.

3.08 COMPACTION – SUPERPAVE HMA PAVEMENT MIXES

- A. All work associated with spreading and finishing HMA pavements shall conform to the applicable sections of the MSSHB including but not limited to Sections 450, 460 and 472.
- B. Where conflicts exist between the MSSHB and this specification, the more stringent shall apply.
- C. The use of hand tampers or shoe tampers will not be considered an acceptable means of compaction for street paving without the permission of the Engineer. Vibratory hand compactors shall only be use at the permission of the Engineer. Paving of sidewalks and driveways is as specified below.
- D. Contractor shall take caution when compacting HMA mixes to not “overwork” the mix at corners or turning points. Any over worked mix as determined by the Engineer shall be removed and replaced to limits marked by the Engineer at no additional to the Owner.

3.09 JOINTS

- A. Place mixture as nearly continuously as possible. Pass the roller over the unprotected end of newly placed mixture only when the placing of the course is to be discontinued for such length of time as will permit the mixture to attain initial stability. In all such cases, including the formation of joints as therein specified, provide for proper bond with the new surface for the full specified depths of the courses.
- B. Maximum length of longitudinal joint shall be such that the temperature of the mixture at the joint shall not be less than 150°F when the abutting mixture is placed.
- C. Make longitudinal and transverse joints in a careful manner, well bonded and sealed, true to line and grade. Where directed, cut back longitudinal and transverse joints to expose the full depth of the course and, when laying of the course is resumed, paint the exposed edge of the joint with a thin coat of bitumen. Carefully rake the new mixture against the joint, then thoroughly tamp and roll.
- D. In making joints along any adjoining edge such as curb, gutter, or an adjoining pavement, and after the mixture is spread by the paver, place by hand just enough of the hot material to fill any space left open. Set up these joints with the back of a rake at the proper height and level to receive the proper compaction.

- E. Stagger longitudinal joints in successive courses so that there is a minimum of one foot overlap between longitudinal joints in adjacent courses.
- F. Overlap the rolling of successive widths of courses to leave smooth, uniform joints and cross sections.

3.10 MEETING EXISTING PAVEMENTS

- A. Where new pavements will abut existing pavements, the Contractor shall sawcut the existing pavements to produce a uniform, smooth joint surface. Sawcutting of existing pavements shall be neat, straight and even lines, and done in a manner that prevents damage to the pavement to remain.
- B. Full-Depth Pavement: Sawcut to the full depth of the pavement prior to placement of any new pavement. The sawcut surface shall be a neat true line with straight vertical edges free from irregularities. The sawcut surface shall be tack coated immediately prior to the installation of the new abutting HMA material to provide a bond between the old and new pavement. The new compacted pavement surface shall be finished flush with the abutting pavement.
- C. HMA Overlays: The existing hot mix asphalt pavement shall be sawcut to a neat true line with straight vertical edges free of irregularities for a minimum depth of 1-1/2 in.. Prior to completing overlays, existing pavements shall be tapered by grinding. The taper, along the entire length of the joint, shall be 1-1/2 in. deep at the sawcut face and shall taper to 0 in. deep toward the overlay at a distance of 2 ft. from the sawcut face in driveways and at a distance of 6 ft. in roadways and parking areas. The taper shall be cleaned and shall receive an asphalt emulsion tack coat immediately prior to placement of the overlay. The new compacted surface at the joint shall be flush with the abutting existing pavement.
- D. Immediately prior to the placement of the HMA overlay, the sawcut edges of the existing pavement shall be tack coated to bond the new pavement to the old pavement. The new pavement surface shall be finished flush with the abutting pavement. The surface seam of the pavement joint shall be sealed with tack coat and back sanded.

3.11 TRENCH REPAIR

- A. Trench repair in areas of reclamation/reconstruction shall be completed as follows:
 - 1. Temporary pavement shall be placed wherever existing pavement has been removed or disturbed as soon as practical, but in no case more than 5 days after backfilling is completed. 5 day period will be modified but only with permission of the Owner and Engineer. Before placing the temporary trench pavement, the edges of the existing paving shall be saw or blade cut to a smooth, straight edge as specified in Section 01005 and above.
 - a. At the end of every work day, Contractor shall backfill the trench as specified in Division II of the MSSHB to existing pavement grade. When pavement is to be placed, the full width of the trench, the bank run gravel/gravel borrow sub-base shall be excavated to a depth of 2-in below the surface of the existing pavement, shaped and compacted.

- b. Hose clean all road surfaces adjacent to the trench area to be paved. No paving is to be placed until subsurface is dry.
 - c. The 2-in initial pavement shall be placed and compacted by steel-wheeled rollers of sufficient weight to thoroughly compact the bituminous concrete without damaging the existing pavement. The new pavement shall be rolled smooth and even with the existing pavement.
 - d. Initial pavement shall be maintained in a condition suitable for traffic until replaced or overlaid by final pavement. Defects shall be repaired within 1 day of notification of such defects.
 2. Final pavement shall not be placed over trenches in less than 90 days after completion of the backfilling, before temporary pavement has set through winter season or the opening of the asphalt plant, whichever occurs first, or before CLSM material has set unless otherwise directed in writing by the Owner and Engineer
- B. Trench repair in areas with milling and overlay shall be completed as follows:
 1. Trench repair in areas of mill and overlay shall be completed in stages.
 2. Temporary pavement shall be placed wherever existing pavement has been removed or disturbed as soon as practical, but in no case more than 5 days after backfilling is completed. 5 day period will be modified but only with permission of the Owner and Engineer. Before placing the temporary trench pavement, the edges of the existing paving shall be saw or blade cut to a smooth, straight edge as specified in Section 01005.
 - a. At the end of every work day, Contractor shall backfill the trench as specified in Division II of the MSSHB to existing pavement grade. When pavement is to be placed, the full width of the trench, the bank run gravel/gravel borrow sub-base shall be excavated to a depth of 4-in below the surface of the existing pavement, shaped and compacted. In milling and overlay areas where pipe trenches exist, the reclaimed pavement sub-base shall be excavated to a depth of 4-in below the surface of the existing pavement, shaped and compacted.
 - b. Hose clean all road surfaces adjacent to the trench area to be paved. No paving is to be placed until subsurface is dry.
 - c. The 4-in initial pavement shall be placed and compacted by steel-wheeled rollers of sufficient weight to thoroughly compact the bituminous concrete without damaging the existing pavement. The new pavement shall be rolled smooth and even with the existing pavement.
 - d. Initial pavement shall be maintained in a condition suitable for traffic until replaced or overlaid by final pavement. Defects shall be repaired within 1 day of notification of such defects.
 3. Final pavement shall not be placed over trenches in less than 90 days after completion of the backfilling, before temporary pavement has set through winter season or the opening of

the asphalt plant, whichever occurs first, or before CLSM material has set unless otherwise directed in writing by the Owner and Engineer

4. Mill roadway as specified and shown on the Drawings or directed by the Engineer.
5. Final pavement over trenches shall be constructed as follows:
 - a. Sawcut trenches 2-ft back from the perimeter of the existing trench. Remove and dispose of temporary pavement and subbase to 12-in below existing pavement. 12-in of bank run gravel for roadway subbase shall be spread and compacted to 95 percent of maximum dry density as determined by ASTM D1557, Method D. Reclaimed pavement borrow material for roadway subbase is specified in Division II of the MSSHB.
 - b. Trim loose edges of existing pavement. Broom and tack coat all edges with emulsified or cutback asphalt.
 - c. Place and compact Binder Course to 2-in thickness as shown on the Drawings and as specified in Division II, Section 400 of the MSSHB.
 - d. Broom and tack coat edges of existing pavement and Binder Course with emulsified or cutback asphalt.
 - e. Top course of pavement is placed when the milled surface is overlaid. Top surface shall be as shown on the Drawings and as specified below.
6. When trench is in an area not being milled, the procedure described in Paragraphs 1 through 5 above is followed, except that the excavation to subgrade must include sufficient depth for the placement of top course HMA. Top course shall be placed and compacted to a depth of 1.5-in as shown on the Drawings. Joints shall be sealed with hot poured rubberized asphalt as specified in the MSSHB.

3.12 PAVEMENT MILLING

- A. Roadway shall be milled as shown on the Drawings and in accordance with this Specification and Division II, Section 415 of the MSSHB.
- B. Remove up to 1-1/2-inches of bituminous concrete using a cold planer. The planing machine shall be specifically designed and built for planing flexible pavements and have the ability to plane concrete patches when encountered in bituminous pavement. Use caution in areas of known cobble stones.
 1. The planer shall be self-propelled and have the means for planing without tearing or gouging the underlying surface and blading the cutting into a window. The machine shall be capable of being operated at speeds from 10 to 40 fpm and designed such that the operator can at all times observe the planing operation without leaving the control area. A cut to predetermined grade or any specified lesser depth up to the thickness specified above may be required. The machine shall be adjustable as to crown and depth.

2. All manhole/catch basin covers and grates and other items at the roadway surfaces shall be protected during cold planning process. All damaged covers, grates and utility boxes shall be replaced with new covers, grates or utility boxes at the expense of the Contractor.
3. The equipment furnished shall be maintained so as to produce a clean cut in the pavement at all times.
4. The planed surface shall conform generally to the grade and cross slope required and be free from being torn, gouged, shaved, broken or excessively grooved.
5. Surface texture shall be as specified by the Engineer and in any case be acceptable to traffic in the event resurfacing is delayed. The planing shall be squared off for the full width of the traveled way at the end of each work day.
6. No cutting shall remain on the project at the end of each work day. Dispose of all waste materials as specified in Section 01046 at no additional compensation.
7. The planed surface shall be free of imperfections of workmanship that will prevent the surface from being resurfaced with new pavement following this operation.

C. Overlay of HMA across the entire traveled way shall be constructed as follows:

1. Repair all soft and broken areas in temporary and existing pavement. Remove all cold patch which has been placed. Clean all surfaces to be paved of all foreign matter and loose material. All surfaces shall be dry before priming.
2. Raise all manhole, drop inlet and catch basin frames, gate valve and curb stop boxes, gas drips and valves and any other pavement penetrations to finished elevation of the new pavement in accordance with Section 220 of the MSSHB. All raised appurtenances shall be grouted with concrete or otherwise as approved by the Engineer to firmly support them flush with the surface of the new pavement.
3. Where required, level depressions in the initial pavement with bituminous material approved by the Owner and Engineer.
4. Repair any defects in curbing caused by the Contractor's operations.
5. Apply tack coat to existing and initial pavement as specified in subsection 460.62 of the referenced standard.
6. Hot mix asphalt shall be placed by mechanical spreader except in areas inaccessible to the spreader.
7. Clean all pavement penetrations and remove all loose aggregate from the site.

3.13 PAVEMENT MICROMILLING

A. Equipment

1. The milling equipment shall be self-propelled with sufficient power, traction, and stability to remove the existing HMA pavement to the specified depth and cross-slope. The milling machine shall be capable of operating at a minimum speed of 10 feet (3 meters) per minute, designed so that the operator can at all times observe the milling operation without leaving the control area of the machine, and equipped with the following:
 - a. A built-in automatic grade control system that can control the longitudinal profile and the transverse cross-slope to produce the specified results.
 - b. Longitudinal controls capable of operating from any longitudinal grade reference, including string line, 30 foot (10 meter) ski minimum, 30 foot (10 meter) mobile string line minimum, or a matching shoe.
 - c. The transverse controls shall have an automatic system for controlling cross-slope at a given rate.
 - d. Cutting heads able to provide a minimum 6 foot (2 meter) cutting width and a 0 to 4 inch (0 to 100 mm) deep cut in one pass. The teeth on the evolving cutting drum must be continually maintained and shall be replaced as warranted to provide a uniform pavement texture.
 - e. An integral pickup and conveying device to immediately remove milled material from the roadway and discharge the millings into a truck, all in one operation.
 - f. All necessary safety devices such as reflectors, headlights, taillights, flashing lights and back up signals so as to operate safely in both day and night.
 - g. A means of effectively limiting the amount of dust escaping from the milling and removal operation in accordance with local, State, and Federal air pollution control laws and regulations.
2. The micromilling machine shall be equipped with a drum specifically designed to provide the surface specified below.
 - a. Control Strip
 - 1) The Contractor shall micromill a control strip. The control strip shall be 500 feet minimum in length with a uniformly textured surface and cross slope, as approved by the Engineer.
 - 2) The micromilled surface of the control strip shall provide a satisfactory riding surface with a uniform textured appearance. The micromilled surface shall be free from gouges, excessive longitudinal grooves and ridges, oil film, and other imperfections that are a result of defective equipment, non-uniform milling teeth, improper use of equipment, or otherwise poor workmanship. Any unsatisfactory surfaces produced in the control strip shall be corrected by additional micromilling at the Contractor's expense and to the satisfaction of the Engineer.
 - 3) The micromilled pavement surface shall have a transverse pattern of 0.2 – 0.3 inch center to center of each strike area. The Contractor shall perform surface texture measurements with a 10 foot (3 meter) straightedge in the transverse direction across the milled surface. The milled surface shall have a texture such that the variation from the edge of the straightedge to the top of ridges between any two ridge contact points shall not exceed 1/8 inch (3 mm). The difference in height from the top of any ridge to the bottom of the groove adjacent to that ridge shall not exceed 1/16" (1.6

mm). Any point in the surface not meeting these requirements shall be corrected as directed by the Engineer at the Contractor's expense.

3. Sweeper equipment requirements

- a. The Contractor shall provide a sufficient number of mechanical sweepers to ensure that the milled surface is free of millings and debris at the end of each day's milling operations. Each sweeper shall be equipped with a water tank, spray assembly to control dust, a pick-up broom, a dual gutter broom, and a dirt hopper. The sweepers shall be capable of removing millings and loose debris from the textured pavement.

B. Operation

1. The milling operations shall be scheduled to minimize the duration and placement of traffic on the milled surface. The milling operations shall not proceed more than 3 miles ahead of the paving operations. Under no circumstances shall the milled surface be left exposed to traffic for a period exceeding seven days. The Engineer may allow the Contractor to adjust the above limitations on milling production when necessary.
2. The Contractor shall coordinate milling and paving operations to minimize the exposure of milled surfaces to traffic. The Contractor shall ensure that milled surfaces are overlaid in a timely manner to avoid damage to the pavement structure. Any damage to the pavement structure resulting from extended exposure of the milled surface to traffic shall be repaired as directed by the Engineer at the Contractor's expense.
3. The existing pavement shall be removed to the average depth shown on the plans, in a manner that will restore the pavement surface to a uniform cross-section and longitudinal profile. The longitudinal profile of the milled surface shall be established using a 30 foot (10 meter) mobile ski, mobile string line, or stationary string line. The cross-slope of the milled surface shall be established by a second sensing device or by an automatic cross-slope control mechanism. The Contractor will be responsible for providing all grades necessary to remove the material to the proper line, grade, cross section, super-elevation, and transitions shown on the plans or as directed by the Engineer. The requirement for automatic grade or slope controls may be waived by the Engineer in locations warranted by the situation, including intersections and closely confined areas.
4. The Engineer may adjust the average milling depth specified on the plans by $\pm 3/4"$ (± 20 mm) during each milling pass at no additional payment to minimize delamination of the underlying pavement course or to otherwise provide a more stable surface. If delamination or exposure of concrete occurs when milling an HMA pavement course from an underlying Portland Cement Concrete (PCC) pavement, the Contractor shall cease milling operations and consult the Engineer to determine whether to reduce the milling depth or make other adjustments to the operation.

C. Protection of Utilities

1. Throughout the milling operation, protection shall be provided around existing catch basin inlets, manholes, utility valve boxes, and any similar structures. Any damage to such structures as a result of the milling operation is the Contractor's responsibility and shall be repaired at the Contractor's expense. To prevent the infiltration of milled material into the

storm sewer system the Contractor shall take special care to prevent the milled material from falling into the inlet openings or inlet grates. Any milled material that falls into inlet openings or inlet grates shall be removed at the Contractor's expense.

D. Vertical Faces

1. All permanent limits of the milled area shall be sawcut or otherwise neatly cut by mechanical means to provide a clean and sound vertical face. No vertical faces, transverse or longitudinal, shall be left exposed to traffic. If any vertical face is formed in an area exposed to traffic a temporary paved transition with a maximum 12:1 slope shall be established. If the milling machine is used to temporarily transition the milled pavement surface to the existing pavement surface, the temporary transition shall be constructed at a maximum 12:1 slope.

E. Inspection

1. The milled surface shall provide a satisfactory riding surface with a uniform textured appearance. The milled surface shall be free from gouges, excessive longitudinal grooves and ridges, oil film, and other imperfections that are a result of defective equipment, non-uniform milling teeth, improper use of equipment, or otherwise poor workmanship. Any unsatisfactory surfaces produced shall be corrected by remilling at the Contractor's expense and to the satisfaction of the Engineer.
2. The Contractor shall perform Quality Control (QC) inspection of all work items addressed as specified in the table below. Inspection activities during milling of HMA pavement may be performed by qualified production personnel (e.g. Skilled Laborers, Foremen, Superintendents). However, the Contractor's QC personnel shall have overall responsibility for QC inspection. The Contractor shall not rely on the results of Department Acceptance inspection for Quality Control purposes. The Engineer shall be provided the opportunity to monitor and witness all QC inspection.
3. The milled surface of each travel lane shall be divided into longitudinal Sublots of 500 feet (150 meters). The Contractor shall perform a minimum of one random QC measurement within each Sublot with a 10 foot (3 meter) straightedge in the transverse direction across the milled surface. Additional selective QC measurements within each Sublot will be performed as deemed necessary by the QC personnel. All QC inspection results shall be recorded on NETTCP Inspection Report Forms. The Engineer will also randomly inspect a minimum of 25% of the Sublots. The Contractor shall perform surface texture measurements with a 10 foot (3 meter) straightedge in the transverse direction across the milled surface. The milled surface shall have a texture such that the variation from the edge of the straightedge to the top of ridges between any two ridge contact points shall not exceed 1/8 inch (3 mm). The difference in height from the top of any ridge to the bottom of the groove adjacent to that ridge shall not exceed 1/16" (1.6 mm). Any point in the surface not meeting these requirements shall be corrected as directed by the Engineer at the Contractor's expense.
4. In isolated areas where surface delamination between existing HMA layers or a surface delamination of HMA on Portland Cement Concrete causes a non-uniform texture to occur, the straightedge surface measurement requirements stated in the preceding paragraph may be waived, subject to the approval of the Engineer.

5. Minimum QC Inspection of Milling Operations

Inspection Component	Items Inspected	Minimum Inspection Frequency	Point of Inspection	Inspection Method
Equipment	As specified in QC Plan	Per QC Plan	Per QC Plan	Per QC Plan
Environmental Conditions	Protection of Inlets & Utilities	Per QC Plan	Existing Surface	Visual Check
	Removal of Millings & Dust	Per QC Plan	Milled Surface	Visual Check
Workmanship	Milling Depth	Per QC Plan	Milled Surface	Check Measurement
	Cross-Slope & Profile	Per QC Plan	Milled Surface	Check Measurement
	Milled Surface Texture	Per QC Plan	Milled Surface	Visual Check
	Milled Surface Roughness	Once per 600 feet (150 meters) per milled lane	Milled Surface per MassDOT Specification 410.67	10 foot (3 meter) standard straightedge
	Sawcut Limit Vertical Face	Per QC Plan	Sawcut Limits	Visual Check

F. Overlay of HMA across the entire traveled way shall be constructed as follows:

1. Repair all soft and broken areas in temporary and existing pavement. Remove all cold patch which has been placed. Clean all surfaces to be paved of all foreign matter and loose material. All surfaces shall be dry before priming.
2. Raise all manhole, drop inlet and catch basin frames, gate valve and curb stop boxes, gas drips and valves and any other pavement penetrations to finished elevation of the new pavement in accordance with Section 220 of the MSSHB. All raised appurtenances shall be grouted with concrete or otherwise as approved by the Engineer to firmly support them flush with the surface of the new pavement.
3. Where required, level depressions in the initial pavement with bituminous material approved by the Owner and Engineer.
4. Repair any defects in curbing caused by the Contractor's operations.
5. Apply tack coat to existing and initial pavement as specified in subsection 460.62 of the referenced standard.
6. Hot mix asphalt shall be placed by mechanical spreader except in areas inaccessible to the spreader.

7. Clean all pavement penetrations and remove all loose aggregate from the site.

3.14 FULL DEPTH RECLAMATION

- A. Pavement to be reclaimed as base course shall be as specified in MSSHB, Section 403 Reclaimed Pavement for Base Course and/or Sub-base and this section.
- B. Reclaiming operations shall not be permitted when the existing pavement or sub-base contains frost, when the sub-base is excessively wet as determined by the Engineer, nor when the air or surface temperature is below 40-degrees F.
- C. Reclaiming operations shall not commence before April 15 and shall terminate on or before October 15 unless otherwise approved by the Engineer in writing.
- D. Prior to the start of reclaiming operations, the Contractor shall locate and protect existing drainage and utility structures and underground pipes, culverts, conduits and other appurtenances. The limit of each sequence of the reclamation process shall be 1 mile full width or as directed by the Engineer in order that the placing of pavement structure, up to the binder course will be completed before beginning the next sequence of roadway reclamation work.
- E. The recycling equipment shall have a positive depth control to ensure a uniform depth of processing. This equipment shall have the ability to process the complete design depth specified into a homogeneous mass. It shall be capable of crushing all oversize material encountered except ledge, or boulders larger than 8-in in diameter.
- F. A test section shall be constructed approximately 250-ft long by one lane wide, and located within the project limits at a location determined by the Engineer. The forward speed and processing direction (e.g. up cutting vs. down cutting) of the recycling equipment shall be recorded during construction of the test section. Representative samples (up to 5 test samples) of the reclaimed material shall be taken from the test section for analysis by the Contractor. Full scale production will not be allowed to commence until the Engineer has reviewed the test results and gives written approval of the equipment and construction methods used in the construction of the test strip.
- G. Failure to meet gradation requirements or an insufficient production rate may be considered cause for rejection of the equipment, the construction methods or both. The Contractor must then submit in writing, the proposed changes in equipment and/or construction methods and either construct another test section or reconstruct the original section, as determined by the Engineer. This procedure may be repeated until acceptable results are obtained, at no additional cost to the Owner or extension in Schedule.
- H. Failure to meet gradation requirements due to improper equipment or construction methods, shall not constitute a reason for any additional compensation for time extension for the import and blending of any aggregates to meet deficiencies.
- I. Approval of equipment includes the speed and processing direction it was operated at during construction of the test section. Therefore, the same operating speed and processing direction must be maintained during normal production. Changes in equipment's operating speed and/or processing direction may only be made with the Engineer's written approval.

- J. At least one vibratory roller shall be used on each reclaimed surface, and shall have a compacting width of not less than 5-ft. Each roller shall have a gross weight of not less than 15 tons.
- K. Adjustment of drainage structures shall be in accordance with Section 220 of the MSSHB. All drainage, utility, and municipality structures are to be referenced and lowered to a minimum depth of 6-in below the bottom of the proposed reclaimed base course. Lowered structures shall be covered with steel plates conforming to these specifications. The voids remaining after the structures have been lowered are to be filled with suitable material as determined by the Engineer. The Contractor is responsible for the coordination with the respective utility companies for the lowering and raising of privately owned structures and gate boxes. The reclaiming operation shall not begin until all structures and boxes are lowered.
- L. It shall be the Contractor's responsibility to maintain drainage functioning properly in the areas under construction up to the time when the final system is put into use. All structures lowered will be raised to grade upon placement of the binder course material for that section. Any damage to existing structures caused by the Contractor's reclaiming activities shall be paired at no additional cost to the Owner.
- M. Reclaiming shall be completed as follows:
1. Prior to the start of reclamation, the existing pavement shall be swept with a power sweeper to remove all trash, sand, dirt, organic matter, and other undesirable material, to the satisfaction of the Engineer.
 2. The existing pavement shall be sawcut full depth within the areas where the adjacent surface is to be protected (curb, side streets, etc.) as shown on the plans and/or as directed by the Engineer.
 3. The Contractor shall reclaim only that area of pavement that can be processed and compacted by the end of the same working day, at which time, it must be opened to traffic, with the Engineer's approval. In any section, reclamation work shall be done on one-half of the road width at a time. One-way traffic will be allowed only during working hours. Two way traffic shall be maintained at all other times. Suitable ramping shall be in place at the beginning and end of each work zone to allow for smooth and safe travel.
 4. The total thickness of pavement structure, unless otherwise indicated, and the uppermost portion of the sub-base layer shall be recycled to the design depth specified on the typical sections. The Engineer will perform sieve analysis of the reclaimed material for every 5,000 square yards of material processed or as often as conditions may require as determined by the Engineer. Test results shall be made available to the Contractor. If conditions warrant, the Engineer may stop work until the required test results become available. If the Engineer directs, due to grading deficiencies in the existing materials as indicated by the test results, the appropriate crushed stone aggregate sizes shall be blended with the recycled material to produce a uniform mixture meeting the gradation requirements. Additional, if the Engineer directs, dense graded crushed stone shall be added for volume purposes.
 5. Any required modifications to the remaining sub-base such as but not limited to, cuts, fills, and grade realignment shall be made. Existing unsuitable material shall be removed to the

lines and grades established by the Engineer and replaced with a suitable material, as determined by the Engineer. Existing surplus reclaimed material shall be used, when available, at no additional cost.

6. All excess and unsuitable material shall become property of the Contractor to be disposed of outside of the project limits in accordance with Section 01046.
 7. The reclaimed material shall be rolled, compacted and fine graded to the specified cross section(s) and/or grades shown on the Drawings or established by the Engineer.
 8. The reclaimed base course shall be tested for compaction to 95 percent of maximum dry density as determined by ASTM D1557, Method D and smoothness and accuracy of grade in accordance with the applicable provisions of Section 401.60 of the MSSHB. If any portions are found to be unacceptable by the Engineer, such portions shall be reprocessed, regarded, and recompacted until the required smoothness and accuracy are obtained.
 9. At the end of each day, the Contractor shall apply calcium chloride in accordance with Section 01562. Water for roadway dust control shall be applied as directed.
 10. A grader, roller, and water wagon shall be maintained on the project site during the reclaiming operation.
- N. The base and binder course shall be placed as soon as possible after the sub-base has been prepared, shaped and compacted to the depths and thicknesses indicated on the Drawings.
- O. All hot mix asphalt shall be compacted to the requirements of Section 460 of the MSSHB. Where necessary, the new pavement shall be rolled smooth and even with the existing pavement.
- P. All pavement thicknesses referred to herein are compacted thicknesses. Place sufficient mix to ensure that the specified thickness of pavement occurs wherever called for.
- Q. Where required, level depressions in the initial pavement with bituminous material approved by the Engineer. Level shall not exceed 1.25-in per lift.
- R. All manhole frames and utility boxes are to be set to the grade of the wearing course. At no time shall the manhole frames be allowed to protrude above the surface of the wearing course.
- S. The contact surfaces of castings and other structures shall be painted with a tack coat.
- T. After the paving mixture has been properly spread, initial compaction shall be obtained by the use of power rollers weighing not less than 240 lbs/in width of tread.
- U. Final compaction of the surface shall be accomplished by rollers weighing not less than 285 lbs/in width of tread. Along curbs, structures and all places not accessible with a roller, the mixture shall be thoroughly compacted with tampers. Such tampers shall not weigh less than 25 lbs and shall have a tamping face of not more than 50 sq in. The surface of the mixture after compaction shall be smooth and true to the established line and grade.
- V. Where the roadway is shown to be widened, construction shall be completed in conformance with these Specifications, the Drawings, and construction details.

- W. Wherever the edge of the new pavement passes over existing paved driveways or side streets, or the new pavement ends on existing pavement, the existing pavement shall be grooved 1-in deep in the surface such that the surface of the new pavement will slope to the surface of the existing pavement in not less than 18-in and the new pavement will not be less than 1-in thick.

3.15 FULL DEPTH CONSTRUCTION

- A. Sawcut the full depth of existing hot mix asphalt at the limits of the area to be repaired.
- B. Excavate the existing pavement, cobbles, concrete sub-base, and sub-base to a depth indicated on the Drawings.
- C. Fine grade and compact the bottom of the excavation to 95-percent.
- D. Fill the excavation with reclaimed pavement borrow, compacting in lifts of no more than 6-in to 95-percent.
- E. Fine grade and compact the surface of the reclaimed pavement borrow.
- F. Place and compact the hot mix asphalt as specified and to the depths indicated on the Drawings.
- G. If areas of poor material are identified during the excavation, contact the Engineer who will define the limits of removal and over excavation. Any over excavation completed without notification of the Engineer shall be done so at the Contractor's own cost.

3.16 PARKING LOTS, WALKWAYS, AND DRIVEWAYS

- A. Work in parking lots, walkways, and driveways shall be completed as shown on the Drawings and as specified herein.
- B. Incidental paving work shall be as shown on the Drawings and shall match adjacent pavement section unless shown on the pavement notes, specified here in or as directed by the Engineer.
- C. Contractor shall coordinate all work on private property with the property owner. New pavement for parking lots and driveways shall be constructed as specified herein.
- D. HMA driveway paving and reconstruction shall be completed as specified above. Only driveway repairs within the limits of work defined on the drawings shall be eligible for payment. Repairs to driveways outside of the limits of work are at the Contractors own cost. The pavement shall consist of 6-in of reclaimed pavement borrow material compacted to 95-percent per ASTM D1557, 2.5-in of base course, and 1.5-in of surface course as specified on the Drawing. Placement and compaction of mixture shall be as specified below for sidewalks/walkways.
- E. HMA sidewalks/walkways shall be constructed as follows:
 - 1. Excavate and compact the sub-base.

2. Place 6-in of reclaimed pavement borrow material to the width of the sidewalk/walkway and compact material to 95-percent per ASTM D1557.
3. Place 1.5-in of base course, and 1.5-in of surface course in two lifts as specified on the Drawings.
 - a. Spreading Mixture: The mixture shall be dumped, as needed, into a self-propelled sidewalk paver, or into wheel barrows or an approved steel dump sheets outside the areas on which it is to be placed. It shall then be immediately distributed into place by means of shovels and lutes into a uniformly loose layer to the full width required and of such depth that, when the work is completed, it shall conform to the grade and surface contour required.
 - b. Rolling: The surface shall be rolled with a self-propelled tandem roller weighing not less than 1-1/2 tons and not more than 5 tons. In places not accessible to a power roller, compaction shall be obtained by means of mechanical rammers weighing not less than 50 pounds and having a tamping face not exceeding 100 square inches.
 - c. Testing Surface: When tested with a 10-foot straightedge placed parallel to the centerline of the courses, there shall be no deviation from a true surface in excess of 1/4 of an inch.

3.17 INFRARED PAVEMENT TREATMENT

- A. Infra-red treatment of permanent pavement shall not be performed in less than 120 days after installation of permanent pavement unless otherwise directed by the Engineer. Infra-red treatment shall only be performed where directed by the Engineer.
 1. The area to be repaired shall include approximately two feet on either side of the saw cut line (i.e., two feet of existing pavement and two feet of new pavement).
 2. Pavement areas to be repaired shall be swept and hosed clean to remove all loose and foreign materials.
 3. An approved infra-red heater, not to exceed 15,000 BTU's per square foot per hour, shall be positioned over the areas to be repaired for the period of time required to soften the existing pavement to a depth of two or more inches.
 - a. Oxidation of the pavement, caused by excessive heat as determined by the Engineer, shall be avoided.
 - b. Remove all unsuitable material in the event of oxidation and replace it with new bituminous concrete at his own expense.
 4. The area to be repaired shall be thoroughly scarified to a depth of at least 2-inch.
 5. A recycling agent admixture shall be added to the softened area after scarification, in the amount recommended by the manufacturer or approved by the Engineer, and shall be raked to a uniform, workable condition.

6. Any additional bituminous concrete mix (MARIMIX or equal) needed shall be obtained from an infra-red heated storage unit required to keep asphalt at near constant temperature throughout the working day.
 - a. The storage unit shall be made entirely of metal (no canvas), shall be thoroughly insulated to reduce the amount of heat required and the contents shall be kept heated with an air circulation system.
 - b. Under no circumstances is any asphalt mix to be used that registers a temperature of under 200 degrees F.
7. After the paving mixture has been properly admixed and raked to grade, it shall be compacted by means of a steel-wheeled roller of sufficient weight to establish a uniform density comparable to that of adjacent surface within the work area. The finished patch shall be level with no depression retaining water on any of its surface and shall be perfectly flush with the existing, surrounding pavement.
8. The edges around the perimeter of the newly repaired areas shall be sealed with a suitable asphalt emulsion.
9. A cationic asphalt emulsion shall then be hand-sprayed on the patched area and adjacent edges at the approximate rate of 0.1 gallon per square yard to offset the effects of oxidation and seal the entire newly treated area.
10. Stone dust shall be spread over the newly sealed area.

3.18 FIELD QUALITY CONTROL

- A. Test the plane of the finished surfaces of base, binder, and surface courses with a 16-foot straightedge, except use a 10-foot straightedge on vertical courses and on the top course of resurfaced streets which contain manhole covers, valve boxes, and the like.
- B. Carefully apply the straightedge immediately after the first compaction by rolling, and from then on as may be necessary until and after the final compaction of the material in place. Hold the straightedge in successive positions parallel to the road centerline and in contact with the road surface; check the entire area from one side of the pavement to the other.
- C. Correct irregularities which vary $\frac{3}{8}$ inch from a true finished surface in base and binder courses, and $\frac{1}{4}$ inch in top courses.
- D. Irregularities which may develop before the completion of rolling and while the material is still workable, may be remedied by loosening the surface mixture and removing or adding material as necessary. Should any unsatisfactory irregularities or defects remain after final compaction, correct the defective work by removing and replacing with new material to form a true and even surface. Work to correct deficiencies shall be done so to the satisfaction of the Engineer and at no additional cost to the Owner.

3.19 OPENING TO TRAFFIC

- A. 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, and the pavement has achieved a maximum temperature of 140°F.
- B. 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.

END OF SECTION

SECTION 02580
BRICK, BLUESTONE, AND COBBLESTONE PAVING

PART 1: GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, material, equipment and incidentals required and install brick, bluestone and Belgian block paving in asphaltic sand setting bed or stonedust setting bed over concrete base in sidewalk areas, crosswalks and roadway areas, as shown on the Drawings and as specified herein.
- B. Coordinate concrete sidewalk construction with paver construction in sidewalk, crosswalks, or driveway aprons areas (e.g., Belgian pavers, Boston pavers, etc.) and other paver/cobble types installation. Walkways may be formed to include concrete base and drainage holes for paver band.
- C. Furnish all labor, material, equipment and incidentals required and install unit pavers in pedestrian crosswalks, in asphaltic sand setting bed or stonedust setting bed over High-Early-Strength (HES) reinforced concrete base, as shown on the Drawings and as specified herein.

1.02 RELATED WORK

- A. Traffic Control and pedestrian access is included in Section 01570
- B. Granular Materials are included in Section 02230
- C. Concrete Walkways and Driveways are included in Section 02515
- D. Curbing is included in Section 02520
- E. Paving, Pavement Repair and Resurfacing is included in Section 02576
- E. Concrete is included in Section 03301.
- F. Grout is included in Section 03600.

1.03 SUBMITTALS

- A. Submit drawings showing dimensions layouts and details for construction and accessories required.
- B. Submit at least three samples each of color and style of paver to be supplied on the project.
- C. Submit sieve analysis for asphaltic sand setting bed, jointing sand and rice stone drainage material.
- D. Submit High-Early Strength (HES) concrete mix design to the Engineer. Include admixture brands and dosages as well as mixing, transporting, placing, paving, curing, and anticipated strength gain details.

- E. Submit information on quarry where bluestone is being sourced from. Provide three references and applicable certifications.

1.04 REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM)
 - 1. ASTM C33 – Standard Specification for Concrete Aggregates.
 - 2. ASTM C136 – Standard Specification for sieve Analysis of Fine and Coarse Aggregates.
 - 3. ASTM C144 – Standard Specification for Aggregate for Masonry Mortar
 - 4. ASTM C150 – Standard Specification for Portland Cement.
 - 5. ASTM C902 - Standard Specification for Pedestrian and Light Traffic Paving Brick.
 - 6. ASTM D1557 - Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/f (2,700kN-m/m).
 - 7. ASTM D1752 - Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
- B. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.
- C. Except as otherwise specified herein, the material and construction shall be in accordance with the MassDOT, Standard Specifications for Highways and Bridges (MSSH), latest edition, including all addenda.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Paver installer shall have a minimum of five years successful experience in the installation of dry laid pavers in high traffic situations.
- B. Field Constructed Mock-Up: Prepare and area of a minimum of 100 square feet containing brick for review. Sample area shall be within the area to receive paving and shall become part of the work when approved as the project standard.
- C. Single Source Responsibility: Obtain each color, type, and variety of pavers from a single source with resources to provide products and materials of consistent quality in appearance and physical properties without delaying progress of the Work.
- D. Produce a 4.0cy (minimum) trial batch of HES at an off-contract location. Produce the trial batch using the same materials and processes as those to be used to produce concrete for the contract. Submit measurement of slump, air content, and unit weight of the trial batch. Submit measurement of cast cylinders from the trial batch for compressive strength and freeze-thaw resistance testing. Provide the time required to meet the compressive strength of 2,500 psi and 3,000 psi of the trial batch. Changes other than minor fluctuations in admixture dosage rates require a new mix design and trial batch. The Engineer will reject the concrete if the specified slump or plastic air content are not achieved.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Protect brick pavers and aggregate during storage and construction against wetting by rain or groundwater and against soilage or contamination from earth and other materials.
- B. Paving units shall be packaged by strapping to manufacturer's standard and delivered in cubes. Pavers damaged in any manner will be rejected and shall be replaced with new material at no additional cost to the Owner.
- C. Deliver cement and mortar bonding agent and any admixtures in manufacturer's original water-resistant bags or steel drums. Manufacturer's containers shall be clearly labeled with brand name and shall be of full weight with unbroken seals. Damaged and fractional containers or packages will be rejected for use on the project.
- D. Store all masonry units on raised platforms. Storage piles or stacks shall be located to avoid or be protected from heavy or unnecessary traffic. Materials shall be stored under an approved roof or covered with waterproof tarpaulins at all times, except when personnel are working and using the materials.

1.07 PROJECT CONDITIONS

- A. Cold-Weather Protection: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen subgrade or setting beds. Remove and replace all work damaged by frost or freezing.
- B. No mortar set pavers shall be laid in inclement weather or when the temperature is 36 degree F and dropping, nor shall any work be done on rising temperatures until the temperature reaches 32 degree F. Frozen mortar materials shall not be used. No concrete shall be poured in inclement weather or when the temperature is 40 degree F and dropping, nor shall any work be done on rising temperatures until the surface temperature of the area to be paved reaches 40 degree F.
- C. Weather Limitations: Protect mortar set paver work against freezing when atmospheric temperature is 40 degree F and falling. Heat materials and provide temporary protection of completed portions of unit paver work. Comply with International Masonry All-Weather Council's Guide Specification for Cold-Weather Masonry Construction.
- D. Hot Weather Requirements: Protect unit paver work when temperature and humidity conditions produce excessive evaporation of setting beds and mortar. Provide artificial shade and wind breaks and use cooled materials as required. Do not apply mortar to substrates when temperatures of 100 degree F and above.
- E. Coordinate final paver grades with adjacent bituminous paving and concrete work.
- F. Protect trees, tree roots and existing and proposed utility lines under paved areas.

1.08 BRICK PAVER COORDINATION

- A. No previously mortared brick shall be used on this project.
- B. Specialty pavers shall be installed in locations shown on the plans, where directed by the Engineer and/or as approved by the Owner and Engineer.

PART 2: PRODUCTS

2.01 PAVING MATERIALS

- A. Brick pavers shall be as manufactured by the Belden Brick Company, Canton, Ohio, www.beldenbrick.com and distributed by Spaulding Brick, Cranston, RI, (800) 327-6149 www.spauldingbrick.com , or equal.
- B. Brick pavers shall be solid, unfrosted, extruded, wire cut, 4-in by 8-in face by 2-1/4-in thick , chamfered, conforming to ASTM C902, Class SX, Type I, Application PX except that pavers that are chipped and show color significantly different than the general batch face color will be rejected.
- C. Brick Color shall be Regimental Full Range (red)
- D. Belgian pavers shall be supplied by the Owner. Contractor will be responsible for the pickup and transport of pavers to the project site. Contractor will also be responsible for prepping any pavers (e.g., cleaning, removal of deleterious material, etc.) from the pavers prior to installation.
- E. Bluestone pavers shall be sourced from an approved quarry and shall be Pennsylvania bluestone with a thermal finish and cut edges. Owner may reject bluestone for any reason including defects including but not limited to flaking, chipping, or finish defects, etc. Bluestone shall be as follows:
 - 1. For Sidewalks: 2-ft x 4-ft x 2” panels
 - 2. For Wheelchair Ramps, Driveways and Crosswalks: 2-ft x 4-ft x 3” panels
- F. Pattern
 - 1. Unless otherwise shown and labeled on drawings, brick sidewalk band pattern and Belgian paver pattern shall be a stacked/running bond band located between the concrete sidewalk and granite roadway curb and in the street.
 - 2. Additional patterns may be given by the Owner and/or Engineer based on project specific location.
 - 3. Utility castings, street signs, hydrants, utility poles, valve box covers, manhole covers, and site furnishing footings shall be surrounded by a border of half brick. In the case of round castings and footings, brick shall be laid in a radial pattern around the structure. The use of slivers of brick shall be avoided. The border of half bricks is only required in locations where Boston brick pavers are being used.
 - 4. Bluestone and Belgium pavers shall be set around castings. Bluestone shall be cored or cut to match radius or dimensions of castings as required. Belgium pavers shall be cut to fit around castings. Slivers of cobblestones shall be avoided.

2.02 ASPHALTIC SAND SETTING BED

- A. The fine aggregate to be used in the bituminous setting bed shall be clean, hard sand with durable particles and free from adherent coatings, lumps of clay, alkali salts and organic matters. It shall be uniformly graded from “coarse” to “fine” and all passing the No. 4 sieve and meet with gradation requirements when tested in accordance with the standard method of test

for sieve and screen analysis for fine and coarse aggregates ASTM Designation C-136-67. The dried fine aggregates shall be combined with hot asphalt cement, and the mix shall be heated to approximately 300 degrees F at asphalt plant. The approximated proportion of materials shall be seven (7) percent asphalt cement and ninety-three (93) percent sand by weight in the approximate ratio of 145 pounds asphalt to 1,855 pounds of sand.

2.03 STONEDUST

- A. Stone dust shall be as specified in Section 02230.

2.04 JOINTING SAND

- A. Jointing sand shall be as specified in Section 02230.

2.05 POLYMETRIC SAND

- A. Polymetric sand shall comply with ASTM C-144.
- B. The polymetric sand shall be dust free, haze free, be able to be applied without a blower and set with one watering.
- C. Polymetric sand shall be rapid set and rain safe 15 minutes after water activation.
- D. Polymetric sand shall be capable of being used on joints up to a maximum of 2-in in width.
- E. OSHA silica crystalline complaint – OSHA 26 CFM 1926.1153.
- F. Sand shall be capable of being installed 32-degree F and above.
- G. Sand color shall be selected by Owner prior to installation.

2.06 CONCRETE BASE SLAB

- A. Concrete base slabs below paver band in sidewalks and below pavers in pedestrian crosswalks and Belgian Pavers shall conform to Sections 02515 and 03301 except as identified below.
 - 1. Drain holes shall be provided at all low points and 12 ft maximum on center. Drain holes shall be 2 in diameter and filled with rice stone. Drain holes within sidewalk band may occur along the curb edge or midway between the sidewalk and curb.
 - 2. Joints shall be provided 12 ft maximum on center, sealed with non-shrink grout and dowled with epoxy coated bar reinforcement. This is required for those locations subject to vehicular traffic.
- B. Concrete base slab for sidewalk band may be poured as part of the concrete sidewalk slab. Alternately, if poured separately, concrete slab shall be keyed or pinned into the adjacent sidewalk.

- C. High-Early-Strength Concrete (HES) below crosswalks shall meet the following mix requirements:

<u>Property</u>	<u>Minimum</u>	<u>Desired</u>	<u>Maximum</u>
28 Day Compressive Strength	4,000 psi	-	-
Opening compressive Strength	2,500 psi	-	-
Freeze/Thaw Loss (Test 502-3P, 3% NaCl)	-	0.0%	3.0%
Plastic Air Content	5.0%	6.5%	8.0%
Hardened Air Content	5.0%	6.5%	8.0%
Water-Cement Ratio (w/c)	-	-	0.44
Slump*	1 in	-	6in

*Minimum slump provided the mix consolidates and finishes properly. Maximum slump provided the mix is nonsegregating.

- D. Concrete for subbase in sidewalk areas shall be 3,000 psi.
- E. Concrete for subbase in roadway, ADA ramps and driveway areas shall be HES 4,000 psi and shall be reinforced with wire mesh or fiber reinforcing. Refer to Section 02515.

2.07 RICE STONE

- A. Rice stone shall be specified in Section 02230.

2.08 EDGING MATERIAL

- A. Where brick abuts concrete slab at driveway aprons, sidewalks, or site furnishing slabs, concrete slab shall perform as edging material.
- B. Where brick abuts granite curbing, granite curbing shall perform as edging material.

2.09 EXPANSION JOINT

- A. Preformed Expansion Joint filler shall meet the requirements of M9.14.0 of MSSHB.
- B. Expansion joints shall be located where concrete abuts granite curbing, concrete slabs or footings, structures or as located linearly along the adjacent sidewalk.

2.10 MORTAR

- A. Mortar for joints shall be as specified in the Section 03600.

PART 3: EXECUTION

3.01 SUBGRADE

- A. Subgrade shall be compacted to 95 percent of maximum density in accordance with ASTM D1557.

- B. Where indicated on the Drawings, geotextile filter fabric shall be installed on top of the compacted subgrade before base material is placed. Fabric shall be laid to a minimum of 6-in beyond each side of the limits of the pavers, except where curbing prevents its installation.

