

COMMONWEALTH OF MASSACHUSETTS



CONTRACT DOCUMENTS
AND SPECIAL PROVISIONS

PROPOSAL NO.	608703-132187
P.V. =	\$22,102,000.00
PLANS	YES

FOR

**Federal Aid Project No. NHP(BRR-ON)/HIP(BR)-0034(029)X
Bridge Replacement, W-38-029 (2KV), ST 129 Lowell Street over I-93**

in the Town of

WILMINGTON

In accordance with the STANDARD SPECIFICATIONS
for HIGHWAYS and BRIDGES dated 2025

This Proposal to be opened and read:

TUESDAY, OCTOBER 21, 2025 at 2:00 P.M.

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DOCUMENT 00010

TABLE OF CONTENTS

DOCUMENT 00010	
TABLE OF CONTENTS	00010-1 through 2
DOCUMENT 00104	
NOTICE TO CONTRACTORS	00104- 1 through 4
DOCUMENT 00210	
REQUIREMENTS OF MASSACHUSETTS GENERAL LAWS CHAPTER 30 SECTION 39R; CHAPTER 30, SECTION 39O	00210-1 through 4
DOCUMENT 00331	
LOCUS MAP	00331-1 through 2
DOCUMENT 00439	
CONTRACTOR PROJECT EVALUATION FORM	00439-1 through 2
DOCUMENT 00440	
SUBCONTRACTOR PROJECT EVALUATION FORM	00440-1 through 2
DOCUMENT 00710	
GENERAL CONTRACT PROVISIONS.....	00710-1 through 2
DOCUMENT 00715	
SUPPLEMENTAL SPECIFICATIONS	00715-1 through 8
DOCUMENT 00719	
SPECIAL PROVISIONS FOR PARTICIPATION BY DISADVANTAGED BUSINESS ENTERPRISES	00719-1 through 18
DOCUMENT 00760	
REQUIRED CONTRACT PROVISIONS FOR FEDERAL-AID CONSTRUCTION CONTRACTS.....	00760-1 through 14
DOCUMENT 00811	
MONTHLY PRICE ADJUSTMENT FOR HOT MIX ASPHALT (HMA) MIXTURES.....	00811-1 through 2
DOCUMENT 00812	
MONTHLY PRICE ADJUSTMENT FOR DIESEL FUEL AND GASOLINE	00812-1 through 2
DOCUMENT 00813	
PRICE ADJUSTMENT FOR STRUCTURAL STEEL AND REINFORCING STEEL	00813-1 through 4
DOCUMENT 00814	
PRICE ADJUSTMENT FOR PORTLAND CEMENT CONCRETE MIXES	00814-1 through 2
DOCUMENT 00820	
THE COMMONWEALTH OF MASSACHUSETTS SUPPLEMENTAL EQUAL EMPLOYMENT OPPORTUNITY, NON-DISCRIMINATION AND AFFIRMATIVE ACTION PROGRAM	00820-1 through 6
DOCUMENT 00821	
ELECTRONIC REPORTING REQUIREMENTS CIVIL RIGHTS PROGRAM AND CERTIFIED PAYROLL	00821-1 through 2
DOCUMENT 00859	
CONTRACTOR/SUBCONTRACTOR CERTIFICATION FORM	00859-1 through 2

TABLE OF CONTENTS (Continued)

DOCUMENT 00860	
COMMONWEALTH OF MASSACHUSETTS PUBLIC EMPLOYMENT LAWS	00860-1 through 2
DOCUMENT 00861	
STATE PREVAILING WAGE RATES	00861-1 through 38
DOCUMENT 00870	
STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY	
CONSTRUCTION CONTRACT SPECIFICATIONS	00870-1 through 8
DOCUMENT 00880	
MINIMUM WAGES FOR FEDERAL AND FEDERALLY	
ASSISTED CONTRACTS.....	00880-1 through 28
DOCUMENT A00801	
SPECIAL PROVISIONS	A00801-1 through 166
DOCUMENT A00802	
DETAIL SHEETS.....	A00802-1 through 12
DOCUMENT A00803	
READING MUNICIPAL LIGHT DEPARTMENT	
ELECTRIC SERVICE REQUIREMENTS HANDBOOK.....	A00803-1 through 70
DOCUMENT A00804	
NATIONAL GRID CONSTRUCTION STANDARDS	A00804-1 through 16
DOCUMENT A00808	
PROJECT UTILITY COORDINATION FORM.....	A00808-1 through 8
DOCUMENT A00811	
WATERING LOG FOR MASSDOT PLANTINGS.....	A00811-1 through 2
DOCUMENT A00816	
RUMBLE STRIP DETAILS	A00816-1 through 2
DOCUMENT A00820	
REQUEST FOR RELEASE OF MASSDOT AUTOCAD FILES FORM.....	A00820-1 through 2
DOCUMENT A00870	
U.S. FISH AND WILDLIFE SERVICE	
NLAA CONCURRENCE VERIFICATION LETTER.....	A00870-1 through 16
DOCUMENT A00875	
POLICY DIRECTIVE P-22-001 AND POLICY DIRECTIVE P-22-002	A00875-1 through 8
DOCUMENT B00420	
PROPOSAL.....	B00420-1 through 18

*** END OF DOCUMENT ***

DOCUMENT 00104

**NOTICE TO CONTRACTORS**

Electronic proposals for the following project will be received through the internet using www.bidx.com until the date and time stated below and will be posted on www.bidx.com forthwith after the bid submission deadline. No paper copies of bids will be accepted. All Bidders must have a valid vendor code issued by MassDOT in order to bid on projects. Bidders need to apply for a Digital ID at least 14 days prior to a scheduled bid opening date with www.bidx.com.

TUESDAY, OCTOBER 21, 2025 at 2:00 P.M. **

WILMINGTON

**Federal Aid Project No. NHP(BRR-ON)/HIP(BR)-0034(029)X
Bridge Replacement, W-38-029 (2KV), ST 129 Lowell Street over I-93**

****Date Subject to Change**

PROJECT VALUE = \$22,102,000.00

Bidders must be pre-qualified by the Department in the BRIDGE - CONSTRUCTION category to bid on the above project. An award will not be made to a Contractor who is not pre-qualified by the Department prior to the opening of Proposals.

All prospective Bidders who intend to bid on this project must obtain "Request Proposal Form (R109)". The blank "Request Proposal Form (R109)" can be obtained at:
<https://www.mass.gov/prequalification-of-horizontal-construction-firms>.

All prospective Bidders must complete and e-mail an electronic copy of "Request Proposal Form (R109)" to the MassDOT Director of Prequalification for approval:
prequal.r109@dot.state.ma.us.

Proposal documents for official bidders are posted on www.bidx.com. Other interested parties may receive informational Contract Documents containing the Plans and Special Provisions, free of charge.

Bids will be considered, and the contract awarded in accordance with statutes governing such contracts in accordance with Massachusetts General Laws Chapter 30 § 39M.

The Project Bids File Attachments folder for proposals at www.bidx.com shall be used for submitting at the time of bid required information such as the Bid Bond required document, and other documents that may be requested in the proposal.

NOTICE TO CONTRACTORS (Continued)

All parties who wish to have access to information plans and specification must send a "Request for Informational Documents" to MassDOTBidDocuments@dot.state.ma.us.

A Proposal Guaranty in the amount of 5% of the value of the bid is required.

This project is subject to the schedule of prevailing wage rates as determined by the Commissioner of the Massachusetts Department of Labor and Workforce Development, and the Division of Occupational Safety, and the United States Department of Labor.

The Massachusetts Department of Transportation, in accordance with Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby affirmatively ensures that for any contract entered into pursuant to this advertisement, all bidders, including disadvantaged business enterprises, will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin in consideration for an Award.

This Proposal contains the "STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)". The goals and timetables applicable to this proposal for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all work, are contained in Appendices A and B-80 of the above specifications.

The Contractor (hereinafter includes consultants) will comply with the Acts and Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Federal Highway Administration (FHWA), as they may be amended from time to time, which are herein incorporated by reference and made a part of this Contract as contained in Appendices C and D of the above specifications.

NOTICE TO CONTRACTORS (Continued)**PRICE ADJUSTMENTS**

This Contract contains price adjustments for hot mix asphalt and Portland cement mixtures, diesel fuel, and gasoline. For reference the base prices are as follows: liquid asphalt \$625.00 per ton, Portland cement \$425.13 per ton, diesel fuel \$2.733 per gallon, and gasoline \$2.451 per gallon, and Steel Base Price Index 374.7. MassDOT posts the **Price Adjustments** on their Highway Division's website at

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

This Contract contains Price Adjustments for steel. See Document 00813 - PRICE ADJUSTMENT FOR STRUCTURAL STEEL AND REINFORCING STEEL for their application and base prices.

MassDOT projects are subject to the rules and regulations of the Architectural Access Board (521 CMR 1.00 et seq.)

Prospective bidders and interested parties can access this information and more via the internet at WWW.COMMBUYS.COM.

BY: Monica G. Tibbits-Nutt, Secretary and CEO, MassDOT
Jonathan L. Gulliver, Administrator, MassDOT Highway Division
SATURDAY, AUGUST 30, 2025

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DOCUMENT 00210

REQUIREMENTS OF MASSACHUSETTS GENERAL LAWS
CHAPTER 30, SECTION 39R;
CHAPTER 30, SECTION 39O

July 1, 1981, updated October 2016

M.G.L. c. 30, § 39R. Award of Contracts; Accounting Statements; Annual Financial Statements; Definitions.

(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 A1/2 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 A1/2 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:

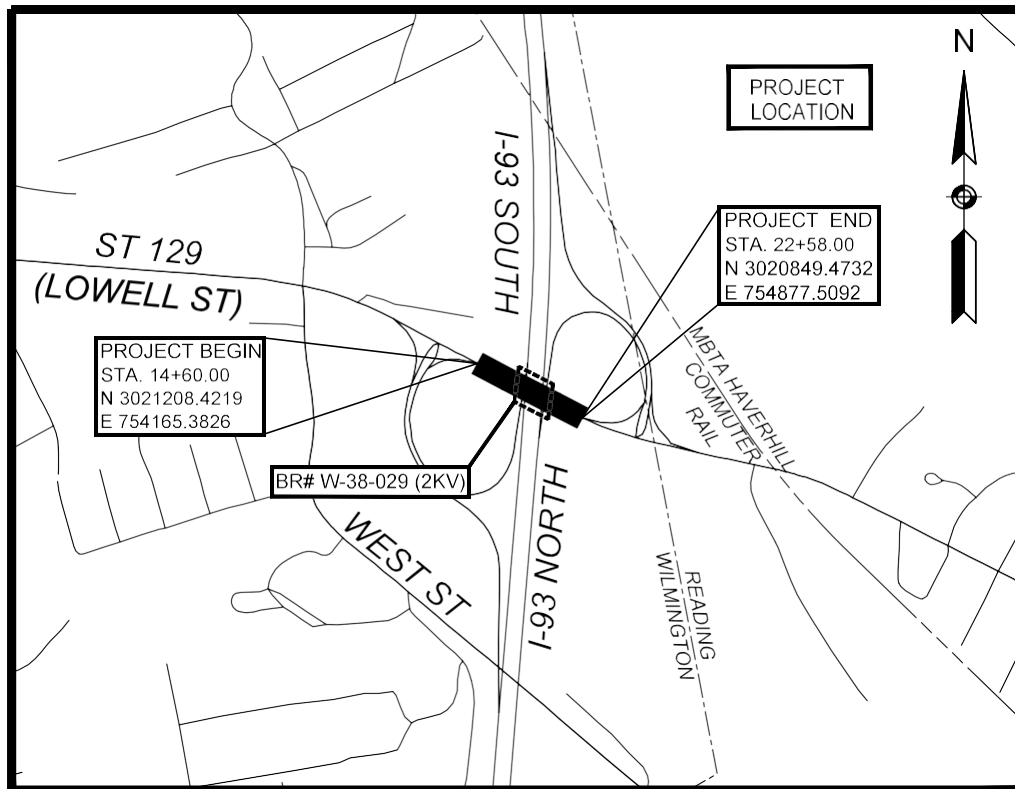
- (1) whether the representations of management in response to this paragraph and paragraph (b) above are consistent with the result of management's evaluation of the system of internal accounting controls; and
- (2) whether such representations of management are, in addition, reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the applicant's financial statements.

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DOCUMENT 00331

LOCUS MAP**WILMINGTON**

**Federal Aid Project No. NHP(BRR-ON)/HIP(BR)-0034(029)X
Bridge Replacement, W-38-029 (2KV), ST 129 Lowell Street over I-93**



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Final Report ☐Interim Report ☐**CONTRACTOR PROJECT EVALUATION FORM***For instructions on using this form, see Engineering Directive E-10-002, Dated 4/20/2010*

Date: _____

City/Town: _____

Contractor: _____

Project: _____

Address: _____

F.A. No. _____

Contract Number: _____

Bid Price: _____

Notice to Proceed: _____

Funds: State: _____ Fed Aid: _____

Current Contract Completion Date: _____

Date Work Started: _____

Date Work Completed*: _____

Contractor's Superintendent: _____

Division: (indicates class of work) Highway: _____ Bridge: _____ Maintenance: _____

*If work was NOT completed within specified time (including extensions) give reasons on following page.

	Excellent 10	Very Good 9	Average 8	7	Fair 6	5	Poor 4	% Rating
1. Workmanship								x 2=
2. Safety								x 2=
3. Schedule								x 1.5=
4. Home Office Support								x 1=
5. Subcontractors Performance								x 1=
6. Field Supervision/ Superintendent								x 1=
7. Contract Compliance								x 0.5=
8. Equipment								x 0.5=
9. Payment of Accounts								x 0.5=
(use back for additional comments)							Overall Rating:	

*(Give explanation of items 1 through 9 on the following page in numerical order if overall rating is below 80%. Use additional sheets if necessary.)*_____
District Construction Engineer's Signature/Date_____
Resident Engineer's Signature/Date_____
Contractor's Signature Acknowledging Report/DateContractor Requests Meeting with the District: No ☐Yes ☐

Date Meeting Held: _____

Contractor's Comments/Meeting Notes (extra sheets may be added to this form and noted here if needed): __________



DOCUMENT 00440

Final Report ☐Interim Report ☐**SUBCONTRACTOR PROJECT EVALUATION FORM***For instructions on using this form, see Engineering Directive E-10-002, Dated 4/20/2010*

Date: _____

City/Town: _____

Subcontractor: _____

Project: _____

Address: _____

F.A. No.: _____

Contract Number: _____

Prime Contractor _____

Current Contract Completion Date: _____

Date Work Started: _____

Date Work Completed*: _____

Subcontractor's Superintendent: _____

Type of Work Performed by Subcontractor: _____

*If work was NOT completed within specified time (including extensions) give reasons on following page.

	Excellent 10	Very Good 9	Average 8	7	Fair 6	5	Poor 4	% Rating
1. Workmanship								x 2=
2. Safety								x 2=
3. Schedule								x 1.5=
4. Home Office Support								x 1.5=
5. Field Supervision/ Superintendent								x 1=
6. Contract Compliance								x 1=
7. Equipment								x 0.5=
8. Payment of Accounts								x 0.5=
(use back for additional comments)							Overall Rating:	

(Give explanation of items 1 through 8 on the following page in numerical order if overall rating is below 80%. Use additional sheets if necessary.)

District Construction Engineer's Signature/Date _____

Resident Engineer's Signature/Date _____

Contractor Signature Acknowledging Report/Date _____

Subcontractor Signature Acknowledging Report/Date _____

Subcontractor Requests Meeting with the District: No ☐ Yes ☐ Date Meeting Held: _____

Subcontractor's Comments / Meeting Notes (extra sheets may be added to this form and noted here if needed): _____

Contractor's Comments: _____

SUBCONTRACTOR PROJECT EVALUATION FORM (Continued)

Date: _____ Contract Number: _____

INFORMATION FOR DISTRICT HIGHWAY DIRECTORS RELATING TO PREQUALIFICATION

A deduction shall be recommended for unsatisfactory performance if computed overall rating is under 80%.

A deduction may be recommended for this project being completed late due to the Contractor's fault.

RECOMMENDATIONS FOR DEDUCTIONS FROM CONTRACTORS' ASSIGNED FACTOR

(Write Yes or No in space provided)

I recommend a deduction for Contractor's unsatisfactory performance: _____

I recommend a deduction for project completed late: _____

Signed: _____
District Highway Director

EXPLANATION OF RATINGS 1 – 8: _____

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

WORK NOT COMPLETED WITHIN SPECIFIED TIME:

DOCUMENT 00710
GENERAL CONTRACT PROVISIONS
Revised: 04-16-25

NOTICE OF AVAILABILITY

The STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES dated 2025, the SUPPLEMENTAL SPECIFICATIONS, the 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS; the 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING and the CONSTRUCTION STANDARD DETAILS are available online at <https://www.mass.gov/massdot-highway-division-manuals-and-publications>

SPECIAL PROVISIONS FOR RIGHT-TO-KNOW ACT REQUIREMENTS

The Contractor's attention is directed to Massachusetts General Laws, Chapter 111F, commonly known as the Right-To-Know Act, and to the regulations promulgated pursuant thereto. Among the provisions of the Right-To-Know Act is a requirement that employers make available to employees Materials Safety Data Sheets (MSDS) for any substance on the Massachusetts Substance List (MSL) to which employees are, have been, or may be exposed.

To ensure prompt compliance with these regulations and legislation, the Contractor shall:

1. Deliver to the Department, prior to the start of any work under this contract, copies of MSDS for all MSL substances to be used, stored, processed or manufactured at the worksite by the Contractor.
2. Train employees of the Department, who may be exposed to MSL substances as a result of the Contractor's work under this contract, with regard to those specific substances in accordance with requirements of the Right-To-Know Act.
3. Observe all safety precautions recommended on the MSDS for any MSL substance to be used, stored, processed, or manufactured at the worksite by the Contractor.
4. Inform the Department in writing regarding specific protective equipment recommended in the MSDS for MSL substances to which employees of the Department may be exposed as a result of the Contractor's work under this contract.

The Department shall not be liable for any delay or suspension of work caused by the refusal of its employees to perform any work due to the Contractor's failure to comply with the Right-To-Know Act. The Contractor agrees to hold the Department or the Commissioner of the Department harmless and fully indemnified for any and all claims, demands, fines, actions, complaints, and causes of action resulting from or arising out of the Contractor's failure to comply with the requirements of the Right-To-Know Act.

ALTERNATIVE DISPUTE RESOLUTION

Forum, Choice of Law and Mediations:

Any actions arising out of a contract shall be governed by the laws of Massachusetts and shall be brought and maintained in a State or federal court in Massachusetts which shall have exclusive jurisdiction thereof. MassDOT and the Contractor may both agree to mediation of any claim and will share the costs of such mediation pro rata based on the number of parties involved.

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DOCUMENT 00715



SUPPLEMENTAL SPECIFICATIONS

JUNE 30, 2025

The 2025 *Standard Specifications for Highways and Bridges* are amended by the following modifications, additions and deletions. These Supplemental Specifications prevail over those published in the Standard Specifications.

The Specifications Committee has issued these Supplemental Specifications for inclusion into each proposal until such time as they are updated or incorporated into the next Standard Specifications.

Contractors are cautioned that these Supplemental Specifications are dated and will change as they are updated.

DIVISION I

GENERAL REQUIREMENTS AND COVENANTS

SECTION 2.00: PROPOSAL REQUIREMENTS AND CONDITIONS

Subsection 2.09: Rejection of Proposals

Replace the first bullet in the third paragraph with the following:

- award of the contract would result in the Bidder exceeding the Aggregate Bonding Capacity or the Single Bonding Capacity established by its Surety Company, or the Bidder's Proposal exceeds its Single Contract Limit, or the Bidder was not prequalified in the specified class of work on or before the time of bid opening; or

SECTION 7.00: LEGAL RELATIONS AND RESPONSIBILITY TO PPUBLIC

Subsection 7.05: Insurance Requirements

Change the title of paragraph A to Workers' Compensation Insurance

Subsection 7.22: Labor, Lodging, Board, Maximum Hours of Employment, Weekly Payment, Keeping of Payroll Records.

In the second paragraph replace the word "workman" to "worker" and the word "workmen" to "workers".

Replace the third paragraph with the following:

Attention of Bidders is called to MGL Chapter 149, Section 148 requiring the weekly payment of employee wages.

SECTION 9.00: MEASUREMENT AND PAYMENT

Subsection 9.03: Payment for Extra Work

Replace paragraph B., first paragraph, numbers (2) and (3) with the following.

- (2) Plus 13 percent of direct labor, for the estimated costs of Federal Insurance Contribution Act (FICA) including Medicare; Federal Unemployment Tax Act (FUTA); State Unemployment Tax Act (SUTA), which includes Unemployment Insurance, the Workforce Training Fund Program, Employer Medical Assistance Contribution, and COVID-19 Recovery Assessment; Earned Sick Time (EST) Law (940 CMR 33.00); and Paid Family and Medical Leave (PFML) Act (458 CMR 2.00); or, as an alternative to the above 13 percent, the Contractor may elect to use actual rates for FICA, FUTA, SUTA, EST and PFML provided the actual rates are supported with verifiable documentation and shall be subject to review by MassDOT Audit Operations.
- (3) Plus the estimated cost of Workers' Compensation and Liability Insurance, Health, Welfare and Pension benefits, and such additional fringe benefits which the Contractor is required to pay as a result of Union Labor Agreements and/or is required by authorized governmental agencies;

In paragraph B., second paragraph, number (3), replace the word "Workmen's" with "Workers".

DIVISION II
CONSTRUCTION DETAILS
SECTION 300: WATER SYSTEMS
SUBSECTION 301: WATER SYSTEMS

Subsection 301.60G: Laying Pipe

Revise the third paragraph to read as follows:

Pipe sections shall be laid with the bell on the upgrade end. Before laying the pipe, the outside of the spigot and the inside of the bell shall be wire brushed and wiped clean and dry.

Subsection 301.80: Method of Measurement

Delete the words cast iron in the first paragraph.

Replace the second paragraph with the following:

Fittings, consisting of bends, tees, caps, wyes, sleeves, reducers, increasers, blow-off fittings and other special fittings, apply only when new materials are necessary and which are not specifically provided for under other items in the Proposal. Fittings other than new will not be paid separately but only under the applicable pipe items. When new fittings are measured separately for payment, the length of pipe occupied by the fittings will not be measured for payment.

SECTION 800: TRAFFIC CONTROL DEVICES

**SUBSECTION 850: TRAFFIC CONTROLS FOR CONSTRUCTION AND MAINTENANCE
OPERATIONS**

Subsection 850.29: Temporary Barrier and Temporary Barrier Removed and Reset

Delete this subsection.

Subsection 850.49: Temporary Barrier

Delete this subsection.

Subsection 850.69: Temporary Barrier and Temporary Barrier Removed and Reset

Delete this subsection.

Subsection 850.80: Method of Measurement

Delete the fifth paragraph from the end of this subsection.

Subsection 850.81: Basis of Payment

Delete the sixth and seventh paragraphs from the end of this subsection.

SUBSECTION 853: TEMPORARY BARRIER

Subsection 853.: Temporary Barrier

Add this new subsection:

DESCRIPTION

853.20: General

Work under this Subsection consists of furnishing, placing, adjusting, resetting, maintaining, and removing temporary barrier.

MATERIALS

853.40: General

Materials shall meet the requirements specified in the following Subsections of Division III, Materials:

Material	Section
Precast, Prestressed, and Prefabricated Concrete Products	M4.09.0
Temporary Barrier	M10.16.0
Limited Deflection Temporary Barrier	M10.16.1
Delineators for Temporary Barrier	M10.16.2

The Contractor shall supply a temporary barrier system that meets or exceeds the Test Level (TL) designated in the description of the bid item.

If the Contractor uses a proprietary temporary barrier system, it shall be listed on the QTCE.

Temporary barrier segments that appear to be damaged or in otherwise unsuitable condition may be rejected or ordered to be replaced by the Engineer at no additional cost.

853.41: Deflection

The deflection of a temporary barrier system is defined as the measured deflection, permanent and/or dynamic, during MASH Test Designation 2-11 (for TL-2) or Test Designation 3-11 (for TL-3).

The Contractor shall supply a temporary barrier system that is equal to or less than the maximum allowable deflection (permanent and/or dynamic) for each run of temporary barrier, as shown in the Plans or stated in the Special Provisions. If no distinction between permanent and temporary deflection is shown in the plans or Special Provisions, then dynamic deflection shall govern.

853.42: Precast Concrete Barriers

Precast Concrete Barriers used as temporary barriers shall be fabricated in accordance with M4.09.0: Precast, Prestressed, and Prefabricated Concrete Products. The Contractor shall submit a Certificate of Compliance (CoC) attesting to meeting this requirement.