3.02 SUBBASE

- A. The subbase shall be of a thickness not less than 8-in after compaction. Compact to not less than 95 percent of maximum density as defined by ASTM D1557.
- B. The finished surface of the base shall be uniformly flat and shall not deviate by more than plus 0 and minus 1/2-in over 10-ft when measured by a straight edge laid in any direction and shall have a pitch or crown as indicated on the Drawings. Base shall be set at an elevation to maintain proper curb reveal or finished grade height when the setting bed is screeded to a thickness of 3/4-in.
- C. The base shall extend to not less than the rear face of all edge restraints or to the edge of suitable established structures. Along free edges the base shall extend to 6-in beyond the paver edge.

3.03 CONCRETE BASE SLAB

- A. Prepare concrete 6 inch thick HES reinforced concrete slab base in crosswalks, streets, ADA ramps and driveways as specified in above and in Section 03301 and 4 inch thick concrete slab base (HES not required) in other brick paver areas as specified herein and in Section 03301. Provide control joints 12 ft maximum on center. Provide 2 inch diameter drain holes at all low points and 12 ft on center. Fill weep holes with rice stone.
- B. HES concrete may be opened to construction traffic when it has achieved a compressive strength of 2,500 psi and to general traffic when it has achieved compressive strength of 3,000 psi.
- C. Coordinate placement of concrete for brick pavers, bluestone or Belgian Pavers and drain holes with concrete sidewalks.

3.04 ASPHALTIC SAND/STONE DUST SETTING BED

- A. The setting bed shall be spread while hot and screeded level by the use of screed rails and boards to a uniform thickness and rolled while hot to a nominal depth of 3/4-in and adjusted so that the top surface of the pavers will be at the required finished grade. The exact thickness of the setting bed shall be determined at the job site on the basis of field trials to provide a uniform rolled depth of not less than 3/4-in and not greater than 1-1/4-in after compaction of the paving units.
- B. Sand setting bed shall not be disturbed or pre-compacted in any way. If the screeded sand is accidentally pre-compacted by walking or running, rake and re-screed as above.
- C. Do not screed more of an area of setting sand on which the pavers can be set that day.

3.04 PAVER INSTALLATION ON SUB-BASE AND ASPHALTIC SAND SETTING BEDS

- A. Paving installation shall be plumb, level and true to line and grade. Finished work shall conform to and align with elevations. Care shall be taken during the layout to minimize cutting. Work shall be performed by experienced crews.

- B. Starting at a 90 degree corner or straight edge, commence laying the paving units 1/8-in from the edge restraint on the undisturbed setting bed in the pattern and location as shown on the Drawings.
- C. Paving units shall be installed hand tight to achieve uniform joints approximately 1/8-in wide between pavers or with paving stones in contact with adjacent lugs. String lines shall be used frequently to hold pattern lines true and accurate.
- D. Full units shall be laid first and cuts done subsequently. As required, cut full units with a splitter designed for pavers or with masonry saw to insure all cuts fit neat and accurate without damaged edges. Use full units without cutting where possible. Hammer cutting is not acceptable. At borders, run ends, or where space exists between the last full stone cobble module set and adjacent material, loose stones or cut modules are used to complete the established pattern. Individual pavers, ordered separately or taken from modules in work at the site can be set by hand in these spaces, or individual stones can be sawn to fit.
- E. Installers shall lay subsequent paving units by moving forward on the top of the previously installed units.
- F. Care shall be taken when transporting material over uncompacted paving units to prevent damage to the pavement or premature compaction of the sand bedding.
- G. Maximum surface variation shall not be more than 1/4-in over span of apron.

3.05 COMPACTION

- A. After a substantial area of pavers has been installed, a plate vibrator or roller vibrator with high frequency, low amplitude shall be used to tamp the paving brick into place and to vibrate the sand up into the joints.
- B. Three or more passes with the vibrator shall be made at a 90 degree angle until the pavers are brought to the design levels and profiles. Compaction shall continue until lipping has been eliminated between adjoining pavers. Care shall be taken to keep 3-ft from the edge of unrestrained pavers prior to completion of installation.
- C. Abide by the tolerances specified herein. After setting pavers, if tolerances do not meet those specified, Contractor shall remove and reset pavers at his/her own expense. New pavers will not be provided by the Owner and will be required to be supplied by the Contractor at their own expense.
- D. Do not use a compactor on bluestone pavers.

3.06 SAND JOINTS

- A. Sand shall be spread and broomed into the voids until they are filled flush with the top of the pavers.
- B. At least one pass of the plate vibrator shall be made to consolidate the sand into the joints. Do not use a vibratory compactor on bluestone.

- C. Remaining sand shall be swept into the joints until they are filled flush to the top of the paving stones. Sweep excess material clean from the paving surface.
- D. All pavers installed during the day must be compacted by day's end.

3.07 POLYMETRIC SAND JOINTS

- A. Polymetric sand shall be installed per the manufacture's recommendations. Sand shall be spread and broomed into the voids until they are filled flush with the top of the pavers.
- B. At least one pass of the plate vibrator shall be made to consolidate the sand into the joints.
- C. Remaining sand shall be swept into the joints until they are filled flush to the top of the paving stones. Sweep excess material clean from the paving surface.
- D. All pavers installed during the day must be compacted by day's end. Do not install sand if paver surface is damp or wet. Any polymetric sand that adheres to the surface of the pavers as a result improper installation shall be removed at no additional cost to the Owner.
- E. Sand shall not be swept over asphalt.
- F. Sand level must be at least 1/8-in below the top of the paver's surface or 1/8-in below the chamfer or erosion may occur. The filled and cured polymetric sand joints should never be in direct contact with foot traffic or tire traffic.
- G. For textured or pre-finished surfaces, remove all sand from the pavers or slab surface prior to using the plate or roller compactor.
- H. For bluestone, do not use a compactor to vibrate material into joints. Sand shall be swept into joints with a stiff bristle broom.

3.08 MORTAR JOINTS

- A. Mortar joints shall be wet set. Use appropriate methods to ensure mortar is packed in joints. Trowel finish or broom finish joints. No dry packing and sprinkling with water will be allowed. Following setting of mortar in joints, thorough wash down grouted area to ensure that no residual grout or mortar remains on paver materials.
- B. Refer to Section 03600.
- C. Recesses surrounding the stones within each module are to be grouted at the site after module installation where indicated on the Drawings. Modules shall be grouted flush to the top of each stone with minimal depression and in accordance with manufacturer's instructions. Grout shall be brushed in a wet condition into the joints and recesses using a stiff push broom or squeegee.
 - 1. One method for grout finish is to drag blankets soaked in water, partially wrung out, across the face of the stone until clean and the grout begins to harden.
 - 2. Another method for grout finishing is to spray the surface with water using a hose held at a shallow angle to clean the face of the stone.

3. After grout has completely set, washed with ample water and removing grout film on the face of the stone with diluted muriatic acid or other approved methods that will not damage stone – especially blue stone.

3.09 EDGE RESTRAINTS

- A. Edge restraints shall be installed before paver installation. Paver edge shall be securely set on the base. All shall be accurate and true.
- B. Granite curb shall be installed at all locations between bituminous concrete pavement and brick pavers or bluestone pavers. Top of curb shall be even grade with finish grade of brick pavers within sidewalk areas. Top of flush granite edging shall be even grade with finish grade of brick pavers within pedestrian crosswalk areas.

3.10 REPAIR, CLEANING AND MISCELLANEOUS WORK

- A. Remove and replace pavers that are loose, chipped, broken, stained or otherwise damaged or if units do not match adjoining units as intended. Provide new units to match adjoining units and install in same manner as original units, with same joint treatment to eliminate evidence of replacement.
- B. The completed surfaces shall be swept clean and watered to provide a finished installation.
- C. Remove grout and other stains from exposed surfaces. Wash and scrub clean as required to obtain acceptance.

3.11 GUARANTEE/WARRANTY

- A. Warranty shall be as defined in the General Conditions to the Contract. During this period, all areas which have settled or are unsatisfactory for traffic shall be refilled and replaced at the direction of the Owner.
- B. All pavements shall be guaranteed against defects in workmanship or quality for a period of three years after final acceptance. Contractor shall repair at no cost to the Owner.

END OF SECTION

SECTION 02581
PAVEMENT MARKINGS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. This work shall consist of removal of existing markings; furnishing and placing retroreflective thermoplastic pavement markings; furnishing and placing preformed thermoplastic pavement markings; and, furnishing and placing skid resistant paint where shown on the Drawings or as directed by the Engineer.
 - 1. Green, Yellow or Brick Red skid resistant paint shall be used for infill within the crosswalks or on bike lane areas where specified or directed by the Engineer. Color to be determined by the Engineer.

1.02 RELATED WORK

- A. Traffic Regulations are included in Section 01576.
- B. Pavement, pavement repair and resurfacing is included in Section 02576.

1.03 REFERENCE STANDARDS

- A. ASTM D711 – Standard Test Method for No-Pick-Up Time of Traffic Paint
- B. ASTM D713 – Standard Practice for Conducting Road Service Tests on Fluid Traffic Marking Materials
- C. ASTM D785 – Standard Test Method for Rockwell Hardness of Plastics and Electrical Insulating Materials
- D. ASTM D7585M – Standard Practice for Evaluating Retroreflective Pavement Markings Using Portable Hand-Operated Instruments
- E. AASHTO M249 – Standard Specification for White and Yellow Reflective Thermoplastic Striping Material (Solid Form)
- F. TT-P-1952F Types I & II – Federal Specification for Paint, Traffic and Airfield Marking, Waterborne.
- G. The Massachusetts Department of Transportation Highway Division Standard Specifications for Highways and Bridges (MSSHB), and all supplements and amendments.
- H. The Manual on Uniform Traffic Control Devices (MUTCD), latest edition, with Massachusetts Amendments.
- I. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.04 SUBMITTALS

- A. All pavement marking manufacturers must be on the MassDOT - Highway Division Approved Products List. The contractor shall submit the product information including application rates to the Engineer for approval.
- B. A schedule of pavement marking operations shall be furnished by the Contractor for the approval of the Engineer prior to the application of any pavement markings. This schedule must be in the office of the Engineer seven days prior to the proposed application of any pavement markings.
- C. Glass bead gradation.
- D. Color chart.
- E. MSDS sheet for supplied materials.

1.05 DELIVERY, STORAGE AND HANDLING

- A. The finished paint, preformed thermoplastic markings or protective coating shall be furnished in new 5-gal, round, non-tapered containers no thinner than 0.0250-in. The containers shall have the lug type crimp lids with ring seals and be equipped with ears and bails. The containers shall meet U.S. Department of Transportation Hazardous Materials Shipping Regulations. The container must be lined if necessary so as to prevent attack by the paint. The lining must not come off the can as skins.
- B. The following information shall be labeled on each can and package in a clear legible manner:
 - 1. Name of Manufacturer
 - 2. Place of Manufacturer
 - 3. Manufacture's Batch Number
 - 4. MassDOT Specification Number
 - 5. Date of Manufacturer
- C. Precautions concerning the handling and the application of the paint or protective coating shall be shown on the label.

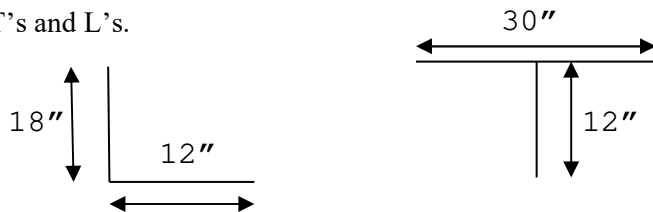
PART 2 PRODUCTS

2.01 MATERIALS

- A. Specific reference to manufactures are for informational purposes only.
- B. White Thermoplastic Reflectorized Pavement Markings shall conform to MSSHB Section M7.01.03
- C. Yellow Thermoplastic Reflectorized Pavement Markings shall conform to MSSHB Section M7.01.04

- D. Glass Beads shall conform to MSSHB Section M7.01.07.
- E. Preformed thermoplastic retroreflective white pavement marking symbols shall be as specified in MSSHB M7.01.18 and consist of all sizes and types. Where required, anti-skid applications shall be used. Markings shall be PreMark by Ennis-Flint of PPG or approved equal. Markings shall include but be not limited to the following (Note: the following is intended to be a generic list of potential pavement markings to be installed throughout the City. Additional markings may be required that are not included in the below list. Figure references refer to Chapter 3 of the MUTCD.):

1. ARROWs consisting of straight, left turn, right turn, straight with left or right turn shown in Figure 3B-24 (Narrow elongated arrows shall not be used).
2. BICYCLE SYMBOL including sharrow symbols (Figure 9C-9), bicycle detector markings (Figure 9C-7) and bike lane markings (Figure 9C-3).
3. RAISED CROSSWALK WARNING MARKINGS as shown in Figures 3B-29, 3B-30 and 3B-31.
4. LETTERS including but not limited to “STOP”, “YIELD”, “SCHOOL”, “ONLY”, “AVE”, “BLVD” as shown in 3B-23 for “ONLY”. “SCHOOL” is shown in Figure 7C-1.
5. VARIOUS SYMBOLS including but not limited to people symbols.
6. SHARK TEETH as shown in Figure 3B-16.
7. 4” T’s and L’s.



- F. Anti-skid, preformed thermoplastic green markings used in bike lane applications shall be PreMark bike lane green by Ennis-Flint of PPG or approved equal.
 1. Bike lanes shall consist of a 5-ft opening between white painted lines with a length to be determined by the Engineer.
 2. Where bike lanes cross intersections, cut green anti-skid panels shall be used at a size of 5-ft wide by 3-ft tall.
- G. “T” and “L” markings refer to parking space demarcation.
- H. Green, yellow or brick red skid resistant paint used in cross walks, bike lanes or other areas shall conform to Section M7.01.21. Skid resistant paint shall be MMAX Colored Lane Treatment with Anti-skid by Ennis-Flint of PPG or approved equal.

- I. Handicap parking space preformed thermoplastic markings shall be 4-ft by 4-ft in size and be Premark Accessibility by Ennis-Flint of PPG or approved equal as shown in Figure 3B-22 of MUTCD.
- J. Retroreflectivity: Apply white and yellow thermoplastic paint that will attain initial retroreflectance of not less than 450 mcd/lx-m² and not less than 300 mcd/lx-m², respectively.
- K. Dry Time – Applied paint shall meet ASTM D713 with a no-track time of less than 2-minutes to 3 minutes depending on the thickness of the applied paint. Non-Skid paints shall dry within one to two hours.
- L. All paint shall be lead free.
- M. Preformed retroreflective tape, Type I (Removable) shall be use for temporary traffic control setups and where directed by the Engineer. Color shall be yellow, white or black out for masking over existing lines. Following the completion of the staged construction work and where approved by the Engineer, the Contractor shall remove the tape completely.

PART 3 EXECUTION

3.01 GENERAL

- A. Prior to placement of any and all permanent pavement markings, roadway shall be thoroughly swept and cleaned of any and all debris including but not limited to oil, grease, antifreeze, loose sand, aggregate, chipping/peeling existing striping or any other materials that would adversely affect the bond of the pavement markings to the roadway. The roadway shall not be wet from rainfall or snowmelt. The Engineer will make the final determination for all of the foregoing.
- B. Apply pavement markings in accordance with the Drawing, MSSHB, the MUTCD and manufacture’s recommendations. Traffic control operations in conjunction with placing the markings shall conform to Standard Specification Section 850, the MUTCD, and the requirements of these contract documents.
- C. Do not apply paint when the wind is sufficient enough to cause spray dust. Should the Contractor apply paint in winds that cause spray dust causing damage to property, Contractor shall make any needed repairs and/or replace damaged property at no cost to Owner.
- D. Stop lines shall immediately be installed at all signalized and stop sign intersections as per MUTCD and as shown on the Drawings or directed by the Engineer.
- E. Newly applied pavement markings shall be protected from traffic until the material has cured. Damage to any marking(s) as a result of tracking shall be repaired by the Contractor at his/her expense.
- F. No pavement marking shall be placed over castings, grates, or valve box covers. Any markings over castings, grates, or valve box covers shall be replaced with a new casting, grate, or valve box cover at no additional cost to the Owner.

- G. Markings shall be applied only in seasonable weather and in accordance with good painting practices and manufacture's recommendations. No permanent pavement markings shall be placed when the ambient air and surface temperature is more than 110 degrees F or less than 50 degrees F or if the temperature is expected to fall below freezing for 18-hours after application without prior approval of the Engineer. Do not apply paint when temperatures are near or below the dew point, if wet weather has occurred in the previous 24-hours or when rain is expected within 6 hours. It is the Contractor's responsibility to coordinate with the manufacturer and Owner for determining appropriate conditions for applying paint. Any paint or markings applied not in accordance with of the manufacture's recommendations shall be removed and reinstalled at no added cost to the Owner.
- H. Coordinate pavement operations with the weather forecast to ensure that there is adequate time between wet weather events for proper curing of pavement markings. It is the Contractor's responsibility to coordinate with manufacturer and Owner to determine if work should proceed.
- I. The roadway surface to be painted shall be properly cleaned and dry prior to application. Loose dirt and debris and all other objectionable material should be removed by means of mechanical blower, handled blower or push broom. Fine dust particles can rest between the rocks on an asphalt surface and prevent the paint from properly bonding. Oil and grease shall be removed. Concrete surfaces to be painted shall be abraded to remove curing compounds prior to painting. Ensure dust from abrading process is adequately removed. The paint gun on the truck shall not be considered adequate method of removing dust and debris. Any paint not property adhering to the surface as a result of inadequate cleaning shall be repaired at no additional cost to the Owner and shall be completed to the Owner's satisfaction. The Engineer will make the final determination of all of the foregoing.
- J. Material shall be stored indoors and outside of direct sunlight. Storage temperature shall be more than 35-degree F and less than 120-degree F. Non-skid paint shall be stored between 40 degree F and 80 degree F. Outside storage for short intervals is acceptable.
- K. Temporary pavement markings shall be installed as soon as the pavement is cool and construction work is complete. Temporary pavement marking shall consist of yellow or white lines. The marking shall be installed at 50-ft intervals along the centerline of the roadway and shall consist of 2-ft long tape, 4-in in width. Temporary markings shall be removed no sooner than 1-hour before the lien painting is initiated.

3.02 EQUIPMENT

- A. All equipment used for the application of pavement markings shall be approved by the Engineer and shall be of standard commercial manufacture. All equipment and devices necessary for the protection of the pavement marking and the traveling public shall be approved by the Engineer. The pavement marking equipment shall be operated in accordance with manufacture's recommendations.
- B. Truck mounted equipment shall be used for the application of pavement markings except in such cases where the Engineer's judgment travel will be unreasonably delayed and/or the quality of the work performed by the machine is unsatisfactory.
- C. The Contractor shall supply the following equipment for each pavement marking operation:

1. An infrared pistol thermometer meeting the requirements of MSSHB Section 450.42: Weather Limitations.
2. A digital thickness gauge for measuring the thickness of thermoplastic lines and symbols.
3. A wet film thickness gauge for painted lines; and
4. A retroreflecometer with certification of calibration within the last 6 months.

The above equipment shall remain the property of the Contractor upon completion of the project **with the exception of the retroreflector which shall become property of the City.**

- D. Equipment used for installation shall produce continuous dimensions of pavement markings of varying widths and meet the following requirements:
1. Capable of traveling at a uniform, predetermined rate of speed, both uphill and downhill, in order to produce uniform application of paint and capable of following straight lines and making normal curves in a true arc.
 2. Capable of applying glass beads to the surface of the completed line by automatic bead dispenser attached to the pavement marking machine such that the glass beads are dispensed closely behind the installed line. Use a glass bead dispenser equipped with an automatic cut-off control that is synchronized with the cut-off of the paint and applies the glass beads in a manner that the beads appear uniform on the entire pavement markings surface.
 3. Capable of spraying the paint to the required thickness and width without thinning of the paint. Equip the paint tank with nozzles equipped with cut-off valves, which will apply broken or skip lines automatically.
- E. Non skid paint shall be applied with squeegees and/or trowels in small, tight areas where squeegees cannot effectively be used.
- F. Preformed thermoplastic and specialty preformed thermoplastic pavement marking shall be applied in accordance with manufacturer's recommendations. Contractor shall have all available and require equipment to properly install the materials.

3.03 COLOR

- A. The color under both daylight and nighttime conditions shall conform to the color of the markings for which they serve as a positioning guide.
- B. There must be no noticeable change in color whether it is the color or shading, any noticeable difference in the applied pavement markings will be reapplied.

3.04 GLASS BEADS

- A. Apply glass beads on all pavement markings immediately and uniformly following the paint application. The rate of application shall be based on the manufacture's recommendation.

- B. Glass beads shall be applied to ensure the reflectivity required in this document is met. Apply in a method to minimize over embedment of beads.
- C. Glass beads for water-borne traffic paint and thermoplastic pavement markings shall applied by the single drop method using AASHTO M247 Type I glass beads sprayed or dropped on pavement marking material.
- D. Glass beads for high build water-borne traffic paint shall be AASHTO M247 Type IV glass beads shall be applied.
- E. Glass beads for epoxy and polyurea pavement markings shall be both standard gradation beads and large gradation beads. Standard gradation beads shall be applied by the double drop method. Large gradation beads shall be injected into or dropped onto the liquid pavement marking material. Large gradation beads shall be applied first, immediately following standard gradation beads. The beads shall adhere to the cured pavement marking material or all pavement marking operations shall cease until corrections are made.

3.05 PAVEMENT MARKING REMOVAL

- A. Pavement marking shall be removed to the fullest extent possible by an approved method and where directed by the Engineer. Any damage to the pavement or surface caused by pavement marking removal shall be repaired by the Contractor at no additional cost to the Owner by a method acceptable to the Engineer. Approved methods of pavement marking removal include:
 - 1. Sand blasting using air or water
 - 2. High pressure water
 - 3. Steam or superheated water
 - 4. Mechanical devices such as grinders, sanders, scrapers, scarifiers and wire brushes.
- B. Unless authorized by the Engineer, painting over a pavement marking line by use of asphaltic liquids or paints will not be permitted.
- C. Material deposited on the pavement as a result of removing marking shall be removed as the work progresses. Accumulation of sand or other material which might interfere with drainage or could constitute a hazard to traffic will not be allowed.
- D. Where blast cleaning is used for the removal of pavement markings and such removal operation is being performed within 10-feet of a lane occupied by traffic, the residue including dust shall be removed immediately after contact between the sand and the surface being treated. Such removal shall be by a vacuum attachment operating concurrently with the blast cleaning operation, or by other methods approved by the Engineer.

3.05 LAYOUT

- A. It is the Contractor's responsibility to layout and mark the location of the proposed pavement markings. Reference lines shall be at maximum of 50-ft intervals by means determined satisfactory to the Engineer. All markings shall follow the line of reference without deviation. Any line deviating from the established control of incorrect width shall be reapplied, as directed by the Engineer in accordance with Section 3.05.

1. There may be times when the Engineer will layout markings. Engineer will notify Contractor of this occurrence prior to the start of work.
- B. All layout lines and proposed marking locations shall be reviewed by the Engineer prior to placement of lines. Any markings placed without the prior approval of the Engineer that are not in conformance with his/her requirements shall be removed and redone at no cost to the Owner.
- C. Crosswalks shall be centered on the curb ramp openings.
- D. When crosswalks are skewed to the roadway, the stop bar shall be placed a minimum of 4-ft from the nearest point of the crosswalk and shall be perpendicular to the travel lane.

3.05 APPLICATION OF MARKINGS

- A. Pavement markings shall be applied as follows:

Material	Application Temperature	Line Thickness Above Roadway Surface	Glass Bead Application
M 7.01.03	400 F to 425 F	125 mils to 188 mils	Drop-on 1 lb per 10 ft ²
M 7.01.04	400 F to 425 F	125 mils to 188 mils	Drop-on 1 lb per 10 ft ²
M7.01.21	N/A	90 mils	N/A

- B. Line thickness above the roadway surface shall meet the minimum requirements regardless of the type of surface on which it is applied.
- C. No thinners shall be used for the above listed pavement marking applications except in accordance with the manufacture's specifications and at the direction of the Engineer.
- D. No paint or pavement marking material shall be heated above the temperatures marked on the container.
- E. HMA pavements shall have been in place for a minimum of 14 days prior to the application of pavement markings allowing cure time and to maximize adhesion. When it is necessary to expedite the flow of traffic, the Engineer may reduce the waiting period as deemed necessary.
- F. When applying paint markings (i.e., arrows, shark teeth, lettering, bike markings, etc.), area shall be properly taped and templates used to avoid overspray and running of markings. Any markings that have excessive running or overspray shall be rejected and replaced at no additional cost to the Owner. Engineer shall make final determination.
- G. Preformed thermoplastic markings and specialty pavement markings shall be installed in accordance with the manufacture's recommendations. Contractor should note if the product is heat applied, requires pre-warming of the pavement or if the material does not and if any presealing is needed.
- H. For nonskid paint, after introduction of catalyst, immediately pour one mixed pail of material on to a single marked area, not more than 50 square feet section of the application area and use a squeegee to evenly distribute at a coverage rate of 45 to 50 square feet. Use a trowel in small,

tight areas where squeegee cannot effectively be used. After rough distribution with squeegee, back roll material (one direction only) to remove working lines created with squeegee and create a consistent, anti-slip texture. Roller will last longer during continuous usage when it remains wetted with new batches of paint, but will need to be replaced when it starts “pulling” material or creating differences in texture.

1. As material gels, but before it cures, remove masking.
 2. Remove existing latex paint or other deleterious material prior to application using appropriate cleaning or sand blasting methods. Area shall be prepared in accordance with manufacture’s recommendations and shall be subject to the approval of the Engineer.
- I. Markings shall remain protected until sufficiently dry to bear traffic on roadways that are open to traffic. Markings shall be protected by traffic cones or barrels, except in the case of markings which cure to a no track condition in 180 seconds for 15 mil and 240 seconds for 25 mil depending on application thickness or less in the latter case protection may be provided by a convoy of vehicles with suitable warning devices to warn overtaking or oncoming traffic that the pavement marking operation is in progress. Nonskid paint shall be protected for a minimum of 2 hours after application.
1. Broken Lines - on tangents and on curves of 1,000-ft radius or greater, at least one cone or barrel shall be placed on every other bar. On curves of less than 1,000-ft radius, on cone or barrel shall be placed on every bar unless otherwise directed by the Engineer.
 2. Solid Lines – On tangents and on curves of 1,000-ft radius or greater, cones or barrels shall be spaced not over 80-ft apart and on curves of less than 1,000-ft radius the spacing shall not be over 50-ft. On edge line adjacent to the median wider spacing may be used at the direction of the Engineer. Such control is dependent on traffic density, cone widths, etc.
- J. Where directed by the Engineer, pavement will be roughened or scarified to promote better adhesion of the line painting material. This shall only be completed at the direction of the Engineer.
- K. 12-inch lines shall be applied in one application, no combination of lines (i.e., two 6-in lines) will be accepted.
- L. When parking exists, centerline of the sharrow symbol shall be placed approximately 12-ft from the edge of the curb face. When no parking exists, centerline of sharrow to be placed a minimum of 4-ft from the curb face.

3.06 INSPECTION AND APPROVAL

- A. The Engineer will inspect and approve the pavement markings. Should any markings or symbols fail to meet the minimum requirements of the Drawings, MSSHB, the MUTCD or the requirements of these documents, the Contractor shall immediately remove (obliterate) the markings, completely, and replace them in conformance with the requirements. This shall be done at the Contractor’s expense.

- B. If for any reason material is spilled or tracked on the pavement, or any markings applied by the Contractor in the Engineer's judgement fail to conform because of a deviation from the desired pattern or installed in the incorrect location, the Contractor shall completely remove such material by a method that is not injurious to the roadway surface or adjacent areas and is acceptable to the Engineer. Clean the roadway surface and prepare the surface for a reapplication of markings and reapply the markings as directed without additional compensation for any of the foregoing corrective operations.

3.06 CLEANING

- A. All excess material shall be disposed of in accordance with local, state and federal requirements.
- B. Under no circumstances shall equipment be washed in the City right of way, disposed of in a sewer or storm drain, or wash water conveyed to a City sewer or storm drain.

3.07 WARRANTY

- A. For thermoplastic, ensure that the minimum retroreflectance of white and yellow pavement markings are not less than 450 mcd/lx m² and 300 mcd/lx m² respectively. If the retroreflectivity values for thermoplastic fall below the 450 mcd/lx m² and 300 mcd/lx m² respectively value within 180 days of the initial application, the pavement marking will be reapplied at the Contractor's expense.

END OF SECTION

SECTION 02605
PRECAST CONCRETE MANHOLES, CATCH BASINS AND STRUCTURES

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and install precast concrete manholes, precast concrete catch basins, precast concrete structures, frames and covers, access hatches, manhole rungs and appurtenances all as shown on the Drawings and as specified herein.
- B. Prior to ordering the materials, Engineer will provide to the Contractor the design flood elevation. No materials shall be ordered until this is provided. If material are ordered prior to issuance of this information, they may be rejected and replaced at no additional cost to the Owner.

1.02 RELATED WORK

- A. Pipe penetrations is included in Section 01180.
- B. Excavation and backfill is included is Section 02221.
- C. Granular materials are included in Section 02230.
- D. Concrete is included in Section 03301.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, shop drawings showing details of construction, reinforcing, joints, pipe connection to manhole, catch basins, structures, manhole rungs, manhole platforms (if applicable), manhole frames and covers, and access hatches.
 - 1. Base sections, riser sections, eccentric and concentric conical top sections, flat slab tops, grade rings with notarized certificate indicating compliance with ASTM C478.
 - 2. Pipe connections to manholes, catch basins and structures.
- B. Submit for review, structural calculations including all references and assumptions and drawings for all precast structures, manholes, and catch basins. Calculations shall be by a registered professional engineer in the Commonwealth of Massachusetts. Calculations shall also include details of conformance with anti-buoyancy protection requirements herein.
 - 1. If required based on the provided flood elevation, submit calculations stamped by a registered professional engineer in the Commonwealth of Massachusetts and details for "hold down" slab and anchorage to precast concrete manholes, catch basins and structures including all assumptions and design references.
- C. Submit P.E. Certification Form appended to Section 01300 to indicate compliance with the requirements of this Section.

- D. Concrete design mix data and concrete test cylinder reports from an approved concrete testing laboratory certifying that the concrete used in the precast structures conforms with the strength requirements specified herein.
- E. Results of leakage test.
- F. Manhole frame and cover and catch basin frame and grate with notarized certificate indicating compliance with the specifications ASTM standards and class designation.
- G. Manhole rungs, including method of installation and notarized certificate indicating compliance with pull-out resistance test specified herein.
- H. Method of repair for minor damage to precast concrete sections.
- I. Sewer brick with notarized certificate indicating compliance with ASTM C32, Grade SS.
- J. Building brick with notarized certificate indicating compliance with ASTM C62.

1.04 REFERENCE STANDARDS

- A. ASTM International
 - 1. ASTM A48 - Standard Specification for Gray Iron Castings
 - 2. ASTM A615 - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
 - 3. ASTM C32 - Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale).
 - 4. ASTM C33 – Standard Specification for Concrete Aggregate
 - 5. ASTM C62 - Standard Specification for Building Brick (Solid Masonry Units Made from Clay or Shale).
 - 6. ASTM C150 - Standard Specification for Portland Cement.
 - 7. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes.
 - 8. ASTM C443 - Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.
 - 9. ASTM C478 - Standard Specification for Precast Reinforced Concrete Manhole Sections.
 - 10. ASTM C857 – Standard Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures.
 - 11. ASTM C858 – Standard Specification for Underground Precast Concrete Utility Structures
 - 12. ASTM C990 - Standard Specification for Joints for Concrete Pipe, Manholes and Precast Box Sections Using Preformed Flexible Joint Sealant.

13. ASTM D4101 - Standard Specification for Propylene Plastic Injection and Extrusion Materials.

B. American Concrete Institute (ACI)

1. ACI 318 - Building Code Requirement for Structural Concrete.

2. ACI 350R – Environmental Engineering Concrete Structures.

C. American Association of State Highway and Transportation Officials (AASHTO)

D. Occupational Safety and Health Administration (OSHA)

E. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

A. The quality of all 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 requirements specified herein; 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. All materials which have been damaged after delivery will be rejected, and if already installed, shall be acceptably repaired, if permitted, or removed and replaced, entirely at the Contractor's expense.

B. At the time of inspection, the materials will be carefully examined for compliance with the ASTM standard specified below and this Section and with the approved manufacturer's drawings. All manhole sections shall be inspected for general appearance, dimension, "scratch-strength", blisters, cracks, roughness, soundness, etc. The surface shall be dense and close-textured. Precast sections shall be manufactured by using the "wet method" of fabrication.

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-in by 6-in cylinders stored in the standard manner. Epoxy mortar may be utilized for repairs subject to the approval of the Engineer.

D. All materials shall be new and unused.

PART 2 PRODUCTS

2.01 GENERAL

A. Reference to a manufacturer's name and model or catalog number is for the purpose of establishing the standard of quality and general configuration desired.

- B. Like items of materials/equipment shall be the end products of one manufacturer in order to provide standardization for appearance, operation, maintenance, spare parts and manufacturer's service.
- C. Provide lifting lugs or holes in each precast section for proper handling.
- D. Precast concrete grade ring may be used in lieu of bricks to raise the top of manholes to grade.
- E. Cement shall conform to ASTM C150, Type II or equal.
- F. Mark date of manufacture, name and trademark of manufacturer on the inside of each structure.
- G. Use approved curing methods. Precast concrete sections shall be properly cured prior to loading and shipping. Precast concrete sections shall not be shipped before concrete has attained 3,000 psi compressive strength or 5 days following manufacture, whichever is greater.

2.02 PRECAST CONCRETE MANHOLE SECTIONS AND CATCH BASINS

- A. Precast concrete base sections, barrel sections, transition top sections, flat top slabs and grade rings shall conform to ASTM C478 and meet the following requirements:
 1. The wall thickness shall not be less than 5-in for 48-in diameter reinforced barrel sections], 6-in for 60-in diameter reinforced barrel sections and 7-in for 72-in diameter reinforced barrel sections.
 2. Top sections shall be eccentric except that barrel sections shall be used where shallow pipe cover requires a top section less than 4-ft 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 AASHTO HS-20 loading plus the weight of the soil above at 120 pcf. For the structures located within the 100-year flood plain, they shall be designed to accommodate the additional pressure from flood waters to the elevations provided by the Engineer prior to ordering materials.
 6. The structure shall be designed to prevent flotation without the benefit of skin friction when the groundwater level is at finished grade surface or the design flood elevation, which ever is greater. Flotation forces shall be resisted by the dead load of the structure and soil directly above the structure. Weight of equipment, piping, and contents within the structure and soil friction forces shall not be considered as being effective in resisting flotation forces. The minimum factory of safety against flotation shall be 1.15. If required, provide reinforced concrete "hold down" slab firmly anchored to the base of the manhole, catch basin or structure with Type 316 stainless steel bolts. Buoyancy computations and slab anchorage design computations and details shall be prepared and stamped by a registered professional engineer in the Commonwealth of Massachusetts.

7. The date of manufacture and the name and trademark of the manufacturer shall be clearly marked on the inside of each precast section.
8. Precast concrete bases shall be constructed and installed as shown on the Drawings. The thickness of the bottom slab of the precast bases shall not be less than the manhole barrel sections or top slab whichever is greater.
9. Construct and install precast concrete base as shown on the Drawings. Knock out panels shall be provided in precast concrete manhole sections for mainline pipes only at the locations shown on the Drawings. Catch basins and catch basin connections to drain manholes do not require knockout panels; they shall be field cored/cut in approved method to accommodate required invert, field conditions, and pipe material. They shall be integrally cast with the section. They shall be 2 ½-in thick and shall be sized as shown on the Drawings. There shall be no steel reinforcing in knock out panels.
10. 5'x5' precast concrete square top slab for Bradley Head catch basins will be provided by the Owner.
11. Wash Stone for Bradley Head catch basins will be provided by the Owner.

2.03 PRECAST CONCRETE STRUCTURES

- A. The precast reinforced concrete structures shall be manufactured by Rotundo & Sons, Inc.; American Precast or equal. The inside dimensions, headroom requirements and minimum thickness of concrete shall be as indicated on the Drawings. The manufacturer shall notify the Engineer at least 5 working days prior to placing concrete during the manufacturing process. The Engineer may inspect the reinforcing steel placement and/or require the manufacturer to provide photographs of each section showing the location of all reinforcing steel prior to the placing of concrete. Should it be found that the placement of steel is not as detailed in the shop drawing submittals, the section in question shall be rejected and a replacement section shall be manufactured at the Contractor's expense. Failure to properly notify the Engineer prior to placing concrete shall require the precast sections to be rejected and replacement sections to be manufactured at the Contractor's expense.
- B. Structural design calculations and Drawings shall be prepared and stamped by a professional engineer registered in the Commonwealth of Massachusetts.
- C. All precast concrete shall have a minimum compressive strength of 5000 psi at 28 days. Water shall be kept to a minimum to obtain concrete which is as dense and watertight as possible. The maximum water-to-cement ratio shall be 0.40 by weight and the minimum cement content shall be 600 lbs of cement per cubic yard of concrete. The above ratios shall be revised for sacks of cement weighing different from 94 pounds per sack.
- D. Design Criteria
 1. All precast concrete members shall conform to ACI 318 and ACI 350.
 2. When the design yield strength "fy" for tension reinforcement exceeds 40,000 psi, the "z" values referred to in ACI 318 shall not exceed 95 kips/in. The flexural stress in reinforcement under service loads "fs" shall be calculated and shall not be greater than 50 percent of the specified yield strength fy.

3. The precast concrete structure's elements shall be designed to support their own weight, the weight of soil above at 120 pcf and shall be capable of withstanding a live load equal to an AASHTO HS-20 highway loading applied to the top slab.
 4. The base slab and walls shall be cast together to form a monolithic base section.
 5. All exterior walls shall be designed for an equivalent fluid pressure of 90 lbs/sq ft. The top of the pressure diagram shall be assumed to originate at finished ground level. Additional lateral pressure from approaching truck wheels shall be considered in accordance with AASHTO.
 6. The structural design shall take into account discontinuities in the structure produced by openings and joints in the structure.
 7. The structure shall be designed to prevent flotation without the benefit of skin friction when the groundwater level is at finished grade surface or the design flood elevation, whichever is greater. Flotation forces shall be resisted by the dead load of the structure and soil directly above the structure. Weight of equipment, piping, and contents within the structure and soil friction forces shall not be considered as being effective in resisting flotation forces. The minimum factor of safety against flotation shall be 1.15. If required, provide reinforced concrete "hold down" slab firmly anchored to the base of the manhole, catch basin or structure with Type 316 stainless steel bolts. Buoyancy computations and slab anchorage design computations and details shall be prepared and stamped by a registered professional engineer in the Commonwealth of Massachusetts.
 8. If the design of the box structure requires a concrete pad to prevent flotation, the cost of designing, furnishing and installing a reinforced concrete pad shall be included in the price for the structure. Details of the design of the concrete pad (if required) shall be submitted to the Engineer for review.
 9. All walls and slabs shall be analyzed by accepted engineering principles. Openings shall be completely framed as required to carry the full design loads to support walls. All slabs and walls shall be fully reinforced on both faces and the minimum reinforcing shall be No. 5 at 12-in E.F.E.W. Additional reinforcing shall be provided around all openings.
 10. The horizontal wall joints shall not be located within 18-in of the horizontal centerline of wall penetrations.
- E. The structure shall be built by the manufacturer in no more than four major sections including the top slab if required.
- F. Where top slabs are used or required, lifting hooks shall be provided.
- G. As required, access openings and pipe penetrations shall be formed openings and located as shown on the Drawings.
- H. Wall sleeves as shown on the Drawings, shall be provided to the precast concrete manufacturer for inclusion in the manufacture of the structure.

2.04 OUTLET CONTROL STRUCTURES

- A. Outlet control structure shall be a 5-ft diameter manhole unless otherwise indicated on the Contract Drawings.
- B. Outlet control structure shall have a brick overflow weir in the center of the manhole. The overflow weir shall be 12 inches thick with a weir elevation as indicated on the Contract Drawings. Overflow weir shall be embedded in a minimum of 3 inches of concrete at the bottom of the manhole.
- C. Outlet control structure shall have a 12 inch deep sump.
- D. Overflow weir shall have a low-flow circular orifice pipe embedded in the weir at an invert indicated on the Contract Drawings. Circular orifice pipe shall be HDPE or PVC pipe as indicated on the Contract Drawings. Circular orifice pipe shall be grouted within the overflow weir with a non-shrink waterproof grout, Hallemite; Waterplug; Embecco or equal.

2.05 RAINGARDEN AND VEGETATED BIORETENTION AREA OVERFLOW STRUCTURE

- A. Overflow structures as shown on the Contract Drawings shall be 10 to 12 inch diameter Nyloplast drain basins as manufactured by Advanced Drainage Systems, Inc, or approved equal. Overflow structures shall have a 12 inch sump.
- B. Overflow structures shall be manufactured from PVC pipe stock, using a thermos-molding process to reform the pipe stock to the specified configuration. The drainage pipe connection stubs shall be manufactured from PVC pipe stock and formed to provide a watertight connection with the specified pipe system. This joint tightness shall conform to ASTM D3212. The flexible elastomeric seals shall conform to ASTM F477. The pipe bell spigot shall be joined to the main body of the overflow structure.

2.06 PRECAST STORMWATER FILTRATION TREATMENT UNITS

- A. The selected unit shall be manufactured by StormTree, Providence, RI 02940, or approved equal. Model shall be specified on the Drawings. At a minimum, the filtration treatment units shall meet the following minimum removal requirements:
 - 1. TSS – 92-percent
 - 2. P – 63-percent
 - 3. Dissolved Zinc – 70-percent
 - 4. Dissolved Copper – 36-percent
- B. Curb Nosing (where applicable) shall be galvanized or stainless steel and where specified shall be cast into the top portion of structure and designed to support AASHTO HS-20 loading at the curb. The materials and structural design of the stormwater filtration treatment unit shall be per ASTM C857 and ASTM C858.
- C. The precast unit shall consist of a four-sided enclosure with number of open sides as indicated on the Drawings, consisting of a rectangular tree well with open sides below the elevation of the tree root ball (number of open sides indicated on the Drawings) and an open bottom and an

attached (monolithic) catch basin with an enclosed bottom with a minimum width of 2-ft and 24-in by 4-in high curb inlet. At a minimum all sides shall be closed for 18-in around the structure. The two sections shall be separated by a precast weir as shown on the Drawings. The catch basin shall have weep holes cast into one or more sidewalls. The dimensions of the unit shall match those shown on the Drawings.

1. As indicated on the Drawings, a 316 stainless steel screen with 1-in diameter holes shall be installed along the full length of the overflow weir as a floatable control. Screen shall be bolted to the structure with anchor bolts.
 2. Where required, the structure shall also contain an integrally cast and attached catch basin suitable for a catch basin grate. The basin shall have an internal dimension of 2-ft by 2-ft. When required, the structure does not need a separate curb inlet.
- D. The unit shall include a two-piece fiberglass grate and cast iron frame and cover over separate catch basin for access to the sump. The grating shall be designed to withstand a minimum pedestrian loading of 500 lbs/ft² as a uniform live loading during the life of the installation. All pieces shall be removable allowing access for the cleaning and maintenance of the system interior. The two-piece grate shall have an opening in each piece that forms a square around the planted tree. The grates shall be recessed flush into the top of the precast unit as shown on the Drawings. The grate shall be fiberglass or other approved material fabrication and be ADA compliant having no greater than a 0.50" opening and capable of supporting a minimum pedestrian loading of 300 lbs/ft². The fiberglass grate shall be 1-1/2 inches deep and supported in the recess of the precast concrete and with stainless steel angle bars as shown on the Drawings. The cast iron frame and cover shall be cast in the structure, be a minimum of 24-in in diameter and be HS-20 rates. DRAIN shall be cast in 3-in letters and the cover shall have a diamond pattern with pick holes for opening.
1. The fiberglass grate may be substituted with a cast iron or steel grate in which case. Coordinate manufacture of structure with make and model of grate.

2.07 BRICK MASONRY

- A. The bricks shall be good, sound, hard and uniformly burned, regular and uniform in shape and size, of compact texture and satisfactory to the Engineer. 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 ASTM C32 for Sewer Brick, Grade SS (from clay or shale) except that the mean of five tests for absorption shall not exceed 8 percent and no individual brick exceed 11 percent.
 2. Bricks for building up and leveling manhole frames shall conform to ASTM C62.
- B. Mortar used in the brickwork shall be composed of 1 part Type II Portland cement conforming to ASTM C150 to 2 parts sand to which a small amount of hydrated lime not to exceed 10 lbs to each bag of cement shall be added.
- C. The 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. The hydrated lime shall also conform to ASTM C207.

2.08 CONCRETE FILL

A. Concrete fill for manhole channels, shelves, and other assorted structure fill shall be as specified in Section 03301.

2.09 DRAIN MANHOLE INVERTS

A. Drain manholes shall have concrete inverts and shelves conforming to one-half the diameter of the largest pipe unless otherwise noted on the Drawings or directed by the Engineer.

B. At changes in direction, the inverts shall be laid out in curves of the longest radius possible, tangent to the centerline of the drain pipes. Shelves shall slope towards the invert channels at 1/2-in per foot.

2.10 MANHOLE AND CATCH BASIN FRAMES, GRATES 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 30.

B. Depending on the flood elevation provided by the Engineer, for those sewer manholes with elevations below the flood elevation, shall have a water tight frame (bolted and gasketed) and cover installed. Drain manholes installed below the flood elevation do not need to be water tight.