853.43: Delineation

Delineators installed at 20-ft intervals throughout the entire barrier run shall be included. The delineators shall conform to M10.16.2: Delineators for Temporary Barrier. Delineators that may act as a washer on a bolted connection shall not be used unless specifically allowed by the barrier manufacturer. Delineators that are damaged, are no longer reflective, or go missing while temporary barrier is deployed shall be replaced in kind by the Contractor.

Delineators may be top or side-mounted to the barrier and oriented in a manner to maximize reflectivity to approaching traffic.

Temporary barrier placed on the right side of the travel way, or top-mounted and separating two or more lanes traveling in the same direction, shall use white delineators. Temporary barrier placed on the left side of the travel way shall use amber or yellow delineators; if separating two-way traffic and top-mounted, the delineator shall be double-sided.

853.44: Anchored Barrier

Temporary barrier systems that include an anchor system in order to meet performance requirements of the contract and/or meet MASH testing requirements may be accepted for use at the discretion of the Department.

Barrier that utilizes an anchor system shall use the same pattern, placement, and material of anchors that was used in MASH crash testing.

853.45: Shop Drawings

Within 30 days of the Notice to Proceed, the Contractor shall provide Shop Drawings showing the proposed temporary barrier system and confirming that it conforms to 853.40: General and will meet the allowable deflection requirements as described in 853.41: Deflection.

If anchors are proposed, the means, methods, pattern, placement, and materials for anchoring and subsequent pavement and/or deck repairs following removal of the temporary barrier system shall be included in the Shop Drawing submittal. If the use of an anchor system is rejected by the Department, the Contractor shall select an unanchored system that meets or exceeds the contract specified performance requirements, at no additional cost.

Shop Drawings for proprietary barrier systems shall include manufacturer's instructions for installation.

CONSTRUCTION METHODS**853.60: General**

A Traffic Management Plan approved by the Department is required prior to the installation of the temporary barrier system.

The Contractor shall install temporary barrier systems in accordance with the Plans.

Barrier ends shall not be exposed to approaching traffic during installation. Crashworthy shielding or attenuation shall be provided at all times.

Proprietary temporary barrier systems shall be installed per the manufacturer's instructions.

The Contractor shall not place any breaks in the temporary barrier system that will result in sections that are shorter than the tested minimum length-of-need (LON) under MASH Test 2-11 (for TL-2) or 3-11 (for TL-3). Exceptions shall be allowed for gate systems or changeable length segments placed over expansion joints, if those barrier segment types have been determined to be crashworthy per MASH.

Temporary barrier shall not be placed on unpaved surfaces, unless otherwise shown in the Plans.

The Contractor shall not store materials, vehicles, or other equipment within the measured dynamic deflection envelope, as defined in 853.41: Deflection.

853.61: Temporary Barrier Removed and Reset

Temporary Barrier Removed and Reset consists of relocating a string of temporary barrier from one alignment to another to support the sequence and phasing of construction, as shown in the Plans.

Temporary Barrier Removed and Reset does not include moving all or a portion of the temporary barrier system to gain access to a work area, for the convenience of the Contractor, or to realign units that have moved due to construction activities or a traffic incident.

853.62: Quality Control Inspection

After temporary barrier installation is completed, the Contractor shall perform a Quality Control (QC) Inspection in the presence of the Engineer. QC Inspection activities shall include, but are not limited to the following reviews:

- Installation location per the approved Plans.
- Alignment and connection mechanism between adjacent barrier segments.
- Alignment and connection mechanism between barrier segment and attenuator, if present.
- Anchor system installation, if present.

For proprietary barrier systems, the QC Inspection shall also include any manufacturer-specific inspection details or criteria found in the installation instructions.

Work behind the barrier shall not commence until the QC Inspection has been accepted by the Engineer.

COMPENSATION

853.80: Method of Measurement

Temporary Barrier will be measured by the foot installed, in place.

Temporary Barrier Removed and Reset will be measured by the foot removed and reset.

853.81: Basis of Payment

Temporary Barrier will be paid for at the contract unit price per foot which shall provide full compensation for fabrication, storage, transport, furnishment, installation, delineation, alignment, maintenance, repair, and final removal of the temporary barrier.

Temporary Barrier Removed and Reset will be paid for at the contract unit price per foot which shall provide full compensation for removing, relocating, transporting, and installing new anchorage (if used). If more than one accepted temporary barrier system is approved for use in a single contract, the unit cost for Temporary Barrier Removed and Reset shall not differ among systems.

All costs associated with fabrication, installation, and maintenance of temporary barrier delineators shall be considered incidental to the cost of the item.

All costs associated with Shop Drawings and COCs shall be considered incidental to the item.

All costs associated with patching or repairing the road surface or bridge deck due to the installation and removal of temporary barrier and/or anchors for a temporary barrier system shall be considered incidental to the cost of the item.

853.82: Payment Items

Item number	Description	Unit
853.2	Temporary Barrier (TL-2)	Foot
853.21	Temporary Barrier Removed and Reset	Foot
853.23	Temporary Barrier (TL-3)	Foot
853.33	Temporary Barrier – Limited Deflection (TL-3)	Foot

SECTION 900: STRUCTURES

SUBSECTION 902: ULTA HIGH PERFORMANCE CONCRETE

Subsection 902.32: Mockup

In Table 902.32-1 change the Link Slab width to 2 ft – 0 in. and change the Joint Header width to 0 ft – 6 in.

Subsection 902.32: - 902.38

Renumber section 902.32 Surface Preparation to 902.33 Surface Preparation and renumber section 902.33 through 902.38 to 902.34 through 902.39.

DIVISION III

MATERIALS SPECIFICATIONS

SECTION M2: AGGREGATES AND RELATED MATERIALS

Subsection M2.01.0 Crushed Stone

Replace the fourth paragraph and the associated asterisk notes with the following;

The crushed stone shall have a maximum 45% wear as determined by the Los Angeles Abrasion Test (AASHTO T 96)

SECTION M5: PIPE, CULVERT SECTIONS AND CONDUIT

Subsection M5.01.0 Joint Materials for Pipe

Replace this subsection with the following:

- Jute or oakum furnished for use in pipe joints shall be of an accepted grade approved for common usage.
- Mortar shall conform to the requirements of M4.04.0: Cementitious Grout, Mortar and Concrete Products
- Standard couplers as approved by the manufacturer shall be used to join corrugated metal pipe
- Rubber ring or plastic gaskets for concrete pipe joints, or manholes section joints shall be of tough, flexible, chemical-resistant material, and of such size and shape as to ensure satisfactory pipe joints when incorporated in the work and shall conform to AWWA C153.
- Rubber gasket joints for ductile iron pipe shall be Styrene-Butadiene Rubber (SBR), Ethylene Propylene Diene Monomer (EPDM) or Nitrile and conform to AWWA C111

Subsection M5.05.03.B Gate Valves

Replace this subsection with the following:

Gate valves shall conform to the requirements of AWWA Standard C500 and/or to the type used by the municipality as specified in the Special Provisions.

SECTION M7: PAINTS, PROTECTIVE COATINGS AND PAVEMENT MARKINGS

Subsection M7.01.04 Fast Drying White and Yellow Waterborne Traffic Paint

Replace the subsection with the following:

Approved waterborne traffic paint shall be tested in accordance with AASHTO M 348 and be listed on the QCML. The dry paint film shall be under the Toxicity Characteristic Leaching Procedure (TCLP) limits for all contaminants listed in 40 CFR 261.24. The markings shall be installed using reflective glass beads meeting the requirements of M7.01.07. For waterborne yellow paint use Organic Yellow No. 65 or No. 75 pigment.

SECTION M9: MISCELLANEOUS MATERIALS

Subsection M9.12.0 Reflectors for Barriers

Delete this subsection.

SECTION M10: TRAFFIC CONTROL DEVICES

Subsection M10.16.0: Temporary Barrier

Subsection M10.16.1: Limited Deflection Temporary Barrier

Subsection M10.16.2: Delineators for Temporary Barrier

Add these new subsections.

DOCUMENT 00719

(Revised September 14, 2023 – for all Federally Aided Projects)

**SPECIAL PROVISIONS FOR PARTICIPATION BY
DISADVANTAGED BUSINESS ENTERPRISES**
(IMPLEMENTING TITLE 49 OF THE CODE OF FEDERAL REGULATIONS, PART 26)

Section:

Page 00719-

POLICY	2
1. DEFINITIONS.....	3
2. DBE PARTICIPATION	5
a. Goal	5
b. Bidders List.....	5
3. CONTRACTOR ASSURANCES	6
4. REQUIRED SUBCONTRACT PROVISIONS	6
5. ELIGIBILITY OF DBES	6
a. Massachusetts DBE Directory	6
b. DBE Certification	6
c. Joint Venture Approval	7
6. COUNTING DBE PARTICIPATION TOWARDS DBE PARTICIPATION GOALS.....	7
a. Commercially Useful Function	7
b. Counting Participation Toward The Contract Participation Goal.....	7
c. Joint Check Policy.....	9
d. Joint Check Procedure(s)	10
7. AWARD DOCUMENTATION AND PROCEDURES	11
8. COMPLIANCE	13
9. SANCTIONS.....	16
10. FURTHER INFORMATION; ENFORCEMENT, COOPERATION AND CONFIDENTIALITY	16
11. LIST OF ADDITIONAL DOCUMENTS	18

POLICY

The Massachusetts Department of Transportation (MassDOT) receives Federal financial assistance from the Federal Highway Administration (FHWA), United States Department of Transportation (U.S. DOT), and as a condition of receiving this assistance, has signed an assurance that it will comply with 49 CFR Part 26 (Participation By Disadvantaged Business Enterprises In Department Of Transportation Financial Assistance Programs). The U.S. DOT Disadvantaged Business Enterprise Program is authorized by the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (“SAFETEA-LU”), as amended, at Title 23, United States Code, § 1101.

Accordingly, MassDOT has established a Disadvantaged Business Enterprise (DBE) Program in accordance with 49 CFR Part 26. It is the policy of MassDOT to ensure that DBEs have an equal opportunity to receive and participate in U.S. DOT assisted Contracts, without regard to race, color, national origin, or sex. To this end, MassDOT shall not directly, or through contractual or other arrangements, use criteria or methods of administration that have the effect of defeating or substantially impairing accomplishment of the program objectives stated below:

- ◆ To ensure nondiscrimination in the award and administration of U.S. DOT assisted Contracts;
- ◆ To create a level playing field on which DBEs can compete fairly for U.S. DOT assisted Contracts;
- ◆ To ensure that the DBE Program is narrowly tailored in accordance with applicable law;
- ◆ To ensure that only firms that fully meet 49 CFR Part 26 eligibility standards are permitted to participate as DBEs;
- ◆ To help remove barriers to the participation of DBEs in U.S. DOT assisted Contracts; and
- ◆ To assist the development of firms that can compete successfully in the market place outside the DBE Program.

The Director of Civil Rights of MassDOT has been designated as the DBE Liaison Officer. The DBE Liaison Officer is responsible for implementing all aspects of the DBE Program. Other MassDOT employees are responsible for assisting the Office of Civil Rights in carrying out this obligation. Implementation of the DBE Program is accorded the same priority as compliance with all other legal obligations incurred by MassDOT in its financial assistance agreements with each operating administration of the U.S. DOT. Information on the Federal requirements and MassDOT’s policies and information can be found at:

<i>Type of Info</i>	<i>Website</i>	<i>Description</i>
MassDOT Highway Division Policies and Info	https://www.mass.gov/disadvantaged-business-enterprise-goals-2019-2022	MassDOT– Highway Div’n Page
For copies of the Code of Federal Regulations	http://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR	FDsys – US Gov’t Printing Office
For information about the U.S.DOT DBE Program	https://www.transportation.gov/civil-rights/disadvantaged-business-enterprise	U.S. DOT/ FHWA page

1. DEFINITIONS

As used in these provisions, the terms set out below are defined as follows:

“Broker”, for purposes of these provisions, shall mean a DBE Entity that has entered into a legally binding relationship to provide goods or services delivered or performed by a third party. A broker may be a DBE Entity that arranges or expedites transactions but performs no work or installation services.

“Contractor”, “General” or “Prime” Contractor, “Bidder,” and “DB Entity” shall mean a person, firm, or other entity that has contracted directly with MassDOT to provide contracted work or services.

“Contract” shall mean the Contract for work between the Contractor and MassDOT.

“DBB” or “Design-Bid-Build” shall mean the traditional design, bid and project delivery method consisting of separate contracts between awarding authority and a designer resulting in a fully designed project; and a separate bidding process and Contract with a construction Contractor or Bidder.

“DB” or “Design-Build” shall mean an accelerated design, bid and project delivery method consisting of a single contract between the awarding authority and a DB Entity, consisting of design and construction companies that will bring a project to full design and construction.

“Disadvantaged Business Enterprise” or “DBE” shall mean a for-profit, small business concern:

- (a) that is at least fifty-one (51%) percent owned by one or more individuals who are both socially and economically disadvantaged, or, in the case of any corporation, in which at least fifty-one (51%) percent of the stock is owned by one or more such individuals; and
- (b) where the management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.

“FHWA” shall mean the Federal Highway Administration,” an agency within U.S. DOT that supports State and local governments in the design, and maintenance of the Nation’s highway system (Federal Aid Highway Program).

“Good faith efforts” shall mean efforts to achieve a DBE participation goal or other requirement of these Special Provisions that, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement. Such efforts must be deemed acceptable by MassDOT.

“Joint Venture” shall mean an association of a DBE firm and one or more other firms to carry out a single, for-profit business enterprise, for which the parties combine their property, capital, efforts, skills and knowledge, and in which the DBE is responsible for a distinct, clearly defined portion of the work of the Contract and whose share in the capital contribution, control, management, risks, and profits of the joint venture are commensurate with its ownership interest.

“Approved Joint Venture” shall mean a joint venture, as defined above, which has been approved by MassDOT’s Prequalification Office and Office of Civil Rights for DBE participation on a particular Contract.

"Manufacturer" shall mean a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles or equipment required under the contract and of the general character described by the specifications.

"Regular Dealer" shall mean a DBE firm that owns, operates, or maintains a store, warehouse, or other establishment in which materials, supplies, articles or equipment of the general character described by the specifications and required under the Contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business.

- (a) To be a regular dealer, the firm must be an established, regular business that engages, as its principal business, and under its own name, in the purchase and sale of the products in question.
- (b) A person may be a regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating, or maintaining a place of business as provided above if the person both owns and operates distribution equipment for the products. Any supplementing of regular dealers' own distribution equipment shall be by long term lease agreement and not on an ad hoc or contract by contract basis.
- (c) Packagers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions are not regular dealers within the meaning of this definition.

"Responsive" and "Responsible" refers to the bidder's submittal meeting all of the requirements of the advertised request for proposal. The term responsible refers to the ability of the Contractor to perform the work. This ability can be determined prior to bid invitations.

"Small Business or Small Business Concern" shall mean a small business concern or company as defined in Section 3 of the Small Business Act and SBA regulations implementing it (13 CFR Part 121); and is a business that does not exceed the cap on annual average gross receipts established by the U.S. Secretary of Transportation pursuant to 49 CFR Part 26.65; see also 49 CFR Part 26.39.

"SDO" shall mean the Massachusetts Supplier Diversity Office, formerly known as the State Office of Minority and Women Business Assistance (SOMWBA). In 2010, SOMWBA was abolished and the SDO was established. See St. 2010, c. 56. The SDO has assumed all the functions of SOWMBA. SDO is an agency within the Commonwealth of Massachusetts Executive office of Administration and Finance (ANF) Operational Services Division (OSD). The SDO mandate is to help promote the development of business enterprises and non-profit organizations owned and operated by minorities and women.

"Socially and economically disadvantaged individuals" shall mean individuals who are citizens of the United States (or lawfully admitted permanent residents) and who are:

- (a) Individuals found by SDO to be socially and economically disadvantaged individuals on a case by case basis.
- (b) Individuals in the following groups, members of which are rebuttably presumed to be socially and economically disadvantaged:

- (1) "Black Americans" which includes persons having origin in any of the Black racial groups of Africa; (2) "Hispanic Americans" which include persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race; (3) "Native Americans" which include persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians; (4) "Asian Pacific Americans" which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands (Republic of Palau), the Commonwealth of the Northern Marianas Islands, Macao, Fiji, Tonga, Kiribati, Tuvalu, Nauru, Federated States of Micronesia, or Hong Kong; (5) "Subcontinent Asian Americans" which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka; (6) Women; or (7) Any additional groups whose members are designated as socially and economically disadvantaged by the Small Business Administration (SBA), at such time as the SBA designation becomes effective.

Other terms and definitions applicable to the U.S. DOT DBE Program may be found at 49 CFR Part 26 and related appendices and guidance pages.

2. DBE PARTICIPATION

a. Goal

On this Contract, MassDOT has established the following goal(s) for participation by firms owned and controlled by socially and economically disadvantaged persons. At least half of the goal must be met in the form of DBE Subcontractor construction activity as opposed to material supplies or other services. The applicable goal remains in effect throughout the life of the contract regardless of whether pre-identified DBE Subcontractors remain on the Project or under Contract.

☒ Design-Bid-Build Projects: DBE Participation Goal 0 %
(One half of this goal shall be met in the form of Subcontractor construction activity)

☐ Design-Build Projects: DBE Design Participation Goal % and DBE Construction Participation Goal %
(One half of the Construction Goal shall be met in the form of Subcontractor construction activity)

b. Bidders List

Pursuant to the provisions of 49 CFR Part 26.11(c), Recipients such as MassDOT, must collect from all Bidders who seek work on Federally assisted Contracts the firm full company name(s), addresses and telephone numbers of all firms that have submitted bids or quotes to the Bidders in connection with this Project. All bidders should refer to the Special Provision Document "A00801" of the Project proposal for this requirement.

In addition, MassDOT must provide to U.S. DOT, information concerning contractors firm status as a DBE or non-DBE, the age of the firm, and the annual gross receipts of the firm within a series of brackets (e.g., less than \$500,000; \$500,000–\$1 million; \$1–2 million; \$2–5 million, etc.). The status, firm age, and annual gross receipt information will be sought by MassDOT regularly prior to setting its DBE participation goal for submission to U.S. DOT. MassDOT will survey each individual firm for this information directly.

Failure to comply with a written request for this information within fifteen (15) business days may result in the suspension of bidding privileges or other such sanctions, as provided for in Section 9 of this provision, until the information is received.

3. CONTRACTOR ASSURANCES

No Contractor or any Subcontractor shall discriminate on the basis of race color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in all respects and as applicable prior to, or subsequent to, award of U.S. DOT assisted Contracts. The Contractor agrees to affirmatively seek out and consider DBE firms as Contractors, Subcontractors, and/or suppliers of materials and services for this Contract. No Contract will be approved until MassDOT has reviewed Bidders'/Contractors' affirmative actions concerning DBEs. Failure to carry out these requirements is a material breach of this Contract which may result in the termination of the Contract or such other remedy as MassDOT or FHWA deem appropriate.

4. REQUIRED SUBCONTRACT PROVISIONS

The Prime Contractor shall include the provisions of Section 3 above in every subcontract, making those provisions binding on each Subcontractor; in addition, the Prime Contractor shall include a copy of this Special Provision, in its entirety, in every subcontract with a DBE firm which is, or may be, submitted for credit toward the Contract participation goal.

5. ELIGIBILITY OF DBES

Only firms that have been certified by SDO and confirmed by MassDOT as eligible in accordance with 49 CFR Part 26 to participate as DBEs on federally aided MassDOT Contracts may be used on this Contract for credit toward the DBE participation goal.

a. Massachusetts DBE Directory

MassDOT makes available to all bidders the most current Massachusetts Disadvantaged Business Enterprise Directory. This directory is made available for Contractors' convenience and is informational only. The Directory lists those firms that have been certified as eligible in accordance with the criteria of 49 CFR Part 26 to participate as DBEs on federally aided MassDOT contracts. The Directory also lists the kinds of work each firm is certified to perform but does not constitute an endorsement of the quality of performance of any business and does not represent MassDOT Subcontractor approval.

Contractors are encouraged to make use of the DBE Directory maintained by SDO on the Internet.

This listing is updated daily and may be accessed at the SDO's website at:

<https://www.diversitycertification.mass.gov/BusinessDirectory/BusinessDirectorySearch.aspx>

b. DBE Certification

A firm must apply to SDO, currently acting as certification agent for MassDOT, for DBE certification to participate on federally aided MassDOT Contracts. A DBE application may be made in conjunction with a firm's application to SDO for certification to participate in state-funded minority and women business enterprise programs or may be for DBE certification only. An applicant for DBE certification must identify the area(s) of work it seeks to perform on U.S. DOT funded projects.

c. Joint Venture Approval

To obtain recognition as an approved DBE Joint Venture, the parties to the joint venture must provide to MassDOT's Office of Civil Rights and Prequalification Office, at least fourteen (14) business days before the bid opening date, an Affidavit of DBE/Non-DBE Joint Venture in the form attached hereto, and including, but not limited to the following:

1. a copy of the Joint Venture Agreement;
2. a description of the distinct, clearly defined portion of the contract work that the DBE will perform with its own forces; and,
3. all such additional information as may be requested by MassDOT for the purpose of determining whether the joint venture is eligible.

6. COUNTING DBE PARTICIPATION TOWARDS DBE PARTICIPATION GOALS

In order for DBE participation to count toward the Contract participation goal, the DBE(s) must have served a commercially useful function in the performance of the Contract and must have been paid in full for acceptable performance.

a. Commercially Useful Function

- (1) In general, a DBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. With respect to materials and supplies used on the Contract, the DBE must be responsible for negotiating price, determining quality and quantity, ordering the material, installing (where applicable) and paying for the material itself.
- (2) To determine whether a DBE is performing a commercially useful function, MassDOT will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the Contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work, and other relevant factors.
- (3) A DBE does not perform a commercially useful function if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of DBE participation. In determining whether a DBE is such an extra participant, MassDOT will examine similar transactions, particularly those in which DBEs do not participate.

b. Counting Participation Toward The Contract Participation Goal

DBE participation which serves a commercially useful function shall be counted toward the DBE participation goal in accordance with the Provisions of 49 CFR Part 26.55(a) to (h), as follows:

- (1) When a DBE participates in a construction Contract, MassDOT will count the value of the work performed by the DBE's own forces. MassDOT will count the cost of supplies and materials obtained by the DBE for the work of its contract, including supplies purchased or equipment leased by the DBE. Supplies, labor, or equipment the DBE Subcontractor uses, purchases, or leases from the Prime Contractor or any affiliate of the Prime Contractor will not be counted.

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- (2) MassDOT will count the entire amount of fees or commissions charged by a DBE firm for providing bona fide services, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a U.S. DOT assisted Contract, toward DBE participation goals, provided it is determined that the fee is reasonable and not excessive as compared with fees customarily allowed for similar services.
 - (3) When a DBE performs as a participant in a joint venture, MassDOT will count toward DBE participation goals a portion of the total dollar value of the contract that is equal to the distinct, clearly defined portion of the work of the Contract that the DBE performs with its own forces.
 - (4) MassDOT will use the following factors in determining whether a DBE trucking company is performing a commercially useful function:
 - (i) the DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract; there cannot be a contrived arrangement for the purpose of meeting DBE participation goals.
 - (ii) the DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the Contract.
 - (iii) the Contractor will receive DBE credit for the total value of the transportation services the DBE provides on the Contract using trucks owned, insured, and operated by the DBE itself and using drivers the DBE employs alone.
 - (iv) the DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The Contractor who has a contract with a DBE who leases trucks from another DBE will receive credit for the total value of the transportation services of the lease.
 - (v) the DBE may also lease trucks from a non-DBE firm, including an owner-operator. The Contractor who has a Contract with a DBE who leases trucks from a non-DBE is entitled to credit for the total value of the transportation services provided by non-DBE lessees not to exceed the value of transportation services provided by DBE-owned trucks on the Contract. Additional participation by non-DBE lessees receives credit only for the fee or commission it receives as a result of the lease arrangement, fee or commission it receives as a result of the lease arrangement. The DBE does not receive credit for the total value of the transportation services provided by the lessee, since these services are not provided by a DBE.
 - (vi) the lease must indicate that the DBE has exclusive use of, and control over, the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE.
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- (5) MassDOT will count the Prime Contractor's expenditures with DBEs for materials or supplies toward DBE participation goals as follows:
- (i) if the materials or supplies are obtained from a DBE manufacturer, as defined in Section 1 above, MassDOT will count one hundred (100%) percent of the cost of the materials or supplies toward DBE participation goals, provided the DBE meets the other requirements of the regulations.
 - (ii) if the materials or supplies are purchased from a DBE regular dealer, as defined in Section 1 above, MassDOT will count sixty (60%) percent of the cost of the materials or supplies toward the Contract participation goal, provided the DBE meets the other requirements of the regulations.
 - (iii) for materials or supplies purchased from a DBE which is neither a manufacturer nor a regular dealer, MassDOT will count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site toward the Contract participation goal, provided that MassDOT determines the fees to be reasonable and not excessive as compared with fees customarily allowed for similar services; the cost of the materials and supplies themselves will not be counted; and provided the DBE meets the other requirements of the regulations.

c. Joint Check Policy

MassDOT recognizes that the use of joint checks may be a business practice required by material suppliers and vendors in the construction industry. A joint check is a two-party check issued by a/the Prime Contractor to a DBE third party such as a regular dealer of material or supplies. The Prime Contractor issues the check as payor to the DBE and the third party jointly as payees to guarantee payment to the third party for materials or supplies obtained or to be used by the DBE. FHWA has established criteria to ensure that DBEs are in fact performing a commercially useful function ("CUF") while using a joint check arrangement. Contractors and DBEs must meet and conform to these conditions and criteria governing the use of joint checks.

In the event that a Contractor or DBE Subcontractor desires to use a joint check, MassDOT will require prior notice and will closely monitor the arrangement for compliance with FHWA regulations and guidance. MassDOT may allow a joint check arrangement and give credit to a Contractor for use of the DBE where one or more of the following conditions exist:

- The use of a joint check is in fact required by this type of vendor or supplier as a standard industry practice that applies to all Contractors (DBEs and non-DBEs); or is required by a specific vendor or supplier;
- Payment for supplies or materials would be delayed for an unreasonably extended period without the joint check arrangement;
- The DBE (or any of its Subcontractors) has a pattern or history of not paying a vendor or supplier within a reasonable time or has not established enough of a credit history with the supplier or vendor; and/or
- The presence of severe adverse economic conditions, where credit resources may be limited and such practices may be necessary or required to effect timely payments.

Other factors MassDOT may consider:

- Whether there is a requirement by the Prime Contractor that a DBE should use a specific vendor or supplier to meet their Subcontractor specifications;
- Whether there is a requirement that a DBE use the Prime Contractor's negotiated price;
- The independence of the DBE;
- Whether approval has been sought prior to use of a joint check arrangement; and
- Whether any approved joint check arrangement has exceeded a reasonable period of use;
- The operation of the joint check arrangement; and
- Whether the DBE has made an effort to establish alternate arrangements for following periods (i.e., the DBE must show it can, or has, or why it has not, established or increased a credit line with the vendor or supplier).

Even with the use of a Joint Check, both the Contractor and DBE remain responsible for compliance with all other elements under 49 CFR § 26.55 (c) (1), and must still be able to prove that a commercially useful function is being performed for the Contractor.

d. Joint Check Procedure(s)

- The DBE advises its General or Prime Contractor that it will have to use a Joint Check and provide proof of such requirement.
- The General or the Prime Contractor submits a request for approval to MassDOT, using MassDOT's approved Joint Check Request form (Document B00855) and by notification on the DBE Letter of Intent (Document B00854), and any other relevant documents. Requests that are not initiated during the bid process should be made in writing and comply with the procedure.
- The MassDOT Office of Civil Rights will review the request and render a decision as part of the approval process for DBE Schedules and Letters of Intent.
- Review and Approval will be project specific and relevant documents will be made part of the project Contract file.
- Payments should be made in the name of both the DBE and vendor or supplier. Payments should be issued and signed by the Contractor as only the guarantor for prompt payment of purchases to the vendor or supplier. The payment to the vendor or supplier should be handled by the DBE (i.e. if possible, funds or the joint check should be processed by the DBE and sent by the DBE to the vendor or supplier).
- MassDOT may request copies of cancelled checks (front and back) and transmittal information to verify any payments made to the DBE and vendor or supplier.
- MassDOT may request other information and documents, and may ask questions of the Contractor, Subcontractor and vendor or supplier prior to, during, and after the project performance to ascertain whether the Subcontractor is performing a commercially useful function and all parties are complying with DBE Program policies and procedures as part of the Subcontractor approval process.

7. AWARD DOCUMENTATION AND PROCEDURES

- a. The two lowest bidders/the two bidders with the lowest price per quality score point, shall submit, by the close of business on the third (3rd) business day after the bid opening, a completed Schedule of Participation by DBEs (Document B00853) which shall list:
- (1) The full company name, address and telephone number of each DBE with whom the bidder intends to make a commitment.
 - (2) The contract item(s), by number(s) and quantity(ies), if applicable, or specific description of other business activity to be performed by each DBE as set forth in the Letters of Intent. The Bidder shall list only firms which have the capacity to perform, manage and supervise the work proposed in accordance with the requirements of 49 CFR Part 26 and Section **6.b** of these Special Provisions.
 - (3) The total dollar amount to be paid to each DBE. (Bidders are cautioned that at least one half of the participation goal must be met with construction activity work.)
 - (4) The total dollar amount to be paid to each DBE that is eligible for credit toward the DBE participation goal under the counting rules set out in Section **6.b**.
 - (5) The total creditable DBE participation as a percentage of the total bid price.
- b. All firms listed on the Schedule must be currently certified.
- c. The two lowest bidders/the two bidders with the lowest price per quality score point, shall each submit, with their Schedules of Participation, fully completed, signed Letters of Intent (Document B00854) from each of the DBEs listed on the Schedule. The Letters of Intent shall be in the form attached and shall identify specifically the contract activity the DBE proposes to perform, expressed as contract item number, if applicable, description of the activity, NAICS code, quantity, unit price and total price. In the event of discrepancy between the Schedule and the Letter of Intent, the Letter of Intent shall govern.
- d. Evidence of good faith efforts will be evaluated by MassDOT in the selection of the lowest responsible bidder.

All information requested by MassDOT for the purpose of evaluating the Contractor's efforts to achieve the participation goal must be provided within three (3) calendar days and must be accurate and complete in every detail. The apparent low bidder's attainment of the DBE participation goal or a satisfactory demonstration of good faith efforts is a prerequisite for award of the Contract.

- e. Failure to meet, or to demonstrate good faith efforts to meet, the requirements of these Special Provisions shall render a bid non-responsive. Therefore, in order to be eligible for award, the bidder (1) must list all DBE's it plans to employ on the Schedule of Participation; and provide the required Letters of Intent for, DBE participation which meets or exceeds the Contract goal in accordance with the terms of these Special Provisions or (2) must demonstrate, to the satisfaction of MassDOT, that good faith efforts were made to achieve the participation goal. MassDOT will adhere to the guidance provided in Appendix A to 49 CFR Part 26 on the determination of a Contractor's good faith efforts to meet the DBE participation goal(s) set forth in Section 2 herein.

- f. If MassDOT finds that the percentage of DBE participation submitted by the bidder on its Schedule does not meet the Contract participation goal, or that Schedule and Letters of Intent were not timely filed, and that the bidder has not demonstrated good faith efforts to comply with these requirements, it shall propose that the bidder be declared ineligible for award. In that case, the bidder may request administrative reconsideration. Such requests must be sent in writing within three (3) calendar days of receiving notice of proposed ineligibility to: The Office of the General Counsel, Massachusetts Department of Transportation, 10 Park Plaza, Boston, MA, 02116.
- g. If, after administrative reconsideration, MassDOT finds that the bidder has not shown that sufficient good faith efforts were made to comply with the requirements of these Special Provisions, it shall reject the bidder's proposal and may retain the proposal guaranty.
- h. Actions which constitute evidence of good faith efforts to meet a DBE participation goal include, but are not limited to, the following examples, which are set forth in 49 CFR Part 26, Appendix A:
- (1) Soliciting through all reasonable and available means (e.g., attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBEs who have the capability to perform the work of the Contract. The bidder must solicit this interest within sufficient time to allow the DBEs to respond to the solicitation. The bidder must determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.
 - (2) Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE participation goal will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the Prime Contractor might otherwise prefer to perform these work items with its own forces.
 - (3) Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.
 - (4) Negotiating in good faith with interested DBEs. It is the bidder's responsibility to make a portion of the work available to DBE Subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE Subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone number of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.

A bidder using good business judgment would consider a number of factors in negotiating with Subcontractors, including DBE Subcontractors, and would take a firm's price and capabilities as well as Contract participation goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the Contract DBE participation goal, as long as such costs are reasonable. Also, the ability or desire of a Prime Contractor to perform the work of a Contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Prime Contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

- (5) Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. Contractors should be careful of adding additional requirements of performance that would in effect limit participation by DBEs or any small business. The Contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. nonunion employee status) are not legitimate causes for the rejection or non-solicitation of bids in the Contractor's efforts to meet the Contract participation goal.
- (6) Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or contractor.
- (7) Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.
- (8) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and federal minority/women business assistance offices; and other organizations as allowed on a case by case basis to provide assistance in the recruitment and placement of DBEs.

8. COMPLIANCE

- a. All activity performed by a DBE for credit toward the Contract participation goal must be performed, managed and supervised by the DBE in accordance with all commercially useful function requirements of 49 CFR Part 26. The Prime Contractor shall not enter into, or condone, any other arrangement.
- b. The Prime Contractor shall not perform with its own organization, or assign to any other business, an activity designated for the DBE(s) named on the Schedule(s) submitted by the Prime Contractor under Section 7 or under paragraph 8.f of this section, without the approval of MassDOT in accordance with the requirements of paragraphs 8.f and 8.j of this section.
- c. MassDOT may suspend payment for any activity that was not performed by the DBE to whom the activity was committed on the approved Schedule of Participation, or that was not performed in accordance with the requirements of Section 6.
- d. MassDOT retains the right to approve or disapprove of any or all Subcontractors. Requests by the Prime Contractor for approval of participation by a DBE Subcontractor for credit toward the Contract participation goal must include, in addition to any other requirements for Subcontractor approval, the following:
 - (1) A copy of the proposed subcontract. The subcontract must be for at least the dollar amount, and for the work described, in the Bidder's Schedule of Participation.
 - (2) A resume stating the qualifications and experience of the DBE Superintendent and/or foreperson who will supervise the on-site work. A new resume will be required for any change in supervisory personnel during the progress of the work.
 - (3) A Schedule of Operations indicating when the DBE is expected to perform the work.
 - (4) A list of (1) equipment owned by the DBE to be used on the Project, and (2) equipment to be leased by the DBE for use on the Project.

- (5) A list of: (1) all projects (public and private) which the DBE is currently performing; (2) all projects (public and private) to which the DBE is committed; and (3) all projects (public and private) to which the DBE intends to make a commitment. For each Contract, list the contracting organization, the name and telephone number of a contact person for the contracting organization, the dollar value of the work, a description of the work, and the DBE's work schedule for each project.
- e. If, pursuant to the Subcontractor approval process, MassDOT finds that a DBE Subcontractor does not have sufficient experience or resources to perform, manage and supervise work of the kind proposed in accordance with the requirements of 49 CFR Part 26, approval of the DBE Subcontractor may be denied. In the event of such denial, the Prime Contractor shall proceed in accordance with the requirements paragraphs **8.f** and **8.j** of this section.
- f. If, for reasons beyond its control, the Prime Contractor cannot comply with its DBE participation commitment in accordance with the Schedule of Participation submitted under Section 7, the Prime Contractor shall submit to MassDOT the reasons for its inability to comply with its obligations and shall submit, and request approval for, a revised Schedule of Participation. If approved by MassDOT, the revised Schedule shall govern the Prime Contractor's performance in meeting its obligations under these Special Provisions.
- g. A Prime Contractor's compliance with the participation goal in Section 2 shall be determined by reference to the established percentage of the total contract price, provided, however, that no decrease in the dollar amount of a bidder's commitment to any DBE shall be allowed without the approval of MassDOT.
- h. If the contract amount is increased, the Prime Contractor may be required to submit a revised Schedule of Participation in accordance with paragraphs **8.f** and **8.j** of this section.
- i. In the event of the decertification of a DBE scheduled to participate on the Contract for credit toward the participation goal, but not under subcontract, the Contractor shall proceed in accordance with paragraphs **8.f** and **8.j** of this section.
- j. The Prime Contractor shall notify MassDOT immediately of any facts that come to its attention indicating that it may or will be unable to comply with any aspect of its DBE obligation under this Contract.
- k. Any notice required by these Special Provisions shall be given in writing to: (1) the Resident Engineer; (2) the District designated Compliance Officer; and (3) the DBE Liaison Officer, MassDOT Office of Civil Rights, 10 Park Plaza, – 3rd Floor - West, Boston, MA, 02116 and cc'd to the Deputy Chief of External Programs.
- l. The Prime Contractor and its Subcontractors shall comply with MassDOT's Electronic Reporting System Requirements (MassDOT Document 00821) and submit all information required by MassDOT related to the DBE Special Provisions through the Equitable Business Opportunity Solution ("EBO"). MassDOT reserves the right to request reports in the format it deems necessary anytime during the performance of the Contract.
- m. Termination of DBE by Prime Contractor
- (1) A Prime Contractor shall not terminate a DBE Subcontractor or an approved substitute DBE firm without the prior written consent of MassDOT. This includes, but is not limited to, instances in which a Prime Contractor seeks to perform work originally designated for a DBE Subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm.

- (2) MassDOT may provide such written consent only if MassDOT agrees, for reasons stated in its concurrence document, that the Prime Contractor has good cause to terminate the DBE firm.
- (3) For purposes of this paragraph, good cause includes the following circumstances:
 - (i) The DBE Subcontractor fails or refuses to execute a written contract;
 - (ii) The DBE Subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Good cause, however, does not exist if the failure or refusal of the DBE Subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the Prime Contractor;
 - (iii) The DBE Subcontractor fails or refuses to meet the Prime Contractor's reasonable, nondiscriminatory bond requirements.
 - (iv) The DBE Subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness;
 - (v) The DBE Subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant 2 CFR Parts 180, 215 and 1,200 or applicable State law;
 - (vi) (vii) MassDOT has determined that the listed DBE Subcontractor is not a responsible contractor;
 - (vii) The listed DBE Subcontractor voluntarily withdraws from the Project and provides written notice of its withdrawal;
 - (viii) The listed DBE is ineligible to receive DBE credit for the type of work required;
 - (ix) A DBE owner dies or becomes disabled with the result that the listed DBE Contractor is unable to complete its work on the Contract;
 - (x) Other documented good cause that MassDOT determines compels the termination of the DBE Subcontractor. Good cause, however, does not exist if the Prime Contractor seeks to terminate a DBE it relied upon to obtain the Contract so that the Prime Contractor can self-perform the DBE work or substitute another DBE or non-DBE Contractor after Contract Award.
- (4) Before transmitting to MassDOT a request to terminate and/or substitute a DBE Subcontractor, the Prime Contractor must give notice in writing to the DBE Subcontractor, with a copy to MassDOT, of its intent to request to terminate and/or substitute, and the reason for the request.
- (5) The Prime Contractor must give the DBE five (5) business days to respond to the Prime Contractor's notice. The DBE must advise MassDOT and the Contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why MassDOT should not approve the Prime Contractor's action. If required in a particular case as a matter of public necessity (e.g., safety), MassDOT may provide a response period shorter than five (5) business days.
- (6) In addition to post-award terminations, the provisions of this section apply to pre-award deletions of or substitutions for DBE firms.

n. Prompt Payment.

Contractors are required to promptly pay Subcontractors under this Prime Contract within ten (10) business days from the receipt of each payment the Prime Contractor receives from MassDOT. Failure to comply with this requirement may result in the withholding of payment to the Prime Contractor until such time as all payments due under this provision have been received by the Subcontractor(s) and/or referral to the Prequalification Committee for action which may affect the Contractor's prequalification status.

9. SANCTIONS

If the Prime Contractor does not comply with the terms of these Special Provisions and cannot demonstrate to the satisfaction of MassDOT that good faith efforts were made to achieve such compliance, MassDOT may, in addition to any other remedy provided for in the Contract, and notwithstanding any other provision in the Contract:

- a.** Retain, in connection with final acceptance and final payment processing, an amount determined by multiplying the total contract amount by the percentage in Section 2, less the amount paid to approved DBE(s) for work performed under the Contract in accordance with the provisions of Section 8.
- b.** Suspend, terminate or cancel this Contract, in whole or in part, and call upon the Prime Contractor's surety to perform all terms and conditions in the Contract.
- c.** In accordance with 720 CMR 5.05(1)(f), modify or revoke the Prime Contractor's Prequalification status or recommend that the Prime Contractor not receive award of a pending Contract. The Prime Contractor may appeal the determination of the Prequalification Committee in accordance with the provisions of 720 CMR 5.06.
- d.** Initiate debarment proceedings pursuant to M.G.L. c. 29 §29F and, as applicable, 2 CFR Parts 180, 215 and 1,200.
- e.** Refer the matter to the Massachusetts Attorney General for review and prosecution, if appropriate, of any false claim or pursuant to M.G.L. c. 12, §§ 5A to 5O (the Massachusetts False Claim Act).
- f.** Refer the matter to the U.S. DOT's Office of the Inspector General or other agencies for prosecution under Title 18, U.S.C. § 1001, 49 CFR Parts 29 and 31, and other applicable laws and regulations.

10. FURTHER INFORMATION; ENFORCEMENT, COOPERATION AND CONFIDENTIALITY.

- a.** Any proposed DBE, bidder, or Contractor shall provide such information as is necessary in the judgment of MassDOT to ascertain its compliance with the terms of this Special Provision. Further, pursuant to 49 CFR, Part 26.107:

- (1) If you are a firm that does not meet the eligibility criteria of 49 CFR, Parts 26.61 to 26.73 (“subpart D”), that attempts to participate in a DOT- assisted program as a DBE on the basis of false, fraudulent, or deceitful statements or representations or under circumstances indicating a serious lack of business integrity or honesty, MassDOT or FHWA may initiate suspension or debarment proceedings against you under 49 CFR Part 29.
 - (2) If you are a firm that, in order to meet DBE Contract participation goals or other DBE Program requirements, uses or attempts to use, on the basis of false, fraudulent or deceitful statements or representations or under circumstances indicating a serious lack of business integrity or honesty, another firm that does not meet the eligibility criteria of subpart D, FHWA may initiate suspension or debarment proceedings against you under 49 CFR Part 29.
 - (3) In a suspension or debarment proceeding brought either under subparagraph a.(1) or b.(2) of this section, the concerned operating administration may consider the fact that a purported DBE has been certified by a recipient. Such certification does not preclude FHWA from determining that the purported DBE, or another firm that has used or attempted to use it to meet DBE participation goals, should be suspended or debarred.
 - (4) FHWA may take enforcement action under 49 CFR Part 31, Program Fraud and Civil Remedies, against any participant in the DBE Program whose conduct is subject to such action under 49 CFR Part 31.
 - (5) FHWA may refer to the Department of Justice, for prosecution under 18 U.S.C. 1001 or other applicable provisions of law, any person who makes a false or fraudulent statement in connection with participation of a DBE in any DOT-assisted program or otherwise violates applicable Federal statutes.
- b. Pursuant to 49 CFR Part 26.109, the rules governing information, confidentiality, cooperation, and intimidation or retaliation are as follows:
- (1) Availability of records.
 - (i) In responding to requests for information concerning any aspect of the DBE Program, FHWA complies with provisions of the Federal Freedom of Information and Privacy Acts (5 U.S.C. 552 and 552a). FHWA may make available to the public any information concerning the DBE Program release of which is not prohibited by Federal law.
 - (ii) MassDOT shall safeguard from disclosure to unauthorized persons information that may reasonably be considered as confidential business information, consistent with Federal and Massachusetts General Law (M.G.L. c. 66, § 10, M.G.L. c. 4, §7 (26), 950 CMR 32.00).
 - (2) Confidentiality of information on complainants. Notwithstanding the provisions of subparagraph b.(1) of this section, the identity of complainants shall be kept confidential, at their election. If such confidentiality will hinder the investigation, proceeding or hearing, or result in a denial of appropriate administrative due process to other parties, the complainant must be advised for the purpose of waiving the privilege. Complainants are advised that, in some circumstances, failure to waive the privilege may result in the closure of the investigation or dismissal of the proceeding or hearing.

- (3) Cooperation. All participants in FHWA's DBE Program (including, but not limited to, recipients, DBE firms and applicants for DBE certification, complainants and appellants, and Contractors using DBE firms to meet Contract participation goals) are required to cooperate fully and promptly with U.S. DOT and recipient compliance reviews, certification reviews, investigations, and other requests for information. Failure to do so shall be a ground for appropriate action against the party involved (e.g., with respect to recipients, a finding of noncompliance; with respect to DBE firms, denial of certification or removal of eligibility and/or suspension and debarment; with respect to a complainant or appellant, dismissal of the complaint or appeal; with respect to a Contractor which uses DBE firms to meet participation goals, findings of non-responsibility for future Contracts and/or suspension and debarment).
- (4) Intimidation and retaliation. No recipient, Contractor, or any other participant in the program, may intimidate, threaten, coerce, or discriminate against any individual or firm for the purpose of interfering with any right or privilege secured by this part or because the individual or firm has made a complaint, testified, assisted, or participated in any manner in an investigation, proceeding, or hearing under this part. If any recipient or contractor violates this prohibition, that entity is in noncompliance with this 49 CFR Part 26.

11. LIST OF ADDITIONAL DOCUMENTS.

- a. The following documents shall be completed and signed by the bidder and designated DBEs in accordance with Section 7 - Award Documentation and Procedures. These documents must be returned by the bidder to MassDOT's Bid Document Distribution Center:
- ☐ Schedule of DBE Participation (Document B00853)
 - ☐ Letter of Intent (Document B00854)
 - ☐ DBE Joint Check Arrangement Approval Form (Document B00855), if Contractor and DBE plan, or if DBE is required to use a Joint Check
- b. The following document shall be signed and returned by Contractor and Subcontractors/DBEs to the MassDOT District Office overseeing the Project, as applicable:
- ☐ Contractor/Subcontractor Certification Form (Document No. 00859) (a checklist of other documents to be included with every subcontract (DBEs and non-DBEs alike)).
- c. The following document shall be provided to MassDOT's Office of Civil Rights and Prequalification Office at least fourteen (14) business days before the bid opening date, if applicable:
- ☐ Affidavit of DBE/Non-DBE Joint Venture (Document B00856)
- d. The following document shall be provided to MassDOT's District Office of Civil Rights within 30 calendar days after the work of the DBE is completed, or no later than 30 calendar days after the work of the DBE is on a completed and processed CQE. This document shall be completed and submitted by the Prime Contractor:
- ☐ Certificate of Completion by a Minority/Women or Disadvantaged Business Enterprise (M/W/DBE) (Form No. CSD-100)

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Non-segregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
- XI. Certification Regarding Use of Contract Funds for Lobbying
- XII. Use of United States-Flag Vessels:

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work

performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (see 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: 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, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action

within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide

sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants /

Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:

The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

- (1) Withholding monthly progress payments;
- (2) Assessing sanctions;
- (3) Liquidated damages; and/or
- (4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information will be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than \$10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway

Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), 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 basic hourly 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. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act ([40 U.S.C. 3141\(2\)\(B\)](#)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. 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 must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. 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 classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH-1321) must 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. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in [29 CFR part 1](#), a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

(i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

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

(iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

c. *Conformance.* (1) The contracting officer must 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 be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:

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

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

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

(2) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(3) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to DBAconformance@dol.gov. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to DBAconformance@dol.gov, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division

under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must 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.

d. *Fringe benefits not expressed as an hourly rate.* 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 may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

e. *Unfunded plans.* 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, in accordance with the criteria set forth in § 5.28, 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.

f. *Interest.* In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

2. Withholding (29 CFR 5.5)

a. *Withholding requirements.* The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and after written notice to the contractor, 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.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with paragraph

2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901](#)–3907.

3. Records and certified payrolls (29 CFR 5.5)

a. Basic record requirements (1) Length of record retention. All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

(2) Information required. Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; 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 [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

(3) Additional records relating to fringe benefits. Whenever the Secretary of Labor has found under paragraph 1.e. of this section 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 [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act, the contractor must 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.

(4) Additional records relating to apprenticeship. Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

b. Certified payroll requirements (1) Frequency and method of submission. The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the contracting

agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

(2) Information required. The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (e.g., the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH-347 or in any other format desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division website at <https://www.dol.gov/sites/dolgov/files/WHDL/legacy/files/wh347.pdf> or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

(3) Statement of Compliance. Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(i) That the certified payroll for the payroll period contains the information required to be provided under paragraph 3.b. of this section, the appropriate information and basic records are being maintained under paragraph 3.a. of this section, and such information and records are correct and complete;

(ii) That each laborer or mechanic (including each helper and apprentice) working 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](#); and

(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(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

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

(5) *Signature.* The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(6) *Falsification.* The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under [18 U.S.C. 1001](#) and [31 U.S.C. 3729](#).

(7) *Length of certified payroll retention.* The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

c. *Contracts, subcontracts, and related documents.* The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

d. *Required disclosures and access* (1) *Required record disclosures and access to workers.* The contractor or subcontractor must make the records required under paragraphs 3.a. through 3.c. of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(2) *Sanctions for non-compliance with records and worker access requirements.* If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, 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, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under [29 CFR part 6](#) any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(3) *Required information disclosures.* Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address

of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity (29 CFR 5.5)

a. *Apprentices* (1) *Rate of pay.* Apprentices will be permitted to work at less than the predetermined rate for the work they perform 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 (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) *Fringe benefits.* Apprentices must 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, fringe benefits must be paid in accordance with that determination.