C. All castings shall be manufactured in America. No foreign made castings will be accepted.

D. Manhole covers shall have a diamond pattern and pickholes. Covers for drain manholes shall have the word DRAIN and for sewer manholes the word SEWER cast in 3-in letters. Manhole frame and covers shall be East Jordan Foundry; Mechanics Iron Foundry; Neenah Foundry or equal. The following model numbers are shown for informational purposes:

1. Manhole Frame and Cover – East Jordan Iron Works Model No. 2008Z Frame and 2006A1 Cover for 4-ft, 5-ft and 6-ft diameter manholes, or approved equal.
2. Water Tight Manhole Frame and Cover – East Jordan Iron Works Model No. 2008ZPT Frame and 2006APT Cover for 4-ft, 5-ft and 6-ft diameter manholes, or approved equal. Covers shall be bolted and gasketed.
3. Catch basin hoods shall be cast iron and as manufactured by East Jordan Iron Works, 5902 Assembly (MassDOT Catch Basin Hood Assembly 201.12.0) or approved equal. Catch basin hoods shall be gray cast iron AASHTO Class 30. Hoods shall be hinged to allow for opening of the hood to clean the inlet drain pipe, of adequate size to accommodate the specified inlet pipe diameter and catch basin diameter.
4. Catch basin frames and grades (for catch basins or gutter inlets installed in the street) shall be 3 flange or 4 flange as required and manufactured by East Jordan Iron Works model 5523 Frame and 5520M5 Grate for three flange and 5524 Frame with 5520M5 Grate for

four flange, or approved equal. If cascade grates are required, shall be provided with vanes in proper direction and shall be equal to grate Model 5520M8 and frame model 5525Z for three flange and four flange or approved equal.

5. Beehive style grates for overflow structures as shown on the Contract Drawings shall be ductile iron domed, Nyloplast, or approved equal. Dome grate shall be constructed of ductile iron conforming to ASTM A536 70-50-05, with a cast iron frame and shall be painted black with a locking device. Locking device shall consist of a ¼-20 x 6” long zinc-plated steel hex bolt (with 7/16” socket), 10” ductile iron grate lock bar, and (2) ¼-20 x ½” long black steel Allen head socket head cap screws.
6. Curb inlets shall conform to MSSHB Section M9.04.5.
7. Traffic signal hand hole boxes/pull boxes and covers shall conform to MSSHB standards, be 12” x 12” Box SD2.031.

2.11 JOINTING PRECAST MANHOLE SECTIONS, CATCH BASINS AND STRUCTURES

- A. Tongue and groove joints of precast manhole [and structure] sections shall be sealed with either a round rubber O-ring gasket or a preformed flexible joint sealant. The O-ring shall conform to ASTM C443. The preformed flexible joint sealant shall be Kent Seal No. 2 by Hamilton-Kent; Ram-Nek by K.T. Snyder Company or equal.
- B. Joints shall be designed and manufactured so that the completed joint will withstand an internal water pressure of 15 psi without leakage or displacement of the gasket or sealant.

2.12 MANHOLE RUNGS

- A. Manhole rungs shall be either of the following types:
 1. Manhole rungs shall be of cast aluminum alloy 6061-T6, drop front design, 12-in wide with an abrasive step surface. The manhole rungs shall conform to the requirements of OSHA.
 2. Manhole rungs shall be steel reinforced copolymer polypropylene plastic. Rungs shall be 14-in wide, M.A. Industries Type PS2-PF-SL or equal. Copolymer polypropylene shall conform to ASTM D4101, PP0344 B33534 Z02. Steel reinforcing shall be 1/2-in diameter, grade 60 conforming to ASTM A615 and shall be continuous throughout the rung. The portion of the legs to be embedded in the precast section shall have fins and be tapered to insure a secure bond.

2.13 ACCESS HATCH(ES)

- A. Access hatches shall be as specified on the Drawings.

2.14 PIPE CONNECTIONS TO MANHOLE

- A. Manhole pipe connections may be accomplished in the following ways:
 1. A tapered hole filled with non-shrink waterproof grout, Hallemite; Waterplug; Embecco or equal, after the pipe is inserted is acceptable, providing the grout is placed carefully to completely fill around the pipe. If this method is used, place concrete encasement to assure

a total 12-in of concrete including manhole thickness around the pipe stub. For PVC pipe, a waterstop gasket and stainless steel clamp shall be attached to the pipe prior to grouting.

2. The "Lock Joint Flexible Manhole Sleeve" shall be cast in the precast manhole base. The stainless steel strap shall be protected from corrosion with bitumastic or asphaltic dampproofing materials.
3. "A-Lok" shall be a rubber like gasket cast in the precast manhole base. The rubber gasket shall be cast into a formed opening in the manhole.
4. "KOR-N-SEAL" joint shall be installed as recommended by the manufacturer. The stainless steel clamp shall be protected from corrosion with bitumastic or asphaltic dampproofing materials.

2.15 DAMPPROOFING

- A. Brushed dampproofing shall be an asphalt emulsion reinforced with fibers conforming to ASTM D1227, Type II, Class 1. The dampproofing shall be Hydrocide 700B by Sonneborn Building Products, Division of ChemRex Inc., Minneapolis, MN; Karnak 220 Asphalt Emulsion by Karnak Corporation, Clark, NJ or equal.

2.16 GRADE ADJUSTMENT RINGS

- A. Grade adjustment rings shall be installed between the top concrete manhole section and the frame and cover to place the frame and cover at the same grade and slope as the surrounding pavement. The total maximum thickness of grade rings shall be 8-in. The rings shall be one piece and shall be precast concrete meeting the requirements of ASTM C478; Infra-Riser, as manufactured by GNR Technologies (Exeter Supply, Inc., 610-779-4230) from a composite material consisting of recycled rubber, nylon fiber, and polyurethane pre-polymer. They shall be designed for an HS-20 highway loading.
- B. Grade adjustment rings shall have provisions (precast slots or holes) for use of anchor bolts to secure the manhole frame and cover to the top concrete manhole section. Slope rings shall be provided as required to adjust the frame and cover to match the cross slope of the surrounding pavement.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Manhole, Catch Basin and Structure Installation
 1. Manhole, catch basin and structure shall be constructed to the dimensions shown on the Drawings and as specified herein. All work shall be protected against flooding and flotation.
 2. The bases of manholes shall be placed on a bed of 12-in screened gravel as shown on the Drawings. The bases shall be set at a grade to assure that a maximum of 8-in thickness of brickwork will bring the manhole frame and cover to final grade. Cast-in-place bases shall be constructed in accordance with the requirements of Division 3 and the details shown on the Drawings.

3. Precast concrete barrel sections [and structures] shall be set plumb and with sections in true alignment with a 1/4-in maximum tolerance to be allowed. The joints of precast barrel sections shall be sealed with either a rubber O-ring set in a recess or the preformed flexible joint sealant used in sufficient quantity to fill 75 percent of the joint cavity. The outside and inside joint shall be filled with non-shrink mortar and finished flush with the adjoining surfaces. Allow joints to set for 24-hours before backfilling. Backfilling shall be done in a careful manner, bringing the fill up evenly on all sides. If any leaks appear in the manholes, the inside joints shall be caulked with lead wool to the satisfaction of the Engineer. Install the precast sections in a manner that will result in a watertight joint.
4. Holes in the concrete barrel sections required for handling or other purposes shall be plugged with a non-shrinking grout or non-shrinking grout in combination with concrete plugs and finished flush on the inside.
5. Where holes must be cut in the precast sections to accommodate pipes, cutting shall be done prior to setting manhole sections in place to prevent any subsequent jarring which may loosen the mortar joints.
6. Backfill carefully and evenly around manholes, catch basins and structure sections.

B. Manhole and Catch Basin Pipe Connections

1. Manhole and catch basin pipe connections shall be accomplished in the ways specified herein. Pipe stubs for future extensions shall also be connected and the stub end closed by a suitable watertight plug.

C. Manhole Rung Installation

1. Aluminum manhole rungs shall be grouted into precast sections, on 12-in centers, by the manufacturer. Holes in riser and cone sections for rungs shall be pre-formed during casting. Holes for rungs shall be 1-1/8-in in diameter and shall be a minimum of 3-1/2-in deep. Rungs shall be grouted into the sections immediately after they are cast and placed in the curing area, or immediately after holes are cored into base sections. Holes shall be filled with grout consisting of Portland Type II cement and mortar sand in a 1-1/2 ratio mixed to a putty consistency. Those parts of the rungs which are embedded shall receive a heavy coating of zinc chromate or other approved paint.
2. Steel reinforced polypropylene plastic manhole rungs shall be driven into tapered holes in the precast riser and cone sections during the manufacture of the sections. Holes for rungs shall be pre-formed during the casting of the sections and shall not be drilled out after casting. The preformed holes shall be a minimum of 3-1/2-in deep and shall taper from 1-1/8-in to 1-3/8-in diameter.

D. Precast Stormwater Filtration Treatment Units

1. The precast components of the stormwater filtration treatment unit shall be delivered to the project site via a flatbed transport. The Contractor shall provide equipment at the site that has adequate capacity to unload the precast components.
2. The precast unit shall be placed above a layer of crushed 3/4-in crushed double washed stone. The stone will be placed to a minimum of 2 feet beyond the outside dimensions of

the precast unit provided there are not setback restrictions and a minimum of 12-in below base of the structure.

3. A woven geotextile liner, meeting the manufacturer's requirements will be placed at the bottom of the excavation and between the vertical limit of the excavation and the crushed stone.
4. The vertical portion of the overflow pipe system, within the crushed stone layer, shall be perforated or as with openings and will provide for a sediment collection area at the bottom of the crushed stone layer and below the outlet pipe.
5. Install separate liner system as indicated on the Drawings.

E. Access Hatch(es)

1. Coordinate with structure construction.
2. Precast manufacturer, Contractor and supplier shall coordinate prior to ordering and installing equipment in precast concrete structures and manholes.

F. 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 1-1/2 hours and shall be constantly worked over with 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 degrees 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 and concrete as shown on the Drawings and as specified. The channels shall correspond in shape to 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 1/2-in per foot to drain toward the flow through channel. Brick surfaces exposed to sewage flow shall be constructed with the nominal 2-in by 8-in face exposed (i.e., bricks on edge).
3. Sewer manholes shall have brick lined channels, inverts and shelves. At changes in direction, the inverts shall be laid out in curves of the longest radius possible, tangent to the centerline of the sewer pipes.
4. Drain manholes shall have concrete shelves. At changes in direction, the inverts shall be laid out in curves of the longest radius possible, tangent to the centerline of the drain pipes.
5. Manhole covers and frames shall be set in a full mortar bed and bricks, a maximum of 8-in thick, shall be utilized to assure frame and cover are set to the existing grade. If full width paving is the permanent paving, the manhole frame and cover shall be reset to final grade prior to placement of permanent paving.

G. Dampproofing

1. Outer surfaces of precast and cast-in-place manholes and structures shall dampproofed at the rate of 30 to 35 sq ft per gallon as directed by the Engineer and in accordance with manufacturer's instructions.

3.02 LEAKAGE TESTS

- A. Leakage tests shall be made and observed by the Engineer on each manhole. The test shall be the exfiltration test made as described below:
 1. After the manhole has been assembled in place, all lifting holes and those exterior joints within 6-ft of the ground surface shall be filled and pointed with an approved non-shrinking mortar. The test shall be made prior to placing the shelf and invert and before filling and pointing the horizontal joints below the 6-ft depth line. If the groundwater table has been allowed to rise above the bottom of the manhole, it shall be lowered for the duration of the test. All pipes and other openings into the manhole shall be suitably plugged and the plugs braced to prevent blow out.
 2. The manhole shall then be filled with water to the top of the cone section. If the excavation has not been backfilled and observation indicates no visible leakage, that is, no water visibly moving down the surface of the manhole, the manhole may be considered to be satisfactorily water-tight. If the test, as described above is unsatisfactory as determined by the Engineer, or if the manhole excavation has been backfilled, the test shall be continued. A period of time may be permitted if the Contractor so wishes, to allow for absorption. At the end of this period, the manhole shall be refilled to the top of the cone, if necessary and the measuring time of at least 8 hours begun. At the end of the test period, the manhole shall be refilled to the top of the cone, measuring the volume of water added. This amount shall be extrapolated to a 24-hour rate and the leakage determined on the basis of depth. The leakage for each manhole shall not exceed 1 gallon per vertical foot for a 24-hour period. If the manhole fails this requirement, but the leakage does not exceed 3 gallons per vertical foot per day, repairs by approved methods may be made as directed by the Engineer to bring the leakage within the allowable rate of 1 gallon per foot per day. Leakage due to a defective section or joint or exceeding the 3 gallon per vertical foot per day shall be the cause for the rejection of the manhole. It shall be the Contractor's responsibility to uncover the manhole as necessary and to disassemble, reconstruct or replace it as directed by the Engineer. The manhole shall then be retested and, if satisfactory, interior joints shall be filled and pointed.
- B. No adjustment in the leakage allowance will be made for unknown causes such as leaking plugs, absorptions, etc., i.e., it will be assumed that all loss of water during the test is a result of leaks through the joints or through the concrete. Furthermore, take any steps necessary to assure the Engineer that the water table is below the bottom of the manhole throughout the test.
- C. If the groundwater table is above the highest joint in the manhole, and if there is no leakage into the manhole as determined by the Engineer, such a test can be used to evaluate the water-tightness of the manhole. However, if the Engineer is not satisfied, lower the water table and carry out the test as described hereinbefore.
- D. A vacuum test may be substituted for a leakage test as follows:
 1. Where the excavation has not been backfilled, the filling and pointing of exterior joints shall not be necessary prior to performing this test.

2. The vacuum test shall be conducted as follows:
 - a. The compression band shall be inflated to affect a seal between the vacuum base and the top of the manhole. The vacuum pump shall then be connected to the outlet port with the valve open and a vacuum of 10" Hg (20" of Hg absolute) drawn. The valve shall then be closed.
 - b. The following test criteria shall apply to manholes:
 - 1) A drop of 1" Hg shall be allowed over a 2-minute period for manholes 0-10 feet deep.
 - 2) A drop of 1" Hg shall be allowed over a 2-1/2-minute period for manholes 10-15 feet deep.
 - 3) A drop of 1" Hg shall be allowed over a 3-minute period for manholes 15-30 feet deep.
 - 4) If the pressure drop exceeds the acceptable limits the Contractor shall be allowed to make necessary repairs, as approved by the Engineer. The manhole shall then be re-tested.
 - 5) If the manhole fails to meet the minimum requirements of the vacuum test when re-tested, it may be water tested as outlined in paragraph 3.02.
 - 6) Upon completion of a successful vacuum test, the interior and exterior joints shall be filled and pointed.

E. Leakage Tests for Drain Manholes, Catch Basins and Structures

1. The Engineer will visually inspect structure(s) for possible leaks before backfilling of structures is allowed. All joints shall be sealed to the satisfaction of the Engineer.
2. The Engineer may require an exfiltration test as described for manholes on any structure for which he/she deems the test appropriate.

3.03 CLEANING

- A. All new manholes shall be thoroughly cleaned of all silt, debris and foreign matter of any kind, prior to final inspection.

END OF SECTION

SECTION 02612
REINFORCED CONCRETE PIPE

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals necessary and install and test reinforced concrete pipe for sewers and drains complete as shown on the Drawings and as specified herein.
- B. All pipe and fittings shall be manufactured for this project and no pipe shall be furnished from stock.

1.02 RELATED WORK

- A. Submittals are included in Section 01300
- B. Testing and cleaning of pipelines are included in Section 01445.
- C. Delivery, storage and handling is included in Section 01600.
- D. Excavation and backfilling are included in Section 02221.
- E. Granular materials are included in Section 02230.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, shop drawings showing layout and details of reinforcement, joint, method of manufacture and installation of pipe, gasket, specials and fittings, the name of the pipe manufacturer.
- B. Submit with the shop drawings documentation that the fine and course aggregates to be used in manufacture of the concrete pipe comply with the requirements of Paragraph 2.01C. Documentation shall be less than 6 months old and shall indicate the source of the aggregates and the date of the analysis. Similar documentation shall be submitted to the Engineer at least yearly while pipe is being manufactured for this project.
- C. Prior to each shipment of pipe, submit certified test reports that the pipe was manufactured and tested in accordance with the ASTM Standards specified herein.
 - 1. Documentation shall be signed and sealed by a professional engineer registered in the Commonwealth of Massachusetts from a qualified, independent materials testing laboratory that conforms to ASTM E329 and is regularly inspected by the Cement and Concrete Reference Laboratory of the National Bureau of Standards.
- D. Submit the results of the compressive strength tests to the Engineer.

1.04 REFERENCE STANDARDS

- A. ASTM International
 - 1. ASTM C33 - Standard Specification for Concrete Aggregates.

2. ASTM C76 - Standard Specification for Reinforced Concrete Culvert, Storm Drain and Sewer Pipe.
3. ASTM C150 - Standard Specification for Portland Cement.
4. ASTM C361 - Standard Specification for Reinforced Concrete Low-Head Pressure Pipe.
5. ASTM C443 - Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.
6. ASTM C497 - Standard Test Methods for Concrete Pipe, Manhole Sections or Tile.
7. ASTM C924 – Standard Practice for Testing Concrete Pipe Sewer Lines by Low Pressure Air Test Method.
8. ASTM 969 - Standard Practice for Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines.
9. ASTM E329 – Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.

B. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

- A. The manufacturer shall perform the acceptance tests in accordance with ASTM C76.
- B. Reinforced concrete pipe manufactured for this Contract may be inspected at the plant for compliance with this Section by an independent testing laboratory provided by the Owner. The manufacturer's cooperation in these inspections shall be required. The cost of this inspection of all pipe approved for this Contract, plus the cost of inspection of a reasonable amount of disapproved pipe will be borne by the Owner.
- C. Inspection of the pipe will be made by the Engineer or other representatives of the Owner after delivery. The pipe shall be subject to rejection at any time on account of failure to meet any of the requirements specified herein, even though pipes may have been accepted as satisfactory at the place of manufacture. Pipe rejected after delivery shall be marked for identification and shall immediately be removed from the job.

PART 2 PRODUCTS

2.01 REINFORCED CONCRETE PIPE

- A. Except as otherwise specified herein, pipe shall conform to ASTM C76, Class IV, Wall B or C. The pipe interior shall be smooth and even, free from roughness, projections, indentation-s, offsets, or irregularities of any kind. The concrete mass shall be dense and uniform.
- B. Cement shall be non-air-entraining portland cement conforming to ASTM C150, Type II. The use of any admixture shall be subject to the specific approval of the Engineer.

- C. Fine aggregate shall consist of washed inert sand conforming to the requirements of ASTM C33, except for gradation, with a maximum loss of 8 percent when subjected to 5 cycles of the soundness test using magnesium sulfate. Coarse aggregate shall consist of well-graded crushed stone or washed gravel conforming to the requirements of ASTM C33, except for gradation, with a maximum loss of 8 percent when subjected to 5 cycles of the soundness test using magnesium sulfate. Documentation that the aggregates to be used in the manufacture of reinforced concrete pipe meet these requirements shall be submitted to the Engineer as stated in Paragraph 1.03 above.
- D. The 28-day compressive strength of the concrete as indicated by cores cut from the pipe or from representative test cylinders taken from the same batch shall be equal to or greater than the design strength of the concrete. The concrete mass shall be dense and uniform. The average absorption shall not exceed 5.5 percent of the dry weight and no specimen shall exceed 6 percent. Reinforcement shall be circular for all concrete pipes. Quadrant steel shall not be used. Reinforcement shall be installed in both the bell and the spigot. At least one circumferential reinforcement wire shall be in both the bell and spigot area and reinforcement in the bell and spigot shall be adequate to prevent damage to concrete during shipping, handling and after installation. The pipe shall be subjected to a 3-edge bearing test and hydrostatic testing to 13 psi for 10 minutes in accordance with ASTM C443 to verify strength and water tightness.
- E. Pipe may be rejected for any of the following reasons:
1. Exposure of any wires, positioning spacers or chairs used to hold the reinforcement in place, or steel reinforcement in any surface of the pipe, except for the ends of the longitudinals, stirrups or spacers specifically permitted by Section 8.2 of ASTM C76.
 2. If cores taken show that the transverse reinforcing steel is found to be in excess of 1/4-in out of specified position after the pipe is molded.
 3. Any shattering or flaking of concrete at a crack.
 4. Voids, with the exception of minor bug holes, on the interior and exterior surfaces of the pipe exceeding 1/4-in in depth unless properly and soundly pointed with mortar or other approved material.
 5. Unauthorized application of any wash coat of cement or grout. Pipe dressing procedures shall be subject to approval of the Engineer.
 6. A deficiency greater than 1/4-in from the specified wall thickness of pipe 30-in or smaller in internal diameter.
 7. A hollow spot (identified by tapping the internal surface of the pipe) which is greater than 30-in in length or wider than 3 times the specified wall thickness. Repair of such defective areas not exceeding these limitations may be made as specified in Paragraph 2.01M.
 8. Defects that indicate imperfect molding of concrete; or any surface defect indicating honeycomb or open texture (rock pockets) greater in size than area equal to a square with a side dimension of 2-1/2 times the wall thickness or deeper than two times the maximum graded aggregate size; or local deficiency of cement resulting in loosely bonded concrete, the area of which is greater than 30-in in length or wider than 3 times the specified wall thickness when the defective concrete is removed. Repair of such defects not exceeding these limits may be made as specified in Paragraph 2.01M.

9. Any of the following:
 - a. A crack having a width of 0.005 to 0.01-in throughout a continuous length of 36-in or more.
 - b. A crack having a width of 0.0 to 0.03-in or more throughout a continuous length of 1-ft or more.
 - c. A crack greater than 0.005-in extending through the wall of the pipe and having a length in excess of the wall thickness.
 - d. A crack showing two visible lines of separation for a continuous length of 2-ft or more, or an interrupted length of 3-ft or more anywhere in evidence, both inside and outside.
 - e. Cracks anywhere greater than 0.03-in in width.
- F. The pipe shall be clearly marked as required by ASTM C76 in a manner acceptable to the Engineer. The markings may be at either end of the pipe for the convenience of the manufacturer, but for any one size shall always be at the same end of each pipe length. Pipe shall not be shipped until the compressive strength of the concrete has attained as percent of the design strength and not before 7 days after manufacture and/or repair, whichever is the longer.
- G. Pipe shall have a minimum laying length of approximately 8-ft, except for closure and other special pieces as approved by the Engineer. Have available at the site sufficient pipe of various lengths to affect closure at manholes or structures that cannot be located to accommodate standard lengths. Short lengths of pipe made for closure, etc, may be used in the pipeline at the end of construction if properly spaced. The length of the incoming and outgoing concrete pipe at each structure shall not exceed 4-ft, except where the joint is cast flush with the exterior wall of the structure or where otherwise noted on the Drawings. Maximum laying length shall not exceed 16-ft, but the installation of 16-ft lengths will depend upon the ability to handle such lengths of pipe in sheeted trenches, comply with trench width requirements, maintain the integrity of the sheeting and avoid disturbance to adjacent ground. If in the opinion of the Engineer the use of 16-ft lengths is impractical, shorter lengths shall be used.
- H. Each length of pipe shall be checked against the length noted on the shop drawings. Pipe more than 1-1/2-in longer than that shown on the shop drawings shall not be used on this project. Variations in length of the same pipe shall not exceed ASTM C76 requirements.
- I. The Engineer shall have the right to cut cores from such pieces of the finished pipe as he/she selects for inspection and for such tests as he/she may wish to apply. Holes left by the removal of cores shall be filled in an approved manner by and at the expense of the manufacturer. Core drilling shall be carried out by the pipe manufacturer at his/her expense. The number of cores shall not exceed the requirements of ASTM C76.
- J. The pipe will be carefully examined for compliance with the appropriate ASTM standard, as specified herein, and shop drawings by the manufacturer prior to shipment. All pipes shall be inspected for general appearance, dimension, "scratch-strength," blisters, cracks, roughness, soundness, etc. All pipes will be checked for soundness by being tapped and scratched at least once on every 50 sq in of pipe surface. The surface shall be dense and close-textured. Cores also shall serve as a basis for rejection of pipe, particularly if lamination or poor bond of reinforcement is apparent.
- K. The manufacturer shall use measuring devices to assure joint assembly is within tolerances of ASTM C76 and as specified herein. If, during construction, the pipes cannot be satisfactorily joined, the manufacturer shall pre-join the pipe at the plant.

- L. Only pipe actually conforming the requirements of ASTM C76 and these specifications shall be shipped. Approved pipe will be so stamped or stenciled on the inside before it is shipped. All pipe which has been damaged after delivery will be rejected and if such pipe already has been laid in the trench, it shall be removed and replaced, entirely at the Contractor's expense.
- M. Pits, blisters, rough spots and other imperfections 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. Non-shrink cement mortar used for repairs shall have a minimum compressive strength of 6,000 psi at the end of 7 days and 7,000 psi at the end of 28 days, when tested in 3-in cylinders stored in the standard manner. Epoxy mortar may be utilized for repairs subject to the approval of the Engineer.

2.02 JOINTS FOR CONCRETE PIPE

- A. Joints shall be bell and spigot type joint conforming to ASTM C361 or C443 with provisions for using a round rubber O-Ring gasket in a recess in the spigot end of the pipe or profile gasket in a single step joint.
- B. The gaskets shall conform to ASTM C361 or ASTM C443 except as otherwise specified herein.
- C. The joint and gaskets shall be designed and manufactured so that the completed joint will withstand an internal water pressure in excess of 13 psi for a period of 10 minutes without showing any leakage by the gasket or displacement of it. The completed joint, when installed in place in the work, shall be capable of withstanding a groundwater pressure of 13 psi without exceeding the allowable leakage specified for the pipe testing.
- D. The ends of the pipe shall be made true to form and dimension and the bell shall be made by casting against steel forms. The manufacturer shall inspect all pipe joint surfaces for out-of-roundness and pipe ends for squareness.

PART 3 EXECUTION

3.01 LAYING CONCRETE PIPE

- A. Care shall be taken in loading, transporting and unloading to prevent injury to the pipe or fittings and the joint surfaces. Pipe or fittings shall not be dropped. All pipe or fittings shall be examined before laying and no piece shall be installed which is found to be defective.
- B. As soon as the excavation is completed to the normal grade of the bottom of the trench, place screened gravel bedding in the trench and firmly bed the pipe in this gravel to conform accurately to the lines and grades indicated on the Drawings. Blocking under the pipe will not be permitted.
- C. Prior to the installation of any pipe, review the proposed method of installation with the Engineer. Jacks or come-alongs shall be used to force the pipes home. The use of other methods, including the use of motor driven equipment, shall be reviewed by the Engineer. The Engineer reserves the right to direct the Contractor to revise his operation at any time within this Contract.
- D. A depression shall be left in the supporting gravel at the joint to prevent contamination of the rubber gasket. Before the pipe is lowered into the trench, the spigot and bell shall be cleaned and free from dirt. Gasket and bell shall be lubricated by a vegetable lubricant which is not

soluble in water, furnished by the pipe manufacturer and harmless to the rubber gasket. The pipe shall be properly aligned in the trench to avoid any possibility of contact with the side of the trench and fouling the gasket. As soon as the spigot is centered in the bell of the previously laid pipe, it shall be engaged by approved methods.

- E. After the gasket is compressed, but before the pipe is brought home, each gasket shall be checked for proper position around the full circumference of the joint. Steel inserts shall be used to prevent the pipe from going home until the feeler gauge is used to check the final position of the gasket.
- F. As soon as the pipe is in place and before the come-along is released, backfill shall be placed as indicated on the Drawings and compacted for at least one-half the length of pipe. Not until this backfill is placed shall the come-along be released. If any motion at joints can be detected, a greater amount of backfill shall be placed before pressure is released. When pipe laying is not in progress, including lunchtime, the open ends of the pipe shall be closed by a watertight plug or other approved means.
- G. Regulate the equipment and construction operations such that the loading of the pipe does not exceed the loads for which the pipe is designed and manufactured. Any pipe damaged during construction operations shall promptly and satisfactorily be repaired or replaced at the Contractor's expense.

3.02 TESTING AND CLEANING

- A. Testing and cleaning shall be as specified in Section 01445.

END OF SECTION

SECTION 02616
DUCTILE IRON PIPE AND FITTINGS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required, install, disinfect and test ductile iron pipe and fittings for piping as shown on the Drawings and as specified herein.
- B. Piping shall be located substantially as shown on the Drawings. The Engineer reserves the right to make such modifications in locations as may be found desirable to avoid interference between pipes or for other reasons. Pipe fitting notation is for the Contractor's convenience and does not relieve him/her from installing and jointing different or additional items where required to achieve a complete piping system.
- C. Where the word "pipe" is used it shall refer to pipe, fittings, or appurtenances unless otherwise noted.

1.02 RELATED WORK

- A. Pipeline testing and cleaning is included in Section 01445.
- B. Control of Materials is included in Section 01601.
- C. Trenching, backfilling and compaction is included in Section 02221
- D. Granular materials are included in Section 02230.
- E. Sedimentation and Erosion Control is included in Section 02270
- F. Pavement Repair and Resurfacing is included in Section 02576
- G. Valves, Hydrants and Appurtenances are included in Section 02640

1.03 SUBMITTALS

- A. Submit shop drawings and product data, including piping layouts, design calculations, warranty information, test reports, in accordance with Section 01300 and the referenced standards.
- B. Submit the name of the pipe and fitting suppliers and a list of materials to be furnished.
- C. Prior to shipment of pipe, certified copies of mill tests confirming the type of materials used in the pipe, and shop testing of pipe to show compliance with the requirements of the applicable standards, along with a sworn affidavit of compliance that the pipe complies with the referenced standards, shall be submitted.
- D. Submit copies of all shop tests, including hydrostatic tests.
- E. Submit information on all warranties per Section 01740.

- F. Submit anticipated production and delivery schedule.
- G. Prior to shipment of pipe, submit a certified affidavit of compliance from the manufacturer stating that the pipe, fittings, gaskets, linings and exterior coatings for this project have been manufactured and tested in accordance with AWWA and ASTM standards and requirements specified herein.
- H. Submit handling procedures for all phases from finished fabrication through delivery including storage, transportation, loading, and unloading. This will include storage at the project site and required protection following installation prior to startup.

1.04 REFERENCE STANDARDS

A. ASTM International

1. ASTM A193 - Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service.
2. ASTM A194 - Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High-Pressure and High-Temperature Service.
3. ASTM A242 - Standard Specification for High-Strength Low-Allow Structural Steel
4. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
5. ASTM A536 – Standard Specification for Ductile Iron Castings.
6. ASTM A674 - Standard Practice for Polyethylene Encasement for Ductile Iron Pipe for Water or Other Liquids.
7. ASTM C150 - Standard Specification for Portland Cement.

B. American Water Works Association (AWWA)

1. AWWA C104 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water.
2. AWWA C105 - Polyethylene Encasement for Ductile-Iron Pipe Systems.
3. AWWA C110 - Ductile-Iron and Gray-Iron Fittings, 3-in through 48-in (75mm Through 1219mm) for Water.
4. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
5. AWWA C150 - Thickness Design of Ductile-Iron Pipe.
6. AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast, for Water.
7. AWWA C115 - Flanged Ductile Iron Pipe With Ductile Iron or Grey Iron Threaded Flanges.

8. AWWA C153 - Ductile- Iron Compact Fittings, 3-in through 24-in and 54-in through 64-in, for Water.
 9. AWWA C550 - Protective Interior Coatings for Valves and Hydrants
 10. AWWA C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances.
 11. AWWA C651 - Disinfecting Water Mains.
 12. AWWA M41 - Ductile Iron Pipe and Fittings Manual of Water Supply Practices
- C. National Sanitation Foundation (NSF)
1. NSF 61 - Drinking Water System Components Health Effects.
- D. Massachusetts Highway Department Standard Specifications (MSSHB), latest edition including all addenda.
- E. City of New Bedford Construction Specifications, latest edition.
- F. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

- A. It is a requirement of these Contract Documents to have all of the ductile iron pipe under this section designed and supplied by a single manufacturer rather than have selection and supply of these items by a number of different manufacturers. Similarly, it is a requirement of these Contract Documents to have all of the ductile iron fittings under this section designed and supplied by a single manufacturer rather than have selection and supply of these items by a number of different manufacturers. All connections between the pipe and fittings shall be compatible, as detailed in Paragraph 1.06.
- B. Each length of ductile iron pipe supplied for the project shall be hydrostatically tested at the point of manufacture to 500 psi for a duration of 10 seconds per AWWA C151. Testing may be performed prior to machining bell and spigot. Failure of ductile iron pipe shall be defined as any leak or rupture of the pipe wall. Certified test results shall be furnished in duplicate to the Engineer prior to time of shipment.
- C. All ductile-iron pipe and fittings to be installed under this project shall be inspected and tested at the foundry as required by the standard specifications to which the material is manufactured. Furnish in duplicate to the Engineer sworn certificates of such tests and their results at least 5 days prior to the shipment of the goods.
- D. Inspection of the pipe and fittings will also be made by the Engineer or representative of 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 even though pipe may have been accepted as satisfactory at the place of manufacture. Pipe rejected after delivery (including defects from manufacturing or delivery/transport) shall be marked for identification and shall immediately be removed from the job at the Contractors expense.

- E. The manufacturer shall meet the following criteria and furnish the necessary project information, which demonstrates the required experience:
 - 1. Experience that includes successful fabrication (followed by installation, acceptance and service) to AWWA C151 standards of at least 50,000 lineal feet of the largest specified diameter or larger ductile iron pipe with similar linings/coatings within the past 5 years.
 - 2. Experience shall include the successful fabrication of at least 50- fittings in compliance with AWWA C110 or C153 of the largest specified diameter or larger with similar lining/coatings within the past 5 years.
 - 3. Experience that includes the successful fabrication (followed by installation, acceptance and service) of at least 10,000 lineal feet of the largest specified diameter or larger push-on style, boltless restrained joint for ductile iron pipe within the last 5 years.
- F. All pipe and fittings shall be marked in accordance with all applicable AWWA standards. Legibly and permanently mark all pipe, fittings, specials and appurtenances to be consistent with the laying schedule and marking drawings (if required) with the following information:
 - 1. Manufacturer, date.
 - 2. Size, type, class, or wall thickness.
 - 3. AWWA Standard(s) produced to.

1.06 DESCRIPTION OF SYSTEMS

- A. Pipe shall be made in the United States. Fittings may be made outside the United States, but shall be supplied by one of the named pipe manufacturers or Engineer approved equal. Pipe and fittings shall be as supplied by the American Cast Iron Pipe Co., U.S. Pipe and Foundry, Griffin Pipe Products, all pipe divisions of the McWane Company or an approved equal who is a member of the Ductile Iron Pipe Research Association (DIPRA). All ductile iron pipe shall be supplied by a single manufacturer and all ductile iron fittings shall be supplied by a single manufacturer. The fittings supplier shall certify in writing that their fittings are compatible with the supplied brand of pipe.
- B. Pipe is to be installed in those locations shown on the Drawings, and only where specifically indicated.
- C. Contractor is responsible for compatibility between joints of all items they supply.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Care shall be taken in loading, transporting, and unloading to prevent injury to the pipe, pipe linings and pipe coatings. See AWWA C600 and the referenced AWWA Standards for Shipping, handling and storage procedures. All pipe and fittings shall be examined as noted in Division 1. Damage to linings or coatings discovered during the examination shall be repaired to the satisfaction of the Engineer at the cost of the Contractor, before proceeding with the work.

- B. Pipe shall be transported to the job site on padded bunks or oak timbers and secured with steel banding or nylon tie down straps to adequately protect the pipe and coating. Slings, hooks, or pipe tongs or other devices acceptable to the Engineer shall be used in pipe handling. No uncushioned ropes, chairs, wedges, cables or levers shall be used in handling finished pipe, fittings or couplings. Under no circumstances shall the pipe or fittings be dropped or skidded against each other. Care shall be taken to prevent marring the pipe coating. Padded wooden pipe cradles, or chocks suitable for the protection of coatings shall be used between finished pipes and beneath them when pipes are placed upon rough surfaces. Pipe shall not be stored on bare ground unless soft sand berms are used to support the pipe and is approved by the Engineer.
- C. Materials, if stored, shall be kept safe from damage. The interior of all pipe, fittings and other appurtenances shall be kept free from dirt, excessive corrosion or foreign matter at all times.
- D. Pipe shall not be stacked higher than the limits recommended by its manufacturer. The bottom tier shall be kept off the ground on timbers, rails, or concrete. Stacking shall conform to manufacturer's recommendations and/or AWWA C600.
- E. Gaskets for mechanical and push-on joints to be stored shall be placed in a cool location out of direct sunlight. Gaskets shall not come in contact with petroleum products. Gaskets shall be used on a first-in, first-out basis.
- F. Lined and/or coated pipe shall be suitably protected from exposure and heating of the sun at all times following procedures recommended by the coating/lining system manufacturer. Exposure will not be allowed (except for short periods such as installation, assembly and repairs).
- G. No metal tools or heavy objects shall be permitted to come in contact unnecessarily with the finished coating. Workers will be permitted to walk upon the coated pipe only when necessary, in which case they shall wear footwear with rubber or composition soles and heels that are sufficiently free of dirt and mud that coating remains undamaged.
- H. It shall be the responsibility of the Contractor to prevent damage to the linings and coatings that might be caused by handling and/or onsite storage of the finished pipe at low temperatures (due to embrittlement), high temperatures or direct sunlight.

1.08 WARRANTIES

- A. Provide warranties as required in Section 01740 and as specified in this Section.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Ductile iron pipe shall conform to AWWA C151. Pipe shall be supplied in standard lengths as much as possible.
- B. Thickness design shall be per AWWA C150. Provide minimum thickness Class 52 piping unless otherwise indicated on the Drawings. Flanged pipe shall be minimum Class 53. All ductile iron pipe supplied shall meet the minimum wall thickness and pressure class specified or indicated on the Drawings.

- C. Ductile iron pipe for gravity sewer or stormdrain shall confirm to ASTM A746.

2.02 DUCTILE IRON PIPE DESIGN

- A. Ductile iron pipe shall have a minimum tensile strength of 60,000 psi with minimum yield strength of 42,000 psi (per AWWA M-41). Design shall be done for external and internal pressures separately using the larger of the two for the net design thickness. Additional allowances shall be made for service allowance and casting tolerance per AWWA C150. The pipe classes determined for various sizes and conditions shall provide the total calculated thickness at a minimum or conform to minimum pipe class specified in Paragraph 2.01A above, or as shown on the Drawings, whichever is greater.

2.03 END TREATMENTS/JOINTS

- A. Ductile iron pipe/fitting joints shall be push-on rubber gasket type or rubber-gasket mechanical joint per AWWA C111 in unrestrained areas except where flanged joints are required as shown on the drawings. In restrained areas, both pipe and fitting joints shall be push on rubber gasket, locking ring type restrained joints per the manufacturer' standard described in Paragraph C, except where flange joints are shown on the Drawings. All gasket materials shall comply with Table 5-1 of AWWA M-41. Rubber-gasket joints shall conform to AWWA C111. Gasket shall be of **Nitril (NBR) Acrylonitrile Butadine**.
- B. Unless otherwise noted, all ductile iron pipe joints/fittings shall be restrained. If the Drawings or project requirements dictate specific restrained joints lengths, then ductile iron pipe/fitting joints may be push on rubber gasket type per AWWA C111 in unrestrained areas.
- C. Restraint for push on joint pipe shall be positive locking "Locked-type" joints manufactured by the pipe and fitting manufacturer that utilize restraint independent of the joint gasket. All restrained joints shall be suitable for the specified test pressure. Joints shall be fabricated of heavy section ductile iron casting. Bolts and nuts shall be low carbon steel conforming to ASTM A193, Grade B7. Restraint for mechanical joint pipe shall use retainer glands for restraining joint. Restrained push on joints shall be by one of the following or an approved equal:
 - 1. "TR Flex" by US Pipe and Foundry Company
 - 2. "Lok-Ring, "Flex Ring (positive locking style)" by the American Cast Iron Pipe Company
 - 3. "Snap Lok" by Griffin Pipe Products Company.
 - 4. "Superlok" by Clow Water Systems Company
 - 5. All joints shall be restrained. If project specific requirements or the Drawings indicate restrained lengths, the minimum number of restrained joints required for resisting forces at fittings and changes in direction of the pipe shall be determined from the length of restrained pipe on each side of the fittings and changes in direction necessary to develop adequate resisting friction with the soil, The required lengths of restrained joints shall be as shown on the Drawings.

6. Restrained pipe joints that achieve restraint by incorporating cut out sections in the wall of the pipe shall have a minimum wall thickness at the point of the cut out that corresponds with the minimum specified wall thickness for the rest of the pipe.
 7. For up through 48-inch diameter ductile iron pipe only, the following may be used as an alternative restraint system
 - a. The optional mechanical joint restraint shall be incorporated in the design of a follower gland. The gland shall be manufactured of ductile iron conforming to ASTM A536. Dimensions of the gland shall be such that it can be used with the standard mechanical joint bell and tee-headed bolts, as specified with the pipe.
 - b. The restraint mechanism shall consist of numerous individually activated gripping surfaces to maximize restraint capability. The gripping surfaces shall be wedges designed to spread the bearing surfaces on the pipe. Actuation of the gripping wedges shall be by torque limiting twist-off nuts sized same as T bolts for mechanical joints. When the nut is sheared off, standard hex nut shall remain.
 - c. The restraint device for ductile iron pipe shall have a working pressure of at least 250 psi and a safety factor of 2:1.
 - d. Pipe manufacturer proprietary mechanical joint restraint systems that utilize a wedge style gripping systems or a gland/ring positive restraint system will be considered acceptable on a case by case basis as determined by the Engineer.
 - e. The restraint device shall be EBAA Iron Megalug Series 1100, or approved equal.
- D. Threaded ductile iron flanges for ductile iron pipe shall be fabricated per AWWA C115 and sealed during installation with a special high pressure, full face gasket per AWWA C111. At the pipe manufacturer's option, the use of 250 lb pattern flanges, which are faced and drilled in accordance with ANSI B16.1 may be substituted in order to match valves or other equipment and/or to meet the required working pressure requirements. All flanges shall be rated for the same pressure as the adjacent pipe in all cases. Compatibility of the flanges with the 250 lb class and higher special class AWWA valves will be the responsibility of the Contractor.
1. Flanges shall be pre drilled and then faced after being screwed onto the pipe, with flanges true to 90 degrees of the pipe axis and shall be flush with the end of the pipe.
 2. Gaskets shall be full face rubber, 1/8" thick SBR material. Such as American Torseal Gasket, or approved equal. Special material ring gaskets such as those by Garlock or equal may be required for pressures exceeding 250 for ANSI rated and custom flanges.
 3. Flanged joints shall be supplied with bolts and nuts on one end, bolt studs with a nut at each end, or studs with nuts on one end where the flange is tapped. The number and size of bolts shall comply with the same standard as the flange. Bolts and nuts shall, except as otherwise specified or noted in the Specifications or on the Drawings, comply with ASTM A193, grade B7.
 4. Blind flanges shall mate with regular flanges.
 5. Filler flanges and beveled flange fillers shall be furnished faced and drilled complete with extra length bolts.

E. Couplings and Adapters

1. Sleeve type couplings shall be Dresser Style 38, 138 or equal by Ford Meter Box Co., Smith Blair or Romac industries.
 - a. Buried sleeve-type couplings shall have a protective wrapping of "Denso" material by DENSO Inc. of Texas or equal. Where "Denso" material is used, the joint shall be packed up with "Densyl mastic" to give an even contour for wrapping with "Densopol" tape. A 1.5 mm thick coating of "Denso" paste shall be applied followed by 100 mm or more wide "Densopol" tape wound spirally around the joint with at least 50 percent overlap.

F. Brass wedges for the couplings at butterfly valves shall be as follows:

1. Wedges shall be used for new butterfly valves where couplings are required as shown on the Drawings, specifically for water transmission mains.
2. Brass shall conform to ASTM B505 and be of drinking water standards and contain no lead.
3. Wedges shall be similar to those used for cathodic protection of grounding systems of ductile iron pipe. Wedges shall be as manufactured by U.S. Pipe or approved equal.

2.04 FITTINGS

- A. Pipe fittings shall be ductile iron with pressure rating of 350 psi for 24-in and smaller piping and 250 psi for 30-in and larger piping. Fittings shall meet the requirements of AWWA C110 or AWWA C153 as applicable. Fittings shall have the same pressure rating, as a minimum, of the connecting pipe.
- B. Closures shall be made with mechanical joint ductile iron solid sleeves unless alternate approved coupling systems as described in paragraph 2.03E are used and shall be located in straight runs of pipe at minimum cover outside the limits of restrained joint sections. Location of closures shall be subject to approval of the Engineer.

2.05 INTERIOR LINING

- A. Ductile iron pipe and fittings shall have the same type of lining as specified herein.
- B. Ductile iron pipe and fittings shall have a cement mortar lining in accordance with AWWA C104 double thickness for portable water mains and sewer force mains and single thickness for storm drains. The cement shall meet the requirements of ASTM C150.
- C. At the option of the supplier, fittings may be lined in accordance with AWWA C550. Lining shall be NSF 61 certified.

2.06 EXTERIOR COATING

- A. Buried pipe shall be installed with a bituminous coating in accordance with AWWA C151 and C110 respectively.

2.07 POLYETHYLENE ENCASEMENT

- A. Where shown on the Drawings or required by the Engineer, encase ductile iron pipe with polyethylene.
- B. Polyethylene encasement shall be 8 mils thickness meeting standards per AWWA C105. Polyethylene encasement shall be V-Bio, as patented by DIPRA.
- C. Manufactures of polyethylene encasement shall be as follows:
 - 1. North Town Company
 - 2. AA Thread and Steel Tape, Inc.
 - 3. Sigma Corp.
- D. Size requirements shall be per Table 3, Section 2.15 of DIPRA's Installation Guide for Ductile Iron Pipe
- E. Plastic Adhesive Tape shall be minimum 2-in for sealing seams, cuts or tears in polyethylene encasement. Duct tape is not acceptable. The following manufactures are approved:
 - 1. Calpico Vinyl
 - 2. Polyken
 - 3. U.P.C.