(3) *Apprenticeship ratio.* The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must 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 this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(4) *Reciprocity of ratios and wage rates.* Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

b. *Equal employment opportunity.* The use of apprentices and journeyworkers under this part must be in conformity with

the equal employment opportunity requirements of Executive Order 11246, as amended, and [29 CFR part 30](#).

c. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeyworkers shall not be greater than permitted by the terms of the particular program.

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 as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 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 as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, 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 the contracting agency, 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 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 [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

c. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, [18 U.S.C. 1001](#).

11. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#); or

d. Informing any other person about their rights under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#).

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction 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 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchpersons 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. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1. of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. 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 watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* 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. of this section.

* \$31 as of January 15, 2023 (See 88 FR 88 FR 2210) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

3. Withholding for unpaid wages and liquidated damages

a. *Withholding process.* The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this section on this contract, 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 that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901](#)–3907.

4. Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the

event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

5. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

- a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;
- b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;
- c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or
- d. Informing any other person about their rights under CWHSSA or this part.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
- (2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
 (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and

health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of \$150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 180.300.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>). 2 CFR 180.300, 180.320, and 180.325.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;.

(2) 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 contract 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, 2 CFR 180.800;

(3) 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 (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

3. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which

this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily

excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

4. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000. 49 CFR Part 20, App. A.

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or

cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

**ATTACHMENT A - EMPLOYMENT AND MATERIALS
PREFERENCE FOR APPALACHIAN DEVELOPMENT
HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS
ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B)**

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

DOCUMENT 00811

SPECIAL PROVISIONS
MONTHLY PRICE ADJUSTMENT FOR HOT MIX ASPHALT (HMA) MIXTURES
Revised: 02/03/2023

This provision applies to all projects using greater than 100 tons of hot mix asphalt (HMA) mixtures containing liquid asphalt cement as stipulated in the Notice to Contractors section of the bid documents.

Price Adjustments will be based on the variance in price, for the liquid asphalt component only, between the Base Price and the Period Price. They shall not include transportation or other charges. Price Adjustments will occur on a monthly basis.

Base Price

The Base Price of liquid asphalt on a project as listed in the Notice to Contractors section of the bid documents is a fixed price determined by the Department at the time of the bid using the same method as the determination of the Period Price detailed below. The Base Price shall be used in all bids.

Period Price

The Period Price is the price of liquid asphalt for each monthly period as determined by the Department 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". This average selling price is listed in the issue having a publication date of the second Friday of the month and will be posted as the Period Price for that month. The Department will post this Period Price on its website at <https://www.mass.gov/service-details/massdot-current-contract-price-adjustments> following its receipt of the relevant issue of the "Asphalt Weekly Monitor". Poten and Partners has granted the Department the right to publish this specific asphalt price information sourced from the Asphalt Weekly Monitor.

Price Adjustment Determination, Calculation and Payment

The Contract Price of the HMA mixture will be paid under the respective item in the Contract. Price Adjustments, as herein provided, either 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.

Price Adjustments will be paid only if the variance from the Base Price is 5% or more for a monthly period. The complete adjustment will be paid in all cases with no deduction of the 5% from either upward or downward adjustments.

The Price Adjustment applies only to the actual virgin liquid asphalt content in the mixture placed on the job in accordance with the approved Job Mix Formula.

Price Adjustments will be separate payment items. The pay item numbers are 999.401 for a positive price adjustment (a payment) and 999.402 for a negative price adjustment (a deduction). Price Adjustments will be calculated using the following equation:

Price Adjustment = Tons of HMA Placed X Liquid Asphalt Content % X RAP Factor X (Period Price - Base Price)

No Price Adjustment will be allowed beyond the Completion Date of this Contract, unless there is a Department-approved extension of time.

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DOCUMENT 00812

SPECIAL PROVISIONS
MONTHLY PRICE ADJUSTMENT FOR DIESEL FUEL AND GASOLINE –
ENGLISH UNITS
Revised: 02/01/2021

This monthly fuel price adjustment is inserted in this contract because 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 Commonwealth, depending on an increase or decrease in the average price of diesel fuel or gasoline.

This 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 Price to the Period Price.

The Base Price of Diesel Fuel and Gasoline will be the price as indicated in the Department's web site <https://www.mass.gov/service-details/massdot-current-contract-price-adjustments> for the month in which the contract was bid, which includes State Tax.

The Period Price will be the average of prices charged to the State, including State Tax for the bulk purchases made during each month.

This adjustment will be effected only if the variance from the Base Price is 5% or more for a monthly period. The complete adjustment will be paid in all cases with no deduction of the 5% from either upward or downward adjustments.

No adjustment will be paid for work done beyond the extended completion date of any contract.

Any adjustment (increase or decrease) to estimated quantities made to each item at the time of final payment will have the fuel price adjustment figured at the average period price for the entire term of the project for the difference of quantity.

The fuel price adjustment will apply only to the following items of work at the fuel factors shown:

ITEMS COVERED	FUEL FACTORS	
	Diesel	Gasoline
Excavation: and Borrow Work: Items 120, 120.1, 121, 123, 124, 125, 127, 129.3, 140, 140.1, 141, 142, 143, 144, 150, 150.1, 151 and 151.1 (Both Factors used)	0.29 Gallons / CY.	0.15 Gallons / CY
Surfacing Work: All Items containing Hot Mix Asphalt	2.90 Gallons / Ton	Does Not Apply

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DOCUMENT 00813

SPECIAL PROVISIONS

PRICE ADJUSTMENTS FOR STRUCTURAL STEEL AND REINFORCING STEEL

September 17, 2025

This special provision applies to all projects containing the use of structural steel and/or reinforcing steel as specified elsewhere in the Contract work. It applies to all structural steel and all reinforcing steel, as defined below, 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 castings and steel forgings.

Price adjustments will be variances between Base Prices and Period Prices. Base Prices and Period Prices are defined below.

Price adjustments will only be made if the variances between Base Prices and Period Prices are 5% or more. A variance can result in the Period Price being either higher or lower than the Base Price. Once the 5% threshold has been achieved, the adjustment will apply to the full variance between the Base Price and the Period Price.

Price adjustments will be calculated by multiplying the number of pounds of unfabricated structural steel material or unfabricated reinforcing steel bars on a project by the index factor calculated as shown below under Example of a Period Price Calculation.

Price adjustments will not include guardrail panels or the costs of shop drawing preparation, handling, fabrication, coatings, transportation, storage, installation, profit, overhead, fuel costs, fuel surcharges, or other such charges not related to the cost of the unfabricated structural steel and unfabricated reinforcing steel.

The weight of steel subject to a price adjustment shall not exceed the final shipping weight of the fabricated part by more than 10%.

Base Prices and Period Prices are defined as follows:

Base Prices of unfabricated structural steel and unfabricated reinforcing steel on a project are fixed prices determined by the Department and found in the table below. While it is the intention of the Department to make this table comprehensive, some of a project’s unfabricated structural steel and/or unfabricated reinforcing steel may be inadvertently omitted. Should this occur, the Contractor shall bring the omission to the Department’s attention so that a contract alteration may be processed that adds the missing steel to the table and its price adjustments to the Contract.

The Base Price Date is the month and year of the most recent finalized period price index at the time that MassDOT opened bids for the project. The Base Price Index for this contract is the Steel PPI listed in the Notice to Contractors.

Period Prices of unfabricated structural steel and unfabricated reinforcing steel on a project are variable prices that have been calculated using the Period Price Date and an index of steel prices to adjust the Base Price.

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 Department 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.

The index used for the calculation of Period Prices is the U.S. Department of Labor Bureau of Labor Statistics 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 adjustments will be made until the index for the period is finalized, i.e., the index is no longer suffixed with a “(P)”.

Period Prices are determined as follows:

Period Price = Base Price X Index Factor

Index Factor = Period Price Index / Base Price Index

Example of a Period Price Calculation:

Calculate the Period Price for December 2009 using a Base Price from March 2009 of \$0.82/Pound for 1,000 Pounds of ASTM A709 (AASHTO M270) Grade A36 Structural Steel Plate.

The Period Price Date is December 2009. From the PPI website*, the Period Price Index = 218.0.

The Base Price Date is March 2009. From the PPI website*, the Base Price Index = 229.4.

Index Factor = Period Price Index / Base Price Index = $218.0 / 229.4 = 0.950$

Period Price = Base Price X Index Factor = $\$0.82/\text{Pound} \times 0.950 = \$0.78/\text{Pound}$

Since $\$0.82 - \$0.78 = \$0.04$ is less than 5% of \$0.82, no price adjustment is required.

If the \$0.04 difference shown above was greater than 5% of the Base Price, then the price adjustment would be 1,000 Pounds X \$0.04/Pound = \$40.00. Since the Period Price of \$0.78/Pound is less than the Base Price of \$0.82/Pound, indicating a drop in the price of steel between the bid and the delivery of material, a credit of \$40.00 would be owed to MassDOT. When the Period Price is higher than the Base Price, the price adjustment is owed to the Contractor.

* To access the PPI website and obtain a Base Price Index or a Period Price Index, go to

<http://data.bls.gov/cgi-bin/srgate>

End of example.

The Contractor will be paid for unfabricated structural steel and unfabricated reinforcing steel under the respective contract pay items for all components constructed of either structural steel or reinforced Portland cement concrete under their respective Contract Pay Items.

Price adjustments, as herein provided for, will be paid separately as follows:

Structural Steel

Pay Item Number 999.449 for positive (+) pay adjustments (payments to the Contractor)

Pay Item Number 999.457 for negative (-) pay adjustments (credits to MassDOT Highway Division)

Reinforcing Steel

Pay Item Number 999.466 for positive (+) pay adjustments (payments to the Contractor)

Pay Item Number 999.467 for negative (-) pay adjustments (credits to MassDOT Highway Division)

No price adjustment will be made for price changes after the Contract Completion Date, unless the MassDOT Highway Division has approved an extension of Contract Time for the Contract.

TABLE

Steel Type		Price per Pound
1	ASTM A615/A615M Grade 60 (AASHTO M31 Grade 60 or 420) Reinforcing Steel	\$0.58
2	ASTM A27 (AASHTO M103) Steel Castings, H-Pile Points & Pipe Pile Shoes (See Note below.)	\$0.81
3	ASTM A668 / A668M (AASHTO M102) Steel Forgings	\$0.81
4	ASTM A108 (AASHTO M169) Steel Forgings for Shear Studs	\$0.83
5	ASTM A709/A709M Grade 36 / AASHTO M270M/M270 Grade 36 or 250 Structural Steel Plate	\$0.87
6	ASTM A709/A709M Grade 36 / AASHTO M270M/M270 Grade 36 or 250 Structural Steel Shapes	\$0.82
7	ASTM A709/A709M Grade 50 / AASHTO M270M/M270 Grade 50 or 345 Structural Steel Plate	\$0.87
8	ASTM A709/A709M Grade 50 / AASHTO M270M/M270 Grade 50 or 345 Structural Steel Shapes	\$0.82
9	ASTM A709/A709M Grade 50WT / AASHTO M270M/M270 Grade 50WT or 345WT Structural Steel Plate	\$0.90
10	ASTM A709/A709M Grade 50WT / AASHTO M270M/M270 Grade 50WT or 345WT Structural Steel Shapes	\$0.83
11	ASTM A709/A709M Grade 50W / AASHTO M270M/M270 Grade 50W 345W Structural Steel Plate	\$0.90
12	ASTM A709/A709M Grade 50W / AASHTO M270M/M270 Grade 50W or 345W Structural Steel Shapes	\$0.83
13	ASTM A709/A709M Grade HPS 50W / AASHTO M270M/M270 Grade HPS 50W or 345W Structural Steel Plate	\$0.94
14	ASTM A709/A709M Grade HPS 70W / AASHTO M270M/M270 Grade HPS 70W or 485W Structural Steel Plate	\$1.02
15	ASTM A514/A514M-05 Grade HPS 100W / AASHTO M270M/M270 Grade HPS 100W or 690W Structural Steel Plate	\$1.55
16	ASTM A992/A992M Grade 50S / AASHTO M270M/M270 Grade 50S or 345S Structural Steel Plate	\$0.90
17	ASTM A992/A992M Grade 50S / AASHTO M270M/M270 Grade 50S or 345S Structural Steel Shapes	\$0.83
18	ASTM A276 Type 316 Stainless Steel	\$4.67
19	ASTM A240 Type 316 Stainless Steel	\$4.67
20	ASTM A148 Grade 80/50 Steel Castings (See Note below.)	\$1.60
21	ASTM A53 Grade B Structural Steel Pipe	\$1.02
22	ASTM A500 Grades A, B, 36 & 50 Structural Steel Pipe	\$1.02
23	ASTM A252, Grades 240 (36 KSI) & 414 (60 KSI) Pipe Pile	\$0.81
24	ASTM 252, Grade 2 Permanent Steel Casing	\$0.81
25	ASTM A36 (AASHTO M183) for H-piles, steel supports and sign supports	\$0.85
26	ASTM A328 / A328M, Grade 50 (AASHTO M202) Steel Sheetpiling	\$1.53
27	ASTM A572 / A572M, Grade 50 Sheetpiling	\$1.53
28	ASTM A36/36M, Grade 50	\$0.87
29	ASTM A570, Grade 50	\$0.85
30	ASTM A572 (AASHTO M223), Grade 50 H-Piles	\$0.87
31	ASTM A1085 Grade A (50 KSI) Steel Hollow Structural Sections (HSS), heat-treated per ASTM A1085 Supplement S1	\$1.02
32	AREA 140 LB Rail and Track Accessories	\$0.52

NOTE: Steel Castings are generally used only on moveable bridges. Cast iron frames, grates and pipe are not “steel” castings and will not be considered for price adjustments.

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DOCUMENT 00814

SPECIAL PROVISIONS
PRICE ADJUSTMENT FOR PORTLAND CEMENT CONCRETE MIXES

January 12, 2009

This provision applies to all projects using greater than 100 Cubic Yards (76 Cubic Meters) of Portland cement concrete containing Portland cement as stipulated in the Notice to Contractors section of the Bid Documents. This Price Adjustment will occur on a monthly basis.

The Price Adjustment will be based on the variance in price for the Portland cement component only from the Base Price to the Period Price. It shall not include transportation or other charges.

The Base Price of Portland cement on a project is a fixed price determined at the time of bid by the Department by using the same method as for the determination of the Period Price (see below) and found in the Notice to Contractors.

The Period Price of Portland cement will be determined by using the latest published price, in dollars per ton (U.S.), for Portland cement (Type I) quoted for Boston, U.S.A. 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.

The Contract Price of the Portland cement concrete mix will be paid under the respective item in the Contract. 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.

The price adjustment applies only to the actual Portland cement content in the mix placed on the job in accordance with the Standard Specifications for Highways and Bridges, 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.

The Price Adjustment will be a separate payment item. It 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.

This Price Adjustment will be paid only if the variance from the Base Price is 5% or more for a monthly period. The complete adjustment will be paid in all cases with no deduction of the 5% from either upward or downward adjustments.

No Price Adjustment will be allowed beyond the Completion Date of this Contract, unless there is a Department-approved extension of time.

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DOCUMENT 00820

**THE COMMONWEALTH OF MASSACHUSETTS
SUPPLEMENTAL EQUAL EMPLOYMENT OPPORTUNITY,
NON-DISCRIMINATION AND AFFIRMATIVE ACTION PROGRAM**

I. Definitions

For purposes of this contract,

"Minority" means a person who meets one or more of the following definitions:

- (a) American Indian or Native American means: all persons having origins in any of the original peoples of North America and who are recognized as an Indian by a tribe or tribal organization.
- (b) Asian means: All persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian sub-continent, or the Pacific Islands, including, but Not limited to China, Japan, Korea, Samoa, India, and the Philippine Islands.
- (c) Black means: All persons having origins in any of the Black racial groups of Africa, including, but not limited to, African-Americans, and all persons having origins in any of the original peoples of the Cape Verdean Islands.
- (d) Eskimo or Aleut means: All persons having origins in any of the peoples of Northern Canada, Greenland, Alaska, and Eastern Siberia.
- (e) Hispanic means: All persons having their origins in any of the Spanish-speaking peoples of Mexico, Puerto Rico, Cuba, Central or South America, or the Caribbean Islands.

"State construction contract" means a contract for the construction, reconstruction, installation, demolition, maintenance or repair of a building or capital facility, or a contract for the construction, reconstruction, alteration, remodeling or repair of a public work undertaken by a department, agency, board, or commission of the commonwealth.

"State assisted construction contract" means a contract for the construction, reconstruction, installation, demolition, maintenance or repair of a building or capital facility undertaken by a political subdivision of the commonwealth, or two or more political subdivisions thereof, an authority, or other instrumentality and whose costs of the contract are paid for, reimbursed, grant funded, or otherwise supported, in whole or in part, by the commonwealth.

II. Equal Opportunity, Non-Discrimination and Affirmative Action

During the performance of this Contract, the Contractor and all subcontractors (hereinafter collectively referred to as "the Contractor") for a state construction contract or a state assisted construction contract, for him/herself, his/her assignees and successors in interest, agree to comply with all applicable equal employment opportunity, non-discrimination and affirmative action requirements, including but not limited to the following:

In connection with the performance of work under this contract, the Contractor shall not discriminate against any employee or applicant for employment because of race, color, religious creed, national origin, sex, sexual orientation, genetic information, military service, age, ancestry or disability, shall not discriminate in the selection or retention of subcontractors, and shall not discriminate in the procurement of materials and rentals of equipment.

The aforesaid provision shall include, but not be limited to, the following: employment upgrading, demotion, or transfer; recruitment advertising, layoff or termination; rates of pay or other forms of compensation; conditions or privileges of employment; and selection for apprenticeship or on-the-job training opportunity. The Contractor shall comply with the provisions of chapter 151B of the Massachusetts General Laws, as amended, and all other applicable anti-discrimination and equal opportunity laws, all of which are herein incorporated by reference and made a part of this Contract.

The Contractor shall post hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the Massachusetts Commission Against Discrimination setting forth the provisions of the Fair Employment Practices Law of the Commonwealth (Massachusetts General Laws Chapter 151 B).

In connection with the performance of work under this contract, the Contractor shall undertake, in good faith, affirmative action measures to eliminate any discriminatory barriers in the terms and conditions of employment on the grounds of race, color, religious creed, national origin, sex, sexual orientation, genetic information, military service, age, ancestry or disability. Such affirmative action measures shall entail positive and aggressive measures to ensure nondiscrimination and to promote equal opportunity in the areas of hiring, upgrading, demotion or transfer, recruitment, layoff or termination, rate of compensation, apprenticeship and on-the-job training programs. A list of positive and aggressive measures shall include, but not be limited to, advertising employment opportunities in minority and other community news media; notifying minority, women and other community-based organizations of employment opportunities; validating all job specifications, selection requirements, and tests; maintaining a file of names and addresses of each worker referred to the Contractor and what action was taken concerning such worker; and notifying the administering agency in writing when a union with whom the Contractor has a collective bargaining agreement has failed to refer a minority or woman worker. These and other affirmative action measures shall include all actions required to guarantee equal employment opportunity for all persons, regardless of race, color, religious creed, national origin, sex, sexual orientation, genetic information, military service, age, ancestry or disability. One purpose of this provision is to ensure to the fullest extent possible an adequate supply of skilled tradesmen for this and future Commonwealth public construction projects.

III. Minority and Women Workforce Participation

Pursuant to his/her obligations under the preceding section, the Contractor shall strive to achieve on this project the labor participation goals contained herein. Said participation goals shall apply in each job category on this project including but not limited to bricklayers, carpenters, cement masons, electricians, ironworkers, operating engineers and those classes of work enumerated in Section 44F of Chapter 149 of the Massachusetts General Laws. The participation goals for this project shall be 15.3% for minorities and 6.9% for women. The participation goals, as set forth herein, shall not be construed as quotas or set-asides; rather, such participation goals will be used to measure the progress of the Commonwealth's equal opportunity, non-discrimination and affirmative action program. Additionally, the participation goals contained herein should not be seen or treated as a floor or as a ceiling for the employment of particular individuals or group of individuals.

IV. Liaison Committee

At the discretion of the agency that administers the contract for the construction project there may be established for the life of the contract a body to be known as the Liaison Committee. The Liaison Committee shall be composed of one representative each from the agency or agencies administering the contract for the construction project, hereinafter called the administering agency, a representative from the Office of Affirmative action, and such other representatives as may be designated by the administering agency. The Contractor (or his/her agent, if any, designated by him/her as the on-site equal employment opportunity officer) shall recognize the Liaison Committee as an affirmative action body, and shall establish a continuing working relationship with the Liaison Committee, consulting with the Liaison Committee on all matters related to minority recruitment, referral, employment and training.

V. Reports and Records

The Contractor shall prepare projected workforce tables on a quarterly basis when required by the administering agency. 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 administering agency and the Liaison Committee when required.

The Contractor shall prepare weekly reports in a form approved by the administering agency, unless information required is required to be reported electronically by the administering agency, the number of hours worked in each trade by each employee, identified as woman, minority, or non-minority. Copies of these shall be provided at the end of each such week to the administering agency and the Liaison Committee.

Records of employment referral orders, prepared by the Contractor, shall be made available to the administering agency on request.

The Contractor will provide all information and reports required by the administering agency on instructions issued by the administering agency and will permit access to its facilities and any books, records, accounts and other sources of information which may be determined by the administering agency to effect the employment of personnel. This provision shall apply only to information pertinent to the Commonwealth's supplementary non-discrimination, equal opportunity and access and opportunity contract requirements. Where 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 and shall set forth what efforts he has made to obtain the information.

VI. Access to Work Site

A designee of the administering agency and a designee of the Liaison Committee shall each have a right to access the work site.

VII. Solicitations for Subcontracts, and for the Procurement of Materials and Equipment

In all solicitations either by competitive bidding or negotiation made by the Contractor either for work to be performed under a subcontract or for the procurement of materials or equipment, each potential subcontractor or supplier shall be notified in writing by the Contractor of the Contractor's obligations under this contract relative to non-discrimination and equal opportunity.

VIII. Sanctions

Whenever the administering agency believes the General or Prime Contractor or any subcontractor may not be operating in compliance with the provisions of the Fair Employment Practices Law of the Commonwealth (Massachusetts General Laws Chapter 151B), the administering agency may refer the matter to the Massachusetts Commission Against Discrimination ("Commission") for investigation.

Following the referral of a matter by the administering agency to the Massachusetts Commission Against Discrimination, and while the matter is pending before the MCAD, the administering agency may withhold payments from contractors and subcontractors when it has documentation that the contractor or subcontractor has violated the Fair Employment Practices Law with respect to its activities on the Project, or if the administering agency determines that the contractor has materially failed to comply with its obligations and the requirements of this Section. The amount withheld shall not exceed a withhold of payment to the General or Prime Contractor of 1/100 or 1% of the contract award price or \$5,000, whichever sum is greater, or, if a subcontractor is in non-compliance, a withhold by the administering agency from the General Contractor, to be assessed by the General Contractor as a charge against the subcontractor, of 1/100 or 1% of the subcontractor price, or \$1,000 whichever sum is greater, for each violation of the applicable law or contract requirements. The total withheld from anyone General or Prime Contractor or subcontractor on a Project shall not exceed \$20,000 overall. No withhold of payments or investigation by the Commission or its agent shall be initiated without the administering agency providing prior notice to the Contractor.

If, after investigation, the Massachusetts Commission Against Discrimination finds that a General or Prime Contractor or subcontractor, in commission of a state construction contract or state-assisted construction contract, violated the provisions of the Fair Employment Practices Law, the administering agency may convert the amount withheld as set forth above into a permanent sanction, as a permanent deduct from payments to the General or Prime Contractor or subcontractor, which sanction will be in addition to any such sanctions, fines or penalties imposed by the Massachusetts Commission Against Discrimination.

No sanction enumerated under this Section shall be imposed by the administering agency except after notice to the General or Prime Contractor or subcontractor and an adjudicatory proceeding, as that term is used, under Massachusetts General Laws Chapter 30A, has been conducted.

IX. 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.

X. Contractor's Certification

After award and prior to the execution of any contract for a state construction contract or a state assisted construction contract, the Prime or General Contractor shall certify that it will comply with all provisions of this Document 00820 Supplemental Equal Employment Opportunity, Non-Discrimination and Affirmative Action Program, by executing Document 00859 Contractor/Subcontractor Certification Form.

XI. Subcontractor Requirements

Prior to the award of any subcontract for a state construction contract or a state assisted construction contract, the Prime or General Contractor shall provide all prospective subcontractors with a complete copy of this Document 00820 entitled "Supplemental Equal Employment Opportunity, Non-Discrimination and Affirmative Action Program" and will incorporate the provisions of this Document 00820 into any and all contracts or work orders for all subcontractors providing work on the Project. In order to ensure that the said subcontractor's certification becomes a part of all subcontracts under the prime contract, the Prime or General Contractor shall certify in writing to the administering agency that it has complied with the requirements as set forth in the preceeding paragraph by executing Document 00859 Contractor/Subcontractor Certification Form.

Rev'd 03/07/14

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DOCUMENT 00821

**ELECTRONIC REPORTING REQUIREMENTS
CIVIL RIGHTS PROGRAMS AND CERTIFIED PAYROLL**

Implemented on March 2, 2009

Revised June 04, 2019

The Massachusetts Department Of Transportation (MassDOT) has replaced the CHAMP reporting system with Equitable Business Opportunity Solution (EBO), a new web-based civil rights reporting software system. This system is capable of handling both civil rights reporting requirements and certified payrolls. The program's functions include the administration of Equal Employment Opportunity (EEO) requirements, On-The-Job Training requirements (OJT), Disadvantage Business Enterprise (DBE) and/or Minority / Women's Business Enterprise (M/WBE) subcontracting requirements, and the electronic collection of certified payrolls associated with MassDOT projects. In addition, this system is used to generate various data required as part of the American Recovery and Reinvestment Act (ARRA). Contractors are responsible for all coordination with all sub-contractors to ensure timely and accurate electronic submission of all required data.

Contractor and Sub-Contractor EBO User Certification

All contractors and sub-contractors must use the EBO software system. The software vendor, Internet Government Solutions (IGS), has developed an online EBO Training Module that is available to contractors and sub-contractors. This module is a self-tutorial which allows all users in the company to access the training, complete the tutorial, and become certified as EBO users for a one time fee of \$75.00. This is the only cost to contractors and sub-contractors associated with the EBO software system. The online EBO Training Module can be accessed at www.ebotraining.com. Click the "Register My Company" button on the login page to begin your training registration. Questions regarding EBO online training should be directed to Gerry Anguilano, IGS at (440) 238-1684.

MassDOT will track contractors and sub-contractors who have successfully completed the on-line training module. All persons performing civil rights program and/or certified payroll functions should be EBO certified.

Vetting of Firms and Designated Firm Individuals

Contractors must authorize a Primary Log-In ID Holder who has completed EBO on-line training to have access to the EBO system by completing and submitting the "Request For EBO System Log-In/Password Form" located on the MassDOT website at: <https://www.mass.gov/how-to/how-to-get-an-ebo-login>. Contractors must also agree to comply with the EBO system user agreement located on the MassDOT website.

All subcontracts entered into on a project must include language that identifies the submission and training requirements that the sub-contractor must perform. Sub-contractors will be approved by the respective District Office of MassDOT through the existing approval process. When new sub-contractors, who have not previously worked for MassDOT, are initially selected by a general contractor, the new sub-contractor must be approved by the District before taking the EBO on-line training module.

Interim Reporting Requirements

Until MassDOT is satisfied that the EBO system is fully operational and functioning as designed, contractors and sub-contractors will be required to submit certified payrolls manually. There will be a transition period where dual reporting, through manual and electronic submission, will be required. MassDOT, however, will notify contractors and sub-contractors when they may cease manual submission of certified payrolls.

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DOCUMENT 00859

CONTRACTOR/SUBCONTRACTOR CERTIFICATION FORM ‡*The contractor shall submit this completed document 00859 to MassDOT for each subcontract.*_____
(Contractor) Date: __________
(Subcontractor) ☐ District Approved
SubcontractorContract No: 132187 Project No. 608703 Federal Aid No.: NHP(BRR-ON)/HIP(BR)-0034(029)XLocation: WILMINGTONProject Description: Bridge Replacement, W-38-029 (2KV), ST 129 Lowell Street over I-93

PART 1 CONTRACTOR CERTIFICATION: I hereby certify, as an authorized official of this company, that to the best of my knowledge, information and belief, the company is in compliance with all applicable federal and state laws, rules, and regulations governing fair labor and employment practices, that the company will not discriminate in their employment practices, that the company will make good faith efforts to comply with the minority employee and women employee workforce participation ratio goals and specific affirmative action steps contained in Contract Document 00820 The Commonwealth of Massachusetts Supplemental Equal Employment Opportunity, Non-Discrimination and Affirmative Action Program, and that the company will comply with the special provisions and documentation indicated below (as checked).

I further hereby certify, as an authorized official of this company, that the special provisions and documentation indicated below (as checked) have been or are included in, and made part of, the Subcontractor Agreement entered into with the firm named above.

☐ **This is not a Federally-aided construction project****Document #**

- ☐ 00718 –Participation By Minority Or Women's Business Enterprises and SDVOBE†
- ☐ 00761 –Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion
- ☐ 00820 – MA Supplemental Equal Employment Opportunity, Non-Discrimination, and Affirmative Action Program
- ☐ 00821 – Electronic Reporting Requirements, Civil Rights Programs, and Certified Payroll
- ☐ 00859 – Contractor/Subcontractor Certification Form (this document)
- ☐ 00860 – MA Employment Laws
- ☐ 00861 – Applicable State Wage Rates in the Contract Proposal**
- ☐ B00842 – MA Schedule of Participation By Minority or Women Business Enterprises (M/WBEs)†
- ☐ B00843 – MA Letter of Intent – M/WBEs†
 - ** Does not apply to Material Suppliers, unless performing work on-site
 - † Applies only if Subcontractor is a M/WBE; only include these forms for the particular M/WBE Entity
- ☐ B00844 - Schedule of Participation By SDVOBE
- ☐ B00845 - Letter of Intent – SDVOBE
- ☐ B00846 – M/WBE or SDVOBE Joint Check Arrangement Approval Form
- ☐ B00847 – Joint Venture Affidavit

☐ **This is a Federally-aided construction project (Federal Aid Number is present)****Document #**

- ☐ 00719 – Special Provisions for Participation by Disadvantaged Business Enterprises†
- ☐ 00760 - Form FHWA 1273 - Required Contract Provisions for Federal-Aid Construction Contracts
- ☐ 00820 – MA Supplemental Equal Employment Opportunity, Non-Discrimination and Affirmative Action Program
- ☐ 00821 – Electronic Reporting Requirements, Civil Rights Programs and Certified Payroll
- ☐ 00859 – Contractor/Subcontractor Certification Form (this document)
- ☐ 00860 – MA Employment Laws
- ☐ 00870 – Standard Federal Equal Employment Opportunity Construction Contract Specifications Executive Order 11246, (41 CFR Parts 60-4.2 and 60-4.3 (Solicitations and Equal Opportunity Clauses))*
- ☐ 00875 – Federal Trainee Special Provisions

- ☐ B00853 – Schedule of Participation by Disadvantaged Business Enterprise†
☐ B00854 – Letter of Intent – DBEs†
☐ B00855 – DBE Joint Check Arrangement Approval Form
☐ B00856 – Joint Venture Affidavit
☐ 00861/00880 - Applicable state and federal wage rates from Contract Proposal**

*Applicable only to Contracts or Subcontracts in excess of \$10,000

**Does not apply to Material Suppliers, unless performing work on-site

† Applies only if Subcontractor is a DBE; only include these forms for the particular DBE Entity

Signed this _____ Day of _____, 20____ Under The Pains And Penalties Of Perjury.

 (Print Name and Title)

 (Authorized Signature)

PART 2

PART 2. SUBCONTRACTOR CERTIFICATION: I hereby certify, as an authorized official of this company, that the required documents in Part 1 above were physically incorporated in our Agreement/Subcontract with the Contractor and give assurance that this company will fully comply or make every good faith effort to comply with the same. I further certify that:

1. This company recognizes that if this is a Federal-Aid Project, then this Contract is covered by the equal employment opportunity laws administered and enforced by the United States Department of Labor ("USDOL"), Office of Federal Contract Compliance Programs ("OFCCP"). By signing below, we acknowledge that this company has certain reporting obligations to the OFCCP, as specified by 41 CFR Part 60-4.2.
2. This company further acknowledges that any contractor with fifty (50) or more employees on a Federal-aid Contract with a value of fifty-thousand (\$50,000) dollars or more must annually file an EEO-1 Report (SF 100) to the EEOC, Joint Reporting Committee, on or before September 30th, each year, as specified by 41 CFR Part 60-1.7a.
3. For more information regarding the federal reporting requirements, please contact the USDOL, OFCCP Regional Office, at 1-646-264-3170 or EEO-1, Joint Reporting Committee at 1-866-286-6440.
4. This company ☐ has, ☐ has not, participated in a previous contract or subcontract subject to the Equal Opportunity clauses set forth in 41 CFR Part 60-4 and Executive Order 11246, and where required, has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance Programs or the EEO Commission all reports due under the applicable filing requirements.
5. This company is in full compliance with applicable Federal and Commonwealth of Massachusetts laws, rules, and regulations and is not currently debarred or disqualified from bidding on or participating in construction contracts in any jurisdiction of the United States. See : <https://www.mass.gov/service-details/contractors-and-vendors-suspended-or-debarred-by-massdot>
6. This company is properly registered and in good standing with the Office of the Secretary of the Commonwealth.

Signed this _____ Day of _____, 20____, Under The Pains And Penalties Of Perjury.

Firm: _____

Address: _____

 (Print Name and Title)

Telephone Number: _____

Federal I.D. Number: _____

 (Authorized Signature)

Estimated Start Date: _____

Estimated Completion Date: _____

Estimated Dollar Amount: _____

 (Date)

DOCUMENT 00860

COMMONWEALTH OF MASSACHUSETTS PUBLIC EMPLOYMENT LAWS

Revised February 20, 2019

The Contractor's attention is directed to Massachusetts General Laws, Chapter 149, Sections 26 through 27H, and 150A. This contract is considered to fall within the ambit of that law, which provides that in general, the Prevailing Rate or Total Rate must be paid to employees working on projects funded by the Commonwealth of Massachusetts or any political subdivision including Massachusetts Department of Transportation (MassDOT).

A Federal Aid project is also subject to the Federal Minimum Wage Rate law for construction. When comparing a state minimum wage rate, monitored by the Massachusetts Attorney General, versus federal minimum wage rate, monitored by the U.S. Department of Labor Wage and Hour Division, for a particular job classification the higher wage is at all times to be paid to the affected employee.

Every contractor or subcontractor engaged in this contract to which sections twenty-seven and twenty-seven A apply will keep a true and accurate record of all mechanics and apprentices, teamsters, chauffeurs and laborers employed thereon, showing the name, address and occupational classification of each such employee on this contract, and the hours worked by, and the wages paid to, each such employee, and shall furnish to the MassDOT's Resident Engineer, on a weekly basis, a copy of said record, in a form approved by MassDOT and in accordance with M.G.L. c. 149, § 27B, signed by the employer or his/her authorized agent under the penalties of perjury.

Each such contractor or subcontractor shall preserve its payroll records for a period of three years from the date of completion of the contract.

The Prevailing Wage Rate generally includes the following:

Minimum Hourly Wage + Employer Contributions to Benefit Plans = Prevailing Wage Rate or Total Rate

Any employer who does not make contributions to Benefit Plans must pay the total Prevailing Wage Rate directly to the employee.

Any deduction from the Prevailing Wage Rate or Total Rate for contributions to benefit plans can only be for a Health & Welfare, Pension, or Supplementary Unemployment plan meeting the requirements of the Employee Retirement Income Security Act (ERISA) of 1974. The maximum allowable deduction for these benefits from the prevailing wage rate cannot be greater than the amount allowed by Executive Office of Labor (EOL) for the specified benefits. Any additional expense of providing benefits to the employees is to be borne by the employer and cannot be deducted from the Minimum Hourly Wage. If the employer's benefit expense is less than that so provided by EOL the difference will be paid directly to the employee. The rate established must be paid to all employees who perform work on the project.

When an employer makes deductions from the Minimum Hourly Wage for an employee's contribution to social security, state taxes, federal taxes, and/or other contribution programs, allowed by law, the employer shall furnish each employee a suitable pay slip, check stub or envelope notifying the employee of the amount of the deductions.

No contractor or subcontractor contracting for any part of the contract week shall require or permit any laborer or mechanic to be employed on such work in excess of forty hours in any workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times his basic rate of pay for all hours worked in excess of forty hours in such workweek, whichever is the greater number of overtime hours.

Apprentice Rates are permitted only when there is an Apprentice Agreement registered with the Massachusetts Division of Apprentice Training in accordance with M.G.L. c. 23, § 11E-11L.

The Prevailing Wage Rates issued for each project shall be the rates paid for the entire project. The Prevailing Wage Rates must be posted on the job site at all times and be visible from a public way.

In addition, each such contractor and subcontractor shall furnish to the MassDOT's Resident Engineer, within fifteen days after completion of its portion of the work, a statement, executed by the contractor or subcontractor or by any authorized officer or employee of the contractor or subcontractor who supervises the payment of wages, in the following form:

STATEMENT OF COMPLIANCE

Date: _____

I, _____ do hereby state:
(Name of signatory party) (Title)

That I pay or supervise the payment of the persons employed by:

(Contractor or Subcontractor)

on the _____
(MassDOT Project Location and Contract Number)

and that all mechanics and apprentices, teamsters, chauffeurs and laborers employed on said project have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty-nine of the General Laws.

Signature _____

Title _____

The above-mentioned copies of payroll records and statements of compliance shall be available for inspection by any interested party filing a written request to the MassDOT's Resident Engineer for such inspection and copying.

Massachusetts General Laws c. 149, §27, requires annual updates to prevailing wage schedules for all public construction contracts lasting longer than one year. MassDOT will request the required updates and furnish them to the Contractor. The Contractor is required to pay no less than the wage rates indicated on the annual updated wage schedules.

MassDOT will request the updates no later than two week before the anniversary of the Notice to Proceed date of the contract to allow for adequate processing by the Department of Labor Standards (DLS). The effective date for the new rates will be the anniversary date of the contract (i.e. the notice to proceed date), regardless of the date of issuance on the schedule from DLS.

All bidders are cautioned that the aforementioned laws require that employers pay to covered employees no less than the applicable minimum wages. In addition, the same laws require that the applicable prevailing wages become incorporated as part of this contract. The prevailing minimum wage law establishes serious civil and criminal penalties for violations, including imprisonment and exclusion from future public contracts. Bidders are cautioned to carefully read the relevant sections of the Massachusetts General Laws.

*** END OF DOCUMENT ***

DOCUMENT 00861

STATE PREVAILING WAGE RATES

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

MAURA HEALY
Governor

KIM DRISCOLL
Lt. Governor

**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:	MassDOT Highway	City/Town: WILMINGTON
Contract Number:	132187	
Description of Work:	WILMINGTON – FAP No. NHP(BRR-ON)/HIP(BR)-0034(029)X Bridge Replacement, W-38-029 (2KV), ST 129 Lowell Street over I-93	
Job Location:	ST 129 Lowell Street over I-93	

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 updated wage schedule must be provided to all contractors, including general and sub-contractors, working on the construction project.
- This annual update requirement is generally not applicable to 27F “rental of equipment” contracts. For such contracts, the prevailing wage rates issued by DLS shall remain in effect for the duration of the contract term. However, if the prevailing wage rate sheet issued does not contain wage rates for each year covered by the contract term, the Awarding Authority must request updated rate sheets from DLS and provide them to the contractor to ensure the correct rates are being paid throughout the duration of the contract. Additionally, if an Awarding Authority exercises an option to renew or extend the contract term, they must request updated rate sheets from DLS and provide them to the contractor.
- 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.

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
(2 AXLE) DRIVER - EQUIPMENT	6/1/2025	\$40.95	\$15.57	\$20.17	\$0.00	\$0.00	\$76.69
TEAMSTERS JOINT COUNCIL NO. 10	12/1/2025	\$40.95	\$15.57	\$21.78	\$0.00	\$0.00	\$78.30
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2026	\$40.95	\$16.17	\$21.78	\$0.00	\$0.00	\$78.90
	6/1/2026	\$41.95	\$16.17	\$21.78	\$0.00	\$0.00	\$79.90
	12/1/2026	\$41.95	\$16.17	\$23.52	\$0.00	\$0.00	\$81.64
	1/1/2027	\$41.95	\$16.77	\$23.52	\$0.00	\$0.00	\$82.24
(3 AXLE) DRIVER - EQUIPMENT	6/1/2025	\$41.02	\$15.57	\$20.17	\$0.00	\$0.00	\$76.76
TEAMSTERS JOINT COUNCIL NO. 10	12/1/2025	\$41.02	\$15.57	\$21.78	\$0.00	\$0.00	\$78.37
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2026	\$41.02	\$16.17	\$21.78	\$0.00	\$0.00	\$78.97
	6/1/2026	\$42.02	\$16.17	\$21.78	\$0.00	\$0.00	\$79.97
	12/1/2026	\$42.02	\$16.17	\$23.52	\$0.00	\$0.00	\$81.71
	1/1/2027	\$42.02	\$16.77	\$23.52	\$0.00	\$0.00	\$82.31
(4 & 5 AXLE) DRIVER - EQUIPMENT	6/1/2025	\$41.14	\$15.57	\$20.17	\$0.00	\$0.00	\$76.88
TEAMSTERS JOINT COUNCIL NO. 10	12/1/2025	\$41.14	\$15.57	\$21.78	\$0.00	\$0.00	\$78.49
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2026	\$41.14	\$16.17	\$21.78	\$0.00	\$0.00	\$79.09
	6/1/2026	\$42.14	\$16.17	\$21.78	\$0.00	\$0.00	\$80.09
	12/1/2026	\$42.14	\$16.17	\$23.52	\$0.00	\$0.00	\$81.83
	1/1/2027	\$42.14	\$16.77	\$23.52	\$0.00	\$0.00	\$82.43
ADS/SUBMERSIBLE PILOT	1/1/2024	\$117.16	\$10.08	\$11.62	\$12.67	\$0.00	\$151.53
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 1)							
For apprentice rates see "Apprentice- PILE DRIVER"							
AIR TRACK OPERATOR	6/1/2025	\$41.09	\$9.90	\$9.25	\$9.11	\$0.00	\$69.35
LABORERS	12/1/2025	\$42.47	\$9.90	\$9.25	\$9.11	\$0.00	\$70.73
LABORERS - ZONE 2	6/1/2026	\$43.91	\$9.90	\$9.25	\$9.11	\$0.00	\$72.17
	12/1/2026	\$45.35	\$9.90	\$9.25	\$9.11	\$0.00	\$73.61
	6/1/2027	\$46.80	\$9.90	\$9.25	\$9.11	\$0.00	\$75.06
	12/1/2027	\$48.25	\$9.90	\$9.25	\$9.11	\$0.00	\$76.51
	6/1/2028	\$49.75	\$9.90	\$9.25	\$9.11	\$0.00	\$78.01
	12/1/2028	\$51.25	\$9.90	\$9.25	\$9.11	\$0.00	\$79.51
For apprentice rates see "Apprentice- LABORER"							
AIR TRACK OPERATOR (HEAVY & HIGHWAY)	6/1/2025	\$41.09	\$9.90	\$9.25	\$9.21	\$0.00	\$69.45
LABORERS	12/1/2025	\$42.47	\$9.90	\$9.25	\$9.21	\$0.00	\$70.83
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	6/1/2026	\$43.91	\$9.90	\$9.25	\$9.21	\$0.00	\$72.27
	12/1/2026	\$45.35	\$9.90	\$9.25	\$9.21	\$0.00	\$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
ASBESTOS REMOVER - PIPE / MECH. EQUIPT.	6/1/2025	\$43.80	\$14.50	\$4.30	\$6.75	\$0.00	\$69.35
HEAT & FROST INSULATORS LOCAL 6	12/1/2025	\$44.80	\$14.50	\$4.30	\$6.75	\$0.00	\$70.35
HEAT & FROST INSULATORS LOCAL 6 (BOSTON)							
ASPHALT RAKER	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.11	\$0.00	\$68.85
LABORERS	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.11	\$0.00	\$70.23
LABORERS - ZONE 2	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.11	\$0.00	\$71.67
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.11	\$0.00	\$73.11

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	6/1/2027	\$46.30	\$9.90	\$9.25	\$9.11	\$0.00	\$74.56
	12/1/2027	\$47.75	\$9.90	\$9.25	\$9.11	\$0.00	\$76.01
	6/1/2028	\$49.25	\$9.90	\$9.25	\$9.11	\$0.00	\$77.51
	12/1/2028	\$50.75	\$9.90	\$9.25	\$9.11	\$0.00	\$79.01
For apprentice rates see "Apprentice- LABORER"							
ASPHALT RAKER (HEAVY & HIGHWAY)	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.21	\$0.00	\$68.95
LABORERS	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.21	\$0.00	\$70.33
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.21	\$0.00	\$71.77
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.21	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE	6/1/2025	\$58.33	\$15.55	\$13.25	\$3.25	\$0.00	\$90.38
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$59.78	\$15.55	\$13.25	\$3.25	\$0.00	\$91.83
OPERATING ENGINEERS LOCAL 4	6/1/2026	\$61.08	\$15.55	\$13.25	\$3.25	\$0.00	\$93.13
	12/1/2026	\$62.53	\$15.55	\$13.25	\$3.25	\$0.00	\$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
BACKHOE/FRONT-END LOADER	6/1/2025	\$58.33	\$15.55	\$13.25	\$3.25	\$0.00	\$90.38
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$59.78	\$15.55	\$13.25	\$3.25	\$0.00	\$91.83
OPERATING ENGINEERS LOCAL 4	6/1/2026	\$61.08	\$15.55	\$13.25	\$3.25	\$0.00	\$93.13
	12/1/2026	\$62.53	\$15.55	\$13.25	\$3.25	\$0.00	\$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
BARCO-TYPE JUMPING TAMPER	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.11	\$0.00	\$68.85
LABORERS	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.11	\$0.00	\$70.23
LABORERS - ZONE 2	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.11	\$0.00	\$71.67
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.11	\$0.00	\$73.11
	6/1/2027	\$46.30	\$9.90	\$9.25	\$9.11	\$0.00	\$74.56
	12/1/2027	\$47.75	\$9.90	\$9.25	\$9.11	\$0.00	\$76.01
	6/1/2028	\$49.25	\$9.90	\$9.25	\$9.11	\$0.00	\$77.51
	12/1/2028	\$50.75	\$9.90	\$9.25	\$9.11	\$0.00	\$79.01
For apprentice rates see "Apprentice- LABORER"							
BLOCK PAVER, RAMMER / CURB SETTER	6/1/2025	\$41.09	\$9.90	\$9.25	\$9.11	\$0.00	\$69.35
LABORERS	12/1/2025	\$42.47	\$9.90	\$9.25	\$9.11	\$0.00	\$70.73
LABORERS - ZONE 2	6/1/2026	\$43.91	\$9.90	\$9.25	\$9.11	\$0.00	\$72.17
	12/1/2026	\$45.35	\$9.90	\$9.25	\$9.11	\$0.00	\$73.61
	6/1/2027	\$46.80	\$9.90	\$9.25	\$9.11	\$0.00	\$75.06
	12/1/2027	\$48.25	\$9.90	\$9.25	\$9.11	\$0.00	\$76.51
	6/1/2028	\$49.75	\$9.90	\$9.25	\$9.11	\$0.00	\$78.01
	12/1/2028	\$51.25	\$9.90	\$9.25	\$9.11	\$0.00	\$79.51
For apprentice rates see "Apprentice- LABORER"							
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY)	6/1/2025	\$41.09	\$9.90	\$9.25	\$9.21	\$0.00	\$69.45
LABORERS	12/1/2025	\$42.47	\$9.90	\$9.25	\$9.21	\$0.00	\$70.83
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	6/1/2026	\$43.91	\$9.90	\$9.25	\$9.21	\$0.00	\$72.27
	12/1/2026	\$45.35	\$9.90	\$9.25	\$9.21	\$0.00	\$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
BOILER MAKER	1/1/2024	\$48.12	\$7.07	\$14.60	\$6.00	\$0.00	\$75.79
BOILERMAKERS LOCAL 29							
BOILERMAKERS LOCAL 29							

Apprentice: BOILER MAKER**Effective Date: 1/1/2024**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	65.00	\$31.28	\$7.07	\$9.32	\$3.90	\$0.00	\$51.57
2	65.00	\$31.28	\$7.07	\$9.32	\$3.90	\$0.00	\$51.57
3	70.00	\$33.68	\$7.07	\$10.03	\$4.20	\$0.00	\$54.98
4	75.00	\$36.09	\$7.07	\$10.74	\$4.50	\$0.00	\$58.40
5	80.00	\$38.50	\$7.07	\$11.45	\$4.80	\$0.00	\$61.82
6	85.00	\$40.90	\$7.07	\$12.18	\$5.10	\$0.00	\$65.25
7	90.00	\$43.31	\$7.07	\$12.88	\$5.40	\$0.00	\$68.66
8	95.00	\$45.71	\$7.07	\$13.62	\$5.70	\$0.00	\$72.10