PART 3 EXECUTION

3.01 GENERAL

- A. Care shall be taken in loading, transporting and unloading to prevent injury to the pipe, lining or coatings. Pipe and fittings shall not be dropped or skidded against each other. Slings, hooks or pipe tongs shall be used for pipe handling. All pipe and fittings shall be examined before laying and no piece shall be installed which is found to be defective. Any damage to the pipe, lining or coatings shall be repaired per manufacturer's recommendations. Handling and laying of pipe and fittings shall be in accordance with manufacturer's instruction and as specified herein.
- B. If any defective pipe is discovered after it has been laid, it shall be removed and replaced with a sound pipe in a satisfactory manner. All pipe and fittings shall be thoroughly cleaned before laying, shall be kept clean until they are used in the work and when installed or laid, shall conform to the lines and grades required.
- C. Materials, if stored, shall be kept safe from damage. The interior of all pipe, fittings and other appurtenances shall be kept free from dirt, excessive corrosion or foreign matter at all times.
- D. Pipe shall not be stacked higher than the limits recommended by its manufacturer. The bottom tier shall be kept off the ground on timbers, rails, or concrete. Stacking shall conform to manufacturer's recommendations and/or AWWA C600.
- E. Gaskets for mechanical and push-on joints to be stored shall be placed in a cool location out of direct sunlight. Gaskets shall not come in contact with petroleum products. Gaskets shall be used on a first-in, first-out basis.

- F. As pipe laying progresses and at the conclusion of the work, thoroughly clean all new pipelines by flushing with water or other means to remove all dirt, stones, pieces of wood or other material which may have entered during the construction period. If, after this cleaning, obstructions remain, they shall be removed.
- G. Contractor shall excavate test pits to measure the dimension and pipe outside diameters for the required couplings at the connection points between new and existing pipelines prior to ordering and installing new fittings or couplings.
- H. Watermains shall be laid at least 10 feet horizontal from any existing or proposed sanitary sewer, drain sewer or drain manhole, septic tank or subsoil treatment system. Watermains crossing sewers shall be laid to provide a minimum vertical distance of at least 18-inches between the outside of the watermain and outside of the sewer or drain and this shall be the case where the watermain is either above or below the sewer with preference to the watermain located above the sewer. At crossings, one full length of water pipe shall be located so that both joints are as far away from the sewer or drain as possible. Watermains that cross under existing sewers and drains shall be concrete encased for a minimum of 10-ft on each side of the drain or sewer pipe centerline at the crossing. Deviations from this requirement must be approved by the Engineer and Owner.

3.02 INSTALLING DUCTILE IRON PIPE AND FITTINGS

- A. Ductile iron pipe and fittings shall be installed in accordance with requirements of AWWA C600, except as otherwise specified herein. A firm, even bearing throughout the length of the pipe shall be provided by digging bell holes at each joint and by tamping backfill materials at the side of the pipe to the springline per details shown on the Drawings. Blocking will not be permitted. If any defective pipe or fitting is discovered after it has been laid, it shall be removed and replaced with a sound pipe or fitting in a satisfactory manner by the Contractor, at his/her own expense.
 - 1. All pipe and fittings shall be kept clean until they are used in the work and shall be sound and thoroughly cleaned before laying. When laid, the pipe and fittings shall perform to the lines and grades required. When laying is not in progress, including lunch breaks, open ends of the pipe shall be closed by a watertight plug or other approved means. Sufficient backfill shall be placed to prevent flotation. The deflection at joints shall not exceed that recommended by the manufacturer.
 - 2. All ductile iron pipe laid underground shall have a minimum of 4 of feet of cover unless otherwise shown on the Drawings or as specified herein. Pipe shall be laid such that the invert elevations shown on the Drawings are not exceeded.
 - 3. Fittings, in addition to those shown on the Drawings shall be provided, where required, in crossing utilities which may be encountered upon opening the trench. Solid sleeve closures shall be installed at locations approved by the Engineer.
 - 4. The pipe interior shall be maintained dry and broom clean throughout the construction period.
 - 5. When field cutting the pipe is required, the cutting shall be done by machine, leaving a smooth cut at right angles to the axis of the pipe. The end of the cut pipe shall be beveled to

conform to the manufacturer's recommendations for the spigot end. Any coating removed from the cut end shall be repaired according to manufacturer's recommendation. Cement lining shall be undamaged. Cutting of restrained joint pipe will not be allowed, unless approved at specific joints in conjunction with the use of restrainer glands by EBAA Iron or field adaptable restrained joints. Where field cuts are permitted, the pipe to be cut shall be supplied by the factory as "gauged full length". Should full length gauged pipe be unavailable, the pipe to be cut shall be field gauged at the location of the new spigot using a measuring tape, or other means approved by the manufacturer, to verify that the diameter is within the tolerances permitted in Table 1 of AWWA C151.

B. Jointing Ductile-Iron Pipe

1. Push-on joints shall be made in strict accordance with manufacturer's instructions, AWWA C600 and Appendix B of AWWA C111. If there is conflict, the manufacturer's instructions shall take precedence. Pipe shall be laid with bell ends looking ahead. A rubber gasket shall be inserted in the groove of the bell end of the pipe. The joint surfaces shall be cleaned and lubricated and the plain end of the pipe shall be aligned with the bell of the pipe to which it is to be joined and pushed home. After joining the pipe, a metal feeler shall be used to make certain that the rubber gasket is properly seated.
2. Mechanical joints shall be assembled in strict accordance with the manufacturer's instructions, AWWA C600 and Appendix A of AWWA C111. If there is conflict, the manufacturer's instructions shall take precedence. Pipe shall be laid with bell ends looking ahead. To assemble the joints in the field, thoroughly clean and lubricate the joint surfaces and rubber gasket. Bolts shall be tightened to the specified torques. Under no condition shall extension wrenches or pipe over handle of ordinary ratchet wrench be used to secure greater leverage. After installation, bolts and nuts shall be encapsulated using wax sealing tape per AWWA Standard C217, and install polyethylene encasement as specified.
3. Bolts in mechanical or restrained joints shall be tightened alternately and evenly. Restraint for mechanical joint pipe shall use retainer glands for restraining joint. All restrained mechanical joints shall be suitable for the specified test pressure.
4. Restrained joints shall be installed according to pipe manufacturer's instructions.
5. Flanged joints shall be assembled in strict accordance with the manufacturer's instructions and Appendix C of AWWA C111. If there is conflict, the manufacturer's instructions shall take precedence. Extreme care shall be taken to ensure that there is no restraint on opposite ends of pipe or fitting, which would prevent uniform gasket compression, cause unnecessary stress, bending or torsional strains, or distortion of flanges or flanged fittings. Adjoining push on joints shall not be assembled until flanged joints have been tightened. Flange bolts shall be tightened uniformly to compress the gasket uniformly and obtain a seal. Flange bolts shall be left with approximately 1/2-inch projection beyond the face of the nut after tightening. After installation bolts and nuts shall be encapsulated using wax sealing tape per AWWA Standard C217.
6. Sleeve couplings shall only be installed for closure or as shown on the Drawings. Couplings shall not be assembled until adjoining joints have been assembled. After installation, bolts and nuts shall be encapsulated using wax sealing tape per AWWA Standard C217, and install protective wrap recommended by the manufacturer or as required herein. Care shall

be exercised to insure that the insulating properties of insulating and dielectric couplings are maintained.

- a. Sleeve type couplings shall be installed were shown on the Drawings or as required by these specifications. Couplings shall not be assembled until adjoining push on joints have been assembled. After installation, apply a heavy bitumastic coat or Denso wrap to bolts and nuts. Restrain all joints.
- C. All blowoffs, outlets, valves, fittings and other appurtenances required shall be set and jointed as indicated on the Drawings in accordance with manufacturer's instructions.
- D. Install polyethylene encasement around ductile iron pipe to limits shown on the Drawings and in accordance with pipe manufacturer's recommendations.
1. Polyethylene encasement shall be installed per ANSI/ AWWA C105/A21.5, Method 'A' in accordance with section 2.15 of DIPRA's Installation Guide For Ductile Iron Pipe.
 2. A fabric type or padded sling shall be used when handling polyethylene encased pipe to prevent damage to the polyethylene encasement.
 3. All seams in the polyethylene encasement shall be sealed completely with approved 2-inch wide plastic adhesive tape.
 4. Extreme care shall be taken to ensure that all rips or tears in the polyethylene encasement are properly repaired with additional tape and film as described in ANSI/AWWA C105/A21.5
 5. Extreme care shall be taken when backfilling to avoid damaging the polyethylene encasement.
- E. For new sleeve type couplings where shown on the Drawings for new transmission main butterfly valves, brass wedges shall be installed at the couplings to prevent lateral movement of the pipe during operation of the adjacent valve.
1. Three wedges shall be set at each coupling location as required. Wedges shall be set at 12:00, 4:00 and 8:00 to hold in position and prevent movement of the pipe, valve and couplings where valve closures occur. Wedges shall be ground flush with pipe surface after being set.
 2. Submit for approval a sample for inspection by Engineer and Owner prior to installation.

3.03 CONNECTIONS TO STRUCTURES

- A. Wherever a pipe 3-in in diameter or larger passes from concrete to earth horizontally, two flexible joints spaced from 2 to 4-ft apart depending on pipe size shall be installed, within 2-ft of the exterior face of the wall, whether or not shown on the Drawings.
- B. Unless otherwise specified, all pipes passing through a wall will utilize a wall sleeve designed to pass the thrust through the wall via restrained piping.
- C. Piping underneath structures shall be concrete encased.

3.04 TESTING CLEANING AND DISINFECTION

- A. Contractor shall be responsible for all costs and the completion of all testing, acceptance and disinfection of all watermains, pipe and appurtenances.
- B. Ductile iron pipe used for potable water service shall be cleaned, tested, and disinfected as specified in Section 01045.
- C. Ductile iron pipe used for wastewater service does not need to be disinfected. Testing and cleaning shall be specified in Section 01045.
- D. Contractor shall provide all necessary labor, materials, and equipment for the hydrostatic pressuring testing of pipelines. Water shall be supplied as specified in Division 1.

END OF SECTION

SECTION 02622
POLYVINYL CHLORIDE (PVC) GRAVITY PIPE

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and install and test polyvinyl chloride (PVC) sewer pipe and fittings, complete as shown on the Drawings and as specified herein.
- B. Pipe or piping refers to all pipe, fittings, material and appurtenances required to construct PVC sewer pipe complete, in place.

1.02 RELATED WORK

- A. Testing and cleaning of sewer pipe is included in Section 01445.
- B. Trenching, backfilling and compacting is included in Section 02221.
- C. Granular bedding materials are included in Section 02230.
- D. Pavement repair and resurfacing are included in Section 02576.
- E. Precast concrete manholes are included in Section 02605.
- F. Pressure testing of sewer pipe joints is included in Section 02762.
- G. Loaming and hydro-seeding is included in Section 02930.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, and within 30 days of the issuance of a work assignment from the Owner that will require PVC pipe or other items specified in this Section, the name of the pipe and fitting manufacturers and a list of materials to be furnished by each manufacturer. Also, include information on local representative for each manufacturer, if product is sold through a distributor.
- B. Shop Drawings including piping layouts and schedules shall include dimensioning, fittings, types and locations of valves and appurtenances, joint details, methods and location of supports, anchorage, gasket material, grade of material and all other pertinent technical information for all items to be furnished.
- C. Prior to each shipment of pipe, certified test reports that the pipe for this Contract was manufactured and tested in accordance with the ASTM Standards specified herein shall be submitted.

1.04 REFERENCE STANDARDS

- A. ASTM International

1. ASTM D1784 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
2. ASTM D2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
3. ASTM D3034 - Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
4. ASTM D3212 - Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
5. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
6. ASTM F679 - Standard Specification for Poly (Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings.
7. ASTM F758 - Standard Specification for Smooth-Wall Poly (Vinyl Chloride) (PVC) Plastic Underdrain Systems for Highway, Airport and Similar Drainage.
8. ASTM F789 - Standard Specification of Type PS-46 and Type PS-115 Poly (Vinyl Chloride) (PVC) Plastic Gravity Flow Sewer Pipe and Fittings.
9. ASTM F794 - Standard Specification for Poly (Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter.
10. ASTM F1760 - Standard Specification for Co-extruded Poly (Vinyl Chloride) (PVC) Non-Pressure Plastic Pipe Having Reprocessed-Recycled Content.
11. ASTM F1803 - Standard Specification for Poly (Vinyl Chloride) (PVC) Closed Profile Gravity Pipe and Fittings Based on Controlled Inside Diameter.

B. National Sanitation Foundation (NSF)

1. Standard No. 14 - Plastic Piping Components and Related Materials.

C. Uni-Bell PVC Pipe Association (Uni-Bell)

1. Uni-Bell Handbook for PVC Pipe Design and Construction.
2. UNI-B-6 - Recommended Practice for Low-Pressure Air Testing of Installed Sewer Pipe.

- D. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

- A. All PVC sewer pipe and fittings of a similar type (e.g., solid wall or profile wall) shall be from a single manufacturer. The supplier shall be responsible for the provisions of all test requirements specified in ASTM as applicable. In addition, all PVC pipe to be installed under this Contract may be inspected at the plant for compliance with this Section by an independent testing

laboratory provided by the Owner. The Contractor shall require the manufacturer's cooperation in these inspections. The cost of plant inspection of all pipe approved for this Contract, plus the cost of inspection of a reasonable amount of disapproved pipe, will be borne by the Owner. Reference is made to Article 14.07 of the Supplementary Conditions for excessive plant inspection costs.

- B. Inspections of the pipe may also be made by the Engineer or other representatives of the Owner after delivery. The pipe shall be subject to rejection at any time on account of failure to meet any of the requirements specified herein, even though sample pipes may have been accepted as satisfactory at the place of manufacture. Pipe rejected after delivery shall be marked for identification and shall be removed from the job at once.

1.06 SYSTEM DESCRIPTION

- A. The equipment and materials specified herein are intended to be of standard types for use in transporting sewage and for use as drain pipe.
- B. Contractor is responsible for compatibility between pipe materials, fittings and appurtenances.

1.07 DELIVERY, STORAGE AND HANDLING

- A. All items shall be bundled or packaged in such a manner as to provide adequate protection of the ends during transportation to the site. Any pipe damaged in shipment shall be replaced as directed by the Engineer.
- B. PVC items deteriorate in sunlight and are slightly brittle, especially at lower temperatures, so care shall be taken in loading, transporting and unloading items to prevent injury to the items. All items shall be examined before installation and no piece shall be installed which is found to be defective. Handling and installation of pipe and fittings shall be in accordance with the manufacturer's instructions, referenced standards and as specified herein.
- C. Any pipe or fitting showing a crack or which has received a blow that may have caused an incident fracture, even though no such fracture can be seen, shall be marked as rejected and removed at once from the work.
- D. While stored, pipe shall be adequately supported from below at not more than 3-ft intervals to prevent deformation. The pipe shall be stored in stacks no higher than that given in the following table:

Pipe Diameter (inches)	Max. No. of Rows Stacked
8 or less	5
12 to 21	4
24 to 30	3
33 to 48	2
54 and larger	1

- E. Pipe and fittings shall be stored in a manner which will keep them at ambient outdoor temperatures and out of the sunlight or delivered to the site so that no pipe is exposed to sunlight for more than 60 days. Temporary shading as required to meet this requirement shall be provided. Simple covering of the pipe and fittings which allows temperature buildup or direct or indirect sunlight will not be permitted.

- F. If any defective item is discovered after it has been installed, it shall be removed and replaced with an exact replacement item in a satisfactory manner by the Contractor, at the Contractor's own expense. All pipe and fittings shall be thoroughly cleaned before installation and the interior shall be kept clean until testing.
- G. In handling the items, use special devices and methods as required to achieve the results specified herein. No uncushioned devices shall be used in handling the item.

PART 2 PRODUCTS

2.01 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

- A. PVC solid wall gravity pipe and fittings shall be Type PSM, PVC SDR 35 with full diameter dimensions and shall conform to ASTM D3034 or ASTM F1760, for sizes 4 through 15-in and shall conform to ASTM F679 for sizes 18 through 27-in. Straight pipe shall be furnished in lengths according to ASTM D3034 and wyes shall be furnished in lengths of not more than 3-ft. Saddle wyes will not be allowed.
- B. PVC ribbed wall gravity pipe and fittings shall be Type PS-46 for sewer and PS-10 for stormwater PVC conforming to ASTM F794 for sizes 4 through 48-inch and ASTM F1803 for sizes 18 through 60-inch (Please note that ASTM F794 and ASTM F1803 pipe is not interchangeable). The pipe shall be manufactured from PVC having cell classification of 12454-C or 12364-C. Straight pipe shall be furnished in lengths according to ASTM D3034. Saddle wyes will not be allowed.
- C. PVC pipe and fittings shall have bell and spigot push-on joints. The bell shall consist of an integral wall section with a solid cross-section elastomeric gasket securely locked in place to prevent displacement during assembly. Installation of elastomeric gasketed joints and performance of the joint shall conform to ASTM F477, ASTM D3139 or ASTM D3212.
- D. All fittings and accessories for sewers shall have bell and/or spigot configurations compatible with the pipe.
- E. Sewer lines shall be green] in color.
- F. Perforated polyvinyl chloride pipe shall be Type PS-46 PVC and conform to ASTM F758. Perforated pipe shall be furnished in lengths according ASTM D3034.
- G. Alternately, perforated polyvinyl chloride pipe shall conform to ASTM D3034 or ASTM 1760 in sizes 4 through 15-in. Perforations shall be two rows of 1/2-in diameter holes spread longitudinally, 6-in (maximum) apart and shall be oriented 120 degrees apart (60 degrees either side of the pipe bottom). A maximum tolerance of 1/4-in on hole spacing and size will be allowed. The top of pipe shall be marked for ease of installation.
- H. Pipe and fittings for perforated pipe shall be bell and spigot push-on joints meeting the applicable requirements of ASTM D3212, except that internal pressure test and vacuum test are not required. Fittings shall be solid wall.

PART 3 EXECUTION

3.01 INSTALLATION OF PVC PIPE AND FITTINGS

- A. No single piece of pipe shall be laid unless it is 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-in 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. If any defective pipe is discovered after it has been installed, it shall be removed and replaced with a sound pipe in a satisfactory manner at no additional cost to the Owner. All pipe and fittings shall be thoroughly cleaned before installation, shall be kept clean until they are used in the work and when laid, shall conform to the lines and grades required. PVC pipe and fittings shall be installed in accordance with requirements of the manufacturer, ASTM D2321 or as otherwise provided herein.
- C. As soon as the excavation is complete to normal grade of the bottom of the trench, bedding shall be placed, compacted and graded to provide firm, uniform and continuous support for the pipe. Bell holes shall be excavated so that only the barrel of the pipe bears upon the bedding. The pipe shall be laid accurately to the lines and grades indicated on the Drawings. Blocking under the pipe will not be permitted. Bedding shall be placed evenly on each side of the pipe to mid-diameter and hand tools shall be used to force the bedding under the haunches of the pipe and into the bell holes to give firm continuous support for the pipe. Bedding shall then be placed to 12-in above the top of the pipe. The initial 3-ft of backfill above the bedding shall be placed in 1-ft layers and carefully compacted unless CLSM is specified in which cast CSLM shall be placed. Generally the compaction shall be done evenly on each side of the pipe and compaction equipment shall not be operated directly over the pipe until sufficient backfill has been placed to ensure that such compaction equipment will not have a damaging effect on the pipe. Equipment used in compacting the initial 3-ft of backfill shall be approved by the pipe manufacturer's representative prior to use.
- D. All piping shall be sound and clean before installation. When installation is not in progress, including lunchtime, the open ends of the pipe shall be closed by watertight plug or other approved means. Good alignment shall be preserved during installation. The deflection at joints shall not exceed that recommended by manufacturer. Fittings, in addition to those shown on the Drawings, shall be provided, if required, in crossing utilities which may be encountered upon opening the trench.
- E. When cutting pipe is required, the cutting shall be done by machine, leaving a smooth cut at right angles to the axis of the pipe. Cut ends of pipe to be used with a bell shall be beveled to conform to the manufactured spigot end.
- F. The Engineer may examine each bell and spigot end to determine whether any preformed joint has been damaged prior to installation. Any pipe having defective joint surfaces shall be rejected, marked as such and immediately removed from the job site.
- G. Each length of the pipe shall have the assembly mark aligned with the pipe previously laid and held securely until enough backfill has been placed to hold the pipe in place. Joints shall not be "pulled" or "cramped".

- H. Before any joint is made, the pipe shall be checked to assure that a close joint with the next adjoining pipe has been maintained and that the inverts are matched and conform to the required grade. The pipe shall not be driven down to grade by striking it.
- I. Precautions shall be taken to prevent flotation of the pipe in the trench.
- J. When moveable trench bracing such as trench boxes, moveable sheeting, shoring or plates are used to support the sides of the trench, care shall be taken in placing and moving the boxes or supporting bracing to prevent movement of the pipe, or disturbance of the pipe bedding and the backfill. Trench boxes, moveable sheeting, shoring or plates shall not be allowed to extend below top of the pipe. As trench boxes, moveable sheeting, shoring or plates are moved, pipe bedding shall be placed to fill any voids created and the backfill shall be recompacted to provide uniform side support for the pipe.
- K. Perforated pipe shall be installed with the top print line or location stripe at the 12 O'clock position so that perforations are placed down.

3.02 JOINTING PVC PIPE (PUSH-ON TYPE)

- A. Joints shall be made in strict accordance with the manufacturer's instructions. Pipe shall be laid with bell ends looking ahead. A rubber gasket shall be inserted in the groove of the bell end of the pipe and the joint surfaces cleaned and lubricated. The plain end of the pipe to be entered shall then be inserted in alignment with the bell of the pipe to which it is to be joined and pushed home with a come-along or by other means. Check that the reference mark on the spigot end is flush with the end of the bell.

3.03 JOINTING POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS

- A. PVC sewer pipe and fittings shall be jointed in accordance with the recommendations of the latest ASTM Standards and detailed instructions of the manufacturer. The pipe manufacturer shall furnish information and supervise the installation of at least the first five joints.
- B. All manhole connections shall be as shown on the Drawings and as specified in Section 02605. All concrete and mortared connections shall be equipped with an integral O-ring, or other sealant, such that a positive watertight seal is established.

3.04 WYE BRANCHES, CHIMNEYS AND STUBS

- A. All fittings shall be furnished by the same manufacturer that furnishes the pipe.
- B. Wye branches shall be furnished and installed and capped as shown on the Drawings or in locations directed by the Engineer. Each wye branch shall be provided with a PVC end cap and shall be backed with a piece of wood (2-in by 4-in) that extends to a point 3-ft below the finished ground surface.
- C. PVC chimneys shall be installed according to the detail on the Drawings at locations to be determined by the Engineer. Concrete shall be as specified in Division 3. No backfill shall be placed over concrete within 16 hours of placing.
- D. Ample time shall be given to the Engineer to obtain the exact location of each wye branch and chimney before it is covered. Wye branches and chimneys, which are covered before the

Engineer has had time to obtain their location, shall be exposed at no additional cost so that location measurements can be taken.

- E. PVC manhole drops shall be installed as shown on the Drawings. Concrete for encasements shall be 3500 psi as specified. No backfill shall be placed over this concrete within 16 hours of placing.
- F. Pipe stubs for manhole connections shall not exceed 3.25-ft in length unless directed otherwise by the Engineer. Install caps where required.

3.05 SERVICE CONNECTIONS

- A. Service connections shall be installed at a minimum slope of 2 percent at the locations and to the limits determined by the Engineer in the field. In each case, the end shall be capped and backed with a 2-in by 4-in wood post extending to 3-ft below the finished ground surface.
- B. Service connections shall be 6-in diameter unless otherwise shown on the Drawings.

3.06 TESTING (GRAVITY PIPELINES)

- A. Testing and cleaning of pipe shall be as specified in Section 01445 and as follows. All tests shall be conducted in the presence of the Engineer. Furnish all necessary equipment and labor for carrying out the specified tests.
- B. Allowable Deflection Test
 - 1. Pipe deflection measured not less than 90 days after the backfill has been completed as specified shall not exceed 5 percent. Deflection shall be computed by multiplying the amount of deflection (nominal diameter less minimum 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 evenly spaced arms or prongs. Drawings of the mandrel with complete dimensions shall be submitted to the Engineer for each diameter of pipe to be tested. The mandrel shall be hand pulled through all sewer lines.
 - 3. Any section of sewer not passing the mandrel shall be uncovered at no additional cost to the Owner and the bedding and backfill replaced to prevent excessive deflection. Repaired pipe shall be retested at no additional cost to the Owner. Retested pipe shall not deflect more than 4 percent.
- C. Where low pressure air testing can not be performed, Contractor shall pressure test each pipe joint as specified in Section 02762.
- D. Final testing approach shall be submitted to the Engineer for review and approval prior to implementation.

END OF SECTION

SECTION 02627
PIPE REPAIR COUPLINGS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall furnish all labor, materials, equipment and incidentals required to connect new replacement sewer pipe and wyes to existing pipe; service connections to existing pipe; repair existing sewer pipe; connecting new drain pipe to existing drain pipe complete as shown on the Drawings and as specified herein.

1.02 RELATED WORK

- A. Trenching, backfilling and compaction is included in Section 02221.
- B. PVC sewer pipe is included in Section 02622.
- C. Concrete and reinforcing steel are specified in Section 03301.

1.03 SUBMITTALS

- A. Submit to the Engineer, as provided in Section 01300, the name of the manufacturers and model number and data sheets of all materials to be furnished.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Flexible sleeve type couplings to connect different pipe types shall be of corrosion resistant rubber or PVC with Series 300 stainless steel clamp bands. Flexible sleeve type couplings shall be as manufactured by Fernco, Mission Rubber Company, Inc., Calder, or equal. All stainless steel bands shall be coated with bitumastic.
- B. Flexible donut type couplings to connect different pipe types shall be of corrosion resistant rubber or PVC. Flexible donut type couplings shall be as manufactured by Fernco or equal.

PART 3 EXECUTION

3.01 INSTALLATION OF PIPE REPAIR COUPLINGS

- A. Existing sewer pipe shall be excavated with care so no damage to the pipe or existing fittings is caused. Hand digging around the existing pipe will be required to provide a clear opening for repairing or removing and reinstalling new pipe as specified herein.
- B. All repair couplings shall be examined before installation and none shall be installed which are found to be defective.

- C. Installation of all repair couplings shall be in accordance with manufacturer's instructions and as specified herein.
- D. Any damage to existing pipe or fittings other than pipe or fittings specifically intended to be removed, replaced or abandoned as part of this Contract shall be repaired by the Contractor as directed by the Engineer. If the Contractor damages existing pipe or fittings through error or for his own convenience he will be directed by the Engineer to repair all damages, in which case the repair work shall be performed at his own expense.
- E. Flexible sleeve type couplings and donut type couplings shall be installed for connecting new replacement PVC pipe and fittings to existing sewer pipe or service connections. Pipe rehabilitation using a sleeve type and a donut type coupling or using two-sleeve type couplings shall be as shown on the Drawings and as specified herein.
- F. Flexible sleeve type couplings shall be installed over smooth, clean spigot or cut ends of pipe. If cutting pipe is required, the cutting shall be done by machine or tool specifically intended for cutting the type of pipe being worked on. All cutting of pipe shall be at right angles to the axis of the pipe and shall leave a smooth cut.
- G. Replacement of existing sewer pipe at service connection replacements using flexible couplings shall consist of removing the pipe to the length required. Care shall be exercised so that on the existing pipe left-in-place, a clean, unbroken spigot end (or smooth cut end) and a clean, unbroken bell end (or smooth cut end) are available to connect to the replacement pipe. The Contractor shall then insert a donut coupling into the bell end of the existing pipe and shall install the replacement pipe into the bell and donut. The replacement pipe shall have a sleeve coupling on the opposite end and shall be "folded in" until it is aligned with the existing spigot end. The sleeve coupling shall then be slid halfway back over the existing spigot and clamped securely in place. The new pipe shall be bedded and backfilled as specified. The new pipe shall be accurately cut to length so that the gap left, after fold in, is 1-in or less. As an alternative, the Contractor may omit the donut coupling and use two sleeve type couplings to connect replacement pipe with plain or cut ends to two existing plain or cut end pipes.

END OF SECTION

SECTION 02640
VALVES, HYDRANTS AND APPURTENANCES

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and provide all buried valves, valves in manholes and underground vaults, hydrants and appurtenances complete with actuators and all accessories as shown on the Drawings and as specified herein.

1.02 RELATED WORK

- A. Concrete is included in Division 3.
- B. Pipeline Testing and Cleaning is specified in Section 01445.
- C. Control of Materials is specified in Section 01601.
- D. Ductile Iron Pipe and Fittings is included in Section 02616.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, materials required to establish compliance with this Section for shop drawings. Submittals shall include the following:
 - 1. Manufacturer's literature, illustrations, specifications and engineering data including:
 - a. Dimensions.
 - b. Size.
 - c. Materials of construction.
 - d. Weight.
 - e. Protection coating.
 - f. Actuator weight.
 - g. Calculations for actuator torque where applicable.
- B. Test Reports
 - 1. Four copies of all certified shop test results specified herein.
- C. Operation and Maintenance Manuals
 - 1. Submit complete operation and maintenance manuals including copies of all approved Shop Drawings.
- D. Certificates
 - 1. Certificates of compliance where required by referenced standards: For each valve specified to be manufactured and/or installed in accordance with AWWA and other standards, submit an affidavit of compliance with the appropriate standards, including certified results of required tests and certification of proper installation.

1.04 REFERENCE STANDARDS

- A. Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.
- B. American Water Works Association (AWWA)
 - 1. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron and Pressure Pipe and Fittings.
 - 2. AWWA C500 - Metal-Seated Gate Valves for Water Supply Service.
 - 3. AWWA C502 - Dry-Barrel Fire Hydrants.
 - 4. AWWA C504 - Rubber-Seated Butterfly Valves.
 - 5. AWWA C509 - Resilient-Seated Gate Valves for Water Supply Service.
 - 6. AWWA C515 - Reduced Wall, Resilient-Seated Gate Valves for Water Supply Service
 - 7. AWWA C651 – Disinfection of Watermains
 - 8. AWWA C800 - Underground Service Lines and Fittings
- C. American National Standards Institute (ANSI)
 - 1. ANSI B16.1 - Cast Iron Pipe Flanges and Flanged Fittings.
- D. ASTM International
 - 1. ASTM A48 - Standard Specification for Gray Iron Castings.
 - 2. ASTM A126 - Standard Specification for Gray Iron Castings for Valves, Flanges and Pipe Fittings
 - 3. ASTM A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
 - 4. ASTM A276 - Standard Specification for Stainless Steel Bars and Shapes.
 - 5. ASTM A536 - Standard Specification for Ductile Iron Castings.
- E. The Society for Protective Coatings (SSPC)
 - 1. SSPC SP-6 - Joint Surface Standard Commercial Blast Cleaning
- F. City of New Bedford Construction Specifications, latest edition.
- G. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

A. Manufacturer's Qualifications

1. Valves and appurtenances provided under this Section shall be the standard product in regular production by manufacturers whose products have proven reliable in similar service for at least 10 years. If required, the manufacturer shall furnish evidence of installation in satisfactory operation.
2. All units of the same type shall be the product of one manufacturer.

B. Design Criteria

1. All valves and appurtenances shall be new and in perfect working condition. Valves shall be designed for continuous use with a minimum of maintenance and service required and shall perform the required function without exceeding the safe limits for stress, strain or vibration. In no case will used or damaged valves be acceptable. The selection of equipment to meet the specified design conditions is the responsibility of the Contractor. Both workmanship and material shall be of the very best quality and shall be entirely suitable for the service conditions specified.

C. Source Quality Control

1. Valves shall be shop tested in accordance with the following:
 - a. Metal-seated gate valves: AWWA C500.
 - b. Rubber-seated butterfly valves: AWWA C504.
 - c. Resilient-seated gate valves: AWWA C509.
2. Obtain each type of valve from no more than one manufacturer.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the site to ensure uninterrupted progress of the work.

B. Protect threads and seats from corrosion and damage. Rising stems and exposed stem valves shall be coated with a protective oil film which shall be maintained until time of use.

C. Furnish covers for all openings.

1. All valves 3-in and larger shall be shipped and stored on site until time of use with wood or plywood covers on each valve end.
2. All valves smaller than 3-in shall be shipped and stored as above except that heavy cardboard covers may be furnished instead of wood.
3. All butterfly valves shall be delivered with blind flanges bolted in place until valve is pressure-tested on site, before installation and burial.

- D. Store equipment to permit easy access for inspection and identification. Any corrosion in evidence at the time of Owner acceptance shall be removed, or the valve shall be removed from the job.
- E. Store all equipment in covered storage off the ground.

1.07 COORDINATION

- A. Review installation procedures under other Sections and coordinate with the work which is related to this Section including buried piping installation, site utilities, piping insulation, heating, ventilating and air conditioning, plumbing and chemical feed facilities.
- B. Coordinate the location and placement of concrete thrust blocks when required.

PART 2 PRODUCTS

2.01 GENERAL

- A. All buried valves shall open right or clockwise in accordance with Owner's standards.
- B. The use of a manufacturer's name and/or model or catalog number is for the purpose of establishing the standard of quality and general configuration desired.
- C. Valves shall be of the size shown on the Drawings or as noted and as far as possible equipment of the same type shall be identical and from one manufacturer.
- D. Valves shall have the name of the maker, nominal size, flow directional arrows, working pressure for which they are designed and standard to which they are manufactured cast in raised letters on some appropriate part of the body.
- E. Unless otherwise noted, valves shall have a minimum working pressure of 250 psi or be of the same working pressure as the pipe they connect to, whichever is higher, and suitable for the pressures noted where they are installed.
- F. Valves shall be of the same nominal diameter as the pipe or fittings they are connected to. Except as otherwise noted, joints shall be mechanical joints, with joint restraint where the adjacent piping is required to be restrained. New butterfly valves shown on the Drawings and details shall have flanged joints to accommodate the required onsite pressure testing specified herein.
- G. Valves shall be especially constructed for buried service.

2.02 VALVE BOXES

- A. All gate and butterfly valves shall be provided with extension shafts and operating nuts.

1. Extension shafts shall be Type 304 stainless steel and the operating nut shall be 2-in square. Shafts shall be designed to provide a factor of safety of not less than four. Operating nut shall be pinned to the shafts.
 2. Top of the operating nut shall be located two-in below the rim of the valve box.
 3. Valve boxes heavy-pattern cast iron, three piece, telescoping type box with dome base suitable for installation on the buried valve. Inside diameter shall be at least 5 ¼-in. Barrel length shall be adapted to the depth of cover, with a lap of at least 6-in when in the most extended position. Covers shall be cast iron with integrally cast direction to open arrow, and the work WATER shall be integrally cast. Aluminum or plastic are not acceptable. A means of lateral support for the valve extension shafts shall be provided in the top part of the valve box. Valve boxes shall be manufactured in America and no foreign products will be accepted.
 4. The upper section of each box shall have a flange of sufficient bearing area to prevent settling. The bottom of the lower section shall enclose the stuffing box and operating nut of the valve and shall be oval.
 5. An approved operating key or wrench shall be furnished.
 6. All fasteners shall be Type 304 stainless steel.
 7. Position indicator devices shall be provided for each butterfly valve. The position indicator device shall be GPI Series Geared Position Indicator by Dyna-Torque, Inc., Muskegon MI or approved equal. The indicator shall mount over the shaft and visually show the position of the valve at all times. All materials shall be non-corrosive, nonmagnetic and shall require no lubrication. Unit shall be furnished and arranged for use with the valve box.
 8. Valve boxes shall be manufactured by Buffalo, two piece design, Caldwell No. 10 gate box – 5 ¼-in shaft used with 12-in and smaller sliding types; Size 664, extending from 38-in to 60-in, top section 26-in, bottom section 36-in, weight of 110 lbs. All valve boxes shall be consistent with Owner’s standards.
- B. Valve boxes shall be of sufficient size to fully accommodate operation of valves and manual air release valves. Inside diameter of valve boxes shall be a minimum of 5 ¼-in for butterfly valves and manual air release valves.

2.03 RESILIENT SEATED GATE VALVES

- A. 12-in shall be manufactured in accordance with AWWA C509 and as specified herein. Valves shall be:
1. Series 2360 resilient wedge gate valve (available 2-in through 12-in) by Mueller Company of Decatur, Illinois;
 2. Model A-USP0 resilient wedge gate valve (available 2-in through 12-in) by the US Pipe, Valve & Hydrant Division of Mueller Company of Decatur, Illinois;

3. Or approved equal.

- B. All valves shall be fully manufactured in the United States.
- C. Valves shall be provided with a minimum of two O-ring stem seals.
- D. Bonnet and gland bolts and nuts shall be either Type 304 or 316 stainless steel. The hot-dip process in accordance with ASTM A153 is not acceptable. Allen-wrench type bonnet and gland fastening shall not be acceptable and will be rejected.
- E. Wedges shall be totally encapsulated.
- F. Units shall be, in addition, UL and FM approved.
- G. Cast the word "OPEN" and an arrow indicating direction to open on each valve body or operator.
- H. Operating nut for all gate valves shall be 2-in square.
- I. Extension stems shall be fabricated from solid steel. Stems shall not be smaller in diameter than the valve stem. Equip stem with wrench nut. Ensure all stem connections are pinned.
- J. Valves shall be non-rising stem.
- K. While AWWA standards allow integral and non-integral thrust collar and stem designs, thrust collars and stems shall be integrally cast (not pinned on) and shall feature copper alloy valve stems.
- L. Valves shall have mechanical joint ends compliant with AWWA C111 unless otherwise noted.
- M. A 10-year warranty shall be provided for all resilient seated gate valves furnished on the Project.
- N. The pH of the fluids flowing through the valves is expected to be between 9.0 and 9.5 pH units.

2.04 TAPPING SLEEVES AND TAPPING VALVES

- A. Tapping sleeves shall be of cast iron, designated for working pressure not less than 200 psi. Armored end gaskets shall be provided for the full area of the sleeve flanges.
- B. Tapping sleeves shall be of the split mechanical joint design, high-strength iron or steel body with a heavy coat of corrosion resistant coating and separate end and side gaskets. The side gasket shall extend the entire length of the tapping sleeve, forming a watertight joint. Tapping sleeves shall conform to all required AWWA standards. Tapping sleeves shall be as manufactured by:
 - 1. Mueller H-615 or H-616.
 - 2. JCM Industries Model No. 414.
 - 3. Or equal.

- C. Nuts and bolts shall be Type 304 stainless steel.
- D. Tapping valves shall conform to the requirements specified above for gate valves except that one end shall be flanged and one mechanical. Tapping valves shall be provided with an oversized opening to permit the use of full sized cutters.

2.05 BUTTERFLY VALVES

- A. Valves shall be manufactured in strict accordance with AWWA C504. Valves shall be bubble tight at rated pressures. Valve discs shall rotate 90 degrees from full closed to open. Operators shall be assembled to the valve by the valve manufacturer. The valve/operator shall be tested as a complete assembly by the valve manufacturer. The manufacturer shall have produced AWWA butterfly valves for a minimum of 5 years.
- B. Valve bodies shall be constructed of cast iron ASTM A126, Class B. Valves in vaults shall be flanged. Flange drilling shall be in accordance with ANSI B16.1, Class 150. Laying length shall be short body as listed in AWWA C504. Buried valves shall be mechanical joint end conforming to ANSI C111.
- C. Valve discs shall be constructed of cast iron ASTM A126 or A48, ductile iron ASTM A536. Material mating with the seat shall be either Type 304 or Type 316 stainless steel.
- D. Valve shafts shall be Type 304 stainless steel, ASTM A276 and shall be of a diameter not less than those listed in AWWA C504, Class 150B.
- E. Shaft seals shall be furnished where the shaft projects thru the valve body. Shaft seals shall be standard split-v type packing or of an O-ring design.
- F. Valves shall be fitted with sleeve type bearings contained in the trunions of the valve body. Bearing material shall be nylon for valves thru 20-in and fiberglass with teflon lining for valves 24-in and larger.
- G. Valve manufacturer shall furnish and mount operator suitable for buried service. Operators shall be self-locking and suitable for submergence to 20-ft. A 2-in square operating nut shall be furnished. Operator stops shall be capable of withstanding an input of 450 ft-lbs.
- H. All valves shall be hydrostatically and leak tested.
- I. Valve class shall be AWWA Class 150B with operators sized for bi-directional flow.
- J. Valves shall be manufactured by Henry Pratt (the "Groundhog" series); Mueller (Model 3211); Clow/Kennedy/M&H; or DeZurik valve companies.
- K. Rubber valve seats shall be Buna-N, Buna-S or EPDM. The seat shall be in the valve body and seat retaining hardware such as screws and segments are used they shall be monel. If screws are used, monel plugs shall be affixed in the valve bod and tapped to receive these screws.

2.06 HYDRANTS

- A. City of New Bedford will supply fire hydrants to the Contractor for installation.

- B. Hydrants shall be installed such that the 4-1/2-inch pumper nozzle faces the roadway.
- C. Contractor shall determine the depth of existing watermain to determine the depth of all hydrants. Deliver information to Owner such that Owner can order the correct hydrant. Contractor is responsible for providing accurate information. Should Owner order incorrect hydrant as a result of Contractor's negligence, it is the Contractor's responsibility to replace the hydrant at no cost to the Owner.
- D. The minimum allowable distance between the centerline of the lowest nozzle and the ground is 18-in.
- E. The following is a list of manufacture's used by the City:
 - 1. Mueller, Super Centurian No. A-423
 - 2. Darling B62B

2.07 MANUAL AIR RELEASE VALVES FOR BUTTERFLY VALVES

- A. Manual air release valves shall be installed for all new transmission main butterfly valves as shown on the Drawings and shall be 2-inch. Valves shall be installed within valves boxes with locking covers and be equipped with an operating handle rod. Manual air release valves shall be manufactured by Wedge Manufacturing LLC of Connecticut or approved equal.

PART 3 EXECUTION

3.01 INSPECTION AND PREPARATION

- A. During installation of all valves and appurtenances, verify that all items are clean, free of defects in material and workmanship and function properly.
- B. All valves shall be closed and kept closed until otherwise directed by the Engineer.
- C. Butterfly valves shall be field tested as specified prior to installation.

3.02 INSTALLATION OF BURIED VALVES AND VALVE BOXES

- A. Buried valves shall be cleaned and manually operated before installation. Buried valves shall be installed in accordance with AWWA C504 and C509 as applicable and as specified herein. Buried valves and valve boxes shall be set with the stem vertically aligned in the center of the valve box. Valves shall be set on a firm foundation and supported by tamping pipe bedding material under the sides of the valve. The valve box shall be supported during backfilling and maintained in vertical alignment with the top flush with finish grade. The valve box shall be set so as not to transmit traffic loads to the valve.
- B. All butterfly valves larger than 16-inches shall be hydrostatically and leak tested on-site in the field prior to installation. Contractor shall provide all the necessary piping, blind flanges, restraints, taps, pressure gauges, corporations and testing equipment to verify valve seats are leak proof. Hydrostatic and leak test shall be as follows:

1. Conduct a functional field test of each valve, including actuators and valve control equipment, in presence of Owner and/or Engineer, to demonstrate that each part and all components together function correctly. All testing equipment required shall be furnished by the Contractor.
 2. Contractor shall provide blind flanges of the same nominal diameter as the valves being tested, tapped for two 1/2-inch minimum corporation stops to use for on-site pressure testing of butterfly valves prior to their installation. One tap shall be placed in the lower portion and the other tap shall be placed in the upper portion of the blind flange.
 3. To one side of the valve, bolt and restrain the blind flange of the same nominal diameter as the valve being tested. Blind flange shall have been previously tapped for two 1/2-inch corporation stop connections.
 4. Set and restrain the blind flange tightly to the valve. Water shall be introduced through the lower corporation to fill the cavity between the closed valve disk and the blind flange. Water will continue to be supplied until all air has been purged from the cavity.
 5. After all air has been purged, install a pressure gauge on the upper corporation to measure the test pressure throughout the duration of the test.
 6. Continue filling the cavity between the valve disk and blind flange until pressure is 1.5 times the working pressure of the valve. Maintain pressure for a minimum of 2 hours. Monitor valve and disk for the presence of any leaks during this time. Engineer shall witness testing and verify that valve is of a satisfactory condition to be installed.
 7. Repeat steps 2 through 6 to hydrostatically and leak test the other side of the valve and valve disk.
 8. Both sides of each valve and valve disc shall pass this hydrostatic and leak test before being installed in the work. Any valve that fails this on-site hydrostatic and leak test on either side of the valve disc shall be rejected or repaired (e.g., seat), at the sole discretion of the Engineer. If a valve is repaired, it must be retested and pass this hydrostatic and leakage testing requirement before being installed in the work. Engineer and Owner reserve the right to reject any valve that does not pass this hydrostatic and leak test and require that the Contractor provide a brand new valve as a replacement.
 9. Engineer shall witness testing of all valves and that all valves pass the testing requirement and are satisfactory to be installed. Contractor shall submit a certification report that each valve has been tested and passed the on-site leakage test.
 10. It is the responsibility of the Contractor that he/she ensures the safety of any persons performing the testing of the valves. Testing shall be performed at a location selected by the Owner and Engineer.
- C. Before backfilling, all exposed portions of any bolts shall be coated with two coats of bituminous paint.
- D. Contractor shall exercise care during flowable fill encasement of valves to prevent flowable fill from entering valve boxes and encasing the operating nut. As shown on the Drawings, install a

posi-cap to prevent flowable fill from entering the valve box and seizing the operating nut of the valve. Contractor bears full responsibility for protection of the valve. If the valve is damaged or becomes inoperable during installation of flowable fill encasement, the Contractor shall replace the valve at no additional cost to the Owner.