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	8/1/2025	\$65.81	\$11.49	\$15.57	\$7.33	\$0.00	\$100.20
BRICKLAYERS LOCAL 3	2/1/2026	\$67.16	\$11.49	\$15.57	\$7.33	\$0.00	\$101.55
BRICKLAYERS LOCAL 3 (LOWELL)	8/1/2026	\$69.36	\$11.49	\$15.57	\$7.33	\$0.00	\$103.75
	2/1/2027	\$70.76	\$11.49	\$15.57	\$7.33	\$0.00	\$105.15

Apprentice: BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)**Effective Date: 8/1/2025**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$32.91	\$11.49	\$15.57	\$7.33	\$0.00	\$67.30
2	60.00	\$39.49	\$11.49	\$15.57	\$7.33	\$0.00	\$73.88
3	70.00	\$46.07	\$11.49	\$15.57	\$7.33	\$0.00	\$80.46
4	80.00	\$52.65	\$11.49	\$15.57	\$7.33	\$0.00	\$87.04
5	90.00	\$59.23	\$11.49	\$15.57	\$7.33	\$0.00	\$93.62

Apprentice: BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)**Effective Date: 2/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$33.58	\$11.49	\$15.57	\$7.33	\$0.00	\$67.97
2	60.00	\$40.30	\$11.49	\$15.57	\$7.33	\$0.00	\$74.69
3	70.00	\$47.01	\$11.49	\$15.57	\$7.33	\$0.00	\$81.40
4	80.00	\$53.73	\$11.49	\$15.57	\$7.33	\$0.00	\$88.12
5	90.00	\$60.44	\$11.49	\$15.57	\$7.33	\$0.00	\$94.83

BULLDOZER/GRADER/SCRAPER	6/1/2025	\$57.68	\$15.55	\$13.25	\$3.25	\$0.00	\$89.73
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$59.12	\$15.55	\$13.25	\$3.25	\$0.00	\$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	\$60.40	\$15.55	\$13.25	\$3.25	\$0.00	\$92.45
	12/1/2026	\$61.84	\$15.55	\$13.25	\$3.25	\$0.00	\$93.89

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
CAISSON & UNDERPINNING BOTTOM MAN LABORERS LABORERS - FOUNDATION AND MARINE	6/1/2025	\$48.85	\$9.90	\$9.25	\$9.80	\$0.00	\$77.80
	12/1/2025	\$50.35	\$9.90	\$9.25	\$9.80	\$0.00	\$79.30
	6/1/2026	\$51.90	\$9.90	\$9.25	\$9.80	\$0.00	\$80.85
	12/1/2026	\$53.40	\$9.90	\$9.25	\$9.80	\$0.00	\$82.35
For apprentice rates see "Apprentice- LABORER"							
CAISSON & UNDERPINNING LABORER LABORERS LABORERS - FOUNDATION AND MARINE	6/1/2025	\$47.70	\$9.90	\$9.25	\$9.80	\$0.00	\$76.65
	12/1/2025	\$49.20	\$9.90	\$9.25	\$9.80	\$0.00	\$78.15
	6/1/2026	\$50.75	\$9.90	\$9.25	\$9.80	\$0.00	\$79.70
	12/1/2026	\$52.25	\$9.90	\$9.25	\$9.80	\$0.00	\$81.20
For apprentice rates see "Apprentice- LABORER"							
CAISSON & UNDERPINNING TOP MAN LABORERS LABORERS - FOUNDATION AND MARINE	6/1/2025	\$48.03	\$9.90	\$9.25	\$9.80	\$0.00	\$76.98
	12/1/2025	\$49.53	\$9.90	\$9.25	\$9.80	\$0.00	\$78.48
	6/1/2026	\$51.08	\$9.90	\$9.25	\$9.80	\$0.00	\$80.03
	12/1/2026	\$52.58	\$9.90	\$9.25	\$9.80	\$0.00	\$81.53
For apprentice rates see "Apprentice- LABORER"							
CARBIDE CORE DRILL OPERATOR LABORERS LABORERS - ZONE 2	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.11	\$0.00	\$68.85
	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.11	\$0.00	\$70.23
	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.11	\$0.00	\$71.67
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.11	\$0.00	\$73.11
	6/1/2027	\$46.30	\$9.90	\$9.25	\$9.11	\$0.00	\$74.56
	12/1/2027	\$47.75	\$9.90	\$9.25	\$9.11	\$0.00	\$76.01
	6/1/2028	\$49.25	\$9.90	\$9.25	\$9.11	\$0.00	\$77.51
	12/1/2028	\$50.75	\$9.90	\$9.25	\$9.11	\$0.00	\$79.01
For apprentice rates see "Apprentice- LABORER"							
CARPENTER CARPENTERS CARPENTERS -ZONE 2 (Eastern Massachusetts)	9/1/2025	\$50.87	\$9.83	\$11.47	\$8.50	\$0.00	\$80.67
	3/1/2026	\$52.12	\$9.83	\$11.47	\$8.50	\$0.00	\$81.92
	9/1/2026	\$53.37	\$9.83	\$11.47	\$8.50	\$0.00	\$83.17
	3/1/2027	\$54.62	\$9.83	\$11.47	\$8.50	\$0.00	\$84.42

Apprentice: CARPENTER							
Effective Date: 9/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	\$22.89	\$9.83	\$0.00	\$1.73	\$0.00	\$34.45
2	45.00	\$22.89	\$9.83	\$0.00	\$1.73	\$0.00	\$34.45
3	55.00	\$27.98	\$9.83	\$0.00	\$3.40	\$0.00	\$41.21
4	55.00	\$27.98	\$9.83	\$0.00	\$3.40	\$0.00	\$41.21
5	70.00	\$35.61	\$9.83	\$11.41	\$5.10	\$0.00	\$61.95
6	70.00	\$35.61	\$9.83	\$11.41	\$5.10	\$0.00	\$61.95
7	80.00	\$40.70	\$9.83	\$11.44	\$6.80	\$0.00	\$68.77
8	80.00	\$40.70	\$9.83	\$11.44	\$6.80	\$0.00	\$68.77

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: CARPENTER Effective Date: 3/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	\$23.45	\$9.83	\$0.00	\$1.73	\$0.00	\$35.01
2	45.00	\$23.45	\$9.83	\$0.00	\$1.73	\$0.00	\$35.01
3	55.00	\$28.67	\$9.83	\$0.00	\$3.40	\$0.00	\$41.90
4	55.00	\$28.67	\$9.83	\$0.00	\$3.40	\$0.00	\$41.90
5	70.00	\$36.48	\$9.83	\$11.41	\$5.10	\$0.00	\$62.82
6	70.00	\$36.48	\$9.83	\$11.41	\$5.10	\$0.00	\$62.82
7	80.00	\$41.70	\$9.83	\$11.44	\$6.80	\$0.00	\$69.77
8	80.00	\$41.70	\$9.83	\$11.44	\$6.80	\$0.00	\$69.77
CARPENTER WOOD FRAME	10/1/2024	\$26.65	\$7.02	\$3.80	\$1.00	\$0.00	\$38.47
CARPENTERS	10/1/2025	\$27.75	\$7.02	\$3.80	\$1.00	\$0.00	\$39.57
CARPENTERS-ZONE 3 (Wood Frame)	10/1/2026	\$28.85	\$7.02	\$3.80	\$1.00	\$0.00	\$40.67
All Aspects of New Wood Frame Work							

Apprentice: CARPENTER WOOD FRAME Effective Date: 10/1/2024							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$15.99	\$7.02	\$0.00	\$0.00	\$0.00	\$23.01
2	60.00	\$15.99	\$7.02	\$0.00	\$0.00	\$0.00	\$23.01
3	65.00	\$17.32	\$7.02	\$0.00	\$1.00	\$0.00	\$25.34
4	70.00	\$18.66	\$7.02	\$0.00	\$1.00	\$0.00	\$26.68
5	75.00	\$19.99	\$7.02	\$3.80	\$1.00	\$0.00	\$31.81
6	80.00	\$21.32	\$7.02	\$3.80	\$1.00	\$0.00	\$33.14
7	85.00	\$22.65	\$7.02	\$3.80	\$1.00	\$0.00	\$34.47
8	90.00	\$23.99	\$7.02	\$3.80	\$1.00	\$0.00	\$35.81

Apprentice: CARPENTER WOOD FRAME Effective Date: 10/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$16.65	\$7.02	\$0.00	\$0.00	\$0.00	\$23.67
2	60.00	\$16.65	\$7.02	\$0.00	\$0.00	\$0.00	\$23.67
3	65.00	\$18.04	\$7.02	\$0.00	\$1.00	\$0.00	\$26.06
4	70.00	\$19.43	\$7.02	\$0.00	\$1.00	\$0.00	\$27.45
5	75.00	\$20.81	\$7.02	\$3.80	\$1.00	\$0.00	\$32.63
6	80.00	\$22.20	\$7.02	\$3.80	\$1.00	\$0.00	\$34.02
7	85.00	\$23.59	\$7.02	\$3.80	\$1.00	\$0.00	\$35.41
8	90.00	\$24.98	\$7.02	\$3.80	\$1.00	\$0.00	\$36.80

CEMENT MASONRY/PLASTERING	7/1/2024	\$49.19	\$13.35	\$16.43	\$7.78	\$1.80	\$88.55

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
BRICKLAYERS LOCAL 3							
BRICKLAYERS LOCAL 3 (LOWELL)							

Apprentice: CEMENT MASONRY/PLASTERING**Effective Date: 7/1/2024**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$24.60	\$13.35	\$16.43	\$0.00	\$0.00	\$54.38
2	60.00	\$29.51	\$13.35	\$16.43	\$2.78	\$1.80	\$63.87
3	65.00	\$31.97	\$13.35	\$16.43	\$3.78	\$1.80	\$67.33
4	70.00	\$34.43	\$13.35	\$16.43	\$4.78	\$1.80	\$70.79
5	75.00	\$36.89	\$13.35	\$16.43	\$5.78	\$1.80	\$74.25
6	80.00	\$39.35	\$13.35	\$16.43	\$6.78	\$1.80	\$77.71
7	90.00	\$44.27	\$13.35	\$16.43	\$7.78	\$1.80	\$83.63

CHAIN SAW OPERATOR	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.11	\$0.00	\$68.85
LABORERS	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.11	\$0.00	\$70.23
LABORERS - ZONE 2	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.11	\$0.00	\$71.67
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.11	\$0.00	\$73.11
	6/1/2027	\$46.30	\$9.90	\$9.25	\$9.11	\$0.00	\$74.56
	12/1/2027	\$47.75	\$9.90	\$9.25	\$9.11	\$0.00	\$76.01
	6/1/2028	\$49.25	\$9.90	\$9.25	\$9.11	\$0.00	\$77.51
	12/1/2028	\$50.75	\$9.90	\$9.25	\$9.11	\$0.00	\$79.01

For apprentice rates see "Apprentice- LABORER"

CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES	6/1/2025	\$59.51	\$15.55	\$13.25	\$3.25	\$0.00	\$91.56
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$60.98	\$15.55	\$13.25	\$3.25	\$0.00	\$93.03
OPERATING ENGINEERS LOCAL 4	6/1/2026	\$62.31	\$15.55	\$13.25	\$3.25	\$0.00	\$94.36
	12/1/2026	\$63.79	\$15.55	\$13.25	\$3.25	\$0.00	\$95.84

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

COMPRESSOR OPERATOR	6/1/2025	\$37.52	\$15.55	\$13.25	\$3.25	\$0.00	\$69.57
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$38.47	\$15.55	\$13.25	\$3.25	\$0.00	\$70.52
OPERATING ENGINEERS LOCAL 4	6/1/2026	\$39.33	\$15.55	\$13.25	\$3.25	\$0.00	\$71.38
	12/1/2026	\$40.28	\$15.55	\$13.25	\$3.25	\$0.00	\$72.33

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

DELEADER (BRIDGE)	1/1/2025	\$58.46	\$9.95	\$11.85	\$12.10	\$0.00	\$92.36
PAINTERS LOCAL 35							
PAINTERS LOCAL 35 - ZONE 2							

Apprentice: DELEADER (BRIDGE)**Effective Date: 1/1/2025**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$29.23	\$9.95	\$0.00	\$0.00	\$0.00	\$39.18
2	55.00	\$32.15	\$9.95	\$0.00	\$6.66	\$0.00	\$48.76
3	60.00	\$35.08	\$9.95	\$0.00	\$7.26	\$0.00	\$52.29

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate																																																
Apprentice: DELEADER (BRIDGE) Effective Date: 1/1/2025 <table><thead><tr><th>Step</th><th>Percent</th><th>Apprentice Base Wage</th><th>Health</th><th>Pension</th><th>Annuity</th><th>Supplemental Unemployment</th><th>Total Rate</th></tr></thead><tbody><tr><td>4</td><td>65.00</td><td>\$38.00</td><td>\$9.95</td><td>\$0.00</td><td>\$7.87</td><td>\$0.00</td><td>\$55.82</td></tr><tr><td>5</td><td>70.00</td><td>\$40.92</td><td>\$9.95</td><td>\$11.85</td><td>\$8.47</td><td>\$0.00</td><td>\$71.19</td></tr><tr><td>6</td><td>75.00</td><td>\$43.85</td><td>\$9.95</td><td>\$11.85</td><td>\$9.08</td><td>\$0.00</td><td>\$74.73</td></tr><tr><td>7</td><td>80.00</td><td>\$46.77</td><td>\$9.95</td><td>\$11.85</td><td>\$9.68</td><td>\$0.00</td><td>\$78.25</td></tr><tr><td>8</td><td>90.00</td><td>\$52.61</td><td>\$9.95</td><td>\$11.85</td><td>\$10.89</td><td>\$0.00</td><td>\$85.30</td></tr></tbody></table>								Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate	4	65.00	\$38.00	\$9.95	\$0.00	\$7.87	\$0.00	\$55.82	5	70.00	\$40.92	\$9.95	\$11.85	\$8.47	\$0.00	\$71.19	6	75.00	\$43.85	\$9.95	\$11.85	\$9.08	\$0.00	\$74.73	7	80.00	\$46.77	\$9.95	\$11.85	\$9.68	\$0.00	\$78.25	8	90.00	\$52.61	\$9.95	\$11.85	\$10.89	\$0.00	\$85.30
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate																																																
4	65.00	\$38.00	\$9.95	\$0.00	\$7.87	\$0.00	\$55.82																																																
5	70.00	\$40.92	\$9.95	\$11.85	\$8.47	\$0.00	\$71.19																																																
6	75.00	\$43.85	\$9.95	\$11.85	\$9.08	\$0.00	\$74.73																																																
7	80.00	\$46.77	\$9.95	\$11.85	\$9.68	\$0.00	\$78.25																																																
8	90.00	\$52.61	\$9.95	\$11.85	\$10.89	\$0.00	\$85.30																																																
DEMO: ADZEMAN	6/2/2025	\$47.75	\$9.90	\$9.25	\$9.65	\$0.00	\$76.55																																																
LABORERS	12/1/2025	\$49.25	\$9.90	\$9.25	\$9.65	\$0.00	\$78.05																																																
LABORERS - ZONE 2	6/1/2026	\$50.80	\$9.90	\$9.25	\$9.65	\$0.00	\$79.60																																																
	12/7/2026	\$52.30	\$9.90	\$9.25	\$9.65	\$0.00	\$81.10																																																
	6/7/2027	\$53.90	\$9.90	\$9.25	\$9.65	\$0.00	\$82.70																																																
	12/6/2027	\$55.50	\$9.90	\$9.25	\$9.65	\$0.00	\$84.30																																																
	6/5/2028	\$57.18	\$9.90	\$9.25	\$9.65	\$0.00	\$85.98																																																
	12/4/2028	\$58.85	\$9.90	\$9.25	\$9.65	\$0.00	\$87.65																																																
For apprentice rates see "Apprentice- LABORER"																																																							
DEMO: BACKHOE/LOADER/HAMMER OPERATOR	6/2/2025	\$48.75	\$9.90	\$9.25	\$9.65	\$0.00	\$77.55																																																
LABORERS	12/1/2025	\$50.25	\$9.90	\$9.25	\$9.65	\$0.00	\$79.05																																																
LABORERS - ZONE 2	6/1/2026	\$51.80	\$9.90	\$9.25	\$9.65	\$0.00	\$80.60																																																
	12/7/2026	\$53.30	\$9.90	\$9.25	\$9.65	\$0.00	\$82.10																																																
	6/7/2027	\$54.90	\$9.90	\$9.25	\$9.65	\$0.00	\$83.70																																																
	12/6/2027	\$56.50	\$9.90	\$9.25	\$9.65	\$0.00	\$85.30																																																
	6/5/2028	\$58.18	\$9.90	\$9.25	\$9.65	\$0.00	\$86.98																																																
	12/4/2028	\$59.85	\$9.90	\$9.25	\$9.65	\$0.00	\$88.65																																																
For apprentice rates see "Apprentice- LABORER"																																																							
DEMO: BURNERS	6/2/2025	\$48.50	\$9.90	\$9.25	\$9.65	\$0.00	\$77.30																																																
LABORERS	12/1/2025	\$50.00	\$9.90	\$9.25	\$9.65	\$0.00	\$78.80																																																
LABORERS - ZONE 2	6/1/2026	\$51.55	\$9.90	\$9.25	\$9.65	\$0.00	\$80.35																																																
	12/7/2026	\$53.05	\$9.90	\$9.25	\$9.65	\$0.00	\$81.85																																																
	6/7/2027	\$54.65	\$9.90	\$9.25	\$9.65	\$0.00	\$83.45																																																
	12/6/2027	\$56.25	\$9.90	\$9.25	\$9.65	\$0.00	\$85.05																																																
	6/5/2028	\$57.93	\$9.90	\$9.25	\$9.65	\$0.00	\$86.73																																																
	12/4/2028	\$59.60	\$9.90	\$9.25	\$9.65	\$0.00	\$88.40																																																
For apprentice rates see "Apprentice- LABORER"																																																							
DEMO: CONCRETE CUTTER/SAWYER	6/2/2025	\$48.75	\$9.90	\$9.25	\$9.65	\$0.00	\$77.55																																																
LABORERS	12/1/2025	\$50.25	\$9.90	\$9.25	\$9.65	\$0.00	\$79.05																																																
LABORERS - ZONE 2	6/1/2026	\$51.80	\$9.90	\$9.25	\$9.65	\$0.00	\$80.60																																																
	12/7/2026	\$53.30	\$9.90	\$9.25	\$9.65	\$0.00	\$82.10																																																
	6/7/2027	\$54.90	\$9.90	\$9.25	\$9.65	\$0.00	\$83.70																																																
	12/6/2027	\$56.50	\$9.90	\$9.25	\$9.65	\$0.00	\$85.30																																																
	6/5/2028	\$58.18	\$9.90	\$9.25	\$9.65	\$0.00	\$86.98																																																
	12/4/2028	\$59.85	\$9.90	\$9.25	\$9.65	\$0.00	\$88.65																																																
For apprentice rates see "Apprentice- LABORER"																																																							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
DEMO: JACKHAMMER OPERATOR	6/2/2025	\$48.50	\$9.90	\$9.25	\$9.65	\$0.00	\$77.30
LABORERS	12/1/2025	\$50.00	\$9.90	\$9.25	\$9.65	\$0.00	\$78.80
LABORERS - ZONE 2	6/1/2026	\$51.55	\$9.90	\$9.25	\$9.65	\$0.00	\$80.35
	12/7/2026	\$53.05	\$9.90	\$9.25	\$9.65	\$0.00	\$81.85
	6/7/2027	\$54.65	\$9.90	\$9.25	\$9.65	\$0.00	\$83.45
	12/6/2027	\$56.25	\$9.90	\$9.25	\$9.65	\$0.00	\$85.05
	6/5/2028	\$57.93	\$9.90	\$9.25	\$9.65	\$0.00	\$86.73
	12/4/2028	\$59.60	\$9.90	\$9.25	\$9.65	\$0.00	\$88.40
For apprentice rates see "Apprentice- LABORER"							
DEMO: WRECKING LABORER	6/2/2025	\$47.75	\$9.90	\$9.25	\$9.65	\$0.00	\$76.55
LABORERS	12/1/2025	\$49.25	\$9.90	\$9.25	\$9.65	\$0.00	\$78.05
LABORERS - ZONE 2	6/1/2026	\$50.80	\$9.90	\$9.25	\$9.65	\$0.00	\$79.60
	12/7/2026	\$52.30	\$9.90	\$9.25	\$9.65	\$0.00	\$81.10
	6/7/2027	\$53.90	\$9.90	\$9.25	\$9.65	\$0.00	\$82.70
	12/6/2027	\$55.50	\$9.90	\$9.25	\$9.65	\$0.00	\$84.30
	6/5/2028	\$57.18	\$9.90	\$9.25	\$9.65	\$0.00	\$85.98
	12/4/2028	\$58.85	\$9.90	\$9.25	\$9.65	\$0.00	\$87.65
For apprentice rates see "Apprentice- LABORER"							
DIRECTIONAL DRILL MACHINE OPERATOR	6/1/2025	\$57.68	\$15.55	\$13.25	\$3.25	\$0.00	\$89.73
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$59.12	\$15.55	\$13.25	\$3.25	\$0.00	\$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	\$60.40	\$15.55	\$13.25	\$3.25	\$0.00	\$92.45
	12/1/2026	\$61.84	\$15.55	\$13.25	\$3.25	\$0.00	\$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
DIVER	8/1/2024	\$78.11	\$10.08	\$11.62	\$10.04	\$0.00	\$109.85
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 1)							
as of 8-1-24, Apprentices with diving licenses begin at second year. % of Diver wage 70/80/90 2A \$69.83, 3A \$91.79,4A \$102.14 Total Rate							
DIVER TENDER	8/1/2024	\$55.79	\$10.08	\$11.62	\$12.67	\$0.00	\$90.16
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 1)							
as of 8-1-24, Apprentices with diving licenses begin at second year. % of Piledriver wage 70/80/90 2A \$54.20, 3A \$73.93,4A \$82.05 Total Rate							
DIVER TENDER (EFFLUENT)	8/1/2024	\$83.69	\$10.08	\$11.62	\$12.67	\$0.00	\$118.06
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 1)							
For apprentice rates see "Apprentice- PILE DRIVER"							
DIVER/SLURRY (EFFLUENT)	8/1/2024	\$117.16	\$10.08	\$11.62	\$12.67	\$0.00	\$151.53
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 1)							
For apprentice rates see "Apprentice- PILE DRIVER"							
DRAWBRIDGE OPERATOR (Construction)	7/1/2020	\$26.77	\$6.67	\$3.93	\$0.00	\$0.16	\$37.53
DRAWBRIDGE - SEIU LOCAL 888							
DRAWBRIDGE - SEIU LOCAL 888							
ELECTRICIAN	9/1/2025	\$66.17	\$13.00	\$14.37	\$8.72	\$0.00	\$102.26
ELECTRICIANS LOCAL 103	3/1/2026	\$66.86	\$13.00	\$14.64	\$9.00	\$0.00	\$103.50

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
ELECTRICIANS LOCAL 103	9/1/2026	\$68.78	\$13.00	\$14.69	\$9.00	\$0.00	\$105.47
	3/1/2027	\$69.97	\$13.00	\$14.73	\$9.00	\$0.00	\$106.70
	9/1/2027	\$71.88	\$13.00	\$14.79	\$9.00	\$0.00	\$108.67
	3/1/2028	\$73.08	\$13.00	\$14.82	\$9.00	\$0.00	\$109.90

Apprentice: ELECTRICIAN**Effective Date: 9/1/2025**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	\$26.47	\$13.00	\$0.79	\$0.00	\$0.00	\$40.26
2	40.00	\$26.47	\$13.00	\$0.79	\$0.00	\$0.00	\$40.26
3	45.00	\$29.78	\$13.00	\$13.27	\$3.92	\$0.00	\$59.97
4	45.00	\$29.78	\$13.00	\$13.27	\$3.92	\$0.00	\$59.97
5	50.00	\$33.09	\$13.00	\$13.37	\$4.36	\$0.00	\$63.82
6	55.00	\$36.39	\$13.00	\$13.47	\$4.80	\$0.00	\$67.66
7	60.00	\$39.70	\$13.00	\$13.57	\$5.23	\$0.00	\$71.50
8	65.00	\$43.01	\$13.00	\$13.67	\$5.67	\$0.00	\$75.35
9	70.00	\$46.32	\$13.00	\$13.77	\$6.10	\$0.00	\$79.19
10	75.00	\$49.63	\$13.00	\$13.87	\$6.54	\$0.00	\$83.04

Apprentice: ELECTRICIAN**Effective Date: 3/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	\$26.74	\$13.00	\$0.80	\$0.00	\$0.00	\$40.54
2	40.00	\$26.74	\$13.00	\$0.80	\$0.00	\$0.00	\$40.54
3	45.00	\$30.09	\$13.00	\$13.53	\$3.92	\$0.00	\$60.54
4	45.00	\$30.09	\$13.00	\$13.53	\$4.05	\$0.00	\$60.67
5	50.00	\$33.43	\$13.00	\$13.63	\$4.50	\$0.00	\$64.56
6	55.00	\$36.77	\$13.00	\$13.73	\$4.95	\$0.00	\$68.45
7	60.00	\$40.12	\$13.00	\$13.83	\$5.40	\$0.00	\$72.35
8	65.00	\$43.46	\$13.00	\$13.93	\$5.85	\$0.00	\$76.24
9	70.00	\$46.80	\$13.00	\$14.03	\$6.30	\$0.00	\$80.13
10	75.00	\$50.15	\$13.00	\$14.13	\$6.75	\$0.00	\$84.03

ELEVATOR CONSTRUCTOR	1/1/2022	\$65.62	\$16.03	\$10.71	\$9.50	\$0.00	\$101.86
ELEVATOR CONSTRUCTORS LOCAL 4							
ELEVATOR CONSTRUCTORS LOCAL 4							

Apprentice: ELEVATOR CONSTRUCTOR**Effective Date: 1/1/2022**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$32.81	\$16.03	\$0.00	\$0.00	\$0.00	\$48.84
2	55.00	\$36.09	\$16.03	\$10.71	\$9.50	\$0.00	\$72.33
3	65.00	\$42.65	\$16.03	\$10.71	\$9.50	\$0.00	\$78.89

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate																								
Apprentice: ELEVATOR CONSTRUCTOR Effective Date: 1/1/2022 <table><thead><tr><th>Step</th><th>Percent</th><th>Apprentice Base Wage</th><th>Health</th><th>Pension</th><th>Annuity</th><th>Supplemental Unemployment</th><th>Total Rate</th></tr></thead><tbody><tr><td>4</td><td>70.00</td><td>\$45.93</td><td>\$16.03</td><td>\$10.71</td><td>\$9.50</td><td>\$0.00</td><td>\$82.17</td></tr><tr><td>5</td><td>80.00</td><td>\$52.50</td><td>\$16.03</td><td>\$10.71</td><td>\$9.50</td><td>\$0.00</td><td>\$88.74</td></tr></tbody></table>								Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate	4	70.00	\$45.93	\$16.03	\$10.71	\$9.50	\$0.00	\$82.17	5	80.00	\$52.50	\$16.03	\$10.71	\$9.50	\$0.00	\$88.74
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate																								
4	70.00	\$45.93	\$16.03	\$10.71	\$9.50	\$0.00	\$82.17																								
5	80.00	\$52.50	\$16.03	\$10.71	\$9.50	\$0.00	\$88.74																								
ELEVATOR CONSTRUCTOR HELPER	1/1/2022	\$45.93	\$16.03	\$10.71	\$9.50	\$0.00	\$82.17																								
ELEVATOR CONSTRUCTORS LOCAL 4																															
ELEVATOR CONSTRUCTORS LOCAL 4																															
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"																															
FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY)	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.21	\$0.00	\$68.95																								
LABORERS	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.21	\$0.00	\$70.33																								
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.21	\$0.00	\$71.77																								
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.21	\$0.00	\$73.21																								
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"																															
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY	5/1/2025	\$53.22	\$15.30	\$13.15	\$3.25	\$0.00	\$84.92																								
OPERATING ENGINEERS LOCAL 4	11/1/2025	\$54.51	\$15.30	\$13.15	\$3.25	\$0.00	\$86.21																								
OPERATING ENGINEERS LOCAL 4	5/1/2026	\$55.95	\$15.30	\$13.15	\$3.25	\$0.00	\$87.65																								
	11/1/2026	\$57.24	\$15.30	\$13.15	\$3.25	\$0.00	\$88.94																								
	5/1/2027	\$58.67	\$15.30	\$13.15	\$3.25	\$0.00	\$90.37																								
For apprentice rates see "Apprentice- OPERATING ENGINEERS"																															
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY	5/1/2025	\$54.82	\$15.30	\$13.15	\$3.25	\$0.00	\$86.52																								
OPERATING ENGINEERS LOCAL 4	11/1/2025	\$56.12	\$15.30	\$13.15	\$3.25	\$0.00	\$87.82																								
OPERATING ENGINEERS LOCAL 4	5/1/2026	\$57.57	\$15.30	\$13.15	\$3.25	\$0.00	\$89.27																								
	11/1/2026	\$58.87	\$15.30	\$13.15	\$3.25	\$0.00	\$90.57																								
	5/1/2027	\$60.32	\$15.30	\$13.15	\$3.25	\$0.00	\$92.02																								
For apprentice rates see "Apprentice- OPERATING ENGINEERS"																															
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY	5/1/2025	\$26.22	\$15.30	\$13.15	\$3.25	\$0.00	\$57.92																								
OPERATING ENGINEERS LOCAL 4	11/1/2025	\$26.98	\$15.30	\$13.15	\$3.25	\$0.00	\$58.68																								
OPERATING ENGINEERS LOCAL 4	5/1/2026	\$27.83	\$15.30	\$13.15	\$3.25	\$0.00	\$59.53																								
	11/1/2026	\$28.59	\$15.30	\$13.15	\$3.25	\$0.00	\$60.29																								
	5/1/2027	\$29.44	\$15.30	\$13.15	\$3.25	\$0.00	\$61.14																								
For apprentice rates see "Apprentice- OPERATING ENGINEERS"																															
FIRE ALARM INSTALLER	9/1/2025	\$66.17	\$13.00	\$14.37	\$9.00	\$0.00	\$102.54																								
ELECTRICIANS LOCAL 103	3/1/2026	\$66.86	\$13.00	\$14.64	\$9.00	\$0.00	\$103.50																								
ELECTRICIANS LOCAL 103	9/1/2026	\$68.78	\$13.00	\$14.69	\$9.00	\$0.00	\$105.47																								
	3/1/2027	\$69.97	\$13.00	\$14.73	\$9.00	\$0.00	\$106.70																								
	9/1/2027	\$71.88	\$13.00	\$14.79	\$9.00	\$0.00	\$108.67																								
	3/1/2028	\$73.08	\$13.00	\$14.82	\$9.00	\$0.00	\$109.90																								
For apprentice rates see "Apprentice- ELECTRICIAN"																															
FIRE ALARM REPAIR / MAINTENANCE	9/1/2025	\$52.94	\$13.00	\$13.97	\$6.98	\$0.00	\$86.89																								
/ COMMISSIONING	3/1/2026	\$53.49	\$13.00	\$14.23	\$7.20	\$0.00	\$87.92																								

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
ELECTRICIANS LOCAL 103	9/1/2026	\$55.02	\$13.00	\$14.28	\$7.20	\$0.00	\$89.50
ELECTRICIANS LOCAL 103	3/1/2027	\$55.98	\$13.00	\$14.31	\$7.20	\$0.00	\$90.49
	9/1/2027	\$57.50	\$13.00	\$14.36	\$7.20	\$0.00	\$92.06
	3/1/2028	\$58.46	\$13.00	\$14.38	\$7.20	\$0.00	\$93.04

For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"

FIREMAN (ASST. ENGINEER)	6/1/2025	\$47.02	\$15.55	\$13.25	\$3.25	\$0.00	\$79.07
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$48.19	\$15.55	\$13.25	\$3.25	\$0.00	\$80.24
OPERATING ENGINEERS LOCAL 4	6/1/2026	\$49.25	\$15.55	\$13.25	\$3.25	\$0.00	\$81.30
	12/1/2026	\$50.43	\$15.55	\$13.25	\$3.25	\$0.00	\$82.48

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FLAGGER & SIGNALER (HEAVY & HIGHWAY)	6/1/2025	\$28.09	\$9.90	\$9.25	\$9.21	\$0.00	\$56.45
LABORERS	12/1/2025	\$28.09	\$9.90	\$9.25	\$9.21	\$0.00	\$56.45
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	6/1/2026	\$29.21	\$9.90	\$9.25	\$9.21	\$0.00	\$57.57
	12/1/2026	\$29.21	\$9.90	\$9.25	\$9.21	\$0.00	\$57.57

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

FLOORCOVERER	9/1/2025	\$59.23	\$8.83	\$11.47	\$8.80	\$0.00	\$88.33
FLOORCOVERERS LOCAL 2168	3/1/2026	\$60.73	\$8.83	\$11.47	\$8.80	\$0.00	\$89.83
FLOORCOVERERS LOCAL 2168 ZONE I	9/1/2026	\$62.23	\$8.83	\$11.47	\$8.80	\$0.00	\$91.33
	3/1/2027	\$63.73	\$8.83	\$11.47	\$8.80	\$0.00	\$92.83

Apprentice: FLOORCOVERER

Effective Date: 9/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	\$26.65	\$8.83	\$0.00	\$1.76	\$0.00	\$37.24
2	45.00	\$26.65	\$8.83	\$0.00	\$1.76	\$0.00	\$37.24
3	55.00	\$32.58	\$8.83	\$0.00	\$3.52	\$0.00	\$44.93
4	55.00	\$32.58	\$8.83	\$0.00	\$3.52	\$0.00	\$44.93
5	70.00	\$41.46	\$8.83	\$11.47	\$5.28	\$0.00	\$67.04
6	70.00	\$41.46	\$8.83	\$11.47	\$5.28	\$0.00	\$67.04
7	80.00	\$47.38	\$8.83	\$11.47	\$7.04	\$0.00	\$74.72
8	80.00	\$47.38	\$8.83	\$11.47	\$7.04	\$0.00	\$74.72

Apprentice: FLOORCOVERER

Effective Date: 3/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	\$27.33	\$8.83	\$0.00	\$1.76	\$0.00	\$37.92
2	45.00	\$27.33	\$8.83	\$0.00	\$1.76	\$0.00	\$37.92
3	55.00	\$33.40	\$8.83	\$0.00	\$3.52	\$0.00	\$45.75
4	55.00	\$33.40	\$8.83	\$0.00	\$3.52	\$0.00	\$45.75
5	70.00	\$42.51	\$8.83	\$11.47	\$5.28	\$0.00	\$68.09
6	70.00	\$42.51	\$8.83	\$11.47	\$5.28	\$0.00	\$68.09
7	80.00	\$48.58	\$8.83	\$11.47	\$7.04	\$0.00	\$75.92

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: FLOORCOVERER Effective Date: 3/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
8	80.00	\$48.58	\$8.83	\$11.47	\$7.04	\$0.00	\$75.92
FORK LIFT/CHERRY PICKER	6/1/2025	\$58.33	\$15.55	\$13.25	\$3.25	\$0.00	\$90.38
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$59.78	\$15.55	\$13.25	\$3.25	\$0.00	\$91.83
OPERATING ENGINEERS LOCAL 4	6/1/2026	\$61.08	\$15.55	\$13.25	\$3.25	\$0.00	\$93.13
	12/1/2026	\$62.53	\$15.55	\$13.25	\$3.25	\$0.00	\$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
GENERATOR/LIGHTING PLANT/HEATERS	6/1/2025	\$37.52	\$15.55	\$13.25	\$3.25	\$0.00	\$69.57
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$38.47	\$15.55	\$13.25	\$3.25	\$0.00	\$70.52
OPERATING ENGINEERS LOCAL 4	6/1/2026	\$39.33	\$15.55	\$13.25	\$3.25	\$0.00	\$71.38
	12/1/2026	\$40.28	\$15.55	\$13.25	\$3.25	\$0.00	\$72.33
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)	1/1/2025	\$47.96	\$9.95	\$11.85	\$12.10	\$0.00	\$81.86
GLAZIERS LOCAL 35							
GLAZIERS LOCAL 35 (ZONE 2)							
Apprentice: GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) Effective Date: 1/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$23.98	\$9.95	\$0.00	\$0.00	\$0.00	\$33.93
2	55.00	\$26.38	\$9.95	\$0.00	\$6.66	\$0.00	\$42.99
3	60.00	\$28.78	\$9.95	\$0.00	\$7.26	\$0.00	\$45.99
4	65.00	\$31.17	\$9.95	\$0.00	\$7.87	\$0.00	\$48.99
5	70.00	\$33.57	\$9.95	\$11.85	\$8.47	\$0.00	\$63.84
6	75.00	\$35.97	\$9.95	\$11.85	\$9.08	\$0.00	\$66.85
7	80.00	\$38.37	\$9.95	\$11.85	\$9.68	\$0.00	\$69.85
8	90.00	\$43.16	\$9.95	\$11.85	\$10.89	\$0.00	\$75.85
HOISTING ENGINEER/CRANES/GRADALLS	6/1/2025	\$58.33	\$15.55	\$13.25	\$3.25	\$0.00	\$90.38
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$59.78	\$15.55	\$13.25	\$3.25	\$0.00	\$91.83
OPERATING ENGINEERS LOCAL 4	6/1/2026	\$61.08	\$15.55	\$13.25	\$3.25	\$0.00	\$93.13
	12/1/2026	\$62.53	\$15.55	\$13.25	\$3.25	\$0.00	\$94.58
Apprentice: HOISTING ENGINEER/CRANES/GRADALLS Effective Date: 6/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	\$32.08	\$0.00	\$0.00	\$0.00	\$0.00	\$32.08
2	60.00	\$35.00	\$15.55	\$13.25	\$3.25	\$0.00	\$67.05

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: HOISTING ENGINEER/CRANES/GRADALLS Effective Date: 6/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
3	65.00	\$37.91	\$15.55	\$13.25	\$3.25	\$0.00	\$69.96
4	70.00	\$40.83	\$15.55	\$13.25	\$3.25	\$0.00	\$72.88
5	75.00	\$43.75	\$15.55	\$13.25	\$3.25	\$0.00	\$75.80
6	80.00	\$46.66	\$15.55	\$13.25	\$3.25	\$0.00	\$78.71
7	85.00	\$49.58	\$15.55	\$13.25	\$3.25	\$0.00	\$81.63
8	90.00	\$52.50	\$15.55	\$13.25	\$3.25	\$0.00	\$84.55
Apprentice: HOISTING ENGINEER/CRANES/GRADALLS Effective Date: 12/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	\$32.88	\$0.00	\$0.00	\$0.00	\$0.00	\$32.88
2	60.00	\$35.87	\$15.55	\$13.25	\$3.25	\$0.00	\$67.92
3	65.00	\$38.86	\$15.55	\$13.25	\$3.25	\$0.00	\$70.91
4	70.00	\$41.85	\$15.55	\$13.25	\$3.25	\$0.00	\$73.90
5	75.00	\$44.84	\$15.55	\$13.25	\$3.25	\$0.00	\$76.89
6	80.00	\$47.82	\$15.55	\$13.25	\$3.25	\$0.00	\$79.87
7	85.00	\$50.81	\$15.55	\$13.25	\$3.25	\$0.00	\$82.86
8	90.00	\$53.80	\$15.55	\$13.25	\$3.25	\$0.00	\$85.85
HVAC (DUCTWORK)	8/1/2025	\$60.98	\$14.91	\$18.74	\$9.53	\$2.98	\$107.14
SHEETMETAL WORKERS LOCAL 17	2/1/2026	\$62.93	\$14.91	\$18.74	\$9.53	\$2.98	\$109.09
SHEETMETAL WORKERS LOCAL 17 - A							
For apprentice rates see "Apprentice- SHEET METAL WORKER"							
HVAC (ELECTRICAL CONTROLS)	9/1/2025	\$66.17	\$13.00	\$14.37	\$8.72	\$0.00	\$102.26
ELECTRICIANS LOCAL 103	3/1/2026	\$66.86	\$13.00	\$14.64	\$9.00	\$0.00	\$103.50
ELECTRICIANS LOCAL 103	9/1/2026	\$68.78	\$13.00	\$14.69	\$9.00	\$0.00	\$105.47
	3/1/2027	\$69.97	\$13.00	\$14.73	\$9.00	\$0.00	\$106.70
	9/1/2027	\$71.88	\$13.00	\$14.79	\$9.00	\$0.00	\$108.67
	3/1/2028	\$73.08	\$13.00	\$14.82	\$9.00	\$0.00	\$109.90
For apprentice rates see "Apprentice- ELECTRICIAN"							
HVAC (TESTING AND BALANCING - AIR)	8/1/2025	\$60.98	\$14.91	\$18.74	\$9.53	\$2.98	\$107.14
SHEETMETAL WORKERS LOCAL 17	2/1/2026	\$62.93	\$14.91	\$18.74	\$9.53	\$2.98	\$109.09
SHEETMETAL WORKERS LOCAL 17 - A							
For apprentice rates see "Apprentice- SHEET METAL WORKER"							
HVAC (TESTING AND BALANCING -WATER)	3/1/2025	\$68.88	\$12.70	\$13.05	\$8.75	\$0.00	\$103.38
PIPEFITTERS LOCAL 537							
PIPEFITTERS LOCAL 537							
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
HVAC MECHANIC	3/1/2025	\$68.88	\$12.70	\$13.05	\$8.75	\$0.00	\$103.38
PIPEFITTERS LOCAL 537							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
PIPEFITTERS LOCAL 537							
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
HYDRAULIC DRILLS	6/1/2025	\$41.09	\$9.90	\$9.25	\$9.11	\$0.00	\$69.35
LABORERS	12/1/2025	\$42.47	\$9.90	\$9.25	\$9.11	\$0.00	\$70.73
LABORERS - ZONE 2	6/1/2026	\$43.91	\$9.90	\$9.25	\$9.11	\$0.00	\$72.17
	12/1/2026	\$45.35	\$9.90	\$9.25	\$9.11	\$0.00	\$73.61
	6/1/2027	\$46.80	\$9.90	\$9.25	\$9.11	\$0.00	\$75.06
	12/1/2027	\$48.25	\$9.90	\$9.25	\$9.11	\$0.00	\$76.51
	6/1/2028	\$49.75	\$9.90	\$9.25	\$9.11	\$0.00	\$78.01
	12/1/2028	\$51.25	\$9.90	\$9.25	\$9.11	\$0.00	\$79.51
For apprentice rates see "Apprentice- LABORER"							
HYDRAULIC DRILLS (HEAVY & HIGHWAY)	6/1/2025	\$41.09	\$9.90	\$9.25	\$9.21	\$0.00	\$69.45
LABORERS	12/1/2025	\$42.47	\$9.90	\$9.25	\$9.21	\$0.00	\$70.83
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	6/1/2026	\$43.91	\$9.90	\$9.25	\$9.21	\$0.00	\$72.27
	12/1/2026	\$45.35	\$9.90	\$9.25	\$9.21	\$0.00	\$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
INSULATOR (PIPES & TANKS)	9/1/2025	\$60.34	\$14.75	\$9.52	\$10.09	\$0.00	\$94.70
HEAT & FROST INSULATORS LOCAL 6	9/1/2026	\$63.76	\$14.75	\$9.52	\$10.09	\$0.00	\$98.12
HEAT & FROST INSULATORS LOCAL 6 (BOSTON)							

Apprentice: INSULATOR (PIPES & TANKS)**Effective Date: 9/1/2025**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$30.17	\$14.75	\$9.27	\$5.05	\$0.00	\$59.24
2	60.00	\$36.20	\$14.75	\$9.32	\$6.05	\$0.00	\$66.32
3	70.00	\$42.24	\$14.75	\$9.37	\$7.06	\$0.00	\$73.42
4	80.00	\$48.27	\$14.75	\$9.42	\$8.07	\$0.00	\$80.51

Apprentice: INSULATOR (PIPES & TANKS)**Effective Date: 9/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$31.88	\$14.75	\$9.27	\$5.05	\$0.00	\$60.95
2	60.00	\$38.26	\$14.75	\$9.32	\$6.05	\$0.00	\$68.38
3	70.00	\$44.63	\$14.75	\$9.37	\$7.06	\$0.00	\$75.81
4	80.00	\$51.01	\$14.75	\$9.42	\$8.07	\$0.00	\$83.25

IRONWORKER/WELDER	3/16/2025	\$52.38	\$9.00	\$12.70	\$14.45	\$0.00	\$88.53
IRONWORKERS LOCAL 7	9/16/2025	\$53.46	\$9.05	\$12.75	\$14.50	\$0.00	\$89.76
IRONWORKERS LOCAL 7 (LAWRENCE AREA)							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: IRONWORKER/WELDER Effective Date: 3/16/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$31.43	\$9.00	\$12.70	\$4.25	\$0.00	\$57.38
2	75.00	\$39.29	\$9.00	\$12.70	\$4.25	\$0.00	\$65.24
3	85.00	\$44.52	\$9.00	\$12.70	\$4.25	\$0.00	\$70.47
4	0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
5	0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
6	0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Apprentice: IRONWORKER/WELDER Effective Date: 9/16/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$32.08	\$9.05	\$12.75	\$4.50	\$0.00	\$58.38
2	75.00	\$40.10	\$9.05	\$12.75	\$4.50	\$0.00	\$66.40
3	85.00	\$45.44	\$9.05	\$12.75	\$4.50	\$0.00	\$71.74
4	0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
5	0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
6	0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
JACKHAMMER & PAVING BREAKER OPERATOR	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.11	\$0.00	\$68.85
LABORERS	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.11	\$0.00	\$70.23
LABORERS - ZONE 2	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.11	\$0.00	\$71.67
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.11	\$0.00	\$73.11
	6/1/2027	\$46.30	\$9.90	\$9.25	\$9.11	\$0.00	\$74.56
	12/1/2027	\$47.75	\$9.90	\$9.25	\$9.11	\$0.00	\$76.01
	6/1/2028	\$49.25	\$9.90	\$9.25	\$9.11	\$0.00	\$77.51
	12/1/2028	\$50.75	\$9.90	\$9.25	\$9.11	\$0.00	\$79.01
For apprentice rates see "Apprentice- LABORER"							
LABORER	6/1/2025	\$40.34	\$9.90	\$9.25	\$9.11	\$0.00	\$68.60
LABORERS	12/1/2025	\$41.72	\$9.90	\$9.25	\$9.11	\$0.00	\$69.98
LABORERS - ZONE 2	6/1/2026	\$43.16	\$9.90	\$9.25	\$9.11	\$0.00	\$71.42
	12/1/2026	\$44.60	\$9.90	\$9.25	\$9.11	\$0.00	\$72.86
	6/1/2027	\$46.05	\$9.90	\$9.25	\$9.11	\$0.00	\$74.31
	12/1/2027	\$47.50	\$9.90	\$9.25	\$9.11	\$0.00	\$75.76
	6/1/2028	\$49.00	\$9.90	\$9.25	\$9.11	\$0.00	\$77.26
	12/1/2028	\$50.50	\$9.90	\$9.25	\$9.11	\$0.00	\$78.76

Apprentice: LABORER**Effective Date: 6/1/2025**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: LABORER Effective Date: 6/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$24.20	\$9.90	\$9.25	\$9.11	\$0.00	\$52.46
2	70.00	\$28.24	\$9.90	\$9.25	\$9.11	\$0.00	\$56.50
3	80.00	\$32.27	\$9.90	\$9.25	\$9.11	\$0.00	\$60.53
4	90.00	\$36.31	\$9.90	\$9.25	\$9.11	\$0.00	\$64.57
Apprentice: LABORER Effective Date: 12/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$25.03	\$9.90	\$9.25	\$9.11	\$0.00	\$53.29
2	70.00	\$29.20	\$9.90	\$9.25	\$9.11	\$0.00	\$57.46
3	80.00	\$33.38	\$9.90	\$9.25	\$9.11	\$0.00	\$61.64
4	90.00	\$37.55	\$9.90	\$9.25	\$9.11	\$0.00	\$65.81
LABORER (HEAVY & HIGHWAY)	6/1/2025	\$40.34	\$9.90	\$9.25	\$9.21	\$0.00	\$68.70
LABORERS	12/1/2025	\$41.72	\$9.90	\$9.25	\$9.21	\$0.00	\$70.08
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	6/1/2026	\$43.16	\$9.90	\$9.25	\$9.21	\$0.00	\$71.52
	12/1/2026	\$44.60	\$9.90	\$9.25	\$9.21	\$0.00	\$72.96
Apprentice: LABORER (HEAVY & HIGHWAY) Effective Date: 6/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$24.20	\$9.90	\$9.25	\$9.21	\$0.00	\$52.56
2	70.00	\$28.24	\$9.90	\$9.25	\$9.21	\$0.00	\$56.60
3	80.00	\$32.27	\$9.90	\$9.25	\$9.21	\$0.00	\$60.63
4	90.00	\$36.31	\$9.90	\$9.25	\$9.21	\$0.00	\$64.67
Apprentice: LABORER (HEAVY & HIGHWAY) Effective Date: 12/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$25.03	\$9.90	\$9.25	\$9.21	\$0.00	\$53.39
2	70.00	\$29.20	\$9.90	\$9.25	\$9.21	\$0.00	\$57.56
3	80.00	\$33.38	\$9.90	\$9.25	\$9.21	\$0.00	\$61.74
4	90.00	\$37.55	\$9.90	\$9.25	\$9.21	\$0.00	\$65.91
LABORER: CARPENTER TENDER	6/1/2025	\$40.34	\$9.90	\$9.25	\$9.11	\$0.00	\$68.60
LABORERS	12/1/2025	\$41.72	\$9.90	\$9.25	\$9.11	\$0.00	\$69.98
LABORERS - ZONE 2	6/1/2026	\$43.16	\$9.90	\$9.25	\$9.11	\$0.00	\$71.42