3.03 INSTALLATION OF TAPPING SLEEVES AND VALVES

- A. The proper authority shall be contacted and their permission granted prior to tapping a "live" line. The required procedures and time table shall be followed exactly.
- B. Installation shall be made under pressure and flow shall be maintained. The diameters of the tap shall be not less than 1/4-in less than the inside diameter of the branch line.
- C. The entire operation shall be conducted by workers experienced in the installation of tapping sleeves and valves. The tapping machine shall be furnished by the Contractor.
- D. Determine the location of the line to be tapped to confirm that the proposed location will be satisfactory and that no interference will be encountered such as joints or fittings. No tap or sleeve will be made closer than three feet from a pipe joint. The exact location of the tap is subject to the approval of the Engineer.
- E. Prior to completing tap, the valve shall be swabbed with chlorine solution so that the valve seat is clean. All proper regulatory and AWWA procedures shall be followed exactly.
- F. Tapping sleeve and valve with boxes shall be set squarely centered on the line to be tapped. Adequate support shall be provided under the sleeve and valve during the tapping operation. Thrust blocks or other permanent restraint acceptable to the Engineer shall be provided behind all tapping sleeves. Proper tamping of supporting pipe bedding material around and under the valve and sleeve is mandatory for buried installations.
- G. After completing the tap, the valve shall be flushed to ensure that the valve seat is clean. All proper regulatory procedures (including disinfection) shall be followed exactly.

3.04 INSTALLATION OF AIR RELEASE VALVES

- A. Air release valve shall be installed as shown on the Drawings and in conformance with AWWA C512.
- B. After water mains have been returned to service, monitor all air release valves for the presence of leaks. Operate all manual air release valves. Notify Engineer of the presence of any leaks.

3.05 INSTALLATION OF FIRE HYDRANTS

- A. Fire hydrants shall be set at the locations as shown on the Drawings and bedded on a firm foundation. Hydrants and connecting pipe shall have at least the same depth of cover as the distributing pipe. A drainage pit as detailed on the Drawings shall be filled with screened gravel and compacted. The hydrants shall be set upon a slab of concrete not less than 4-in thick and 15-in square. During backfilling, additional screened gravel shall be brought up around and 6-in over the drain port. Each hydrant shall be set in true vertical alignment and properly braced.

- B. Concrete thrust blocks shall be placed between the back of the hydrant inlet and undisturbed soil at the end of the trench. Minimum bearing area shall be as shown on the Drawings. Felt roofing paper shall be placed around hydrant elbow before placing concrete. Care shall be taken to ensure that concrete does not plug the drain ports.
- C. The hydrant shall be tied to the pipe with suitable rods or clamps, galvanized, painted, or otherwise rustproof treated. Hydrant paint shall be touched up as required after installation.
- D. Fire hydrants shall be painted in accordance with Owner's standard practice.

3.06 FIELD TESTS AND ADJUSTMENTS

- A. Conduct a functional field test of each valve, including actuators and valve control equipment, in presence of Engineer to demonstrate that each part and all components together function correctly. All testing equipment required shall be furnished by the Contractor.
- B. Take care not to over pressurize valves or appurtenances during pipe and valve testing. If any union proves to be defective, it shall be replaced or repaired to the satisfaction of the Engineer.
- C. No testing shall be performed until the manufacturer's service engineer has provided written certification that the following installed equipment has been examined and found to be in complete accordance with the manufacturer's requirements.
- D. The various pipelines in which valves and appurtenances are to be installed are specified to be field tested. During these tests, any defective valves or appurtenances shall be adjusted, removed and replaced or otherwise made acceptable to the Engineer.
- E. Valves and appurtenances shall be tested to demonstrate their conformance with the specified operational capabilities, and any deficiencies shall be corrected or the device shall be replaced or otherwise made acceptable to the Engineer.

3.07 MANUFACTURER'S SERVICE

- A. Furnish the services of a qualified representative of the tapping equipment manufacturer to provide on-site instruction during wet tapping of the existing water mains indicated on the Drawings.
- B. Following installation of the butterfly valves, furnish the services of a qualified, factory-trained representative of the manufacturer of the respective valves, to check the installations before they are placed in operation, supervise initial operations and testing in the presence of the Engineer, instruct the plant personnel in care and maintenance of the equipment, and make all necessary field adjustments. A minimum of 8-hour days, which may not necessarily be consecutive, shall be provided for these services. In the event of trouble with the equipment, the representative of the respective manufacturer shall revisit the site as often as necessary until all troubles are corrected and the installation is entirely satisfactory.

3.08 CLEANING

- A. All items (including valve interiors) shall be cleaned and disinfected prior to installation, testing, and final acceptance. Refer to Section 01445 and AWWA C651 standards.

END OF SECTION

SECTION 02663
WATER SERVICE CONNECTIONS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required in tapping and making house service connections where directed by the Engineer. Furnish all necessary labor and equipment to excavate the trenches from the main to the property line, backfill the trenches after the new connections are completed and restore the street and sidewalk to their original condition. Trench excavation and backfilling shall be done in accordance with all of the related Sections.
- B. Corporation cocks shall be installed for connecting all service to the new water mains. Keep a record of the locations of all corporation cocks installed and shall indicate on the record those corporation cocks that have not been connected to service piping. A copy of this record shall be given to the Engineer at the completion of the work. Copper tubing, curb stops and necessary adapters shall be used to make connections between new corporation cocks and new and existing service piping. Unless otherwise directed, the new curb stops shall be located 1.5-ft back of the curb line. Be responsible for the removal and/or installation of curb stops in the locations directed by the Engineer.
- C. All existing services shall be maintained until the new service connections have been fully installed to the satisfaction of the Engineer. All service connections shall then be made to the mains as specified below. Connect each existing house service to the new service connections provided after the completed installation has been accepted by the Engineer. All abandoned services shall have ends crimped.

1.02 RELATED WORK

- A. Special provisions are included in Section 01170.
- B. Ductile iron pipe and fittings are included in Section 02616.
- C. Valves, hydrants and appurtenances are included in Section 02640.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, and within 10 days after signing the contract a list of materials to be furnished, the name of suppliers and the date of delivery of materials on the job site.

1.04 REFERENCE STANDARDS

- A. ASTM International
 - 1. ASTM B88 - Standard Specification for Seamless Copper Water Tube.
- B. American Water Works Association (AWWA)
 - 1. AWWA C800 - Underground Service Line Valves and Fittings.

- C. National Sanitation Foundation (NSF)
 - 1. NSF 61 – Drinking Water System Components Health Effects
- D. Massachusetts Department of Environmental Protection Guidelines for Public Water Systems.
- E. City of New Bedford Construction Specifications, latest edition.
- F. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Service pipe shall be soft, annealed seamless copper tubing conforming to ASTM B88, Type K. The name and trademark of the manufacturer shall be stamped along the pipe. Copper tubing for domestic water service connections shall be a minimum of 1-in and shall match (for those services 1-in and larger) the existing diameter. For existing service lines to be replaced that are less than 1-in, shall be replaced with a minimum of 1-in copper service pipe.
- B. Corporation stops for service connections shall be lead free meeting all NSF lead-free requirements, shall be compliant with AWWA C800, shall be brass with standard shop threads conforming to AWWA C800 on inlet end and with required joint or coupling for connection to copper pipe, and shall be Style AWWA types H-1500 and H-15008 by Mueller Company of Decatur, Illinois; Red Head Style 438, or approved equal in accordance with Owner’s standards. Corporation stops for service connections shall not be less than 1-in in diameter. Corporation stops of the required size shall be installed where shown on the Drawings, specified, or required. Corporation stops shall be rated at 150 psig minimum working pressure.
- C. Curb stops shall be lead free meeting all NSF lead free requirements, shall be compliant with AWWA C800 and shall be Water Works inverted ground-key type, oval or round flow way, tee handle, without a drain. Pipe connection shall be suitable for the type of service pipe used. All parts shall be of bronze with female iron-pipe-size connections or compression-pattern flared tube couplings and shall be designed for a hydrostatic test pressure not less than 200-psi. Curb stops shall be Style H-1504-2 by Mueller Company of Decatur, Illinois; Style B415G by Red Head, or approved equal in accordance with Owner’s standards. Curb stops shall be bronze with copper fittings, and shall be inverted key type with base cap and stops. Working pressure shall be minimum 150 psig.
- D. Service boxes shall be installed for all new curb stops. Curb stops shall be furnished with curb boxes of the extension type with stationary rod and arch pattern base. Service boxes shall be cast iron. Extension service boxes of the required length and having slide-type adjustment shall be installed at all service box locations. The boxes shall have housings of sufficient size to completely cover the service stop and shall be complete with identifying covers. Service boxes shall be furnished with cover which reads “WATER”.
- E. Adapter couplings for connecting new copper tubing to existing service connection shall be standard straight coupling fittings conforming to AWWA C800. When connecting new water service pipe to existing water service pipe, the Contractor may encounter different pipe materials such as steel, brass, etc. Couplings used to connect new services shall electrically

isolate the two materials and be comprised of corrosion resistant materials. Contractor shall use caution to ensure that the electric ground of existing building is not disrupted or altered.

- F. Line fittings, if required on new service line, shall be standard three-part unions conforming to AWWA C800.
- G. Service saddles shall only be used if approved or directed by the Engineer. If required, service saddles shall conform to the Owner's standards, latest edition.
- H. Owner to provide copper tubing, curb stop and box, corporation, saddles, and couplings for contractor to install.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Corporation cocks. The tapping machine shall be rigidly fastened to the pipe as near the horizontal diameter as possible. The length of travel of the tap should be so established that when the stop is inserted and tightened with a 14-in wrench, not more than one to three threads will be exposed on the outside. When a wet tapping machine is used, the corporation cock shall be inserted with the machine while it is still in place. Stops shall be tightened only sufficiently to give watertightness and care must be constantly exercised not to overtighten them.
- B. Straight couplings. Install straight couplings to existing water mains of the sizes required in the locations designated by the Engineer in the field. Utilize the manufacturer's recommended installation procedures while performing the work. Care shall be taken to ensure a watertight connection.
- C. Curb stops will, in most cases, be installed 1.5-ft from the curb line or pavement limit. Install the curb cocks and boxes in a workmanlike manner as described herein and as directed by the Engineer and shall place compacted screened gravel around and below the cock to permit ready draining of the pipe through the waste opening.
- D. The boxes shall be set in a true vertical position and if they are within the limits of the roadway or within limits where the plowing of snow will take place in the winter, the tops of the boxes shall be set about 1/2-in below the top of the finished grade. In locations where these boxes are not likely to be disturbed, the tops shall be set flush with the adjoining ground.
- E. Copper tubing. Care shall be exercised in the placing and laying of copper tubing to be sure that the pipe does not have kinks or sharp bends and to assure against it being in contact with sharp stones or ledge which would cause damage to the pipe. At least 6-in of selected fill shall be placed adjacent to and above the pipe and no stone shall be placed over the pipe until the depth of backfill above the latter is in excess of 1-ft.
- F. All service connections must be installed perpendicular (90 degrees) from water main and shall have a minimum 4-ft of cover. Any new water service connection that is not installed in the same location as the existing service being replaced and is installed in a new location must not be laid in the same trench as other utilities (i.e., gas, electric, sewer, etc.). Water service connections closer than 10-ft horizontally or 18-in vertically to an existing sewer line shall be concrete encased.

- G. Line fittings or couplings are not allowed between the corporation stop and curb stop or from the curb stop to the building meter unless the service pipe is longer than 100-ft.

END OF SECTION

SECTION 02762
SEWER PIPE JOINT TESTING

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Joint testing shall be performed on all PVC pipe joints for the purposes of acceptance of the installed sewer or drain pipe.
- B. Joint testing shall be accomplished by utilizing a void pressure monitoring system. Generally, this shall be accomplished by applying a positive pressure to each joint, allowing time for the system to stabilize and measuring the amount of pressure decay over a given length of time.

1.02 RELATED WORK

- A. Pipeline testing and cleaning is included in Section 01445.
- B. PVC gravity pipe is included in Section 02622.

PART 2 PRODUCTS

2.01 MATERIALS

- A. The equipment used shall consist of a television camera and a hydrostatic joint testing device that can be pulled through the sewer lines. Testing shall be accomplished by isolating the joint or area to be tested with the testing device or devices and applying a positive hydrostatic pressure into the created, isolated void area. Pressure readings shall be displayed on an above ground gauge with a range of 0 to 10 psi. All test monitoring equipment shall be located above grade.
- B. The test medium used to develop pressure in the void shall be water or air.

PART 3 EXECUTION

3.01 PERFORMANCE

- A. Existing hydrostatic head shall be established by inserting a pipe probe into the backfill material at the crown of the pipe at the downstream manhole and applying pressure until equilibrium is attained. This is the back pressure that all test pressures for that section of line shall be increased by.
- B. In the absence of groundwater or hydrostatic head pressure data, the test pressure shall be equal to 1/2 psi per vertical foot of pipe depth or 4 psi, whichever is greater.
- C. Each joint that is not visibly leaking shall be tested by centering the testing device over the joint and expanding the end elements until they are pressing flat against the circular pipe walls on each side of the joint and can hold the test pressure without leakage by the end elements (blow back).

- D. The end element pressure required to produce this seal shall be determined by making a control test on a section of pipe between joints. This test shall be conducted on each individual reach. If the void will not hold pressure during this control test, joint testing will be considered invalid and the Contractor shall determine and correct the cause of the failure and rerun the control test.
- E. A precise pressure of 4 psi above the existing hydrostatic head shall be applied to each joint. Once the pressure of 4 psi above hydrostatic head at the joint has been recorded on the gage above ground, the water flow shall be stopped and the pressure gage observed for 30 seconds. Should the pressure on the joint drop 0.5 psi or more within 30 seconds, the joint will have failed the test. Joints that fail the test shall be sealed as specified in these specifications and re-tested by the same procedure until the joints pass the pressure test.
- F. The gage pressure shall be measured at the void and transmitted to the above ground monitoring equipment by means of a pressure transducer. Use of a hose or tube filled with water or other liquid will not be allowed.
- G. The Contractor shall maintain Test Records or a log sheet for every sewer reach tested. Information to be recorded will include, but not be limited to, the following:
 - 1. Date.
 - 2. Time.
 - 3. Identifications of sewer reach tested, including MH section, street location and tributary area.
 - 4. Label of corresponding television inspection videotape.
 - 5. The test pressure used at each joint.
 - 6. Location (by footage or station) of each joint not tested and reason why.
 - 7. Location (by footage or station) of each joint.
 - 8. Statement of test results for each joint.
- H. Two copies of typed log sheets shall be furnished to the Engineer at the completion of the testing and sealing work.

END OF SECTION

SECTION 02900
LANDSCAPING

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and service required and complete all planting and related landscaping work indicated on the Drawings and as specified herein, including but not necessarily limited to the following:
1. Supplying of loam for all plant pits and planting beds. Be responsible for all topsoil preparation, testing, conditioning and fertilization and shall ensure the overall quality of the material. Loam stockpiled from other construction operations under this Section may be used.
 2. Excavation of pits for trees and shrubs.
 3. Furnishing and planting trees and shrubs as shown on the Drawings.
 4. Supplying accessory materials and wrapping, guying and staking of all trees.
 5. Pruning of plant materials as specified and as approved by the Engineer.
 6. Supplying and spreading mulch for tree pits, rain gardens, bio-swales, and planting beds as specified herein.
 7. Furnishing and placing washed gravel.
 8. Maintenance and guarantee.
 9. Final cleanup and all other work required to complete the job in accordance with the Drawings and as specified herein.
- B. The planting work shall be performed by a landscape contractor who is fully experienced in projects of this scope and whose main business is landscaping. Selection of the landscape contractor shall be subject to the approval of the Engineer.

1.02 RELATED WORK

- A. Site preparation is included in Section 02100.
- B. Granular material is included in Section 02230.
- C. Erosion and sedimentation control is included in Section 02270
- D. Loaming and seeding is included in Section 02930.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, samples of all materials for inspection and approval.

- B. List of Materials/Suppliers: Submit a complete materials list (e.g., trees, erosion control matting, cedar stakes, shrubs, etc.) of items to be provided under this section, for review by the Engineer or representative before the purchase or use of any such material.
- C. Before digging the pits, the Contractor shall submit, for approval, their method of soil preparation and planting to perform the Work shown on the Contract Documents. Soil amendments shall be thoroughly mixed by approved methods. The soil around each plant must be thoroughly saturated with water upon planting.
- D. Method of Work: Submit a list of proposed methods of execution of Work under this section for review by the Engineer when proposed methods are different from, or supplementary to, those specified herein.
- E. The Contractor must submit the following information to the Engineer immediately following the Notice to Proceed:
 - 1. Subcontractor(s): The name of a Landscaping Contractor, acceptable to the Engineer, who will be performing all landscaping Work (seeding, perennial planting, bulb planting and woody plant material).
 - 2. Prior satisfactory experience in the installation of Green Infrastructure Systems.
 - 3. Demonstrated capacity to accomplish the Work in the time allotted.
- F. The following is required prior to the start of landscaping Work:
 - 1. List of all materials and certificates specified within this item.
 - 2. Schedule/Methods of Operation/Maintenance Plan
 - 3. List of all equipment to be used.

1.04 REFERENCE STANDARDS

- A. American Association of Nurseryman (AAN)
- B. American Standard for Nursery Stock ANSI Z60.1-2004 by the American Nursery and Landscape Association (ANLA).
- C. Tree pruning: ANSI A300 Pruning Standards for Woody Plants.
- D. Tree and Shrub Transplanting Manual, E.B. Himelick, 1991, International Society of Arboriculture.
- E. Commonwealth of Massachusetts Department of Transportation Highway Division (MassDOT) Standard Specification for Highways and Bridges, latest edition (MSSH-B).
- F. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 PERSONAL QUALIFICATIONS

- A. Planting shall be done by skilled workers, trained and experienced in accepted nursery practices. The work shall be done under the supervision of qualified planting foreman with a minimum of three years of experience.
- B. Certified Arborist: Engage the services of a certified arborist certified by the International Society of Arboriculture (ISA), who shall be required to be present on Site while landscaping Work is in progress.
- C. Nursery: Company specializing in growing and cultivating plants with three years documented experience.
- D. Tree Pruner: Company specializing in performing work of this section with minimum 3 years documented experience.
- E. Maintenance Services: Performed by installer.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.
- B. Plants must be packed, transported, and handled with utmost care to insure adequate protection against injury. Plant material must be delivered to the Site in such a manner as to not damage the bark, break branches, or destroy the natural shape of the plant.
- C. When transported in closed vehicles, plants must receive adequate ventilation to prevent sweating. When transported in open vehicles, plants must be protected by tarpaulins or other suitable cover material.
- D. Bare root material must be adequately protected from drying out and immediately heeled in after inspection. The bundles of heeled-in plants must be set upright on the ground, covered with mulch, and kept adequately moist until the time of installation. Balled and burlapped plants must be set on the ground and the ball covered with soil. Until the time of planting, all plant material must be stored in an approved location, securely fenced and maintained, to the satisfaction of the Engineer, at no additional cost to the Owner. All plants not immediately planted must be watered as necessary to maintain optimal health until planting.
- E. Each shipment of plants must be declared and certified free of diseases of any kind with such necessary inspection certificates accompanying each shipment.
- F. To protect plant material from desiccation, the Contractor shall, when deemed appropriate and only on appropriate plant material, apply an approved anti-desiccant forty-eight (48) hours prior to transporting and fully cover plant material during transportation to the planting Site.
- G. Plant material must not be dropped or in any way be mishandled during unloading. Plants damaged during transportation to the Site will be immediately rejected. Unacceptable conditions include, but are not limited to, the following: loose burlap or rope, soil spilling from ball and burlap (B&B) or containers, plants that move independently of root ball or container, soil missing from B&B or containers, and irregularly shaped root balls.

- H. Deliver plant life materials immediately prior to placement. Keep plants moist.

1.07 ENVIRONMENTAL REQUIREMENTS

- A. Do not install plant life when ambient temperatures may drop below 35 degrees F or rise above 90 degrees F.
- B. Do not install plant life when wind velocity exceeds 30 mph.

PART 2 PRODUCTS

2.01 PLANT BACKFILL MATERIAL

- A. Engineered soils shall be as specified in Section 02230.
- B. No material shall be delivered or spread in a frozen or muddy condition.

2.02 WASHED GRAVEL

- A. Washed gravel shall be off-white river washed gravel, clean, granular material graded from 1-1/2-in to 2-in in size. Washed gravel shall be obtained from natural deposits and unprocessed except for removal of unacceptable sizes and materials. Washed gravel shall not contain vegetation, roots or other organic matter and shall be washed prior to placing.
- B. Deliver to the site (as directed by the Engineer) a sample of washed gravel, which conforms to the above requirements. After examination and approval by the Engineer, all washed gravel incorporated into the work shall match the approved samples.

2.03 FERTILIZER, SOIL AND PLANT CONDITIONERS

- A. Fertilizer shall be commercial mixed free flowing granules or pelleted fertilizer, 10-10-10 (N-P2O5-K2O) with at least 40 percent of the nitrogen in the fertilizer to be slowly available (organic) form. Fertilizer shall be delivered to the site in original unopened containers each showing the manufacturer's guaranteed analysis conforming to applicable state fertilizer laws.
- B. Peat Moss: Shall be domestic brown sphagnum peat, free of woody materials and of mineral matter such as sulfur and iron and shall have a pH value between 4 and 5. Deliver air dry.
- C. Preemergent herbicide and fertilizer shall be Preen Weed Preventer by Lebanon Seaboard Corporation, www.preen.com, Lebanon, PA or equal.
- D. Anti-desiccant: Shall be an emulsion which provides a protective film over plant surfaces to help retain moisture, but permeable enough to permit transpiration. Anti-desiccant shall be delivered in the manufacturer's containers and shall be mixed with water in proportions recommended by manufacturer. Anti-desiccant shall be "WILT-PRUF" distributed by Better Flora, Kearney, MO www.wiltpruf.com or equal.
- E. Bone Meal: Shall be commercial raw bone meal, finely ground, having a minimum analysis of 4 percent nitrogen and 20 percent phosphoric acid.
- F. Mulch: Shall be Shredded Pine Bark Mulch consisting of pine bark strips no longer than 2-in in any dimension, free of wood chips, stones or other undesirable matter with a pH range between 4 and 5 and conforming to the requirements of M6.04.05 of the MSSHB.

- G. Soil Sterilent: Shall be “GroundClear” by Ortho Chemical Co. or equal.
- H. Water used in this work shall be furnished by the Contractor and shall be suitable for irrigation and free from ingredients harmful to plant life. Hose and other watering equipment required for the work shall be furnished by the Contractor.

2.04 ACCESSORY MATERIALS

- A. Stakes: Shall be used for supporting all trees and shall be of sound wood, uniform in size, reasonably free of knots and capable of standing in the ground at least 2 years. Stakes shall be treated with a non-toxic preservative stain with a rich dark brown color. A sample shall be provided for approval by the Engineer. Stakes shall be 2 by 4 and not less than 8-ft in length.
- B. Guying: For tree staking, shall be ¾-in wide, flat woven polypropylene material designed to support tree yet permit movement. Material shall be loosely looped around tree and fastened to stake. Guying material shall be Arbor Tie, manufactured by DeepRoot Green Infrastructure, LLC, San Francisco, CA www.deeproot.com (800) 458-7668, or equal.
- C. Tree bags for use following planting of trees shall be Treegator Original Slow Release Watering Bag.

2.05 PLANT MATERIALS

- A. Furnish and install trees and shrubs as shown on the Drawings. Plants shall be nursery grown under climatic conditions similar to those in the locality of the project and shall conform to the variety and sizes indicated on the Drawings. Cold storage or previously dug plants will not be acceptable. Plants shall conform also to the indicated botanical names and standards of size, culture and quality for the highest grades and standards as adopted by the AAN in the American Standard for Nursery Stock.
- B. All plants shall be freshly dug. No heeled-in plants or plants from cold storage shall be used. All plants shall be typical of their species or variety and shall have a normal habit of growth. Plants shall be sound, healthy and vigorous, well-branched and densely foliated when in leaf; shall be free of disease, insect pests, eggs or larvae and shall have healthy, well-developed root systems. All parts of the plant shall be moist and shall show active green cambium when cut.
- C. The height of the trees, measured from the crown of the roots to the top of the top branch, shall not be less than the minimum size designated on the Drawings. The trunk of each tree shall be a single trunk growing from a single unmutilated crown of roots. No part of the trunk shall be conspicuously crooked as compared with normal trees of the same variety. The trunk shall be free from sun-scald, frost cracks, or wounds resulting from abrasions, fire, or other causes. No pruning wounds shall be present having a diameter of more than 2-in and such wounds must show vigorous bark on all edges.
- D. Evergreens shall be dense, with extra heavy branching, a single leader and shall be branched to within 1-ft of the ground
- E. Herbaceous plants, vines, and groundcover must be vigorous healthy plants, a minimum two (2) years old, from cuttings, seed, or division, with well-developed root systems and crowns, as specified in the Plant Schedule. Bulbs, corms, tubers and rhizomes shall be firm, non-desiccated, and certified free of disease and viral infection, of the sizes, grades, and varieties indicated in the Plant Schedule.

- F. Trees shall be between 1-in and 3-in caliper trees. Owner to provide Contractor trees for installation.
1. Tall height tree species shall be as follows:
 - a. London plane
 - b. Princeton Elm
 - c. Pin Oak
 - d. Locust
 - e. Sweet gum
 - f. Chinese Elm
 2. Medium height tree species shall be as follows:
 - a. Linden “green spire”
 - b. American Hophorn
 3. Short height tree species shall be as follows:
 - a. Eastern redbud
 - b. Cherry
 - c. Hawthorn
 - d. Purple leaf plum

2.06 MYCORRHIZAL FUNGI INOCULANT

- A. Mycorrhizal Fungi Inoculant shall be Mycor Tree Saver Transplant, as manufactured by Plant Health Care, Inc., Pittsburgh, Pa., Rhizanova Tree Transplant, as manufactured by Becker Underwood, Inc., or approved equal.
- B. Packets must contain a minimum of:
 1. One thousand (1000) live spores of Vesicular-Arbuscular fungi, including: *Entrophosphora columbiana*, *Glomus clarum*, *Glomus etunicatum*, and *Glomus sp.*;
 2. Seventeen million five hundred thousand (17,500,000) live spores of Ectomycorrhizal fungi (*Pisolithus tinctorius*);
 3. Biostimulant ingredients including *Yucca schidigera* extract; soluble sea kelp extract derived from *Ascophylum nodosum*; humic acids; and acrylamide copolymer gel as a water absorbent medium.

2.07 INSPECTION OF PLANT MATERIALS

- A. Inspection of plants before digging shall be at the option of the Engineer. Be present if requested by Engineer, for inspection of plants at nursery.
- B. Plants shall be subjected to inspection and approval upon delivery for conformity to specified requirements as to quality, size and variety. Such approval shall not impair the right of inspection and rejection during the progress of the work.
- C. Plants shall be accompanied by State Nursery inspection certificates.

PART 3 EXECUTION

3.01 DIGGING, HANDLING AND PROTECTION OF PLANTS

- A. Plants shall be dug with firm natural balls of earth, of sufficient diameter and depth to include most of the fibrous roots and conforming to the standards of AAN. No plants will be accepted with plastic burlap or if the ball is cracked or broken except upon special approval of the Engineer.
- B. Roots or balls of plants shall be adequately protected at all times from sun and from drying winds.
- C. Plants which cannot be planted immediately upon delivery shall be set on the ground and be well-protected with soil, wet moss, bark mulch, or other acceptable material.
- D. No plant shall be bound with wire or rope at any time so as to damage the bark or break branches.

3.02 PLANTING SEASONS

- A. Planting shall only be done during the periods within the seasons which are normal for such work as determined by weather and by locally acceptable practice and which are approved by the Engineer.
- B. Schedules for planting shall be submitted to the Engineer for approval prior to the work. Planting as specified herein shall be accomplished between the period of April 15 to June 1 or August 15 to October 1. Planting during the period of October 2 to April 14 shall only be undertaken upon approval of the Engineer. Planting during the period of June 1 to August 14 shall only be performed upon approval of the Engineer and if irrigation is continuously provided.

3.03 PLANTING OPERATIONS

- A. Planting: Shall be done by experienced workmen familiar with planting procedures under the supervision of a qualified foreman.
- B. Stake out locations of and secure the Engineer's approval before excavating plant pits.
- C. All plant pits shall be excavated with vertical sides.
- D. Tree Pits: Shall be 2-ft greater in diameter than the root ball of the tree and sufficiently deep to allow for top of root ball to set slightly higher than the surrounding grade.
- E. Planting beds shall be tilled to 18-in below finished grade.
- F. Plant backfill mixture for backfilling all planting beds shall have 3 lbs of fertilizer and 1 lb of bone meal per tree and 1 lb of fertilizer and 1/2 lb of bone meal per shrub, incorporated with peat moss at a ratio of 2 parts loam to 1 part peat moss.
- G. Plants shall be set in center of pits plumb and straight and at such a level that after settlement, the crown of the plant ball will be at the surrounding finished grade.

1. When balled and burlapped plants are set, loam shall be compacted around bases of balls to fill all voids. All burlap, ropes or wires shall be removed from the top 1/3 of the balls. Plastic burlap shall be completely removed.
- H. Plant backfill mixture shall be backfilled in layers of not more than 9-in and each layer watered sufficiently to settle before the next layer is put in place.
- I. Plant backfill mixture around balls shall be thoroughly compacted and watered. Immediately after the plant pit is backfilled, a saucer or shallow basin slightly larger than pit shall be formed with a ridge of soil to facilitate and contain watering.
- J. Plants will be delivered only when preparations for planting have been completed and plants can immediately be installed. If planting is delayed for more than six (6) hours after delivery, set plant material in shade, protect from mechanical damage and keep roots moist by covering with mulch, burlap or other acceptable means of retaining moisture, watering as necessary.
- K. Container plants must be carefully removed from the containers or flats immediately prior to planting and set to the same depths as they were grown in the nursery bed or container, to the correct spacing indicated on the plans. Roots must be arranged in their natural position and Engineered Soil worked in among them, taking care to avoid bruising or damaging the roots. No later than one (1) hour after planting, all plants must be thoroughly settled with water.
- L. Spray all plants with anti-desiccant, including trunk, branches, foliage and buds. Follow manufacturer's instructions and recommendations for application of anti-desiccant.
- M. All plants will be subject to inspection and approval by the Engineer. Plants required for the Work will be inspected and tagged at the place of growth before being dug. The Contractor shall be responsible for all costs related to inspection of plant material by the Engineer beyond a radius of fifty (50) miles from project site. Selection and/or tagging of material shall cover the type and quality of the plant only, but will not constitute final acceptance nor preclude the right of rejecting plants not fully meeting the requirements of the specifications. No plant material will be accepted without prior nomenclature labeling at the nursery of origin. The nursery label must display the full botanical name of the plant.
- N. All nursery stock furnished by the Contractor shall be subject to inspection within 48-hours after delivery of said stock. The plants will also be subject to such inspection during the life of the Contract, and infestations occurring on the stock as a result of conditions existing prior to the receipt of the plants on the project will be cause for rejection.
- O. Approval of new plantings in each Bioswale will not occur until all landscaping Work has been completed. The Contractor shall be responsible for maintaining all new planted trees, as specified.

3.04 WRAPPING, GUYING AND STAKING

- A. Trees shall be inspected by the Engineer for injury to trunks, evidence of insect infestation and improper pruning before wrapping.
- B. Wrap trunks of all trees spirally from bottom to top with material specified and tie securely. The wrapping shall overlap and entirely cover the trunk from the ground to the height of the second branches and shall be neat and snug. Overlap shall be approximately 2-in.

- C. All trees shall be staked in accordance with the tree staking detail provided on the Drawings.
- D. Provide gator bags for watering as specified.

3.05 MYCORRHIZAL FUNGI INOCULANT

- A. Mycorrhizal Fungi Inoculant must be applied by means of a three ounce (3 oz.) premeasured dry formulation packet. Mycorrhizal fungi inoculant must be added to the top six to eight inches (6-8") of backfill soil in each planting pit and thoroughly mixed to distribute the inoculant. The material must be applied in accordance with manufacturer's recommendations.

3.06 PRUNING, MULCHING AND PLACEMENT OF WASHED GRAVEL

- A. Each plant shall be pruned at the time of planting in accordance with ANLA Standards to preserve the natural character of the plant and as directed by the Engineer.
- B. Pruning shall be done with clean, sharp tools.
- C. Cuts over 1-in in diameter shall be painted with an approved tree paint. Paint shall cover all exposed cambium as well as other exposed living tissue. Paint shall be waterproof, adhesive and elastic, antiseptic, free from kerosene, coal tar, creosote, or any other material injurious to the life of the tree.
- D. Immediately after planting operations are complete, all planting beds shall be covered with a 4-in layer of specified mulch as indicated on the Drawings.
- E. Washed gravel shall be placed to a 6-in depth in all areas as shown on the Drawings. Prior to placement of gravel the areas shall be treated with a soil sterilant in accordance with manufacturer's instructions.

3.07 OBSTRUCTIONS BELOW GROUND

- A. In the event that underground boulders, underground construction work, or obstructions are encountered in any pit excavation work under this Contract, alternate locations may be selected by the Engineer at no additional cost to the Owner.

3.08 WATERING

- A. Plantings must be flooded with water twice within the first 24 hours of the time of planting and not less than twice per week until provisional acceptance.
- B. Suitable water for planting and maintenance will be the responsibility of the Contractor. The Contractor shall furnish his/her own hose and hose connections or other watering equipment.
- C. Utilize gator bags to support watering of the tree. Contractor shall check the water in each bag for the duration of the maintenance period. At the completion of the maintenance period, Contractor shall "top off" each gator bag with water.

3.09 MAINTENANCE

- A. Maintenance shall begin immediately after each plant is installed and shall continue for 8-weeks after all planting operations are complete. After all planting operations are complete, Contractor shall request inspection by Engineer for approval and beginning of 8-week maintenance period.

Plants shall be watered, mulched, weeded, pruned, sprayed, fertilized, cultivated and otherwise maintained and protected until provisional acceptance. Settled plants shall be reset to proper grade and position, planting saucer restored and dead material removed. Guys shall be tightened and repaired. Defective work shall be corrected as soon as possible after it becomes apparent and as weather and season permit.

- B. Upon completion of planting and prior to provisional acceptance, remove from the site excess soil and debris and repair all damage resulting from planting operations.

3.10 INSPECTION AND PROVISIONAL ACCEPTANCE

- A. The Engineer will inspect all work for provisional acceptance, at the end of the 8 week maintenance period, upon the written request of the Contractor received at least 10 days before the anticipated date of inspection.
- B. Furnish full and complete written instructions for maintenance of the planting to the Owner at the time of provisional acceptance.
- C. After all necessary corrective work has been completed and maintenance instructions have been received by the Owner, the Engineer will certify in writing the provisional acceptance of the planting.

3.11 GUARANTEE PERIOD AND REPLACEMENTS

- A. All plants, including relocated material shall be guaranteed for not less than **two** full years from the time of provisional acceptance.
- B. At the end of this period, any plant that is missing, dead, not true to name or size as specified, or not in satisfactory growth, as determined by the Engineer, shall be replaced. In case of any question regarding the condition and satisfactory establishment of a rejected plant, the Engineer's decision is final. Furnish a guarantee for all replacement plants for at least one full growing season.
- C. All replacements shall be plants of the same kind and size as specified. They shall be furnished and planted as specified herein. The cost of replacement shall be borne by the Contractor except where it can be definitely shown that loss resulted from vandalism.

3.12 FINAL INSPECTION AND FINAL ACCEPTANCE

- A. At the end of the guarantee period, inspection will be made by the Engineer upon written request submitted by the landscape contractor at least 10 days before the anticipated date.
- B. After all necessary corrective work has been completed, the Engineer will certify in writing the final acceptance of the planting.

END OF SECTION

SECTION 02930
LOAMING AND SEEDING

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and place loam, finish grade, apply lime and fertilizer, hydraulically apply seed and mulch and maintain all seeded areas as shown on the Drawings/details and as specified herein, including all areas disturbed and all existing lawn areas.

1.02 RELATED WORK

- A. General Requirements are included in Section 01005.
- B. Environmental Protection Procedures is included in Section 01110.
- C. Granular materials are included in Section 02230.
- D. Sedimentation and Erosion Control is included in Section 02270.
- E. Landscaping is included in Section 02900.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, complete shop drawings, materials and equipment furnished under this Section including seed mixtures and product label information.
- B. Submit, in accordance with Section 01300, samples of all materials for inspection and acceptance.
- C. Samples of all materials shall be submitted for inspection and acceptance upon Engineer's request.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Loam shall be fertile, natural soil, typical of the locality, free from large stones, roots, sticks, clay, peat, weeds and sod and obtained from naturally well drained areas. It shall not be excessively acid or alkaline nor contain toxic material harmful to plant growth. Topsoil stockpiled under other Sections of this Division may be used, but the Contractor shall furnish additional loam at his/her own expense if required.
- B. Topsoil shall be fertile, friable, natural topsoil typical of topsoil of the locality and shall be obtained from a well drained site that is free of flooding. It shall be without admixtures of subsoil or slag and free of stones, lumps, plants, or their roots, sticks, clay, peat, or other extraneous matter and shall not be delivered to the site or used while in a frozen or muddy condition. Topsoil as delivered to the site or stockpiled shall have a pH between 5.5 and 7.0

and shall contain not less than 4 percent nor more than 10 percent organic matter as determined by loss of ignition of moisture-free samples dried at 100 degree Celsius. Salinity shall be less than 0.15 as determined by a 1:2 (by volume) soil to water mix. (Note: Salt test shall not be oven dried.) The topsoil shall meet the following mechanical properties:

Percentage Finer

1. 1-inch screen opening:	100
2. No. 10 mesh	85 to 100
3. No. 40 mesh	35 to 85
4. No. 200 mesh	10 to 35
5. < 20 um	<5

* Clay size fraction determined by pipette or hydrometer analysis.

- C. At least 30 days prior to anticipated start of topsoiling operations a one pint sample of topsoil material shall be delivered to the Engineer for testing and approval. Based on tests performed by the Engineer, the topsoil shall be identified as acceptable, acceptable with certain fertilizer and limestone applications or unacceptable. If the topsoil is found acceptable the fertilizer and lime requirements will be as specified or as recommended by the Engineer. If the topsoil is found unacceptable, identify another source of topsoil and incur all expenses associated with testing additional samples. All topsoil incorporated into the sitework shall match the sample provided to the Engineer for testing. Topsoil stockpiled under Sections of this Division may be used subject to testing and approval outlined above. Contractor shall be responsible for screening stockpiled topsoil and providing additional topsoil as required at his/her own expense.
- D. Fertilizer shall be a complete commercial mixed free flowing granules or pelletized fertilizer, 10-20-10 (N-P2O5-K2O) grade for lawn and naturalized areas. Fertilizer shall be delivered to the site in original unopened containers each showing the manufacture's guaranteed analysis conforming to applicable state fertilizer laws. At least 40-percent of the nitrogen in the fertilizer used shall be in slowly available (organic) form.
- E. Lime shall be ground limestone containing not less than 85 percent calcium and magnesium carbonates and shall be ground to such fineness that at least 50 percent shall pass a 100-mesh sieve and at least 90 percent shall pass a 20-mesh sieve.
- F. Grass seed shall be labeled in accordance with USDA Rules and Regulations under the Federal Seed Act and applicable State seed law. Seed shall be furnished in sealed bags or containers bearing the date of the last germination, which date shall be within a period of 6 months prior to commencement of planting operations. Seed shall be from same or previous year's crop; each variety of seed shall have purity of net less than 85 percent, a percentage of germination not less than 90 percent, shall have a weed content of net less than 1 percent and contain no noxious weeds. The seed mixtures shall consist of see proportioned by weight as follows:
 - 1. Lawn Area Seed Mix shall be Cover All Mix by Allen's Seed, Exeter, RI (www.allensseed.com)

- a. 25 percent Improved Perennial Ryegrass
 - b. 25 percent Creeping Red Fescue
 - c. 25 percent Annual Ryegrass
 - d. 20 percent Turf type tall fescue CBT
 - e. 5 percent Kentucky Bluegrass 98/85
2. Natural Area Seed Mix (For all slopes and disturbed areas not otherwise indicated)
- a. 40 percent Kentucky 31 Fescue
 - b. 30 percent Palmer Perennial Ryegrass
 - c. 15 percent Birds Foot Trefoil (Empire Variety)
 - d. 5 percent Red Clover
 - e. 5 percent White Clover
 - f. 5 percent Redtop (Streaker Variety)
- G. The seed shall be furnished and delivered premixed in the proportions specified above. A manufacturer's certificate of compliance to the specified mixes shall be submitted by the manufacturer for each seed type. These certificates shall include the guaranteed percentages of purity, weed content and germination of the seed and also the net weight and date of shipment. No seed may be sown until the certificates have been submitted.
- H. Seed shall be delivered in sealed containers bearing the dealer's guaranteed analysis.
- I. Mulch shall be a specially processed 100 percent Virgin wood fiber mulch containing no growth or germination-inhibiting factors. Wood fiber mulch shall be "Second Nature Regenerated" wood fibers as by Central Fiber Corporation, Wellsville, KS or equal. It shall be manufactured in such a manner that after addition and agitation in slurry tanks with water, the fibers in the material become uniformly suspended to form a homogeneous slurry. When sprayed on the ground, the material shall allow absorption and percolation of moisture. Each package of the wood fiber shall be marked by the manufacturer to show the air dry weight content and shall have a moisture content of 12 percent +/- 3 percent.

PART 3 EXECUTION

3.01 APPLICATION

- A. Unless otherwise shown on the Drawings, topsoil shall be placed to a minimum depth of 6-in on all parts of the site not covered with structures, pavement, or existing woodland.
- B. For all areas to be seeded:
- 1. Lime shall be applied at the rate of 150 lbs/1,000 sq ft. or as determined by the soil test to bring topsoil pH to a range of between 6.0 and 7.0.
 - 2. Fertilizer (10-20-10) shall be applied at the rate of 30 lbs/1,000 sq ft. or as determined by the soil test.
 - 3. Lawn grass seed shall be applied at the rate of 5 to 10 lbs/1,000 sq ft. or as determined by the Engineer.
 - 4. Fiber mulch shall be applied at the rate of 45 lbs/1,000 sq ft.

5. Straw mulch shall be applied to all slopes of 3 horizontal to 1 vertical and steeper at a rate of 75 lbs/1,000 sq ft.
 6. Tackifier shall be installed per manufacturer's recommendations and reapplied as necessary so that the straw mulch is stabilized until reasonable turf growth is established as determined by the Engineer with a minimum rate of 1 gallon/1,000 sq ft per application
- C. If possible, limestone shall be applied 2 to 3 months before the application of fertilizer. Limestone may not be mixed with fertilizer for application and shall be applied a minimum of 2 weeks prior to fertilizer application.
 - D. After the topsoil is placed and before it is raked to true lines and rolled, limestone shall be spread evenly over the loam surface and thoroughly incorporated by heavy raking to at least one half the depth of the soil.
 - E. The application of fertilizer and lime may be performed hydraulically in one operation with hydroseeding and mulching. If lime is applied in this manner, clean all structures and paved areas of unwanted deposits.
 - F. Straw mulch and tackifier shall be applied immediately following seeding operations (same day) unless otherwise approved by the Engineer.

3.02 INSTALLATION

- A. Previously established grades as shown on the Drawings/figures or as directed by the Engineer, shall be maintained in a true and even condition.
- B. The subgrade of all areas to be loamed and seeded shall be raked and all rubbish, sticks, roots and stones larger than 2-in shall be removed. Subgrade surfaces shall be raked or otherwise loosened immediately prior to being covered with loam. Subgrade shall be inspected and approved by the Engineer before loam is placed.
- C. Loam shall be placed over approved areas to a depth sufficiently greater than required so that after natural settlement and light rolling, the complete work will conform to the lines, grades and elevations indicated. No loam shall be spread in water or while frozen or muddy.
- D. After loam has been spread, it shall be carefully prepared by scarifying or harrowing and hand raking. All large stiff clods, lumps, brush, roots, stumps, litter and other foreign material shall be removed from the loamed area and disposed of. The areas shall also be free of smaller stones, in excessive quantities, as determined by the Engineer. The whole surface shall then be rolled with a hand roller weighing not more than 100 lbs/ft of width. During the rolling, all depressions caused by settlement of rolling shall be filled with additional loam and the surface shall be regraded and rolled until a smooth and even finished grade is created.
- E. Seeding, mulching and conditioning shall only be performed during those periods within the seasons which are normal for such work as determined by the weather and locally accepted practice, as approved by the Engineer. Hydroseed only on a calm day.
- F. Schedules for seeding and fertilizing shall be submitted to the Engineer for approval prior to the work. Seeding as specified herein shall be accomplished between the period of April 15 to June

1 or August 15 to October 1. Seeding during the period of October 2 to April 14 shall only be undertaken upon approval of the Engineer. Seeding during the period of June 1 to August 14 shall only be performed upon approval of the Engineer and if irrigation is continuously provided.

- G. If lime and fertilizer are to be spread mechanically rather than in one operation with the hydroseeding, then:
 - 1. After the loam is placed and before it is raked to true lines and rolled, limestone shall be spread evenly over loam surface and thoroughly incorporated with loam by heavy raking to at least 1/2 the depth of loam.
 - 2. Fertilizer shall be uniformly spread and immediately mixed with the upper 2-in of topsoil.
- H. Seeding shall be done within 10 days following soil preparation. Seed shall be applied hydraulically at the rates and percentages indicated. The spraying equipment and mixture shall be so designed that when the mixture is sprayed over an area, the grass seed and mulch shall be equal in quantity to the specified rates. Prior to the start of work, the Engineer shall be furnished with a certified statement for approval as to the number of pounds of materials to be used per 100 gallons of water. This statement shall also specify the number of square feet of seeding that can be covered with the quantity of solution in the Hydroseeder. Upon completion of seeding operations, furnish the Engineer with a certified statement on the actual quantity of solution applied.
- I. In order to prevent unnecessary erosion of newly loamed and graded slopes and unnecessary siltation of drainage ways, carry out seeding and mulching as soon as he/she has satisfactory completion of a unit or portion of the project as directed by the Engineer. When protection of newly loamed and graded areas is necessary at a time which is outside of the normal seeding season, protect those areas by whatever means necessary as approved by the Engineer and shall be responsible for prevention of siltation in the area beyond the scope of work.
- J. When newly graded subgrade areas cannot be topsoiled and seeded because of season or weather conditions and will remain exposed for more than 30 days, protect those areas against erosion and washout by whatever means necessary such as straw applied with tar tack, wood chips or other measures as approved by the Engineer. Prior to application of topsoil, any such material applied for erosion control shall be thoroughly incorporated into the subgrade by discing. Fertilizer shall be applied prior to spreading of topsoil
- K. Any washout that occurs shall be regraded and reseeded at the Contractor's expense until a good turf is established.

3.03 MAINTENANCE AND PROVISIONAL ACCEPTANCE

- A. Keep all seeded areas watered and in good condition, reseeding if and when necessary until a good, healthy, uniform growth is established over the entire area seeded and shall maintain these areas in an approved condition until provisional acceptance.
- B. Contractor is responsible to ensure that loam and seed areas are maintained properly. Any foot prints of other settled areas shall be raked smooth, the depression filled and new seed planted.

- C. On slopes, provide against washouts by an approved method. Any washout that occurs shall be regraded and reseeded at the Contractor's expense until a good sod is established.
- D. The Engineer will inspect all work for provisional acceptance at the end of the 10 week grass maintenance period, upon the written request, received at least 10 days before the anticipated date of inspection. The maintenance period must occur during the growing season between April 14 and October 1. Grass mowing height shall conform to City's standards. Contractor shall not let grass height exceed 3-in. Any and all clippings shall be picked up and disposed of. Use of a weed trimmer is not an acceptable mowing approach. A lawn mower shall be used.
- E. A satisfactory stand will be defined as:
 - 1. No bare spots larger than 6-inch square.
 - 2. No more than 10 percent of total area with bare spots larger than 6-inch square.
- F. After the inspection has occurred but prior to provision acceptance, a soil test shall be performed to determine if additional soil fertilization should occur. If necessary, additional fertilizer not to exceed 30 lbs/1,000 sq ft of 20-10-10 shall be applied as directed by the Engineer.
- G. Furnish full and complete written instructions for maintenance of the lawns to the Owner at the time of provisional acceptance.
- H. The inspection by the Engineer will determine whether maintenance shall continue. Continue maintenance until all areas of the site meet the minimum requirements specified herein.
- I. After all necessary corrective work and clean-up has been completed and maintenance instructions have been received by the Owner, the Engineer will certify in writing the provisional acceptance of the lawn areas. Maintenance of lawns or parts of lawns shall cease on receipt of provisional acceptance.

3.04 GUARANTEE PERIOD AND FINAL ACCEPTANCE

- A. All seeded areas shall be guaranteed for not less than 1 full year from the time of provisional acceptance.
- B. At the end of the guarantee period, inspection will be made by the Engineer upon written request submitted at least 10 days before the anticipated date. Lawn areas not demonstrating satisfactory stands as outlined above, as determined by the Engineer, shall be renovated, reseeded and maintained meeting all requirements as specified herein.
- C. After all necessary corrective work has been completed, the Engineer shall certify in writing the final acceptance of the lawns.

END OF SECTION

SECTION 03301
CONCRETE AND REINFORCING STEEL

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and install all concrete work complete as shown on the Drawings and as specified herein.
- B. This section provides general information about the delivery, storage, handling, placement and materials associated with Portland cement concrete. Specifics regarding concrete sidewalks, ADA compliant ramps, driveways or other concrete construction are provided in other sections of this Specification.

1.02 RELATED WORK

- A. Concrete sidewalks and driveways are included in Section 02515.
- B. Brick, bluestone and cobblestone paving is included in Section 02580.
- C. Grout is included in Section 03600.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, shop drawings and product data for:
 - 1. Placing drawings and bar bending details in conformity with the recommendations of ACI 315.
 - 2. Technical data on all materials and components.
 - 3. Safety Data Sheets (SDS) for all concrete admixtures and curing agents.
 - 4. Hot and Cold Weather Concrete Plan.
 - 5. Sheet curing materials. Product data including catalogue cuts, technical data and conformace with ASTM standards
 - 6. Water reducing admixtures
 - 7. Air entraining admistures
- B. Test Reports:
 - 1. Sieve analysis, mechanical properties and deleterious substance content for fine and coarse aggregates.
 - 2. Concrete mixes: For each formulation of concrete proposed for use, submit constituent quantities per cubic yard, water cementitious ratio, concrete slump, type and manufacturer of cement. Provide either a. or b., below, for each mix proposed.
 - a. Standard deviation data for concrete mixes based on statistical records.

- b. Water cementitious ratio curve for concrete mixes based on laboratory tests. Provide average cylinder strength test results at 7 and 28 days for laboratory concrete mix designs. Provide results of 14 day tests if available.
3. Fine and coarse aggregates as requested for examination by the Engineer.

C. Certifications:

1. Certify that admixtures used in the same concrete mix are compatible with each other and the aggregates.
2. Certificate of conformance for concrete production facilities from NRMCA.
3. Certify admixtures are made for use in concrete in contact with potable water after 30 days of concrete curing.

1.04 REFERENCE STANDARDS

A. ASTM International (ASTM):

1. ASTM A185 – Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete
2. ASTM A615 - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
3. ASTM C31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
4. ASTM C33 - Standard Specification for Concrete Aggregates.
5. ASTM C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
6. ASTM C94 - Standard Specification for Ready-Mixed Concrete.
7. ASTM C143 - Standard Test Method for Slump of Hydraulic-Cement Concrete
8. ASTM C150 - Standard Specification for Portland Cement
9. ASTM C173 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
10. ASTM C231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
11. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
12. ASTM C494 - Standard Specification for Chemical Admixtures for Concrete.

B. American Concrete Institute (ACI):

1. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete.
 2. ACI 232.2R - Use of Fly Ash in Concrete
 3. ACI 301 - Specification for Structural Concrete.
 4. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete.
 5. ACI 305R - Hot Weather Concreting.
 6. ACI 306R - Cold Weather Concreting.
 7. ACI 315 - Details and Detailing of Concrete Reinforcement.
 8. ACI 318 - Building Code Requirements for Structural Concrete.
- C. Concrete Reinforcing Steel Institute (CRSI):
1. MSP - Manual of Standard Practice
- D. National Ready Mixed Concrete Association (NRMCA):
1. Quality Control Manual, Section 3- Certification of Ready Mixed Concrete Production Facilities
- E. MassDOT Standard Specifications for Highways and Bridges, latest edition including all addenda (MSSH).
 F. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

- A. Comply with ACI 318, and other stated specifications, codes and standards. Apply the most stringent requirements of stated specifications, codes, standards, and this Section when conflicts exist.
- B. If, during the progress of the work, it is impossible to secure concrete of the specified workability and strength with the materials being furnished, the Engineer may order such changes in proportions or materials, or both, as may be necessary to secure the specified properties. Make all changes so ordered at the no additional cost to the Owner.
- C. All field testing and inspection services and related laboratory tests required will be provided by the Owner. The cost of such work will be paid for by the Owner. Methods of testing will comply with the latest applicable ASTM methods.
- D. Develop concrete mixes and their testing by an independent testing laboratory engaged by and at the expense of the Contractor. Methods of testing shall comply with the latest applicable ASTM methods.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Ship and store reinforcing steel with bars of the same size and shape fastened in bundles with durable tags, marked in a legible manner with waterproof markings showing the same designations as those shown on the submitted placement drawings. Provide reinforcing steel free from mill scale, loose rust, mud, dirt, grease, oil, ice or other foreign matter. Store off the ground, protect from moisture and keep free from rust, mud, dirt, grease, oil, ice or other injurious contaminants.
- B. Store products in conformity with the manufacturer's recommendations.
- C. Store or stockpile sand, aggregates, cement in conformity with ACI 301.

PART 2 PRODUCTS

2.01 GENERAL

- A. The use of manufacturer's name and model or catalog number is for the purpose of establishing the standard of quality and general configuration desired.
- B. Like items of materials shall be the end products of one manufacturer in order to provide standardization for appearance, maintenance and manufacturer's service.
- C. Materials shall comply with this Section, City of New Bedford requirements and conform to the requirements of the MSSHB.

2.02 MATERIALS

- A. Cement: Domestic portland cement conforming to ASTM C150. Do not use air entraining cements. The allowable types of cement for each class of concrete are shown in Table 1.
- B. Fine Aggregate: Washed inert natural sand conforming to ASTM C33.
- C. Coarse Aggregate: Well-graded crushed stone or washed gravel conforming to ASTM C33, size 57. Limits of deleterious substances and physical property requirements as listed in ASTM C33, Table 4 for severe weathering regions.
- D. Water: Potable water free of oil, acid, alkali, salts, chlorides, (except those attributable to drinking water) organic matter, or other deleterious substances.
- E. Admixtures: Use admixtures free of chlorides and alkalis (except for those attributable to drinking water). The admixtures shall be from the same manufacturer when it is required to use more than one admixture in the same concrete mix. Use admixtures compatible with the concrete mix including other admixtures.
 - 1. Air Entraining Admixture: Conforming to ASTM C260. Proportion and mix in accordance with manufacturer's recommendations.
 - 2. Water Reducing Admixture: Conforming to ASTM C494, Type A. Proportion and mix in accordance with manufacturer's recommendations.

3. Do not use admixtures causing retarded or accelerated setting of concrete without written approval from the Engineer. Use retarding or accelerating water reducing admixtures when so approved.

F. Deformed Concrete Reinforcing Bars: ASTM A615, Grade 60 deformed bars.

G. Welded Steel Wire Fabric: Conforming to ASTM A185.

H. Reinforcing Steel Accessories:

1. Plastic Protected Wire Bar Supports: CRSI Bar Supports, Class 1 - Maximum Protection.

2. Stainless Steel Protected Wire Bar Supports: CRSI Bar Supports, Class 2 - Moderate Protection with legs made wholly from stainless steel wire.

3. Precast Concrete Bar Supports: CRSI Bar Supports, Precast Concrete Bar Supports. Precast concrete blocks that have equal or greater strength than the surrounding concrete.

I. Tie Wires for reinforcement: 16 gauge or heavier black annealed wire.

J. Concrete color mix and fiber reinforcement is included in Section 02515.

2.03 MIXES

A. Select proportions of ingredients to meet the design strength and materials limits specified in Table 1 and to produce placeable, durable concrete conforming to these Specifications. Proportion ingredients to produce a homogenous mixture which will readily work into corners and angles of forms and around reinforcement without permitting materials to segregate or allowing free water to collect on the surface.

B. Base concrete mixes on standard deviation data of prior mixes with essentially the same proportions of the same constituents or, if not available, develop concrete mixes by laboratory tests using the materials proposed for the work.

C. Compression Tests: Provide testing of the proposed concrete mix or mixes to demonstrate compliance with the compression strength requirements in conformity with the provisions of ACI 318.

D. Entrained air, as measured by ASTM C231, shall be as shown in Table 1.

E. Slump of the concrete as measured by ASTM C143, shall be as shown in Table 1.

F. Proportion admixtures according to the manufacturer's recommendations. Two or more admixtures specified may be used in the same mix provided that the admixtures in combination retain full efficiency and have no deleterious effect on the concrete or on the properties of the other admixture(s).

TABLE 1

Class	Design Strength (1)	Cement ASTM C150	Cementitious Content (2)	W/C (3)	WR (4)	Fly Ash (5)	Slump Range Inches
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A	2500	Type II	440	0.62 max	Yes	Yes	1-4
B	3000	Type II	480	0.54 max	Yes	Yes	1-4
C	3500	Type II	540	0.45 max	Yes	Yes	3-5
D	4000	Type II	560	0.44 max	Yes	Yes	3-5

TABLE 1 NOTES:

- (1) Minimum compressive strength in psi at 28 days
- (2) Minimum cementitious content in lbs per cubic yard
- (3) W/C is Maximum Water Cementitious ratio by weight
- (4) WR is water reducing admixture
- (6) All concrete classes shall have 3.5 to 5 percent air entrainment.

G. Refer to Section 02515 for information on cement concrete for concrete sidewalks, ADA compliant ramps, and driveways.

H. Refer to Section 02580 for High Early Strength (HES) Concrete.

2.04 MEASURING, BATCHING, MIXING AND TRANSPORTING CONCRETE

- A. Measure, batch, mix and transport concrete in conformance with ASTM C94 and the requirements herein or as otherwise approved in writing by the Engineer.
- B. Ready-mixed concrete, whether produced by a concrete supplier or the Contractor shall conform to the requirements above. Do not hand mix.
- C. Dispense admixtures into the batch in conformity with the recommendations of the admixture manufacturer.
- D. Mix concrete until there is uniform distribution of the materials and discharge completely before the mixer is recharged. The mixer shall be rotated at a speed recommended by the mixer manufacturer and mixing shall be continued for at least 1-1/2 minutes after all the materials are in the mixer. Place concrete within 1-1/2 hours of the time at which water was first added, otherwise it will be rejected. Concrete which has been remixed or retempered, or to which an excess amount of water has been added, will also be rejected.

2.05 FORMS

- A. Provide forms free from roughness and imperfections, watertight and braced and tied to prevent motion when concrete is placed. Wooden spreaders will not be allowed in the concrete.
- B. Wire ties will not be allowed. Metal ties or anchorages which are necessary within the forms shall be so constructed that the metal work can be removed for a depth of at least 1-1/2-in from the concrete surface without damage by spalling. Clean forms before using and treat with form release agent, or other approved material.
- C. All exposed edges of the finished concrete shall be chamfered 3/4-in.

PART 3 EXECUTION

3.01 CONSTRUCTION JOINTS

- A. Locate construction joints where indicated or where approved by the Engineer.
- B. Continue all reinforcing steel through the joint.
- C. At construction joints and at concrete joints indicated to be "roughened", uniformly roughen the surface of the concrete to a full amplitude (distance between high and low points and side to side) of 1/4-in with chipping tools to expose a fresh face. Thoroughly clean joint surfaces of loose or weakened materials by waterblasting or sandblasting and prepare for bonding. At least two hours before and again shortly before the new concrete is deposited, saturate the joints with water. After glistening water disappears, coat joints with neat cement slurry mixed to the consistency of very heavy paste. The surfaces shall receive a coating at least 1/8-in thick, scrubbed-in by means of stiff bristle brushes. Deposit new concrete before the neat cement dries.

3.02 REINFORCING STEEL

- A. Fabricate reinforcing steel accurately to the dimensions shown. Bend bars around a revolving collar having a diameter of not less than that recommended in ACI 318. All bars shall be bent cold.
- B. Provide tension lap splices in compliance with ACI 318. Stagger splices in adjacent bars where possible. Provide Class B tension lap splices at all locations unless otherwise indicated.
- C. Lap splices in welded wire fabric in accordance with the requirements of ACI 318 but not less than 12-in. Tie the spliced fabrics together with wire ties spaced not more than 24-in on center and lace with wire of the same diameter as the welded wire fabric. Offset splices in adjacent widths to prevent continuous splices.
- D. Use precast concrete blocks where the reinforcing steel is to be supported over soil. Use plastic protected bar supports or steel supports with plastic tips where the reinforcing steel is to be supported on forms for a concrete surface that will be exposed to weather, high humidity, or liquid. Use stainless steel supports or plastic tipped metal supports in all other locations unless otherwise noted on the Drawings or specified herein.
- E. Before placing in position, clean reinforcement of loose mill scale and rust, mud, dirt, grease, oil and other coatings, including ice that reduce or destroy bond. When there is a delay in depositing concrete after the reinforcement is in place, bars shall be reinspected and cleaned again when necessary.
- F. Coat reinforcement which is to be exposed for a considerable length of time after being placed with a heavy coat of cement grout.
- G. Do not cover any reinforcing steel with concrete until the amount and position of the reinforcement has been checked and the Engineer has given permission to proceed.

3.03 INSPECTION AND COORDINATION

- A. Batching, mixing, transporting, placing and curing of concrete shall be subject to the inspection of the Engineer at all times. Advise the Engineer of readiness to proceed at least six working hours prior to each concrete placement. The Engineer will inspect the preparations for concreting including the preparation of previously placed concrete, the reinforcing and the alignment, cleanliness and tightness of formwork. Do not place concrete without the inspection and acceptance of the Engineer.

3.04 CONCRETE APPEARANCE

- A. Remix concrete showing either poor cohesion or poor coating of the coarse aggregate with paste. If this does not correct the condition, the concrete shall be rejected.
- B. Provide concrete having a homogeneous structure which, when hardened, will have the specified strength, durability and appearance. Provide mixtures and workmanship such that concrete surfaces, when exposed, will require no finishing except as specified herein.

3.05 PLACING AND COMPACTING

- A. Do not place concrete until forms, condition of subgrade and method of placement have been approved by the Engineer. Remove all debris, foreign matter, dirt, ice and standing water from the forms before depositing concrete. Do not place concrete on frozen subgrade, snow or ice. The contact surface between concrete previously placed and new concrete shall be cleaned and brushed with cement paste. Concrete, except as indicated on the Drawings, shall not be placed in water or submerged within 24 hours after placing, nor shall running water be permitted to flow over the surface of fresh concrete within 4 days after its placing.
- B. Deposit concrete as near its final position as possible to prevent segregation due to rehandling or flowing. Pumping of concrete will be permitted when an approved design mix and aggregate sizes suitable for pumping are used. Do not deposit concrete which has partially hardened or which has been contaminated by foreign materials. If the section cannot be placed continuously, place construction joints as specified or as approved. Place concrete for walls using tremie tubes in 12-in to 24-in lifts, keeping the surface horizontal. Do not drop concrete more than 4-ft.
- C. Use high frequency mechanical vibrators to obtain proper consolidation of the concrete. Do not use vibrators to move or transport concrete in the forms. Do not over-vibrate so as to segregate. Continue vibration until the frequency returns to normal, trapped air ceases to rise and the surface appears liquefied, flattened and glistening. Use spades, rods or forks so that concrete is completely worked around reinforcement, embedded items, pipe stubs, and openings and into corners of forms.

3.06 CURING AND PROTECTION

- A. Protect all concrete work against injury from the elements and defacements of any nature during construction operations.
- B. Curing Methods

1. Curing Methods for Concrete Surfaces: Cure concrete to retain moisture and maintain a temperature of at least 50-degree F at the concrete surface for a minimum of seven days after placement. Use the following curing methods as specified;
 - a. Water Curing: Keep entire concrete surface wet by ponding, continuous sprinkling or covered with saturated burlap. Begin water curing as soon as concrete attains an initial set and maintain water curing 24-hours a day. Do not permit the surface of the concrete to dry out at any time during the curing period. Temperature of curing water shall be within 20-degree F of the concrete temperature.
 - b. Sheet Material Curing: Cover entire surface with sheet material. Anchor sheeting to prevent wind and air from lifting the sheeting or entrapping air under the sheet. Place and secure sheet as soon as initial concrete set occurs.
 - c. Liquid Membrane-Forming Curing Compounds will not be allowed.
 2. Specified applications of curing methods:
 - a. Slabs: Water curing only
 - b. Formed surfaces: None if nonabsorbant forms are left in place seven day. Water curing if absorbent forms are used. Water curing if forms are removed prior to seven days. Exposed horizontal surfaces of formed walls shall be water cured for seven days or until next placement of concrete is made.
 - c. Surfaces of Concrete Joints: Water curing or sheet material curing.
- C. Protect finished surfaces and slabs from the direct rays of the sun to prevent checking and crazing.
- D. Cold Weather Concreting
1. For this Specification, "cold weather" is defined as a period when for more than three successive days, the average daily outdoor temperature drops below 40 degrees F. Calculate average daily temperature as the average of the highest and the lowest temperature during the period from midnight to midnight.
 2. Batch, deliver, place, cure and protect concrete during cold weather in compliance with the recommendations of ACI 306R and the additional requirements of this Section.
 3. Review the cold weather concreting plan at the preconstruction meeting. Include the methods and procedures for use during cold weather including the production, transportation, placement, protection, curing and temperature monitoring of the concrete and the procedures to be implemented upon abrupt changes in weather conditions or equipment failures.
 4. The minimum temperature of concrete immediately after placement and during the protection period shall be as indicated in Table 3. The temperature of the concrete in place and during the protection period shall not exceed these values by more than 20 degrees F. Prevent overheating and non-uniform heating of the concrete.

TABLE 3
Concrete Temperatures Minimum
Dimension of Section

	<u>< 12-in</u>	<u>12 to 36-in</u>
Min. conc temp:	55 Degree F	50 Degree F
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5. Protect concrete during periods of cold weather to provide continuous warm, moist curing (with supplementary heat when required by weather conditions) for a total of at least 350 degree-days of curing.
 - a. Degree-days are defined as the total number of 24 hour periods multiplied by the weighted average daily air temperature at the surface of the concrete (e.g., 7 days at an average 50 degrees F = 350 degree-days).
 - b. To calculate the weighted average daily air temperature, sum hourly measurements of the air temperature in the shade at the surface of the concrete taking any measurement less than 50 degrees F as 0 degrees F. Divide the sum thus calculated by 24 to obtain the weighted average temperature for that day.
6. Do not use salt, manure or other chemicals for protection.
7. At the end of the protection period, allow the concrete to cool gradually to the ambient temperature. If water curing has been used, do not expose concrete to temperatures below those shown in Table 3 until at least 24 hours after water curing has been terminated and air dry concrete for at least 3 days prior to first exposure to freezing temperatures.
8. During periods not defined as cold weather, but when freezing temperatures are expected or occur, protect concrete surfaces from freezing for the first 24 hours after placing.

E. Hot Weather Concreting

1. For this Specification, "hot weather" is defined as any combination of high air temperatures, low relative humidity and wind velocity which produces a rate of evaporation as estimated in ACI 305R, approaching or exceeding 0.2 pounds per square foot per hour (lb/sq ft/hr).
 2. Batch, deliver, place, cure and protect concrete during hot weather in compliance with the recommendations of ACI 305R and the additional requirements of this Section.
 - a. Temperature of concrete being placed shall not exceed 90 degrees F. Maintain a uniform concrete mix temperature below this level. The temperature of the concrete shall not cause loss of slump, flash set or cold joints.
 - b. Promptly deliver concrete to the site and promptly place the concrete upon its arrival at the site, not exceeding the maximum time interval specified in Paragraph 3.021.4. Provide vibration immediately after placement.
 - c. The Engineer may direct the Contractor to immediately cover concrete with sheet curing material.
 3. Review the hot weather concreting plan at the preconstruction meeting. Include the methods and procedures for use during hot weather including production, placement, and curing.
- F. During hot weather concrete shall be batched, delivered, placed, cured and protected in compliance with the recommendations of ACI 305R. The temperature of the concrete shall be such that it will cause no difficulties from loss of slump, flash set or cold joints. Immediately cover plastic concrete with sheet curing material during hot weather.

3.07 FIELD TESTS

- A. Sets of field control cylinder specimens will be taken by the Engineer during the progress of the work, in compliance with ASTM C31. The number of sets of concrete test cylinders taken of each class of concrete placed each day will not be less than one set per day, nor less than one set for each 150 cu yds of concrete nor less than one set for each 5,000 sq ft of surface area for slabs or walls. Specimens will be formed in 6-in diameter by 12-in long non-absorbent cylindrical molds.
 - 1. A "set" of test cylinders shall consist of four cylinders: one to be tested at seven days and two to be tested and their strengths averaged at 28 days. The fourth may be used for a special test at 3 days or to verify strength after 28 days if 28 day test results are low.
 - 2. When the average 28 day compressive strength of the cylinders in any set falls below the required compressive strength or below proportional minimum seven-day strengths (where proper relation between seven and 28 day strengths have been established by tests), change proportions, cementitious content, or temperature conditions to achieve the required strengths at no additional cost to the Owner.
- B. Cooperate in the making of tests by allowing free access to the work for the selection of samples. Provide an insulated closed curing box for the specimens and protect the specimens against injury or loss through construction operations. Furnish material and labor required for the purpose of taking concrete cylinder samples. All shipping of specimens will be paid for by the Owner.
- C. Slump tests will be made in the field by the Engineer in conformity with ASTM C143.
- D. Tests for air content will be made in the field by the Engineer in compliance with either the pressure method (ASTM C231) or by the volumetric method (ASTM C173).

3.08 STRIPPING AND FINISHING CONCRETE

- A. Do not remove forms before the concrete has attained a strength of at least 30 percent of the specified design strength nor before reaching approximately "100 day-degrees" of moist curing (whichever is the longer). Degree-days are defined as the total number of 24 hour periods multiplied by the weighted average daily air temperature at the surface of the concrete (e.g., 7 days at an average 50 degrees F = 350 degree-days).
- B. Exercise care to prevent damaging edges or obliterating the lines of chamfers, rustications or corners when removing the forms or doing any other work adjacent thereto.
- C. Clean all exposed concrete surfaces and adjoining work stained by leakage of concrete, to the satisfaction of the Engineer.
- D. Immediately after removal of forms remove tie cones and metal portions of ties. Fill holes promptly upon stripping as follows: Moisten the hole with water, followed by a 1/16-in brush coat of neat cement slurry mixed to the consistency of a heavy paste. Immediately plug the hole with a 1 to 1.5 mixture of cement and concrete sand mixed slightly damp to the touch (just short of "balling"). Hammer the grout into the hole until dense, and an excess of paste appears on the surface in the form of a spider web. Trowel smooth with heavy pressure. Avoid burnishing.

- E. Defective concrete and honeycombed areas: Chip down square and at least 1-in deep to sound concrete with hand chisels or pneumatic chipping hammers. Irregular voids or surface stones need not be removed if they are sound, free of laitance, and firmly embedded in the parent concrete. If honeycomb exists around reinforcement, chip to provide a clear space at least 3/8-in wide all around the steel. For areas less than 1-1/2-in deep, the patch may be made in the same manner as described above for filling form tie holes, care being exercised to use adequately dry (non-trowelable) mixtures and to avoid sagging. Thicker repairs will require build-up in successive 1-1/2-in layers on successive days, each layer being applied (with slurry, etc.) as described above.
- F. Concrete to receive dampproofing and concrete not exposed in the finished work shall have off-form finish with fins and other projections removed and tie cones and defects filled as specified above.
- G. Screed top surface of slabs to the established grades and to a true plane with a tolerance of 1/8-in when checked with a 10-ft straightedge. Pitch surface to drain unless otherwise noted on the Drawings. Finish the surface to give a smooth, hard, even surface free from high or low spots or other defects. Concrete subject to pedestrian traffic shall be given a broom finish. Failure to meet these conditions shall be cause for removal, grinding, or other correction as directed by the Engineer.

3.09 SCHEDULE

- A. The following (Table 2) are the general applications for the various concrete design strengths to be used:
- B. Refer to Section 02515 and 02580 for specific requirements regarding concrete and the type of mix to be use for sidewalk, ADA compliant ramps, driveways and high early strength applications.

TABLE 2

Class	Design Strength (psi)	Description
A	2,500	Concrete fill and electrical raceway encasement
B	3,000	Concrete overlay slabs and pavements
D	4,000	Walls, slabs on grade, grade beams and all other structural concrete

END OF SECTION

SECTION 03600
GROUT

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and install grout complete as shown on the Drawings and as specified herein.
- B. Perform all sampling and furnish all testing of materials and products by an independent testing laboratory acceptable to the Engineer but engaged by and at the expense of the Contractor.

1.02 RELATED WORK

- A. Brick, Bluestone and Cobblestone Paving is included in Section 02580.
- B. Concrete and reinforcing steel is included in Section 03301.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, shop drawings and product data showing materials of construction and details of surface preparation, mixing and installation for:
 - 1. Commercially manufactured non-shrink cementitious grout. Include catalog cuts, technical data, storage requirements, product life, working time after mixing, temperature considerations, conformity to the specified ASTM standards, and Material Safety Data Sheet.
 - 2. Cement grout. Include the type and brand of cement, the gradation of fine aggregate, product data on any proposed admixtures and the proposed grout mix.
 - 3. Concrete grout. Include data as required for concrete as delineated in Section 03301.
- B. Samples
 - 1. Submit samples of commercially manufactured grout products when requested by the Engineer.
 - 2. Submit samples of aggregates proposed for use in grout mixes when requested by the Engineer.
- C. Laboratory Test Reports
 - 1. For concrete grout, submit laboratory test data as required for concrete as delineated in Section 03301.
- D. Certifications

1. Certify that commercially manufactured grout products and admixtures for cement grout are made for use in contact with potable water 30 days after installation (non-toxic and free of taste and odor).

E. Qualifications

1. Submit documentation that grout manufacturers have a minimum of at least 10 years experience in the production and use of the grouts proposed.

1.04 REFERENCE STANDARDS

A. ASTM International

1. ASTM C33 - Standard Specification for Concrete Aggregates
2. ASTM C150 - Standard Specification for Portland Cement
3. ASTM C531 - Standard Test Method for Linear Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts and Monolithic Surfacing and Polymer Concretes
4. ASTM C579 - Standard Test Methods for Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing and Polymer Concretes
5. ASTM C827 - Standard Test Method for Change in Height at Early Ages of Cylindrical Specimens of Cementitious Mixtures
6. ASTM C1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
7. ASTM C1107 - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Non-shrink)
8. ASTM E329 - Standard specification for agencies engaged in the testing and/or inspection of materials used in construction

- B. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

A. Qualifications

1. Grout manufacturers shall have a minimum of 10 years experience in the production and use of the type of grout proposed.
2. Independent testing laboratory shall meet the requirements of ASTM E329 and ASTM C1077 and be acceptable to the Engineer. Laboratories affiliated with the Contractor or in which the Contractor or officers of the Contractor's organization have beneficial interest are not acceptable.

B. Field Testing

1. Field testing of concrete grout will be as specified for concrete in Section 03301.
2. All field testing and inspection services will be provided by the Owner. Assist in the sampling of materials, and cooperate by allowing free access to the work and permitting the use of ladders, scaffolding, and such incidental equipment as may be required. Methods of testing will comply with the applicable ASTM standards.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to the jobsite in original, unopened packages, clearly labeled with the manufacturer's name, product identification, batch numbers and printed instructions.
- B. Store materials in full compliance with the manufacturer's recommendations. Limit total storage time from date of manufacture to date of installation to six months or the manufacturer's recommended storage time, whichever is less.
- C. Remove immediately from the site material which becomes damp, contains lumps, or is hardened and replace with acceptable material at no additional cost to the Owner.
- D. Deliver non-shrink cementitious grout [and self-leveling cementitious underlayment grout] as a pre-portioned blend in prepackaged mixes requiring only the addition of water.

1.11 DEFINITIONS

- A. Non-shrink Grout: A commercially manufactured product that does not shrink in either the plastic or hardened state, is dimensionally stable in the hardened state and bonds to a clean base plate.

PART 2 PRODUCTS

2.01 GENERAL

- A. The use of a manufacturer's name and product or catalog number is for the purpose of establishing the standard of quality desired.
- B. Like materials shall be the products of one manufacturer or supplier in order to provide standardization of appearance.

2.02 MATERIALS

- A. Non-shrink Cementitious Grout
 1. Non-shrink cementitious grouts: Conform to ASTM C1107, Grades B or C and CRD C-621. Grouts shall be portland cement based, contain a pre-proportioned blend of selected aggregates and shrinkage compensating agents and require only the addition of water. Non-shrink cementitious grouts shall not contain expansive cement or metallic particles. The grouts shall exhibit no shrinkage when tested in conformity with ASTM C827.

- a. General purpose non-shrink cementitious grout: Conform to the standards stated above. SikaGrout 212 by Sika Corp.; Set Grout by BASF Building Systems; NS Grout by The Euclid Chemical Co.; Five Star Grout by Five Star Products, Inc., or equal.
- b. Flowable (Precision) non-shrink cementitious grout: Conform to the standards stated above. Masterflow 928 by BASF Building Systems; Hi-Flow Grout by The Euclid Chemical Co.; SikaGrout 212 by Sika Corp.; Five Star Grout by Five Star Products, Inc., or equal.

B. Cement Grout

1. A mixture of one part Portland cement conforming to ASTM C150, Type I, II or III and one to two parts sand conforming to ASTM C33 with sufficient water to place the grout. The water content shall be sufficient to impart workability to the grout but not to the degree that it will allow the grout to flow.

C. Concrete Grout

1. Conform to the requirements of Section 03301 except as specified herein. Proportions with Type II cement, coarse and fine aggregates, water, water reducing admixture and air entraining agent to produce a mix having an average compressive strength of 3,500 psi at 28 days. Course aggregate size shall be 3/8-in maximum. Slump shall not exceed 5-in. Minimum cement content shall be 540 lbs per cubic yard and maximum water to cement ratio shall be 0.45.
2. Add synthetic reinforcing fibers to the concrete grout mix at the rate of 1.5 lbs of fibers per cubic yard of grout. Synthetic reinforcing fibers for concrete shall be 100 percent polypropylene collated, fibrillated fibers as manufactured by Fibermesh Company of Synthetic Industries, Inc., Chattanooga, TN – Fibermesh or approved equal. Fiber length and quantity for the concrete mix shall be in strict compliance with the manufacturer's recommendations as approved by the Engineer. Add fibers from the manufacturer's pre-measured bags and according to the manufacturer's recommendations to ensure complete dispersion of the fiber bundles as single monofilaments within the cement grout.

D. Water

1. Potable water free of oil, acid, alkali, salts, chlorides (except those attributable to drinking water), organic matter, or other deleterious substances.

PART 3 EXECUTION

3.01 PREPARATION

- A. Place grout where indicated or specified over existing concrete and cured concrete which has attained its specified design strength unless otherwise approved by the Engineer.
- B. Concrete surfaces to receive grout shall be clean and sound; free of ice, frost, dirt, dust, grease, oil, form release agent, laitance and paints and free of all loose material or foreign matter which may affect the bond or performance of the grout.

- C. Roughen concrete surfaces by chipping, sandblasting, or other dry mechanical means to bond the grout to the concrete. Remove loose or broken concrete. Irregular voids or projecting coarse aggregate need not be removed if they are sound, free of laitance and firmly embedded into the parent concrete.
 - 1. Air compressors used to clean surfaces in contact with grout shall be the oilless type or equipped with an oil trap in the airline to prevent oil from being blown onto the surface.
- D. Remove all loose rust, oil or other deleterious substances which may affect the bond or performance of the grout from metal embedments, bottom of baseplates, or in existing joints prior to the installation of the grout.
- E. Concrete and stone surfaces shall be washed clean and then keep moist for at least 24 hours prior to the placement of non-shrink cementitious or cement grout. Saturation may be achieved by covering the concrete with saturated burlap bags, use of a soaker hose, or flooding the surface or other method acceptable to the Engineer. Upon completion of the 24 hour period, remove visible water from the surface prior to grouting.
- F. Provide forms for grout. Line or coat forms with release agents recommended by the grout manufacturer. Provide forms anchored in place and shored to resist the forces imposed by the grout and its placement.
 - 1. Forms for all grout other than concrete grout shall be designed to allow the formation of a hydraulic head and shall have chamfer strips built into forms.
- G. Level and align the structural or equipment bearing plates in accordance with the structural requirements or the recommendations of the equipment manufacturer, as applicable.
- H. Support equipment during alignment and installation of grout by shims, wedges, blocks or other approved means. The shims, wedges and blocking devices shall be prevented from bonding to the grout by bond breaking coatings and removed after grouting unless otherwise approved by the Engineer. Grout voids created by the removal of shims, wedges and blocks.

3.02 INSTALLATION - GENERAL

- A. Mix, apply and cure products in strict compliance with the manufacturer's recommendations and these specifications.
- B. Provide staffing and equipment available for rapid and continuous mixing and placing. Keep all necessary tools and materials ready and close at hand.
- C. Maintain temperatures of the base plate, supporting concrete, and grout between 40 and 90 degrees F during grouting and for at least 24 hours after placement, until grout compressive strength reaches 1000 psi or as recommended by the grout manufacturer, whichever is longer. Do not allow differential heating or cooling of baseplates and grout during the curing period.
- D. Take special precautions for hot weather or cold weather grouting as recommended by the manufacturer when ambient temperatures and/or the temperature of the materials in contact with the grout are outside of the 40 to 90 degrees F range.

- E. Install grout to preserve the isolation between the elements on either side of the joint where grout is placed in the vicinity of an expansion or control joint.
- F. Reflect all existing underlying expansion, control, and construction joints through the grout.

3.03 INSTALLATION - NON-SHRINK CEMENTITIOUS GROUTS AND CEMENT GROUTS

- A. Mix in accordance with manufacturer's recommendations. Do not add cement, sand, pea gravel or admixtures without prior approval by the Engineer.
- B. Do not mix by hand. Mix in a mortar mixer with moving blades. Pre-wet the mixer and empty excess water. Add pre-measured amount of water for mixing, followed by the grout. Begin with the minimum amount of water recommended by the manufacturer and then add the minimum additional water required to obtain workability. Do not exceed the manufacturer's maximum recommended water content.
- C. Placements greater than 3-in in depth shall include the addition of clean, washed pea gravel to the grout mix when approved by the manufacturer. Comply with the manufacturer's recommendations for the size and amount of aggregate to be added.
- D. Provide forms as specified in Paragraph 3.01G. Place grout into the designated areas and prevent segregation and entrapment of air. Do not vibrate grout to release air or to consolidate the material. Fill all spaces and provide full contact between the grout and adjoining surfaces. Provide grout holes and vent holes as necessary.
- E. Place grout rapidly and continuously to avoid cold joints. Do not place grout in layers. Do not add additional water to the mix (retemper) after initial stiffening.
- F. Just before the grout reaches its final set, cut back the grout to the substrate at a 45 degree angle from the lower edge of bearing plate unless otherwise ordered and approved by the Engineer. Finish this surface with a wood float or brush finish.
- G. Begin curing immediately after form removal, cutback, and finishing. Keep grout moist and within its recommended placement temperature range for at least 24 hours after placement, until grout compressive strength reaches 1000 psi or as recommended by the manufacturer, whichever is longer. Saturate the grout surface by use of saturated burlap bags, soaker hoses or ponding. Provide sunshades. If drying winds inhibit the ability of a given curing method to keep grout moist, erect wind breaks until wind is no longer a problem or curing is finished.

3.04 INSTALLATION – CONCRETE GROUT

- A. Inspect slabs scheduled to receive concrete grout. Roughen surfaces to receive concrete grout as specified herein. Protect and keep the surface clean until placement of concrete grout.
- B. Remove debris and clean the surface by sweeping and vacuuming of all dirt and other foreign materials. Pressure wash the surface. Do not flush debris into storm drain system.
- C. Saturate the concrete surface for at least 24 hours prior to placement of the concrete grout by use of saturated burlap bags, soaker hoses or ponding. Remove excess water just prior to placement of the concrete grout.

- D. Steel trowel finish the surface. Cure the concrete grout as specified cast-in-place cement in Section 03301.

3.05 SCHEDULE

- A. The following list indicates where the particular types of grout are to be used:
 1. General purpose non-shrink cementitious grout: Use at all locations where non-shrink grout is indicated on the Drawings, except for base plates greater in area than 3-ft wide by 3-ft long.
 2. Flowable (precision) non-shrink cementitious grout: Use under all base plates greater than 3-ft wide by 3-ft long. Use at all locations indicated on the Drawings to receive flowable non-shrink grout. Flowable (precision) non shrink grout, cementitious grout may be substituted for general purpose non-shrink cementitious grout.
 3. Cement grout: Use where indicated on the Drawings.
 4. Concrete grout: Use for overlaying the base concrete as indicated on the Drawings.

END OF SECTION

SECTION 03740
MODIFICATIONS TO EXISTING CONCRETE

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and cut, repair or otherwise modify parts of existing concrete structures or appurtenances as shown on the Drawings and as specified herein.
- B. Work under this Section shall also include bonding new concrete to existing concrete.
- C. No existing structure or concrete shall be shifted, cut, removed, or otherwise altered until authorization is given by the Engineer.
- D. When removing materials or portions of existing structures and when making openings in existing structures, all precautions shall be taken and all necessary barriers, shoring and bracing and other protective devices shall be erected to prevent damage to the structures beyond the limits necessary for the new work, protect personnel and to prevent damage to the structures or contents by falling or flying debris. Unless otherwise permitted, shown or specified, line drilling will be required in cutting existing concrete.

1.02 RELATED WORK

- A. Site preparation is included in Section 02100.
- B. Excavation and backfill are included in Division 2.
- C. Concrete, concrete reinforcement and accessories are included in Division 3.

1.03 REFERENCE STANDARDS

- A. ASTM International
 - 1. ASTM C881 - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete.
 - 2. ASTM C882 - Standard Test Method for Bond Strength of Epoxy-Resin Systems Used with Concrete by Slant Shear.
 - 3. ASTM C883 - Standard Test Method for Effective Shrinkage of Epoxy-Resin Systems Used with Concrete.
 - 4. ASTM D570 - Standard Test Method for Water Absorption of Plastics.
 - 5. ASTM D638 - Standard Test Method for Tensile Properties of Plastics.

6. ASTM D695 - Standard Test Method for Compressive Properties of Rigid Plastics.
7. ASTM D732 - Standard Test Method for Shear Strength of Plastics by Punch Tool.
8. ASTM D790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

B. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

PART 2 PRODUCTS

2.01 MATERIALS

A. Bonding Compound

1. General

- a. The bonding compound shall be a two-component, solvent-free, moisture insensitive epoxy resin material suitable for use as a bonding adhesive to bond fresh, plastic concrete to clean, sound hardened concrete and for grouting bolts, the bonding of mating materials, and complying with the requirements of ASTM C881 Type II and the additional requirements specified herein.

2. Material

- a. The epoxy material shall conform to the following requirements:
 - 1) Component A - Component A shall be a modified epoxy resin of the epichlorohydrin bisphenol A type containing suitable viscosity control agents. It shall not contain butyl glycidyl ether.
 - 2) Component B - Component B shall be primarily a reaction product of a selected amine blend with an epoxy resin of the epichlorohydrin bisphenol A type containing suitable viscosity control agents, pigments and accelerators.
 - 3) The ratio of Component B:A shall be 1:1 by volume.
 - 4) The material shall not contain asbestos.
- b. Properties of the mixed material*
 - 1) Pot Life - 25 to 35 minutes
 - 2) Tack-Free Time to Touch (20 mil thickness) - 3 to 5 hours
 - 3) Initial Viscosity (Brookfield Viscometer Spindle No. 3; Speed 100) - 1900 to 3700 cps
 - 4) Color - Gray
- c. Properties of the cured material*
 - 1) Compressive Properties (ASTM D695) at 28 days
 - a) Compressive Strength - 8500 psi minimum
 - b) Modulus of Elasticity - 375,000 psi minimum
 - 2) Tensile Properties (ASTM D638) at 14 days
 - a) Tensile Strength - 4000 psi minimum
 - b) Elongation at Break - 1.5 to 2.25 percent
 - c) Modulus of Elasticity - 275,000 psi minimum
 - 3) Flexural Properties (ASTM D790) at 14 days
 - a) Flexural Strength (Modulus of Rupture) - 6300 psi minimum
 - b) Tangent Modulus of Elasticity in Bending - 400,000 psi minimum

- 4) Shear Strength (ASTM D732) at 14 days
 - a) Shear Strength - 5000 psi minimum
- 5) Water Absorption (ASTM D570; Section 6.5) at 14 days
 - a) Water Absorption - 1 percent maximum
- 6) Bond Strength (ASTM C882) Hardened to Plastic
 - a) Bond Strength (14 days moist cure) - 1500 psi minimum
- 7) Effective Shrinkage (ASTM C883)
 - a) Effective Shrinkage - Passes Test

* All test data is based upon material and curing conditions of 73 plus or minus 2 degrees F, 50 plus or minus 5 percent Relative Humidity

3. Approval Requirements
 - a. Furnish notarized certification that the material proposed for use meets all of the above requirements.
 - b. Bonding agent shall be Sikastix 370, Sikadur Hi-Mod, by Sika Corporation, Lyndhurst, NJ or equal.

B. Repair Mortar

1. General
 - a. Repair mortar shall be a two-component, polymer-modified, cementitious, fast-setting, trowel grade, structural repair mortar suitable for use on horizontal, vertical and overhead surfaces, on grade above and below grade on concrete and mortar.
2. Material
 - a. The polymer modified cementitious system shall consist of a factory preproportioned two-component system whose components conform to the following requirements:
 - 1) Component A shall be a liquid polymer emulsion of an acrylic copolymer base and additives. This acrylic copolymer shall have the following properties:
 - a) pH 4.5 to 6.5
 - b) Minimum film forming temperature approximately 68 degrees F
 - c) Tear Strength approximately 990 to 1420 psi
 - d) Elongation at break 500 to 900 percent
 - e) Particle Size Range Less than 0.1 micron
 - 2) Component B shall be a blend of selected portland cements, specially graded aggregates, organic accelerator and admixtures for controlling setting time, water reducers for workability and a corrosion inhibitor.
 - 3) The component ratio A:B shall be 1:7.2 by weight. The system shall not contain chlorides, nitrates, added gypsum, added lime, or high alumina cements. The system shall be non-combustible, either before or after cure.
 - b. Typical Properties of Mixed Components
 - 1) Application Time (Working Time) - 15 minutes after combining components
 - 2) Finishing Time - 20 to 60 minutes after combining components
 - 3) Color - Concrete Gray
 - c. Typical Properties of Cured Material
 - 1) Abrasion Resistance - 6 times that of controlled concrete
 - 2) Bond Strength (pull off method) - 100 percent concrete substrate failure
 - 3) Modulus of Elasticity - 4,500,000 psi minimum

- 4) Surface Scaling (Deicing salt solution freeze/thaw) - No deterioration after 120 cycles
 - 5) Compressive Strength (2 hours 50 percent RH) - 150 psi minimum
 - 6) Compressive Strength (28 days 50 percent RH) - 5,550 psi minimum
 - 7) Flexural Strength (28 days 50 percent RH) - 1,300 psi minimum
 - 8) This system shall conform with ECA/USPHS Standards for surface contact with potable water.
 - 9) This system shall not produce a vapor barrier.
 - 10) This system shall be thoroughly compatible with concrete.
 - 11) Stone may be added.
 - 12) System may be finished with power trowel.
- d. Approval Requirements
- 1) Furnish notarized certification that the material proposed for use meets all of the above requirements.
 - 2) Repair mortar shall be SikaTop 122 by Sika Corporation, Lyndhurst, NJ or equal.

C. Crack Sealant

1. General

- a. Crack sealant shall be a two-component, solvent-free, moisture insensitive epoxy resin material suitable for crack grouting, by injection or gravity feed and bolt grouting and as a binder for mortar, concrete or grout in thermally stable environments and as a concrete sealer.

2. Material

- a. The epoxy material shall conform to the following requirements:
 - 1) Component A - Component A shall be a modified epoxy resin of the epichlorohydrin bisphenol A type, containing suitable viscosity control agents. It shall not contain butyl glycidyl ether.
 - 2) Component B - Component B shall be primarily a reaction product of a selected amine blend with an epoxy resin of the epichlorohydrin bisphenol A type containing suitable viscosity control agents and accelerators.
 - 3) The ratio of Components B:A shall be 1:2 by volume.
 - 4) The material shall not contain asbestos.
- b. Properties of the mixed components*
 - 1) Pot Life - 20 to 30 minutes
 - 2) Tack free time to touch (3 to 5 mils) - 2 to 4 hours
 - 3) Initial Viscosity (Brookfield Viscometer Spindle No. 2, Speed 100) - 300 to 450 cps
 - 4) Color - Amber
- c. Properties of the cured material*
 - 1) Compressive Properties (ASTM D695) at 28 days
 - a) Compressive Strength - 10,500 psi minimum
 - b) Modulus of Elasticity - 300,000 psi minimum
 - 2) Tensile Properties (ASTM D638) at 14 days
 - a) Tensile Strength - 5500 psi minimum
 - b) Elongation at Break - 2 to 5 percent
 - c) Modulus of Elasticity - 60,000 psi minimum
 - 3) Flexural Properties (ASTM D790) at 14 days
 - a) Flexural Strength (Modulus of Rupture) - 12,500 psi minimum

- b) Tangent Modulus of Elasticity in Bending - 325,000 psi minimum
- 4) Shear Strength (ASTM D732) at 14 days
 - a) Shear Strength - 4500 psi minimum
- 5) Water Absorption (ASTM D570; Section 6.5) at 7 days
 - a) Water Absorption - 1.5 percent maximum
- 6) Bond Strength (ASTM C882)
 - a) Bond Strength (2 days dry) - 2000 psi minimum
 - b) Bond Strength (2 days dry plus 12 days moist) - 2000 psi minimum
- 7) Effective Shrinkage (ASTM C883)
 - a) Effective Shrinkage - Passes Test
- 8) When tested following the procedure prescribed by the Environmental Control Administration of the U.S. Public Health Service, the cured material shall be in conformity with the Federal Regulation requiring water extractables of less than 0.5 mg/in² of exposed surface for potable water containers.

* All test data is based upon material and curing conditions of 73 plus or minus 2 degrees F, 50 plus or minus 5 percent R.H.

- 3. Approval Requirements
 - a. Furnish notarized certification that the material proposed for use meets all of the above requirements.
 - b. Crack sealant shall be Sikastix 350, Sikadur Hi-Mod LV, by Sika Corporation, Lyndhurst, NJ or equal.

D. Epoxy Paste Adhesive

- 1. General
 - a. Epoxy paste adhesive shall be a two-component, solvent-free, moisture insensitive epoxy resin material suitable for bolt grouting, as an adhesive for mating surfaces where the glue line is 1/8-in or less and to bond fresh, plastic concrete to clean, sound, hardened concrete.
 - b. The material shall be classified as Type I, Grade 3, Class B and C and a Type II, Grade 3, Class B and C adhesive in conformity to ASTM C881.
- 2. Material
 - a. The epoxy material shall conform to the following requirements:
 - 1) Component A - Component A shall be a modified epoxy resin of the epichlorohydrin bisphenol A type, containing suitable viscosity control agents and pigments. It shall not contain butyl glycidyl ether.
 - 2) Component B - Component B shall be primarily a reaction product of a selected amine blend with an epoxy resin of the epichlorohydrin bisphenol A type containing suitable viscosity control agents, pigments and accelerators.
 - 3) The ratio of Component B:A shall be 1:2 by volume.
 - 4) The material shall not contain asbestos.
 - b. Properties of the mixed material*
 - 1) Pot Life - 25 to 45 minutes
 - 2) Tack-Free-Time to Touch - 2 to 3 hours
 - 3) Consistency (1/2-in thick) - Non-Sag
 - 4) Color - Gray
 - c. Properties of the cured material*

- 1) Compressive Properties (ASTM D695) at 28 days
 - a) Compressive Strength, psi - 10,000 minimum
 - b) Modulus of Elasticity, psi - 700,000 minimum
- 2) Tensile Properties (ASTM D638) at 14 days
 - a) Tensile Strength, psi - 3000 minimum
 - b) Elongation at Break, percent - 0.3 minimum
 - c) Modulus of Elasticity, psi - 630,000 minimum
- 3) Flexural Properties (ASTM D790) at 14 days
 - a) Flexural Strength (Modulus of Rupture), psi - 3700 minimum
 - b) Tangent Modulus of Elasticity in Bending, psi - 850,000 minimum
- 4) Shear Strength (ASTM D732) at 14 days
 - a) Shear Strength, psi - 2800 minimum
- 5) Water Absorption (ASTM D570; Section 6.5) at 7 days
 - a) Water Absorption, percent - 1.0 maximum
- 6) When tested following the procedure prescribed by the Environmental Control Administration of the U.S. Public Health Service, the cured material shall be in conformity with the Federal Regulation requiring water extractables of less than 18 mg/sq in of exposed surface for potable water containers.

* All test data is based upon material and curing condition of 73 plus/minus 2 degrees F; 50 plus/minus 5 percent Relative Humidity

3. Approval Requirements
 - a. Furnish notarized certification that the material proposed for use meets all of the above requirements.
 - b. Epoxy paste adhesive shall be Sikastix 390, Sikadur 31 Hi-Mod Gel, by Sika Corporation, Lyndhurst, NJ or equal.

E. Special Joint Sealant

1. Sealant shall be foamed polyurethane strip saturated with polybutylene waterproofing material. Sealant shall be applied to joint in a precompressed state.
2. When compressed to 50 percent of its original volume, sealant shall produce a hydrostatic seal.
3. Sealant shall maintain its resiliency to temperatures as low as minus 40 degrees F. Sealant shall be waterproof (when compressed to 50 percent of its original volume) in temperatures from minus 40 degrees F to plus 200 degrees F.
4. Elongation shall be at least 325 percent with a tensile strength of not less than 53 psi. The polybutylene compound in the polyurethane strip shall not migrate.

F. Metal primer shall be an approved organic zinc rich primer containing 95 percent zinc dust by weight.

G. Non-shrink Grout

1. Non-shrink grout for setting new anchor bolts in existing concrete shall be ready-to-use formulation, which when mixed with specific amounts of water will provide a pourable cementitious mixture.
2. Non-shrink grout for setting new anchor bolts shall be Super POR-ROK by CGM, Inc., or equal.

H. Adhesive Anchor System

1. Provide an adhesive anchor system utilizing an injection adhesive manufactured for the installation of drilled-in reinforcing steel dowels where indicated on the Drawings.
2. Injection Adhesive
 - a. Injection adhesive shall be a two-component epoxy system including a hardener and a resin, furnished in pre-measured side-by-side cartridges which keep the two components separate. Side-by-side cartridges shall be designed to accept a static mixing nozzle which thoroughly blends the two components and allows injection directly into the drilled hole.
3. Adhesive anchor system shall be Hilti RE 500 SD Adhesive Anchor System; Simpson Strong-Tie Epoxy SET-XP Adhesive Anchor System; Redhead G5 Adhesive Anchor System; or equal.

PART 3 EXECUTION

3.01 GENERAL

- A. Concrete removal, repairs and fabrication shall be as shown on the Drawings and as specified herein.
- B. Except as otherwise indicated, in all locations where new concrete is to be deposited against existing concrete, bonding compound shall be applied to the surfaces of the existing concrete prior to placement of new concrete.
- C. In all cases where the joint between new concrete and existing concrete will be exposed in the finished work, except as otherwise shown or specified, the limit of concrete removal shall be defined by a 1-1/2-in deep saw cut on each exposed surface of the existing concrete.
- D. When the finished surface is not specified to be coated, the color of new concrete in the exposed surfaces shall match the color of the existing adjoining concrete as closely as possible.
- E. Where indicated or specified, existing concrete shall be removed to the depth indicated or required to expose sound concrete. The surface exposed shall be roughened by chipping, sandblasting, scarifying or other appropriate means before applying bonding compounds, or repair material as specified.
- F. The Engineer may from time to time direct the Contractor to make repairs to existing concrete, these repairs shall be made as specified herein or by such other methods as may be appropriate.

- G. Reinforcing in existing concrete which is exposed as a result of removal of deteriorated concrete shall be wire brushed to remove all loose material and products of corrosion before proceeding with the repair.
- H. All commercial products specified in this Section shall be stored, mixed and applied in strict accordance with the manufacturer's recommendations.
- I. In all cases where concrete is repaired in the vicinity of an expansion joint or isolation joint the repairs shall be made so as to preserve the isolation between components on either side of the joint.
- J. Where exposed embedded metal is required to be painted, prepare substrate as approved and paint with two coats zinc rich primer before installation of adjacent new materials.

3.02 CONCRETE REMOVAL

- A. Concrete designated to be removed to specific limits as shown on the Drawings or directed by the Engineer, shall be done by line drilling at limits of removal followed by chipping or jack-hammering as appropriate in areas where concrete is to be taken out. Remove concrete in such a manner that surrounding concrete and existing reinforcing to be left in place and existing in place equipment are not damaged. Sawcutting at limits of concrete to be removed shall only be done if indicated on the Drawings, specified herein, or after obtaining written approval from the Engineer.
- B. Where existing reinforcing is exposed due to saw cutting/core drilling and no new material is to be placed on the cut surface, a coating or surface treatment of epoxy paste shall be applied to the entire cut surface to a thickness of 1/4-in.
- C. In all cases where the joint between new concrete or grout and existing concrete will be exposed in the finished work, except as otherwise shown or specified, the edge of concrete removal shall be a 1-in deep saw cut on each exposed surface of the existing concrete.
- D. Concrete specified to be left in place, which is damaged, shall be repaired by approved means.
- E. The Engineer may from time to time direct the Contractor to make additional repairs to existing concrete. These repairs shall be made as specified or by such other methods as may be appropriate.
- F. Any concrete removed will become the property of the Contractor and shall be removed from the site.

3.03 CONNECTION SURFACE PREPARATION

- A. Connection surfaces shall be repaired as specified below for concrete areas requiring patching, repairs or modifications as shown on the Drawings, specified, or as directed by the Engineer.
- B. Remove all deteriorated materials, dirt, oil, grease, and all other bond inhibiting materials from the surface by dry mechanical means, i.e. sandblasting, chipping, etc., as approved by the Engineer. For the roughening and cleaning mentioned in 3.03 E. 1 and 2, it is suggested to

uniformly roughen the concrete surface to approximately 1/4-in amplitude with pointed chipping tools. Thoroughly clean surface of loose or weakened materials by sandblasting or airblasting. Irregular voids or surface stones need not be removed if they are sound, free of laitance, and firmly embedded into parent concrete.

- C. If reinforcing steel is exposed, it must be mechanically cleaned to remove all loose material, contaminants, rust, etc., as approved by the Engineer. If half of the diameter of the reinforcing steel is exposed, chip out behind the steel. The distance chipped behind the steel shall be a minimum of 1/2-in. Reinforcing to be incorporated into new concrete shall not be damaged during the removal operation.
- D. Reinforcing from existing removed concrete which is shown to be incorporated in new concrete shall be cleaned by mechanical means to remove all loose material and products of corrosion before proceeding. It shall be cut, bent or lapped to new reinforcing as shown on the Drawings and provided with one inch minimum cover all around.
- E. The following are specific concrete surface preparation "methods" to be used where called for on the Drawings, specified or as directed by the Engineer.
 - 1. Method A - After the existing concrete surface at connection has been roughened and cleaned, thoroughly saturate with water and maintain saturation for a period of at least 12 hours. Brush on a 1/16-in layer of cement and water mixed to the consistency of a heavy paste. Immediately after application of cement paste, place new concrete or grout mixture as detailed on the Drawings.
 - 2. Method B - After the existing concrete surface has been roughened and cleaned, apply epoxy bonding agent at connection surface. The field preparation and application of the epoxy bonding agent shall comply strictly with the manufacturer's recommendations. Place new concrete or grout mixture to limits shown on the Drawings within time constraints recommended by the manufacturer to ensure bond.
 - 3. Method C - Drill a hole 1/4-in larger than the diameter of the dowel bolt. The hole shall be blown clear of loose particles and dust just prior to installing epoxy paste. The drilled hole shall first be filled with epoxy paste, then dowel/bolt shall be buttered with paste then inserted with a twisting motion. Unless otherwise shown on the Drawings, deformed bars shall be drilled and set to a depth of 15 bar diameters.
 - 4. Method D – Combination of Method B and C.

END OF SECTION

SECTION 03800
CONCRETE ELECTRICAL RACEWAY ENCASEMENT

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and install concrete encasement around underground electrical raceways as shown on the Drawings and as specified herein.

1.02 RELATED WORK

- A. Excavation, backfilling, fill and grading are included in Division 2.
- B. Concrete and reinforcing is included in Division 3.
- C. Furnishing and installing electrical conduit is included in Division 16.
- D. Furnishing and placing polyethylene warning tape in the backfill above encasement is included in Division 16.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Cement, lime, aggregate and all other concrete components shall be as specified in Section 03301 except that aggregate size shall not exceed 3/8-in. Concrete shall have a minimum compressive strength at 28 days of 2500 psi.

PART 3 EXECUTION

3.01 GENERAL

- A. Concrete shall conform to the requirements Section 03301 and as specified herein.
- B. Provide not less than 4-in of concrete between the outside of a raceway and the earth. Provide not less than 2-in of concrete between adjacent raceways. Form as specified in Section 03301 for buried concrete.
- C. All raceway concrete placements shall be continuous between manholes or handholes and between manholes or handholes and structures.
- D. Where raceways pass through concrete walls, concrete encasement shall be extended through the finished flush with inside surfaces. Watertight construction joints with waterstops acceptable to the Engineer shall be provided. Waterstops shall be submitted to the Engineer prior to the start of construction.
- E. Encasements shall be reinforced as and where indicated on the Drawings.
- F. Encasements shall be laid in trenches on mats of screened gravel not less than 6-in thick.

G. The minimum cover for raceway banks shall be 24-in.

END OF SECTION

SECTION 16020
ELECTRICAL

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials and equipment required to install complete and make operational, electrical and process instrumentation systems as specified, as shown on the Drawings.
- B. The work shall include furnishing and installing the following:
 - 1. Electrical service from the Power Company.
 - 2. Conduit, wire and field connections for all electrical equipment furnished under other Divisions of these Specifications.
 - 3. Furnish and install pole mounted street lighting system and accessories as shown on the Drawings and specified herein.
 - 4. Furnish and install outdoor NEMA 3R, electrical pedestal cabinets as shown on the Drawings and specified herein.
 - 5. Furnish and install precast handholes, manholes and light pole bases.
 - 6. Furnish and install manhole and handhole frames and covers.
 - 7. Grounding system
 - 8. Underground system
- C. Each bidder or their authorized representatives shall, before preparing their proposal, visit all areas of the existing buildings and structures in which work under this bid is to be performed and inspect carefully the present installation. The submission of the proposal by this bidder shall be considered evidence that they have visited the site, buildings and structures and noted the locations and conditions under which the work will be performed and that they takes full responsibility for a complete knowledge of all factors governing his/her work.
- D. Excavation, bedding material, forms, concrete and backfill for underground raceways; forms and concrete for electrical equipment furnished under Division 16. The work shall be in accordance with Divisions 2 and 3.

1.02 RELATED WORK

- A. Excavation and backfilling, including gravel or sand bedding for underground electrical work is included in Division 2.
- B. Cast in place concrete work, including concrete encasements for electrical duct banks, equipment pads, light pole bases and reinforcing steel, is included in Division 3.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, shop drawings for equipment, materials and other items furnished under Division 16.
- B. Check shop drawings for accuracy and contract requirements prior to submittal. Shop drawings shall be stamped with the date checked and a statement indicating that the shop drawings conform to Specifications and Drawings. This statement shall also list all exceptions to the Specifications and Drawings. Shop drawings not so checked and noted shall be returned.
- C. The Engineer's check shall be for conformance with the design concept of the project and compliance with the Specifications and Drawings. Errors and omissions on approved shop drawings shall not relieve the Contractor from the responsibility of providing materials and workmanship required by the Specifications and Drawings.
- D. All dimensions shall be field verified at the job site and coordinated with the work of all other trades.
- E. Material shall not be ordered or shipped until the shop drawings have been approved. No material shall be ordered or shop work started if shop drawings are marked "APPROVED AS NOTED - CONFIRM," "APPROVED AS NOTED - RESUBMIT" or "NOT APPROVED."
- F. Operation and Maintenance Data:
 - 1. Submit operations and maintenance data for equipment furnished under this Division, in accordance with Section 01730. The manuals shall be prepared specifically for this installation and shall include catalog data sheets, drawings, equipment lists, descriptions, parts lists, etc., to instruct operating and maintenance personnel unfamiliar with such equipment.

1.04 CONTRACT PERFORMANCE REQUIREMENTS

- A. Electric equipment, materials and installation shall comply with the latest edition of the National Electrical Code (NEC) and with the latest edition of the following codes and standards:
 - 1. National Electrical Safety Code (NESC).
 - 2. Occupational Safety and Health Administration (OSHA).
 - 3. National Fire Protection Association (NFPA).
 - 4. National Electrical Manufacturers Association (NEMA).
 - 5. American National Standards Institute (ANSI).
 - 6. Insulated Cable Engineers Association (ICEA).
 - 7. Instrument Society of America (ISA).
 - 8. Underwriters Laboratories (UL).

9. Factory Mutual (FM).
10. National Electrical Testing Association (NETA).
11. Massachusetts Electrical Code (MEC)

B. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 PRIORITY OF THE CONTRACT DOCUMENTS

- A. If, during the performance of the work, the Contractor finds a conflict, error or discrepancy between or among one or more of the Sections or between or among one or more Sections and the Drawings, furnish the higher performance requirements. The higher performance requirement shall be considered the equipment, material, device or installation method which represents the most stringent option, the highest quality or the largest quantity.
- B. In all cases, figured dimensions shall govern over scaled dimensions, but work not dimensioned shall be as directed by the Engineer and work not particularly shown, identified, sized, or located shall be the same as similar work that is shown or specified.
- C. Detailed Drawings shall govern over general drawings, larger scale Drawings take precedence over smaller scale Drawings, Change Order Drawings shall govern over Contract Drawings and Contract Drawings shall govern over Shop Drawings.
- D. If the issue of priority is due to a conflict or discrepancy between the provisions of the Contract Documents and any referenced standard, or code of any technical society, organization or association, the provisions of the Contract Documents will take precedence if they are more stringent or presumptively cause a higher level of performance. If there is any conflict or discrepancy between standard specifications, or codes of any technical society, organization or association, or between Laws and Regulations, the higher performance requirement shall be binding on the Contractor, unless otherwise directed by the Engineer.
- E. In accordance with the intent of the Contract Documents, the Contractor accepts the fact that compliance with the priority order specified shall not justify an increase in Contract Price or an extension in Contract Time nor limit in any way, the Contractor's responsibility to comply with all Laws and Regulations at all times.

1.06 ENCLOSURE TYPES

- A. Unless otherwise specified electrical enclosures shall have the following ratings:
 1. NEMA 1 for dry, non-process indoor above grade locations.
 2. NEMA 3R for outdoor non-corrosive areas.
 3. NEMA 4X for outdoor locations, rooms below grade (including basements and buried vaults).

1.07 SERVICE AND METERING

- A. The power company serving this project is Eversource Electric. Service will be obtained at 120/240-Volts, 1-Phase or 3-Phase, 3-Wire, 60 Hz from a pad mounted transformer or pole mounted transfer furnished and installed by Eversource Electric. Type of installation shall be project specific depending on the work location. It is the Contractor's responsibility to confirm the power phase prior to the start of construction and confirm all of the responsibilities of Eversource Electric. The Contractor shall also be responsible for all costs for obtaining these services.

- B. The power company will be responsible for the following work:
 - 1. Furnishing and installing the primary overhead conductors and pole line.
 - 2. Furnishing and installing the riser pole, primary cutouts, lightning arresters and grounding.
 - 3. Furnishing and installing primary conduits and cables.
 - 4. Furnish and install the service transformer.
 - 5. Furnishing metering current transformers (CT's), meter and meter wiring.
 - 6. Furnishing and installing meter.

- C. Provide the following coordination, work and materials:
 - 1. Obtain an estimate from the power company for the work described in Paragraph 1.07B above and include the cost of the power company work in the Bid Price.
 - 2. Make all arrangements with the power company for obtaining electrical service, pay all power company charges and furnish all labor and material required for the electrical service.
 - 3. Furnishing and installing secondary conduits and cables.
 - 4. Furnishing and installing meter base.
 - 5. Furnishing and installing a power company approved metering current transformer enclosure.

- D. Submit shop drawings for the following items to the power company for approval:
 - 1. Meter base.
 - 2. Primary cable.
 - 3. Metering instrument and installation.

1.08 CODES, INSPECTION AND FEES

- A. Equipment, materials and installation shall comply with the requirements of the local authority having jurisdiction.
- B. Obtain all necessary permits and pay all fees required for permits and inspections. Inspection and permit fees required by the City of New Bedford shall be waived.

1.09 TESTS AND SETTINGS

- A. Test systems and equipment furnished under Division 16 and repair or replace all defective work and equipment. Refer to the individual equipment sections for additional specific testing requirements.
- B. Make adjustments to the systems and instruct the Owner's personnel in the proper operation of the systems.
- C. In addition to the specific testing requirements listed in the individual sections, the following minimum tests and settings shall be performed.
 - 1. Mechanical inspection, testing and settings of circuit breakers, disconnect switches, overload relays, control circuits and equipment for proper operation.
 - 2. Check power and control power fuse ratings. Replace fuses if they are found to be of the incorrect size.
 - 3. Verify all terminations at transformers, equipment, panels and enclosures by producing a 1, 2, 3 rotation on a phase sequenced motor when connected to "A," "B" and "C" phases.
 - 4. Test the grounding system using the three point fall in potential method.
 - 5. Test all 600 Volt wire insulation with a meg-ohm meter after installation. Make tests at not less than 500V. Submit a written test report of the results to the Engineer.
- D. Testing shall be scheduled and coordinated with the Owner at least two weeks in advance. Provide qualified test personnel, instruments and test equipment.
- E. The lighting manufacturer in coordination with the Contractor shall fully test the system for compliance.

1.10 RECORD DRAWINGS

- A. As the work progresses, legibly record all field changes on a set of project contract drawings, hereinafter called the "record drawings."
- B. Record drawings shall accurately show the installed condition of the following items:
 - 1. One-line Diagram(s).
 - 2. Raceways and pull boxes.

3. Conductor sizes and conduit fills.
4. Panel Schedule(s).
5. Lighting fixture, receptacle and switch outlet locations.
6. Underground raceway and duct bank routing.
7. Plan view, sizes and locations of switchgear, distribution transformers, substations, motor control centers and panelboards.

- C. Submit a schedule of control wiring raceways and wire numbers, including the following information:

1.11 EQUIPMENT INTERCONNECTIONS

- A. Furnish and install all equipment interconnections.

1.12 MATERIALS AND EQUIPMENT

- A. Materials and equipment shall be new.
- B. Material and equipment of the same type shall be the product of one manufacturer and shall be UL listed.
- C. Warrant all equipment furnished under Division 16 in accordance with Section 01740. Refer to individual equipment Sections for additional warranty items.

1.13 EQUIPMENT IDENTIFICATION

- A. Identify equipment (disconnect switches, separately mounted motor starters, control stations, etc.) furnished under Division 16 with the name of the equipment it serves. Motor control centers, control panels, panelboards, switchboards, switchgear, junction or terminal boxes, transfer switches, etc., shall have nameplate designations as shown on the Drawings.
- B. Nameplates shall be engraved, laminated plastic, not less than 1/16-in thick by 3/4-in by 2-1/2-in with 3/16-in high white letters on a black background.
- C. Nameplates shall be screw mounted to NEMA 1 enclosures. Nameplates shall be bonded to all other enclosure types using an epoxy or similar permanent waterproof adhesive. Two sided foam adhesive tape is not acceptable. Where the equipment size does not have space for mounting a nameplate the nameplate shall be permanently fastened to the adjacent mounting surface.
- D. Provide engraved handhole and manhole covers to match the system installed within (e.g., "LIGHTING SYSTEM", "FIBER", etc.).

1.14 INTERPRETATION OF DRAWINGS

- A. Unless specifically stated to the contrary, the Drawings are not intended to show exact locations of conduit runs. Coordinate the conduit installation with other trades and the actual supplied equipment.
- B. Install each 3 phase circuit in a separate conduit, unless otherwise shown on the Drawings.
- C. Unless otherwise approved by the Engineer, conduit shown exposed shall be installed exposed; conduit shown concealed shall be installed concealed.
- D. Where circuits are shown as "home-runs" all necessary fittings and boxes shall be provided for a complete raceway installation. Where home-runs indicate conduit is to be installed concealed or exposed the entire branch circuit shall be installed in the same manner. Unless otherwise indicated install branch circuit conduits exposed in process/industrial type spaces and concealed in finished spaces.
- E. Verify the exact locations and mounting heights of lighting fixtures, switches and receptacles prior to installation.
- F. Except where dimensions are shown, the locations of equipment, fixtures, outlets and similar devices shown on the Drawings are approximate only. Exact locations shall be determined by the Contractor and approved by the Engineer during construction. Obtain information relevant to the placing of electrical work and in case of any interference with other work, proceed as directed by the Engineer and furnish all labor and materials necessary to complete the work in an approved manner.
- G. Circuit layouts are not intended to show the number of fittings, or other installation details. Furnish all labor and materials necessary to install and place in satisfactory operation all power, lighting and other electrical systems shown.
- H. Redesign of electrical or mechanical work, which is required due to the Contractor's use of an alternate item, arrangement of equipment and/or layout other than specified herein, shall be done by the Contractor at his/her own expense. Redesign and detailed plans shall be submitted to the Engineer for approval. No additional compensation will be provided for changes in the work, either his/her own or others, caused by such redesign.
- I. It is the intent of these Specifications that the Electrical Systems shall be suitable in every way for the service required. All materials and all work that may be implied as being incidental to the work of this Section shall be furnished at no additional cost to the Owner.
- J. Raceways and conductors for lighting, switches, receptacles and other miscellaneous low voltage power and signal systems as specified are not shown on the Drawings. Raceways and conductors shall be provided as required for a complete and operating system. Homeruns, as shown on the Drawings, are to assist the Contractor in identifying raceways to be run exposed and raceways to be run concealed. Raceways shall be installed concealed in all finished spaces and may be installed exposed or concealed in all process spaces. Raceways installed exposed shall be near the ceiling or along walls of the areas through which they pass and shall be routed to avoid conflicts with HVAC ducts, cranes hoists, monorails, equipment hatches, doors,

windows, etc. Raceways installed concealed shall be run in the center of concrete floor slabs, above suspended ceilings, or in partitions as required.

1.15 SEISMIC RESTRAINTS

- A. Seismic restraints shall be provided for all electrical systems including but not limited to conduits, busways, pull boxes, free standing or wall mounted panels and cabinets, lighting fixtures, and other similar electrical equipment installed under Division 16.
- B. Use seismic criteria, Tables and standard restraint details found in the latest edition of the SMACNA Seismic Retraining Manual for the seismic restraints. The restraints shall be selected from the Tables that represent the highest seismic hazard class or level possible within the State, Commonwealth or District in which the project resides. Where materials other than steel are specified, members of equal strength to those in the standards shall be provided.
- C. Materials of construction for seismic restraints shall be same as those specified for the equipment supports and area classifications. However, all bolts shall be stainless steel regardless of the locations.

PART 2 PRODUCTS

2.01 CONDUITS AND FITTING

- A. Rigid Steel Conduit:
 - 1. Rigid steel conduit interior and exterior shall be hot-dipped galvanized and be as manufactured by the Allied Tube and Conduit Corp.; Wheatland Tube Co.; Western Tube & Conduit Corporation, or equal.
- B. PVC Coated Rigid Steel Conduit:
 - 1. PVC coated rigid steel conduit shall have a minimum 0.040-in thick, polyvinyl chloride coating permanently bonded to hot-dipped galvanized steel conduit and an internal chemically cured urethane or enamel coating. The ends of all couplings, fittings, etc., shall have a minimum of one pipe diameter in length of PVC overlap. PVC conduit and fittings shall be manufactured by Occidental Coating Company; "Plasti-Bond Red" as manufactured by Robroy Industries; "Ocal" by Thomas & Betts Inc., Perma-Cote, or equal.
- C. Rigid Nonmetallic Conduit:
 - 1. PVC conduit shall be rigid polyvinyl chloride schedule 80 as manufactured by Carlon; An Indian Head Co.; Kraloy Products Co., Inc.; Highland Plastics Inc., or equal.
- D. Liquidtight Flexible Metal Conduit, Couplings and Fittings:
 - 1. Liquidtight flexible metal conduit shall be Sealtite, Type UA, manufactured by the Anaconda Metal Hose Div.; Anaconda American Brass Co.; American Flexible Conduit Co., Inc.; Universal Metal Hose Co., or equal.

2. Fittings used with liquidtight flexible metal conduit shall be of the screw-in type as manufactured by the Thomas & Betts Co.; Crouse-Hinds Co., or equal.

E. Flexible Couplings:

1. Flexible couplings shall be type ECGJH as manufactured by the Crouse-Hinds Co.; Appleton Electric Co.; Killark Electric Manufacturing Co., or equal.

F. Boxes and Fittings:

1. Pressed steel switch and outlet boxes shall be hot-dipped galvanized as manufactured by the Raco Manufacturing Co.; Adalet Co.; O.Z. Manufacturing Co., or equal.
2. For use in NEMA 1 areas, terminal boxes, junction boxes, pull boxes etc., shall be galvanized sheet steel with continuously welded seams. Box bodies shall be flanged and shall not have holes or knockouts. Box bodies shall not be less than 14 gauge metal and covers shall not be less than 12 gauge metal. Covers shall be gasketed and fastened with stainless steel screws. Terminal boxes shall be furnished with hinged doors, terminal mounting straps and brackets. Terminal blocks shall be NEMA type, not less than 20 Amps, 600 Volt. Boxes shall be as manufactured by Hoffman Engineering Co.; Lee Products Co.; Keystone/Rees, Inc., or equal.
3. NEMA 4X terminal boxes, junction boxes and pull boxes shall be fiberglass reinforced plastic with stainless steel hardware and covers having a continuous gasket on all four sides. Terminal boxes shall be furnished with hinged doors, terminal mounting straps and brackets. Terminal blocks shall be NEMA type, not less than 20 Amps, 600 Volt. Boxes shall be as manufactured by Hoffman Engineering Co.; Lee Products Co.; Keystone/Rees, Inc., or equal.
4. All boxes and fittings used with PVC coated conduit shall be furnished with a PVC coating bonded to the metal, the same thickness as used on the coated steel conduit. The ends of couplings and fittings shall have a minimum of one pipe diameter PVC overlap to cover threads and provide a seal.
5. Cast or malleable iron device boxes shall be Type FD. All cast or malleable iron boxes and fittings shall have cadmium-zinc finish with cast covers and stainless steel screws as manufactured by the Crouse-Hinds Co., or equal.
6. Cast aluminum device boxes shall be Type FD. All cast aluminum boxes and fittings shall be copper-free aluminum with cast aluminum covers and stainless steel screws as manufactured by the Killark Electric Co.; Crouse-Hinds Co.; L. E. Mason Co., or equal.
7. Steel elbows and couplings shall be hot-dipped galvanized. Elbows and couplings used with PVC coated conduit shall be furnished with a PVC coating bonded to the steel, the same thickness as used on the coated steel conduit.
8. Conduit hubs shall be as manufactured by Myers Electric Products, Inc. or equal.
9. Conduit wall and floor seals for sleeved openings shall be type CSMI as manufactured by the O.Z./Gedney Co.; or equal.

10. Conduit sealing bushings shall be O.Z./Gedney Type CSB or equal.

G. Conduit Mounting Equipment:

1. In dry indoor areas, hangers, rods, back plates, beam clamps, channel, etc. shall be galvanized iron or steel.
2. Fiberglass channel with stainless steel hardware shall be used in areas designated "WET" and "CORROSIVE" on the Drawings and in outdoor locations. Fiberglass channel shall be resistant to the chemicals present in the area in which it is used.

H. Cold Galvanizing Compound:

1. Cold galvanizing compound shall be as manufactured by ZRC Products Company, a division of Norfolk Corp., or equal.

2.02 WIRE, CABLE AND ACCESSORIES

- A. Wires and cables shall be of annealed, 98 percent conductivity, soft drawn copper.
- B. All conductors shall be stranded, except that lighting and receptacle wiring may be solid.
- C. Except for control, signal, and instrumentation circuits, wire smaller than No. 12 AWG shall not be used.
- D. Wire for lighting, receptacles and other circuits not exceeding 150 Volts to ground shall be NEC Type THHN/THWN as manufactured by Okonite Co.; Southwire Co.; Pirelli Corp., or equal.
- E. Wire for circuits over 150 Volts to ground shall be NEC type XHHW for sizes up to No. 4/0 AWG and Type RHW for sizes greater than No. 4/0 AWG as manufactured by Okonite Co.; Southwire Co., or equal.
- F. Splices for power wiring shall be compression type connectors insulated with a heat shrink boot or outer covering and epoxy filling. Splice kits shall be as manufactured by Raychem; Ideal Industries; 3M Co., or equal.
- G. Termination connectors for control wiring shall be of the locking fork-end (upturned leg ends) type as manufactured by Ideal Industries; 3M Co.; Panduit Corp. or equal.
- H. Splices for control wiring shall be insulated compression type connectors of the expanded vinyl insulated parallel or pigtail type as manufactured by Ideal Industries; 3M Co.; Panduit Corp., or equal.
- I. Wire markers shall be "Omni-Grip" as manufactured by the W.H. Brady Co.; Thomas & Betts Co.; 3M Co., or equal.
- J. Wire and cables with diameters exceeding the capacity of the "Omni-Grip" shall be marked with pre-printed, self-adhesive vinyl tapes as manufactured by the W.H. Brady Co.; Panduit Corp., or equal.

2.03 WIRING DEVICES

- A. Receptacles shall be heavy duty, specification grade of the following types and manufacturer or equal. Receptacles shall conform to Federal Specification WC596-F.
1. Event Outlets (250Vac) – Single twist-lock, 50 Amp, 250 Volts, 2P, 3W; Copper wiring Devices Catalog No. CS6369, or equal by Arrow-Hart; Pass & Seymour, Inc., or equal.
 - a. Both receptacle and plug/cable shall have reversed contacts.
 - b. Coordinate provided receptacle with plug/cable listed in this specification section to provide compatible components.
 2. Weatherproof Tree Receptacles (120 Vac) - Weatherproof/corrosion resistant single, 20 Amp, 125 Volt, 2P, 3W, with cover; Crouse-Hinds Co., Catalog No. WLRS-5-20, or equal by Appleton Electric.
 3. Ground fault interrupter, duplex, 20 Amp, 125 Volt, 2P, 3W, GFCI feed thru type with "test" and "reset" buttons. Arrow-Hart, Catalog No. GF5342 or equal by Harvey Hubbell, Inc.; Pass & Seymour, Inc., or equal.
- B. Device Plates:
1. Plates for indoor flush mounted devices shall be of the required number of gangs for the application involved and shall be as follows:
 - a. Administration type buildings: Smooth, high impact nylon of the same manufacturer and color as the device. Final color to be as selected by the Architect.
 - b. Where permitted in other areas of the plant, flush mounted devices in cement block construction shall be Type 302 high nickel (18-8) stainless steel of the same manufacturer as the devices.
 2. Plates for indoor surface mounted device boxes shall be cast metal of the same material as the box, Crouse-Hinds, No. DS23G and DS32G, or equal.
 3. Oversized plates shall be installed where standard plates do not fully cover the wall opening.
 4. Device plates for switches mounted outdoors or indicated as weatherproof shall be gasketed, cast aluminum with provisions for padlocking switches "On" and "Off," Crouse Hinds, No. DS185, or equal.
 5. Multiple surface mounted devices shall be ganged in a single, common box and provided with an adapter, if necessary, to allow mounting of single gang device plates on multi-gang cast boxes.
 6. Engraved device plates shall be provided where required.
 7. Weatherproof, gasketed cover for GFI receptacle mounted in a FS/FD box shall be Arrow-Hart, Catalog No. 4501-FS or equal by Harvey Hubbell, Inc.; Pass & Seymour, Inc., or equal.

- C. Wall switches shall be heavy duty, specification grade, toggle action, flush mounting quiet type. All switches shall conform to the latest revision of the Federal Specification WS 896. Wall switches shall be of the following types and manufacturer:
1. Single pole, 20 Amp, 120/277 Volt – Arrow-Hart, Catalog No. 1991, or equal by Harvey Hubbell, Inc.; Pass & Seymour, Inc. or equal.
- D. Three Phase Power Receptacles:
1. Three phase power receptacles and plugs shall be rated for the voltage and current ratings of the connected load or as specified.
 2. Receptacles and plug housings shall be constructed of hi-impact, corrosion resistant non-metallic materials listed to UL 498 for watertight construction. Hardware shall be stainless steel.
 3. Performance:
 - a. Maximum working voltage: 600 Volts RMS.
 - b. Dielectric withstand voltage: 3000 Volts.
 - c. Full load break capability at rated current.
 - d. 5000 connect/disconnect cycles at rated voltage and current.
 4. Furnish and install one mating plug with each receptacle.
 5. Provide the following features:
 - a. Color coded by voltage.
 - b. One piece housing/angled back box.
 - c. Shrouded pins.
 - d. Self-closing gasketed cover.
 - e. Watertight cable entrances/stress relief grips.
 - f. Mating keys.
 6. Acceptable manufacturers:
 - a. Hubbell (North American Rated Series II).
 - b. General Electric.
 - c. Arrow-Hart.

2.04 MISCELLANEOUS EQUIPMENT

A. Polyethylene Warning Tape

1. Warning tape shall be red polyethylene film, 6-in minimum width.
2. Warning tape shall be W.H. Brady Co., Catalog No. 91296, or equal.

B. Photocell

1. The photocell shall be suitable for power duty for pilot duty with contractors as detailed on the Drawings. Enclosure shall be NEMA 3R or 4. Contacts shall be rated for 2,000 Watts

continuous at 240 Volts. The unit shall turn on at 1.5 footcandles and off at 5.5 footcandles.

2. Photocell shall be TORK, Model 2104 or equal.

C. Pedestal Cabinet

1. Pedestal cabinet shall be outdoor weatherproof type suitable for mounting on a concrete pad as shown on the Drawings.
2. The pedestal cabinet shall be constructed of heavy duty aluminum alloy and shall be weatherproof, NEMA 3R, and shall not have a center post.
3. Cabinet shall have a full size backboard of $\frac{3}{4}$ -in exterior plywood painted with two coats of polyurethane sealer.
4. Interior and exterior paint finish shall be baked enamel over a rust resistant primer. Color shall be black.
5. Each door shall have three point latch and pin tumbler type door lock or provisions for padlocking. Furnish six keys to Owner.
6. Pedestal cabinet shall have an internally mounted fan with thermostat control and door mounted baffled louvers.
7. Pedestals shall be complete with all mounting hardware and accessories required for installation as shown on the Drawings.
8. Pedestal cabinet shall be APX Enclosures, Inc.; Hoffman or equal. Pedestal cabinet (size as required) shall have finish as selected by Owner.

D. Pull Wire

1. Pull wires shall be left in pipes, spare and used, for future expansions.
2. Pull wires shall be 2-ply, with a minimum tensile strength of 240 pounds, and resistant to tangling, rot and mildew.

E. Disconnect Switches:

1. Disconnect switches shall be heavy-duty, quick-make, quick-break, visible blades, 600 Volt, 3 Pole with full cover interlock, interlock defeat and flange mounted operating handle.
2. NEMA 4X enclosures shall be stainless steel or fiberglass reinforced polyester.
3. Switches shall be as manufactured by the Square D Co.; Cutler Hammer Co.; General Electric Company; Siemens Company, or equal.

F. Lighting Contactor

1. Lighting contactor shall be of the electrically held type mounted in a NEMA 1, enclosures with number of poles as noted on the Drawings or required. Operating coils shall be rated for 240 volts unless otherwise indicated on the Drawings and shall be for momentary operations.
2. Contactors shall be rated for 30 amps, 600 Vac and shall be GE Model No. CR463L or equal.

G. Circuit Breakers:

1. Provide thermal magnetic circuit breaker in NEMA Type 1 Enclosure with externally operated handle. Circuit breakers shall be fully rated for 42,000 Amps RMS symmetrical.
2. Circuit breakers shall be manufactured by Cutler Hammer Co.; General Electric Company; Siemens Company, or equal.

H. Surge Protection Device:

1. SPD unit shall be a hybrid device utilizing a linear array of balanced MOV (Metal Oxide Varistors) and a series assembly of silicon avalanche diodes.
2. The SPD unit shall be tested and labeled in accordance with the following standards: ANSI/IEEE C62.41, Recommended Practice for Surge Voltages in Low-Voltage AC Power Circuits, Category C; ANSI/IEEE C62.45, Guide on Surge Testing for Equipment Connected to Low-Voltage AC Power Circuits; NEMA LS-1 (1992), Low-Voltage Surge Protective Devices; UL 1449-Third Edition - UL Standard for Safety for Surge Protective Devices; UL 1283 for noise attenuation devices and NEC Article 285.
3. Unit shall have:
 - a. Parallel Line-Neutral, Line-Ground and Neutral-Ground connection configuration.
 - b. One Nanosecond or less response time.
 - c. Extend noise filtration with a 10 kHz to 100 MHz range.
 - d. Fused internal disconnect switch with 60 Amps, 300,000 AIC rating.
 - e. Surge current rating of 100,000 Amps per mode at service entrance
Surge current rating of 100,000 Amps per mode at distribution panels
Surge current rating of 100,000 Amps per mode at branch panels.
 - f. LED indications.
 - g. Six digit surge counter.
 - h. Form C output contacts.
 - i. System voltage shall be as indicated on the Drawings.
 - j. NEMA 12 enclosure (steel type).
 - k. The Maximum Continuous Operating Voltage (MCOV) for all voltage configurations shall be 125 percent of nominal or greater.
 - l. The fusing system shall be capable of allowing the rated maximum surge current to pass through without fuse operation.
 - m. SPD devices at distribution panels or switchboards shall be mounted externally to the equipment with leads as short as possible.
 - n. SPD devices at branch panels shall be direct bus-to-bus connected with leads as short as possible (not to exceed 24-in).

4. SPD shall be Model SP200 as manufactured by LEA International Inc; Liebert – ACV – III- RKE; Current Technology – CGP100 or equal.

I. LED Lighting DMX Controller

1. LED Lighting DMX controller shall be Jesco Lighting Group Model No. LC-PC-500 or equal.
2. Controller shall be capable of changing the color and intensity of lights. Controller shall have a touch screen interface in order to change settings. Controller shall also be able to be programmed and controlled by an external laptop.

2.05 PANELBOARDS

- A. Panelboards shall be in accordance with the Underwriter Laboratories, Inc. "Standard for Panelboards" and "Standard for Cabinets and Boxes" and shall be so labeled where procedures exist. Panelboards shall also comply with NEMA Standard for Panelboards and the National Electrical Code.
- B. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.
- C. 120/240 Volt, single phase, 3 Wire and 120/208 Volt, 3 Phase, 4 Wire panelboards shall be Type AQ as manufactured by the General Electric Company; Type NQOD as manufactured by Square D Co.; Type Pow-R-Line C as manufactured by Cutler-Hammer, or equal. Panel boards shall be listed as "Service Entrance Duty Rated".
- D. NEMA 3, 4 and 12 panelboards shall be type DVP or DHP as required by voltage application; manufactured by the Crouse-Hinds Company, or equal.
- E. Rating:
 1. All panelboards shall be rated for the intended voltage.
 2. Circuit breaker panelboards shall be fully rated for the specified circuit breaker fault current interrupting capacity. Series connected short circuit ratings will not be acceptable.
- F. Buses:
 1. Bus bars for the mains shall be of copper. Full size neutral bars shall be included. Phase bussing shall be full height without reduction. Cross connectors shall be copper.
 2. Neutral bussing shall have a suitable lug for each outgoing feeder requiring a neutral connection.
 3. Spaces for future circuit breakers shall be bussed for the maximum device that can be fitted into them.
 4. Equipment ground bars shall be furnished.

G. Circuit Breakers:

1. Panelboards shall be equipped with circuit breakers.
2. Circuit breakers shall be molded case, bolt-in type.
3. Each circuit breaker used in 120/240 Volt and 120/208 Volt panelboards shall have an interrupting capacity of not less than 42,000 amperes, RMS symmetrical.
4. GFCI (ground fault circuit interrupter) shall be provided for circuits where shown on the Drawings. GFCI units shall be 1 Pole, 120 Volt molded case, bolt-on breakers, incorporating a solid state ground fault interrupter circuit insulated and isolated from the breaker mechanism. The unit shall be UL listed Class A Group I device (5 milliamp sensitivity, 25 millisecond trip time) and an interrupting capacity of 42,000 Amps RMS.
5. Circuit breakers shall be as manufactured by the panelboard manufacturer.

2.06 STREET LIGHTING

A. System Description

1. Lighting system shall generally consist of the following:
 - a. Luminaires
 - b. Aluminum light posts
 - c. Prestressed concrete bases, as specified and detailed on the attached figures.

B. Luminaires

1. Luminaires shall be CK118R-B2AR-III-100 (SSL) by King Luminair as detailed on the attached figures. Quick disconnect shall be provided.

C. Cast aluminum light poles shall be as follows:

1. Washington style, 12-ft height, by Alloy Castings
2. New Bedford style, 10-ft height, by Alloy Castings
3. Color shall be black.
4. Where indicated on the Drawings, poles shall have banner arms provided. Banner arms shall be bolt on type, suitable for 26-in by 4-ft banners and be black in color.
5. Poles shall have a 120 Vac receptacle with in use wet location cover designated "Holiday Lighting" where shown on the drawings.
6. Designated poles shall have a 240 Vac receptacle mounted inside base of pole where shown on the Drawings.
 - a. Outlet shall be accessible through a second access plate in the building side of the light post. Second access plate shall have a cutout as shown on the Drawings, with water resistant guard.

7. Refer to attached figures.

2.07 UNDERGROUND SYSTEM

- A. Excavation and backfilling, including gravel and sand bedding, are included in Division 2.
- B. Concrete and reinforcing steel are included in Division 3.
- C. Raceways shall be polyvinyl chloride direct bury. All elbows and raceway stubs shall be RGS (rigid galvanized steel.).
- D. Raceways running under roadways shall be polyvinyl chloride conduit encased in CLSM Type 2E except that rigid steel conduit shall be used for 600 Volt shielded wire and data highway wiring.
- E. Handholes
 - 1. Handholes shall be polymer concrete and reinforced with heavy weave fiberglass, grey finish, open bottom and minimal dimensions of 24-in long by 12-in wide by 18-in deep.
 - 2. Lighting handhole cover shall be heavy duty type, polymer concrete, grey finish with stainless steel penta head bolts. Covers shall be marked "ELECTRICAL" for electric or "FIBER" for fiber lines. Covers shall have a service load of 15,000 pounds over a 10-in square.
 - 3. Handholes and covers shall be as manufactured by Carson product No. H1730-18; CDRSystem product No. PA12-1730-18; Highline product No. CH173018H or equal.
 - 4. Handhole covers shall be secured with tamper proof screws.

2.08 GROUNDING

- A. Ground rods shall be 3/4-in by 10-ft copper clad steel and constructed in accordance with UL 467. The minimum copper thickness shall be 0.25 mm. Ground rods shall be Copperweld, or equal.
- B. Grounding conduit hubs shall be malleable iron type similar to Thomas & Betts Co.; Cat No. 3940 (3/4-in conduit size) by Burndy; O.Z./Gedney Co., or equal, and of the correct size for the conduit.
- C. Waterpipe ground clamps shall be cast bronze saddle type, similar to Thomas & Betts Co. Cat. No. 2 (1/2-in, 3/4-in, or 1-in size) or equal by Burndy; O.Z./Gedney Co. or equal, and of the correct size for the pipe.
- D. Buried grounding connections shall be by Cadweld process, or equal exothermic welding system.
- E. Bare copper ground wire shall be stranded, annealed copper wire conforming to ASTM B 3.

PART 3 EXECUTION

3.01 SLEEVES AND FORMS FOR OPENINGS

- A. Provide and place all sleeves for conduits penetrating floors, walls, partitions, etc. Locate all necessary slots for electrical work and form before concrete is poured.
- B. Exact locations are required for stubbing-up and terminating concealed conduit. Obtain shop drawings and templates from equipment vendors or other subcontractors and locate the concealed conduit before the floor slab is poured.
- C. Where setting drawings are not available in time to avoid delay in scheduled floor slab pours, the Engineer may allow the installations of such conduit to be exposed. Requests for this deviation shall be submitted in writing. No additional compensation for such change will be allowed.
- D. Seal all openings, sleeves, penetrations, and slots.

3.02 CUTTING AND PATCHING

- A. Cutting and patching shall be done in a thoroughly workmanlike manner and be in compliance with modifications and repair to concrete as specified in Section 01045 and 03740 . Saw cut concrete and masonry prior to breaking out sections.
- B. Install work at such time as to require the minimum amount of cutting and patching.
- C. Cut opening only large enough to allow easy installation of the conduit.
- D. Patching to be of the same kind and quality of material as was removed.
- E. The completed patching work shall restore the surface to its original appearance or better.
- F. Patching of waterproofed surfaces shall render the area of the patching completely waterproofed.
- G. Remove rubble and excess patching materials from the premises.
- H. When existing conduits are cut at the floor line of wall line, they shall be filled with grout of suitable patching material.

3.03 INSTALLATION

- A. Any work not installed according to the Specifications shall be subject to change as directed by the Engineer. No extra compensation will be allowed for making these changes.
- B. Electrical equipment shall be protected at all times against mechanical injury or damage by water. Electrical equipment shall not be stored outdoors. Electrical equipment shall be stored in dry permanent shelters. Do not install electrical equipment in its permanent location until structures are weather-tight. If any apparatus has been subject to possible injury by water, it

shall be thoroughly dried out and tested as directed by the Engineer, or shall be replaced at no additional cost at the Engineer's discretion.

- C. Equipment that has been damaged shall be replaced or repaired by the equipment manufacturer, at the Engineer's discretion.
- D. Repaint any damage to factory applied paint finish using touch-up paint furnished by the equipment manufacturer.
- E. Coordinate the conduit installation with other trades and the actual supplied equipment.
- F. Install each 3 phase circuit in separate conduit.
- G. Verify the exact locations and mounting heights of lighting fixtures, switches and receptacles prior to installation.
- H. Exact locations of electrical equipment shall be determined by the Contractor and approved by the Engineer during construction. Obtain information relevant to the placing of electrical work and in case of any interference with other work, proceed as directed by the Engineer and furnish all labor and materials necessary to complete the work in an approved manner.

3.04 MANUFACTURERS SERVICE

- A. Testing and startup shall not be combined with training. Testing and start-up time shall not be used for manufacturer's warranty repairs.

3.05 CONDUIT, BOXES, AND FITTINGS

- A. Except where otherwise specified, all wiring within PVC conduit.
- B. All boxes shall be metal.
- C. Exposed switch, receptacle and lighting outlet boxes and conduit fittings shall be cast or malleable iron, except that cast aluminum shall be used with aluminum conduit.
- D. Concealed switch, receptacle and lighting outlet boxes shall be pressed steel.
- E. Terminal boxes, junction boxes and pull boxes shall have NEMA ratings suitable for the location in which they are installed.
- F. Conduit wall seals shall be used where underground conduits penetrate walls.
- G. Conduit sealing bushings shall be used to seal conduit ends exposed to the weather.
- H. No conduit smaller than 1.5-in electrical trade size shall be used, nor shall any have more than the equivalent of three 90 degree bends in any one run. Pull boxes shall be provided as required or directed.
- I. No wire shall be pulled until the conduit system is complete in all details.

- J. The ends of all conduits shall be tightly plugged to exclude dust and moisture during construction.
- K. Conduit supports, other than for underground raceways, shall be spaced at intervals of 8-ft or less.
- L. All conduits shall be run at right angles to and parallel with the surrounding wall and shall conform to the form of the ceiling. No diagonal runs will be allowed. Bends in parallel conduit runs shall be concentric. All conduits shall be run perfectly straight and true.
- M. Conduit terminating in pressed steel boxes shall have double locknuts and insulated bushings.
- N. Conduit terminating in NEMA 3R, 4, 4X and 12 enclosures shall be terminated with Myers type conduit hubs.
- O. Conduits containing equipment grounding conductors and terminating in sheet steel boxes shall have insulated throat grounding bushings.
- P. Conduits shall be installed using threaded fittings.
- Q. Liquidtight flexible metal conduit shall be used for all motor terminations, the primary and secondary of transformers, generator terminations and other equipment where vibration is present.
- R. Where conduits pass through openings in walls or floor slabs, the remaining openings shall be sealed against the passage of flame and smoke.
- S. PVC conduit to non-metallic box connections shall be made with PVC socket to male thread terminal adapters with neoprene O-ring and PVC round edge bushings.
- T. Conduit ends exposed to the weather shall be sealed with conduit sealing bushings.
- U. PVC conduit shall be supported with non-metallic clamps, non-metallic racks and stainless steel hardware.
- V. PVC boxes, conduit fittings, etc. with integral hubs shall be solvent welded directly to the PVC conduit system.
- W. Non-metallic boxes with field drilled or punched holes shall be connected to the PVC conduit system with threaded and gasketed PVC Terminal Adapters.
- X. All conduit entering or leaving a motor control center, switchboard or other multiple compartment enclosure shall be stubbed up into the bottom horizontal wireway or other manufacturer designated area, directly below the vertical section in which the conductors are to be terminated.
- Y. All conduit which may under any circumstance contain liquids such as water, condensation, liquid chemicals, etc., shall be arranged to drain away from the equipment served. If conduit drainage is not possible, conduit seals shall be used to plug the conduits.

- Z. Where no type or size is indicated for junction boxes, pull boxes or terminal cabinets, they shall be sized in accordance with the requirements of N.E.C. Article 314.
- AA. Miscellaneous steel for the support of fixtures, boxes, transformers, starters, contactors, panels and conduit shall be furnished and installed.
- BB. Steel channels, flat iron and channel iron shall be furnished and installed for the support of all electrical equipment and devices, where required, including all anchors, inserts, bolts, nuts, washers, etc. for a rigid installation.
- CC. Rigid galvanized steel conduits which have been field cut and threaded shall be painted with cold galvanizing compounds.
- DD. Conduit expansion and deflection fittings shall be installed on all conduits crossing building expansion joint. Where conduits are installed outdoors provide expansion and deflection fittings on all conduits crossing expansion joints or at 200 foot intervals whichever is the least dimension.

3.06 WIRE, CABLE AND ACCESSORIES

- A. Uniquely identify all wires, cables and each conductor of multi-conductor cables (except lighting and receptacle wiring) at each end with wire and cable markers.
- B. Use lubrications to facilitate wire pulling. Lubricants shall be UL approved for use with the insulation specified.
- C. All wire shall be color coded or coded using electrical tape in sizes where colored insulation is not available. Where tape is used as the identification system, it shall be applied in all junction boxes and other accessible intermediate locations, as well as at each termination.
- D. The following coding shall be used:

System	Wire	Color
240/120 Volts 1-Phase, 3-Wire	Neutral	White
	Line 1	Black
	Line 2	Red
208Y/120, Volts 3-Phase, 4-Wire	Neutral	White
	Phase A	Black
	Phase B	Red
	Phase C	Blue
240/120 Volts 3-Phase, 4-Wire delta, center tap ground on phase coil A-C	Neutral	White
	Phase A	Black
	Phase B (High)	Orange
	Phase C	Blue
480Y/277 Volts 3-Phase, 4-Wire	Neutral	White
	Phase A	Brown

Phase B
Phase C

Orange
Yellow

- E. Power conductors: Terminations shall be die type or set screw type pressure connectors as specified. Splices (where allowed) shall be die type compression connector and waterproof with heat shrink boot or epoxy filling. Aluminum conductors (where specified) shall employ terminations and splices specifically designed for aluminum conductors.
- F. Control Conductors: Termination on saddle-type terminals shall be wired directly with a maximum of two conductors. Termination on screw type terminals shall be made with a maximum of two spade connectors. Splices (where allowed) shall be made with insulated compression type connectors.
- G. Instrumentation Signal Conductors (including graphic panel, alarm, low and high level signals): terminations same as for control conductors. Splices allowed at instrumentation terminal boxes only.
- H. Except where permitted by the Engineer no splices will be allowed in manholes, handholes or other below grade located boxes.
- I. Splices shall not be made in push button control stations, control devices (i.e., pressure switches, flow switches, etc.), conduit bodies, etc.
- J. Instrumentation cables shall be installed in rigid steel raceways as specified. All circuits shall be installed as twisted pairs or triads. In no case shall a circuit be made up using conductors from different pairs or triads. Triads shall be used wherever three wire circuits are required.
- K. Terminal blocks shall be provided at all instrument cable junction and all circuits shall be identified at such junctions.
- L. Shielded instrumentation wire, shall be run without splices between instruments, terminal boxes, or panels.
- M. Shields shall be grounded as recommended by the instrument manufacturer and isolated at all other locations. Terminal blocks shall be provided for inter-connecting shield drain wires at all junction boxes. Where individual circuit shielding is required, each shield circuit shall be provided with its own block.

3.07 WIRING DEVICES

- A. Switch and receptacles outlets shall be installed flush with the finished wall surfaces in areas with stud frame and gypsum board construction, in dry areas with cement block construction or when raceways are concealed.
- B. Do not install flush mounted devices in areas designated DAMP, WET or WET/CORROSIVE. Provide surface mounted devices in these areas.
- C. Provide weatherproof devices covers in areas designated WET or WET/CORROSIVE.

3.08 PANELBOARDS

- A. Mount boxes for surface mounted panelboards so there is at least 1/2-in air space between the box and the wall.
- B. Connect panelboard branch circuit loads so that the load is distributed as equally as possible between the phase busses.
- C. Type circuit directories giving location and nature of load served. Install circuit directories in each panelboard.
- D. Install markers on the front cover of all panelboards which identify the voltage rating. Markers shall be made of self-sticking B-500 vinyl cloth printed with black characters on an Alert Orange background, 2-1/4-in high by 9-in wide, Style A as manufactured by W.H. Brady Co., or equal.
- E. Install a 1-in by 3-in laminated plastic nameplate with 1/4-in white letters on a black background on each panelboard. Nameplate lettering shall be as shown on the Drawings. Nameplates shall be stainless steel screw mounted.

3.09 UNDERGROUND SYSTEM

- A. Install raceways to drain away from buildings.
- B. Reinforce raceway banks when conduits pass over newly excavated pipes.
- C. The minimum cover for raceway banks shall be 24-in unless otherwise permitted by the Engineer.
- D. Swab all raceways clean before installing cable.
- E. Plug spare raceways and seal them watertight at all manholes, buildings and structures.
- F. Seal the ends of raceways and make watertight at all handholes, buildings and structures.

3.10 GROUNDING

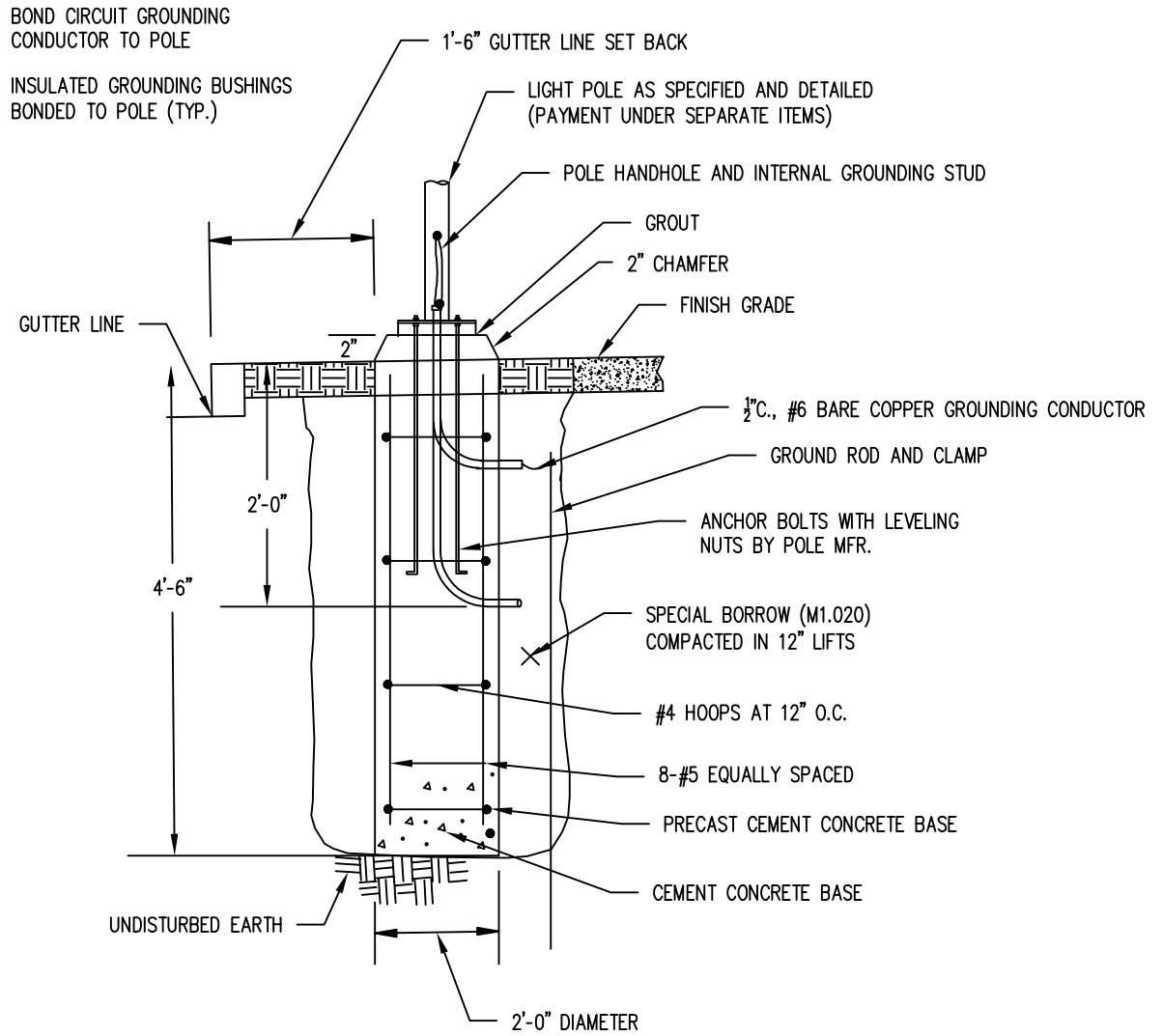
- A. Run grounding electrode conductors in rigid steel conduits. Bond the protecting conduits to the grounding electrode conductors at both ends. Do not allow water pipe connections to be painted. If the connections are painted, disassemble them and re-make them with new fittings.
- B. Install equipment grounding conductors with all feeders and branch circuits.
- C. Bond all steel building columns in new structures together with ground wire in rigid conduit and connect to the distribution equipment ground bus.
- D. Ground wire connections to structural steel columns shall be made with long barrel type one-hole heavy duty copper compression lugs, bolted through 1/2-in maximum diameter holes drilled in the column web, with stainless steel hex head cap screws and nuts.

- E. Metal conduits stubbed into a motor control center shall be terminated with insulated grounding bushings and connect to the motor control center ground bus. Bond boxes mounted below motor control centers to the motor control center ground bus. Size the grounding wire in accordance with NEC Table 250-95, except that a minimum No. 12 AWG shall be used.
- F. Liquid tight flexible metal conduit in sizes 1-1/2-in and larger shall have bonding jumpers. Bonding jumpers shall be external, run parallel (not spiraled) and fastened with plastic tie wraps.
- G. Ground transformer neutrals to the nearest available grounding electrode with a conductor sized in accordance with NEC Article 250-94.
- H. Seal exposed connections between different metals with No-Oxide Paint Grade A or equal.
- I. Lay all underground grounding conductors slack and, where exposed to mechanical injury, protect by pipes or other substantial guards. If guards are iron pipe, or other magnetic material, electrically connect conductors to both ends of the guard. Make connections as specified herein.
- J. Care shall be taken to ensure good ground continuity, in particular between the conduit system and equipment frames and enclosures. Where necessary, jumper wires shall be installed.
- K. All grounding type receptacles shall be grounded to the outlet boxes with a No. 12 THW green conductor connected to the ground terminal of the receptacle and fastened to the outlet box by means of a grounding screw.
- L. Test the grounding system. Resistance to ground testing shall be performed during dry season. Submit test results in the form of a graph showing the number of points measured (12 minimum) and the numerical resistance to ground.
- M. Testing shall be performed before energizing the distribution system.
- N. Notify the Engineer immediately if the resistance to ground for any building or system is greater than five ohms.

END OF SECTION

APPENDIX A

STREET LIGHT FOUNDATION DETAIL



STANDARD LIGHT BASE

NTS



APPENDIX B

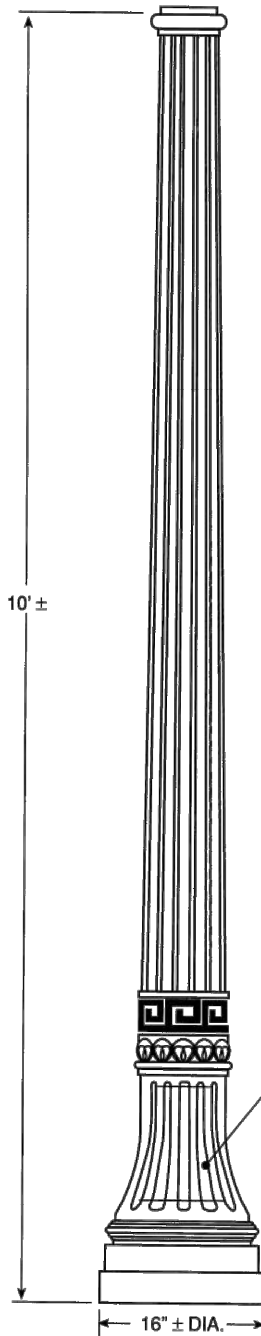
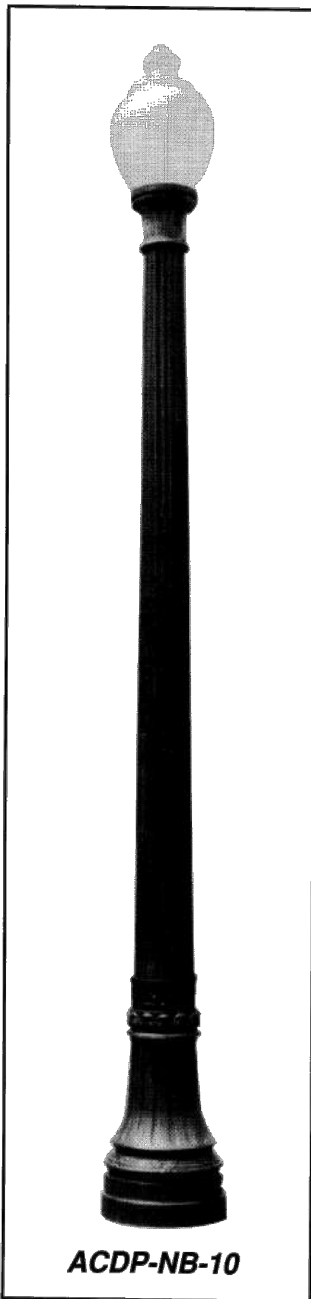
STREET LIGHT POLE DETAILS



From: ALLOY CASTINGS CO., INC.
Quality Aluminum Castings Since 1948

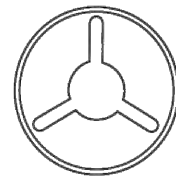
151 West Union Street • East Bridgewater, MA 02333
 Telephone: (508) 378-2541 • FAX: (508) 378-1240
 www.alloycastings.com

New Bedford Style Decorative Pole



- Style:** New Bedford
- Height:** 10' ±
- Base:** 16" ± diameter, round
- Tennon:** 3" x 2-7/8" diameter. Optional tenon heights and diameters available.
- Material:** Heavy Wall Cast Aluminum 356 Alloy.
- Finish:** Primed and finish painted to your specifications.
- Access Door:** 6"x9"x11 1/2", located in base.
- Anchor Bolts:** (3) 3/4" x 24" plus 3" hook including 1 lock washer, 2 flat washers and 2 nuts. Fully galvanized.
- Bolt Projection:** 3" above foundation.
- Bolt Circle:** 9" to 11" ± Diameter.
- Luminaire Options:** There is a wide variety of luminaires available. Consult factory for options.
- Finish Options:** A wide variety of colors are available using the finest quality paints. Thermostat powder coating is available upon request.

ANCHOR BOLT DETAIL



(3) 3/4" ANCHOR BOLTS ON 9 to 11" ± BOLT CIRCLE



NEW BEDFORD DECORATIVE POLE

NTS

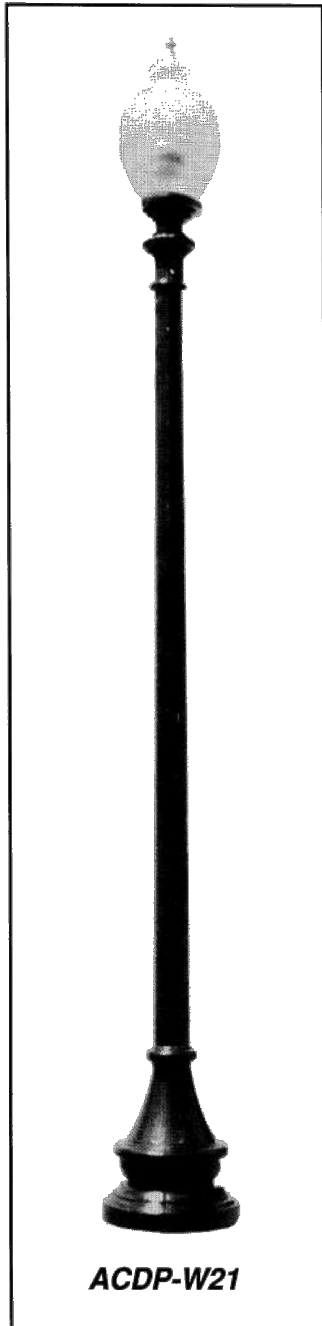




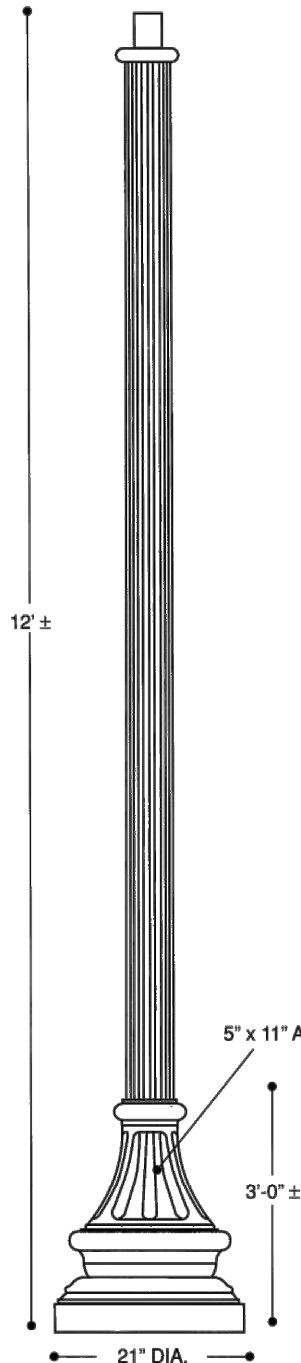
From: **ALLOY CASTINGS CO., INC.**
Quality Aluminum Castings Since 1948

151 West Union Street • East Bridgewater, MA 02333
Telephone: (508) 378-2541 • FAX: (508) 378-1240
www.alloycastings.com

Washington 21 Style Decorative Pole

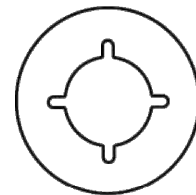


ACDP-W21



- Style:** Washington 21
Height: 12' ±
Base: 21" ± diameter, round
Tennon: 3" x 2-7/8" diameter. Optional tenon heights and diameters available.
Material: Heavy Wall Cast Aluminum 356 Alloy.
Finish: Primed and finish painted to your specifications.
Access Door: 5" x 11", located in base.
Anchor Bolts: (4) 3/4" x 24" plus 3" hook including 1 lock washer, 2 flat washers and 2 nuts. Fully galvanized. Template included with each order.
Bolt Projection: 3" above foundation.
Bolt Circle: 12" ± Diameter.
Features: A variety of heights are available using extruded shafts or straight aluminum shafts.
Luminaire Options: There is a wide variety of luminaires available. Consult factory for options.
Finish Options: A wide variety of colors are available using the finest quality paints. Thermostat powder coating is available upon request.
Accessory Options: Ladder rest and decorative brackets are available.

ANCHOR BOLT DETAIL



(4) 3/4" ANCHOR BOLTS ON 12" ± BOLT CIRCLE

APPENDIX C

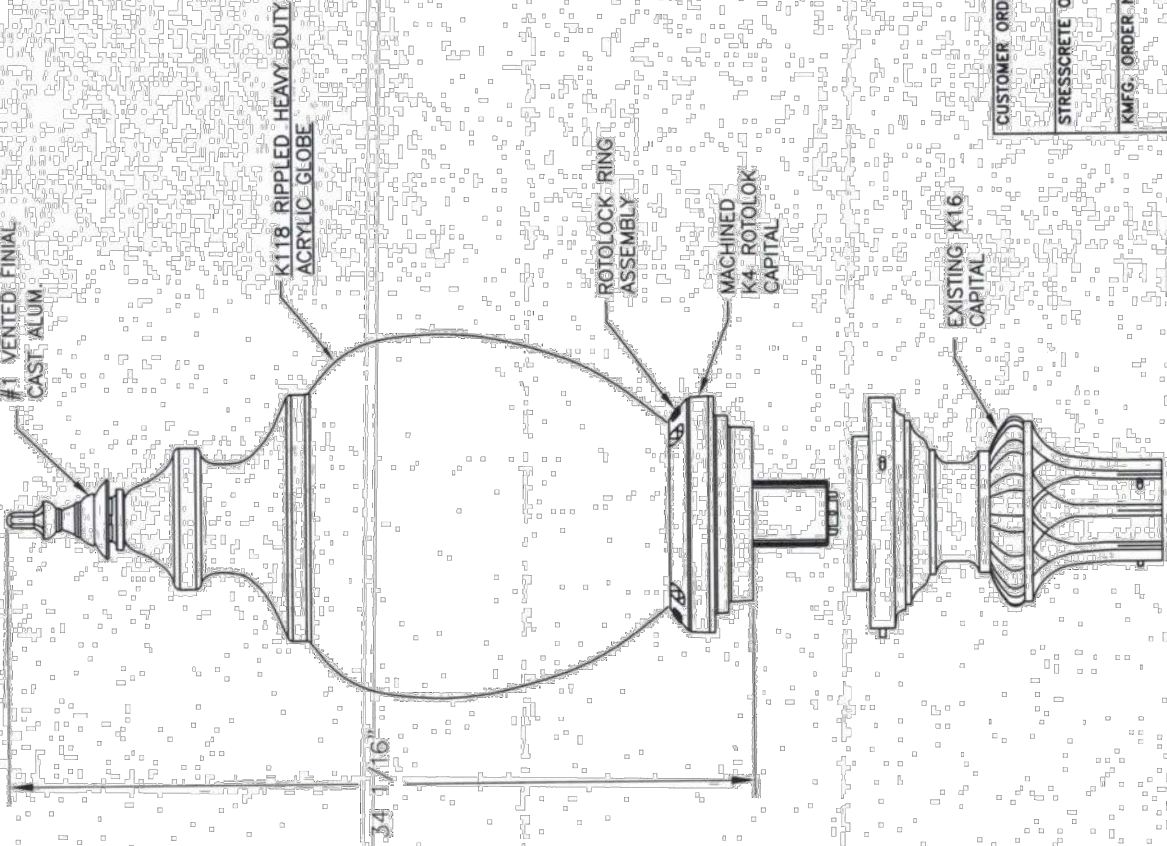
STREET LIGHT LUMINAIRE DETAIL

REV.	ALTERATION	DATE	BY

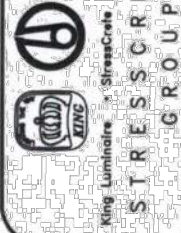
LUMINAIRE SPECIFICATIONS
 CATALOGUE NO: ~~K118R-B2AR-III-100(SSL)~~
 - 1042-120:277-K4-WS S/ K16
 QUANTITY: BAFFLED ARRAY ACRYLIC RIPPLED
 OPTICAL SYSTEM: TYPE III
 IES CLASS: 100W (1042 SERIES)
 WATTAGE: SOLID STATE LIGHTING
 LINE VOLTAGE: 120:277V
 CCT: 4000K
 POLE ADAPTOR: K4
 PAINT: TEXTURED BLACK
 OPTIONS: #1 VENTED FINIAL
 *** HEAVY DUTY GLOBE ***
 WATTAGE SELECTOR

OPTIONS
 QUICK DISCONNECT

WS OPTION	WATTAGE
<input type="checkbox"/> 0	100W
<input type="checkbox"/> 1	90W
<input type="checkbox"/> 2	80W
<input type="checkbox"/> 3	70W
<input type="checkbox"/> 4	60W
<input type="checkbox"/> 5	50W
<input type="checkbox"/> 6	40W



CUSTOMER APPROVAL & DATE:



Manufacturing Locations:
 Burlington, Ontario 1-800-268-7800
 Northport, Alabama 1-800-435-6563
 Michison, Kansas 1-800-837-024
 Jefferson, Ohio 1-800-268-7809

PROJECT/CUSTOMER: CITY OF NEW BEDFORD

DRAWN BY: V.V. | AT: SC1 | CHECKED BY: | DATE: 01/13/21 | REVISION:

DRAWING TYPE: APPROVAL/MFG DWG | DRAWING NUMBER: SPECIFICATIONS NEW BEDFORD | NEW-BEDFORD-LED-4

CUSTOMER ORDER No:
 STRESSCRETE ORDER No:
 MFG. ORDER No:
 KING U.S. ORDER No:

NOTE: TOO W. MEANWELL DRIVER DIALLED DOWN TO 40W



QUICK DISCONNECT LIGHT BULB

NTS



APPENDIX D

ORNAMENTAL STREET SIGN DETAIL



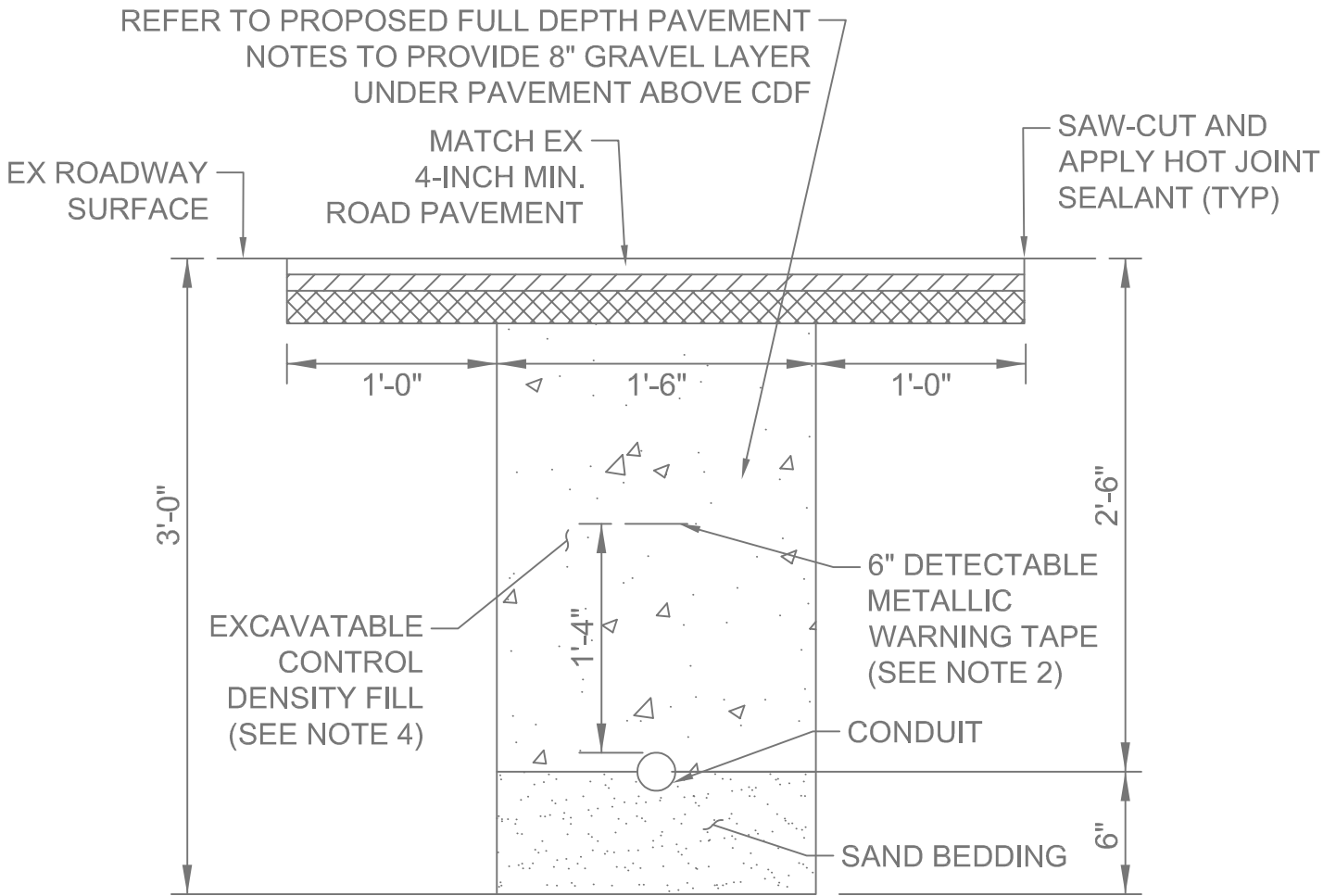
ORNAMENTAL STREET SIGN

NTS

- (A) ORNAMENTAL STREET SIGN WILL MATCH EXISTING SIGNAGE LOCATED AT THE INTERSECTION OF J.F.K. BOULEVARD AND UNION STREET IN KIND.
- (B) BLACK POWDER COATING WILL MATCH PROPOSED SIGNAL EQUIPMENT IN COLOR AND FINISH.

APPENDIX E

ELECTRICAL TRENCH DETAILS



NOTES:

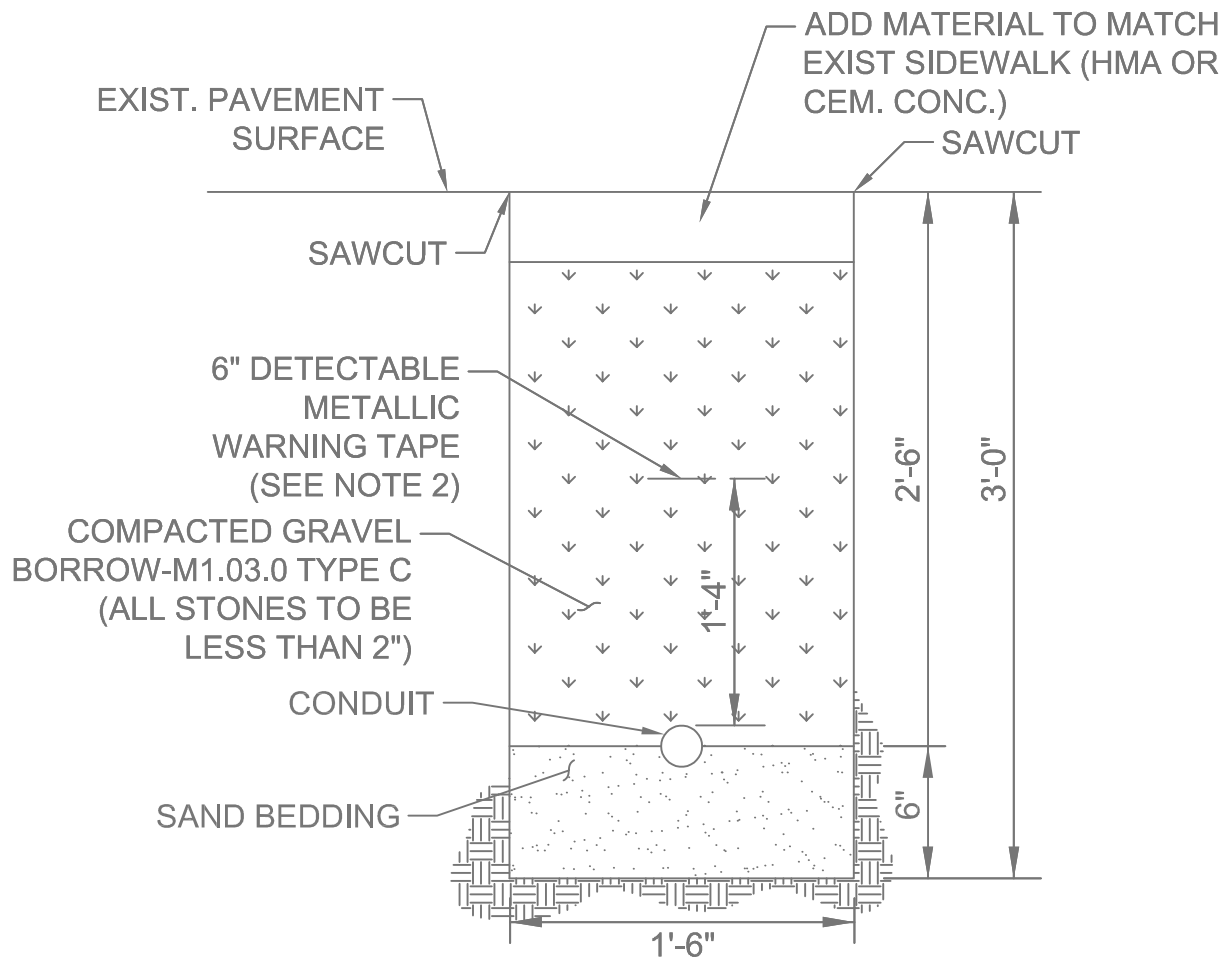
1. SCHEDULE 80 ELECTRICAL CONDUIT TYPE NM-PLASTIC (UL), WITH PULL ROPE, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
2. WARNING TAPE SHALL BE PER CURRENT APWA STANDARDS.
3. FOR DOUBLE CONDUIT INSTALLATIONS, SEPARATE CONDUIT BY 3". IN THE EVENT THAT A POWER CONDUIT IS ADJACENT TO A NON-POWER CONDUIT, SEPARATE BY 12".
4. CONTROL DENSITY FILL SHALL MEET THE REQUIREMENTS OF SUBSECTION M4.08.0.



CONDUIT CROSSING ROADWAY

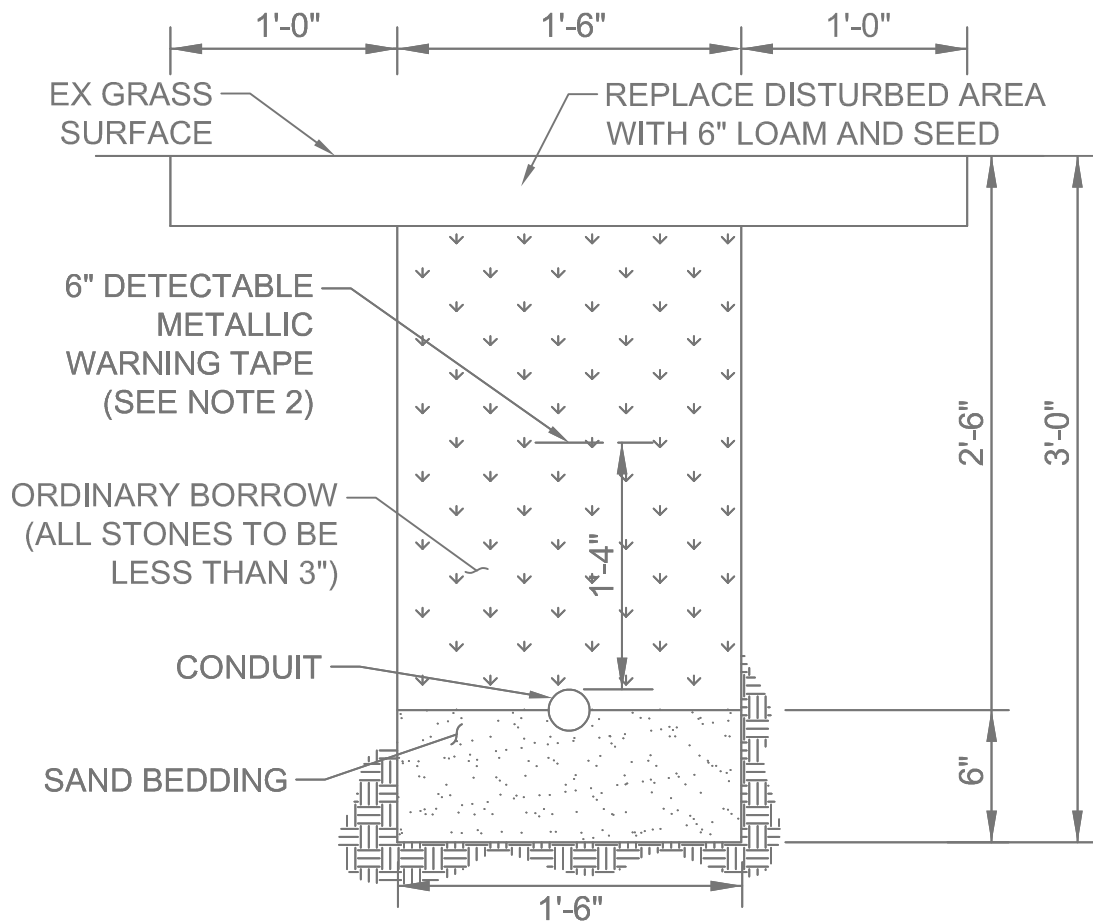
NTS





NOTES:

1. SCHEDULE 80 ELECTRICAL CONDUIT TYPE NM-PLASTIC (UL), WITH PULL ROPE, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
2. WARNING TAPE SHALL BE PER CURRENT APWA STANDARDS.
3. FOR DOUBLE CONDUIT INSTALLATIONS, SEPARATE CONDUIT BY 3". IN THE EVENT THAT A POWER CONDUIT IS ADJACENT TO A NON-POWER CONDUIT, SEPARATE BY 12".



NOTES:

1. SCHEDULE 80 ELECTRICAL CONDUIT TYPE NM-PLASTIC (UL), WITH PULL ROPE, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
2. WARNING TAPE SHALL BE PER CURRENT APWA STANDARDS.
3. FOR DOUBLE CONDUIT INSTALLATIONS, SEPARATE CONDUIT BY 3". IN THE EVENT THAT A POWER CONDUIT IS ADJACENT TO A NON-POWER CONDUIT, SEPARATE BY 12".