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	12/1/2026	\$44.60	\$9.90	\$9.25	\$9.11	\$0.00	\$72.86
	6/1/2027	\$46.05	\$9.90	\$9.25	\$9.11	\$0.00	\$74.31
	12/1/2027	\$47.50	\$9.90	\$9.25	\$9.11	\$0.00	\$75.76
	6/1/2028	\$49.00	\$9.90	\$9.25	\$9.11	\$0.00	\$77.26
	12/1/2028	\$50.50	\$9.90	\$9.25	\$9.11	\$0.00	\$78.76
For apprentice rates see "Apprentice- LABORER"							
LABORER: CEMENT FINISHER TENDER	6/1/2025	\$40.34	\$9.90	\$9.25	\$9.11	\$0.00	\$68.60
LABORERS	12/1/2025	\$41.72	\$9.90	\$9.25	\$9.11	\$0.00	\$69.98
LABORERS - ZONE 2	6/1/2026	\$43.16	\$9.90	\$9.25	\$9.11	\$0.00	\$71.42
	12/1/2026	\$44.60	\$9.90	\$9.25	\$9.11	\$0.00	\$72.86
	6/1/2027	\$46.05	\$9.90	\$9.25	\$9.11	\$0.00	\$74.31
	12/1/2027	\$47.50	\$9.90	\$9.25	\$9.11	\$0.00	\$75.76
	6/1/2028	\$49.00	\$9.90	\$9.25	\$9.11	\$0.00	\$77.26
	12/1/2028	\$50.50	\$9.90	\$9.25	\$9.11	\$0.00	\$78.76
For apprentice rates see "Apprentice- LABORER"							
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER	6/2/2025	\$40.43	\$9.90	\$9.25	\$9.17	\$0.00	\$68.75
LABORERS	12/1/2025	\$41.81	\$9.90	\$9.25	\$9.17	\$0.00	\$70.13
LABORERS - ZONE 2	6/1/2026	\$43.25	\$9.90	\$9.25	\$9.17	\$0.00	\$71.57
	12/7/2026	\$44.69	\$9.90	\$9.25	\$9.17	\$0.00	\$73.01
	6/7/2027	\$46.14	\$9.90	\$9.25	\$9.17	\$0.00	\$74.46
	12/6/2027	\$47.59	\$9.90	\$9.25	\$9.17	\$0.00	\$75.91
	6/5/2028	\$49.09	\$9.90	\$9.25	\$9.17	\$0.00	\$77.41
	12/4/2028	\$50.59	\$9.90	\$9.25	\$9.17	\$0.00	\$78.91
For apprentice rates see "Apprentice- LABORER"							
LABORER: MASON TENDER	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.11	\$0.00	\$68.85
LABORERS	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.11	\$0.00	\$70.23
LABORERS - ZONE 2	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.11	\$0.00	\$71.67
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.11	\$0.00	\$73.11
	6/1/2027	\$46.30	\$9.90	\$9.25	\$9.11	\$0.00	\$74.56
	12/1/2027	\$47.75	\$9.90	\$9.25	\$9.11	\$0.00	\$76.01
	6/1/2028	\$49.25	\$9.90	\$9.25	\$9.11	\$0.00	\$77.51
	12/1/2028	\$50.75	\$9.90	\$9.25	\$9.11	\$0.00	\$79.01
For apprentice rates see "Apprentice- LABORER"							
LABORER: MASON TENDER (HEAVY & HIGHWAY)	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.21	\$0.00	\$68.95
LABORERS	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.21	\$0.00	\$70.33
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.21	\$0.00	\$71.77
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.21	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
LABORER: MULTI-TRADE TENDER	6/1/2025	\$40.34	\$9.90	\$9.25	\$9.11	\$0.00	\$68.60
LABORERS	12/1/2025	\$41.72	\$9.90	\$9.25	\$9.11	\$0.00	\$69.98
LABORERS - ZONE 2	6/1/2026	\$43.16	\$9.90	\$9.25	\$9.11	\$0.00	\$71.42
	12/1/2026	\$44.60	\$9.90	\$9.25	\$9.11	\$0.00	\$72.86
	6/1/2027	\$46.05	\$9.90	\$9.25	\$9.11	\$0.00	\$74.31
	12/1/2027	\$47.50	\$9.90	\$9.25	\$9.11	\$0.00	\$75.76
	6/1/2028	\$49.00	\$9.90	\$9.25	\$9.11	\$0.00	\$77.26
	12/1/2028	\$50.50	\$9.90	\$9.25	\$9.11	\$0.00	\$78.76

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"							
LABORER: TREE REMOVER	6/1/2025	\$40.34	\$9.90	\$9.25	\$9.11	\$0.00	\$68.60
LABORERS	12/1/2025	\$41.72	\$9.90	\$9.25	\$9.11	\$0.00	\$69.98
LABORERS - ZONE 2	6/1/2026	\$43.16	\$9.90	\$9.25	\$9.11	\$0.00	\$71.42
	12/1/2026	\$44.60	\$9.90	\$9.25	\$9.11	\$0.00	\$72.86
	6/1/2027	\$46.05	\$9.90	\$9.25	\$9.11	\$0.00	\$74.31
	12/1/2027	\$47.50	\$9.90	\$9.25	\$9.11	\$0.00	\$75.76
	6/1/2028	\$49.00	\$9.90	\$9.25	\$9.11	\$0.00	\$77.26
	12/1/2028	\$50.50	\$9.90	\$9.25	\$9.11	\$0.00	\$78.76

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	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.11	\$0.00	\$68.85
LABORERS	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.11	\$0.00	\$70.23
LABORERS - ZONE 2	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.11	\$0.00	\$71.67
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.11	\$0.00	\$73.11
	6/1/2027	\$46.30	\$9.90	\$9.25	\$9.11	\$0.00	\$74.56
	12/1/2027	\$47.75	\$9.90	\$9.25	\$9.11	\$0.00	\$76.01
	6/1/2028	\$49.25	\$9.90	\$9.25	\$9.11	\$0.00	\$77.51
	12/1/2028	\$50.75	\$9.90	\$9.25	\$9.11	\$0.00	\$79.01

For apprentice rates see "Apprentice- LABORER"

LASER BEAM OPERATOR (HEAVY & HIGHWAY)	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.21	\$0.00	\$68.95
LABORERS	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.21	\$0.00	\$70.33
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.21	\$0.00	\$71.77
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.21	\$0.00	\$73.21

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

MARBLE & TILE FINISHERS	8/1/2025	\$52.08	\$11.49	\$15.57	\$6.05	\$0.00	\$85.19
BRICKLAYERS LOCAL 3	2/1/2026	\$53.16	\$11.49	\$15.57	\$6.05	\$0.00	\$86.27
BRICKLAYERS LOCAL 3 - MARBLE & TILE	8/1/2026	\$54.92	\$11.49	\$15.57	\$6.05	\$0.00	\$88.03
	2/1/2027	\$56.04	\$11.49	\$15.57	\$6.05	\$0.00	\$89.15

Apprentice: MARBLE & TILE FINISHERS**Effective Date: 8/1/2025**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$26.04	\$11.49	\$15.57	\$6.05	\$0.00	\$59.15
2	60.00	\$31.25	\$11.49	\$15.57	\$6.05	\$0.00	\$64.36
3	70.00	\$36.46	\$11.49	\$15.57	\$6.05	\$0.00	\$69.57
4	80.00	\$41.66	\$11.49	\$15.57	\$6.05	\$0.00	\$74.77
5	90.00	\$46.87	\$11.49	\$15.57	\$6.05	\$0.00	\$79.98

Apprentice: MARBLE & TILE FINISHERS**Effective Date: 2/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: MARBLE & TILE FINISHERS							
Effective Date: 2/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$26.58	\$11.49	\$15.57	\$6.05	\$0.00	\$59.69
2	60.00	\$31.90	\$11.49	\$15.57	\$6.05	\$0.00	\$65.01
3	70.00	\$37.21	\$11.49	\$15.57	\$6.05	\$0.00	\$70.32
4	80.00	\$42.53	\$11.49	\$15.57	\$6.05	\$0.00	\$75.64
5	90.00	\$47.84	\$11.49	\$15.57	\$6.05	\$0.00	\$80.95
MARBLE MASONS,TILELAYERS & TERRAZZO MECH	8/1/2025	\$67.97	\$11.49	\$15.57	\$7.99	\$0.00	\$103.02
BRICKLAYERS LOCAL 3	2/1/2026	\$69.32	\$11.49	\$15.57	\$7.99	\$0.00	\$104.37
BRICKLAYERS LOCAL 3 - MARBLE & TILE	8/1/2026	\$71.52	\$11.49	\$15.57	\$7.99	\$0.00	\$106.57
	2/1/2027	\$72.92	\$11.49	\$15.57	\$7.99	\$0.00	\$107.97

Apprentice: MARBLE MASONS,TILELAYERS & TERRAZZO MECH							
Effective Date: 8/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$33.99	\$11.49	\$15.57	\$7.99	\$0.00	\$69.04
2	60.00	\$40.78	\$11.49	\$15.57	\$7.99	\$0.00	\$75.83
3	70.00	\$47.58	\$11.49	\$15.57	\$7.99	\$0.00	\$82.63
4	80.00	\$54.38	\$11.49	\$15.57	\$7.99	\$0.00	\$89.43
5	90.00	\$61.17	\$11.49	\$15.57	\$7.99	\$0.00	\$96.22

Apprentice: MARBLE MASONS,TILELAYERS & TERRAZZO MECH							
Effective Date: 2/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$34.66	\$11.49	\$15.57	\$7.99	\$0.00	\$69.71
2	60.00	\$41.59	\$11.49	\$15.57	\$7.99	\$0.00	\$76.64
3	70.00	\$48.52	\$11.49	\$15.57	\$7.99	\$0.00	\$83.57
4	80.00	\$55.46	\$11.49	\$15.57	\$7.99	\$0.00	\$90.51
5	90.00	\$62.39	\$11.49	\$15.57	\$7.99	\$0.00	\$97.44

MECH. SWEEPER OPERATOR (ON CONST. SITES)	6/1/2025	\$57.68	\$15.55	\$13.25	\$3.25	\$0.00	\$89.73
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$59.12	\$15.55	\$13.25	\$3.25	\$0.00	\$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	\$60.40	\$15.55	\$13.25	\$3.25	\$0.00	\$92.45
	12/1/2026	\$61.84	\$15.55	\$13.25	\$3.25	\$0.00	\$93.89

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MECHANICS MAINTENANCE	6/1/2025	\$57.68	\$15.55	\$13.25	\$3.25	\$0.00	\$89.73
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$59.12	\$15.55	\$13.25	\$3.25	\$0.00	\$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	\$60.40	\$15.55	\$13.25	\$3.25	\$0.00	\$92.45
	12/1/2026	\$61.84	\$15.55	\$13.25	\$3.25	\$0.00	\$93.89

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
MILLWRIGHT (Zone 2)	1/6/2025	\$45.09	\$10.08	\$11.47	\$10.00	\$0.00	\$76.64
MILLWRIGHTS LOCAL 1121	1/5/2026	\$47.42	\$10.08	\$11.47	\$10.00	\$0.00	\$78.97
MILLWRIGHTS LOCAL 1121 - Zone 2							

Apprentice: MILLWRIGHT (Zone 2)**Effective Date: 1/6/2025**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	\$24.80	\$10.08	\$0.00	\$5.50	\$0.00	\$40.38
2	65.00	\$29.31	\$10.08	\$0.00	\$6.50	\$0.00	\$45.89
3	75.00	\$33.82	\$10.08	\$11.47	\$7.50	\$0.00	\$62.87
4	85.00	\$38.33	\$10.08	\$11.47	\$8.50	\$0.00	\$68.38

Apprentice: MILLWRIGHT (Zone 2)**Effective Date: 1/5/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	\$26.08	\$10.08	\$0.00	\$5.50	\$0.00	\$41.66
2	65.00	\$30.82	\$10.08	\$0.00	\$6.50	\$0.00	\$47.40
3	75.00	\$35.57	\$10.08	\$11.47	\$7.50	\$0.00	\$64.62
4	85.00	\$40.31	\$10.08	\$11.47	\$8.50	\$0.00	\$70.36

MORTAR MIXER	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.11	\$0.00	\$68.85
LABORERS	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.11	\$0.00	\$70.23
LABORERS - ZONE 2	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.11	\$0.00	\$71.67
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.11	\$0.00	\$73.11
	6/1/2027	\$46.30	\$9.90	\$9.25	\$9.11	\$0.00	\$74.56
	12/1/2027	\$47.75	\$9.90	\$9.25	\$9.11	\$0.00	\$76.01
	6/1/2028	\$49.25	\$9.90	\$9.25	\$9.11	\$0.00	\$77.51
	12/1/2028	\$50.75	\$9.90	\$9.25	\$9.11	\$0.00	\$79.01

For apprentice rates see "Apprentice- LABORER"

OILER (OTHER THAN TRUCK CRANES,GRADALLS)	6/1/2025	\$25.97	\$15.30	\$13.15	\$3.25	\$0.00	\$57.67
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$26.63	\$15.30	\$13.15	\$3.25	\$0.00	\$58.33
OPERATING ENGINEERS LOCAL 4	6/1/2026	\$27.22	\$15.30	\$13.15	\$3.25	\$0.00	\$58.92
	12/1/2026	\$27.89	\$15.30	\$13.15	\$3.25	\$0.00	\$59.59

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

OILER (TRUCK CRANES, GRADALLS)	6/1/2025	\$31.80	\$15.30	\$13.15	\$3.25	\$0.00	\$63.50
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$32.60	\$15.30	\$13.15	\$3.25	\$0.00	\$64.30
OPERATING ENGINEERS LOCAL 4	6/1/2026	\$33.32	\$15.30	\$13.15	\$3.25	\$0.00	\$65.02
	12/1/2026	\$34.12	\$15.30	\$13.15	\$3.25	\$0.00	\$65.82

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

OTHER POWER DRIVEN EQUIPMENT - CLASS II	6/1/2025	\$57.68	\$15.55	\$13.25	\$3.25	\$0.00	\$89.73
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$59.12	\$15.55	\$13.25	\$3.25	\$0.00	\$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	\$60.40	\$15.55	\$13.25	\$3.25	\$0.00	\$92.45
	12/1/2026	\$61.84	\$15.55	\$13.25	\$3.25	\$0.00	\$93.89

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
PAINTER (BRIDGES/TANKS)	1/1/2025	\$58.46	\$9.95	\$11.85	\$12.10	\$0.00	\$92.36
PAINTERS LOCAL 35							
PAINTERS LOCAL 35 - ZONE 2							

Apprentice: PAINTER (BRIDGES/TANKS)**Effective Date: 1/1/2025**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$29.23	\$9.95	\$0.00	\$0.00	\$0.00	\$39.18
2	55.00	\$32.15	\$9.95	\$0.00	\$6.66	\$0.00	\$48.76
3	60.00	\$35.08	\$9.95	\$0.00	\$7.26	\$0.00	\$52.29
4	65.00	\$38.00	\$9.95	\$0.00	\$7.87	\$0.00	\$55.82
5	70.00	\$40.92	\$9.95	\$11.85	\$8.47	\$0.00	\$71.19
6	75.00	\$43.85	\$9.95	\$11.85	\$9.08	\$0.00	\$74.73
7	80.00	\$46.77	\$9.95	\$11.85	\$9.68	\$0.00	\$78.25
8	90.00	\$52.61	\$9.95	\$11.85	\$10.89	\$0.00	\$85.30

PAINTER (SPRAY OR SANDBLAST, NEW) *	1/1/2025	\$49.36	\$9.95	\$11.85	\$12.10	\$0.00	\$83.26
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.							
PAINTERS LOCAL 35							
PAINTERS LOCAL 35 - ZONE 2							

Apprentice: PAINTER (SPRAY OR SANDBLAST, NEW) ***Effective Date: 1/1/2025**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$24.68	\$9.95	\$0.00	\$0.00	\$0.00	\$34.63
2	55.00	\$27.15	\$9.95	\$0.00	\$6.66	\$0.00	\$43.76
3	60.00	\$29.62	\$9.95	\$0.00	\$7.26	\$0.00	\$46.83
4	65.00	\$32.08	\$9.95	\$0.00	\$7.87	\$0.00	\$49.90
5	70.00	\$34.55	\$9.95	\$11.85	\$8.47	\$0.00	\$64.82
6	75.00	\$37.02	\$9.95	\$11.85	\$9.08	\$0.00	\$67.90
7	80.00	\$39.49	\$9.95	\$11.85	\$9.68	\$0.00	\$70.97
8	90.00	\$44.42	\$9.95	\$11.85	\$10.89	\$0.00	\$77.11

PAINTER (SPRAY OR SANDBLAST, REPAINT)	1/1/2025	\$47.42	\$9.95	\$11.85	\$12.10	\$0.00	\$81.32
PAINTERS LOCAL 35							
PAINTERS LOCAL 35 - ZONE 2							

Apprentice: PAINTER (SPRAY OR SANDBLAST, REPAINT)**Effective Date: 1/1/2025**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$23.71	\$9.95	\$0.00	\$0.00	\$0.00	\$33.66

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: PAINTER (SPRAY OR SANDBLAST, REPAINT) Effective Date: 1/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
2	55.00	\$26.08	\$9.95	\$0.00	\$6.66	\$0.00	\$42.69
3	60.00	\$28.45	\$9.95	\$0.00	\$7.26	\$0.00	\$45.66
4	65.00	\$30.82	\$9.95	\$0.00	\$7.87	\$0.00	\$48.64
5	70.00	\$33.19	\$9.95	\$11.85	\$8.47	\$0.00	\$63.46
6	75.00	\$35.57	\$9.95	\$11.85	\$9.08	\$0.00	\$66.45
7	80.00	\$37.94	\$9.95	\$11.85	\$9.68	\$0.00	\$69.42
8	90.00	\$42.68	\$9.95	\$11.85	\$10.89	\$0.00	\$75.37

PAINTER / TAPER (BRUSH, NEW) *	1/1/2025	\$47.96	\$9.95	\$11.85	\$12.10	\$0.00	\$81.86

* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.
 PAINTERS LOCAL 35
 PAINTERS LOCAL 35 - ZONE 2

Apprentice: PAINTER / TAPER (BRUSH, NEW) * Effective Date: 1/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$23.98	\$9.95	\$0.00	\$0.00	\$0.00	\$33.93
2	55.00	\$26.38	\$9.95	\$0.00	\$6.66	\$0.00	\$42.99
3	60.00	\$28.78	\$9.95	\$0.00	\$7.26	\$0.00	\$45.99
4	65.00	\$31.17	\$9.95	\$0.00	\$7.87	\$0.00	\$48.99
5	70.00	\$33.57	\$9.95	\$11.85	\$8.47	\$0.00	\$63.84
6	75.00	\$35.97	\$9.95	\$11.85	\$9.08	\$0.00	\$66.85
7	80.00	\$38.37	\$9.95	\$11.85	\$9.68	\$0.00	\$69.85
8	90.00	\$43.16	\$9.95	\$11.85	\$10.89	\$0.00	\$75.85

PAINTER / TAPER (BRUSH, REPAINT)	1/1/2025	\$46.02	\$9.95	\$11.85	\$12.10	\$0.00	\$79.92

PAINTERS LOCAL 35
 PAINTERS LOCAL 35 - ZONE 2

Apprentice: PAINTER / TAPER (BRUSH, REPAINT) Effective Date: 1/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$23.01	\$9.95	\$0.00	\$0.00	\$0.00	\$32.96
2	55.00	\$25.31	\$9.95	\$0.00	\$6.66	\$0.00	\$41.92
3	60.00	\$27.61	\$9.95	\$0.00	\$7.26	\$0.00	\$44.82
4	65.00	\$29.91	\$9.95	\$0.00	\$7.87	\$0.00	\$47.73
5	70.00	\$32.21	\$9.95	\$11.85	\$8.47	\$0.00	\$62.48
6	75.00	\$34.52	\$9.95	\$11.85	\$9.08	\$0.00	\$65.40
7	80.00	\$36.82	\$9.95	\$11.85	\$9.68	\$0.00	\$68.30
8	90.00	\$41.42	\$9.95	\$11.85	\$10.89	\$0.00	\$74.11

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Painter Traffic Markings (Heavy/Highway)	6/1/2025	\$40.34	\$9.90	\$9.25	\$9.21	\$0.00	\$68.70
Laborers	12/1/2025	\$41.72	\$9.90	\$9.25	\$9.21	\$0.00	\$70.08
Laborers - Zone 2 (Heavy & Highway)	6/1/2026	\$43.16	\$9.90	\$9.25	\$9.21	\$0.00	\$71.52
	12/1/2026	\$44.60	\$9.90	\$9.25	\$9.21	\$0.00	\$72.96

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

Panel & Pickup Trucks Driver	6/1/2025	\$40.78	\$15.57	\$20.17	\$0.00	\$0.00	\$76.52
Teamsters Joint Council No. 10	12/1/2025	\$40.78	\$15.57	\$21.78	\$0.00	\$0.00	\$78.13
Teamsters Joint Council No. 10 Zone B	1/1/2026	\$40.78	\$16.17	\$21.78	\$0.00	\$0.00	\$78.73
	6/1/2026	\$41.78	\$16.17	\$21.78	\$0.00	\$0.00	\$79.73
	12/1/2026	\$41.78	\$16.17	\$23.52	\$0.00	\$0.00	\$81.47
	1/1/2027	\$41.78	\$16.77	\$23.52	\$0.00	\$0.00	\$82.07

Pier and Dock Constructor (Underpinning and Deck)	8/1/2024	\$55.79	\$10.08	\$11.62	\$12.67	\$0.00	\$90.16
Pile Driver Local 56							
Pile Driver Local 56 (Zone 1)							

For apprentice rates see "Apprentice- Pile Driver"

Pile Driver	8/1/2024	\$55.79	\$10.08	\$11.62	\$12.67	\$0.00	\$90.16
Pile Driver Local 56							
Pile Driver Local 56 (Zone 1)							

Apprentice: Pile Driver							
Effective Date: 8/1/2024							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	\$25.11	\$10.08	\$0.00	\$2.53	\$0.00	\$37.72
2	55.00	\$30.68	\$10.08	\$0.00	\$5.07	\$0.00	\$45.83
3	70.00	\$39.05	\$10.08	\$11.62	\$7.60	\$0.00	\$68.35
4	80.00	\$44.63	\$10.08	\$11.62	\$10.14	\$0.00	\$76.47

Pipefitter & Steamfitter	3/1/2025	\$68.88	\$12.70	\$13.05	\$8.75	\$0.00	\$103.38
Pipefitters Local 537							
Pipefitters Local 537							

Apprentice: Pipefitter & Steamfitter							
Effective Date: 3/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	\$27.55	\$12.70	\$0.30	\$8.75	\$0.00	\$49.30
2	45.00	\$31.00	\$12.70	\$13.05	\$8.75	\$0.00	\$65.50
3	60.00	\$41.33	\$12.70	\$13.05	\$8.75	\$0.00	\$75.83
4	70.00	\$48.22	\$12.70	\$13.05	\$8.75	\$0.00	\$82.72
5	80.00	\$55.10	\$12.70	\$13.05	\$8.75	\$0.00	\$89.60

Pipelayer	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.11	\$0.00	\$68.85
Laborers	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.11	\$0.00	\$70.23

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
LABORERS - ZONE 2	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.11	\$0.00	\$71.67
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.11	\$0.00	\$73.11
	6/1/2027	\$46.30	\$9.90	\$9.25	\$9.11	\$0.00	\$74.56
	12/1/2027	\$47.75	\$9.90	\$9.25	\$9.11	\$0.00	\$76.01
	6/1/2028	\$49.25	\$9.90	\$9.25	\$9.11	\$0.00	\$77.51
	12/1/2028	\$50.75	\$9.90	\$9.25	\$9.11	\$0.00	\$79.01

For apprentice rates see "Apprentice- LABORER"

PIPELAYER (HEAVY & HIGHWAY)	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.21	\$0.00	\$68.95
LABORERS	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.21	\$0.00	\$70.33
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.21	\$0.00	\$71.77
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.21	\$0.00	\$73.21

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

PLUMBERS & GASFITTERS	3/2/2025	\$69.84	\$14.32	\$12.31	\$8.00	\$0.00	\$104.47
PLUMBERS & GASFITTERS LOCAL 12							
PLUMBERS & GASFITTERS LOCAL 12							

Apprentice: PLUMBERS & GASFITTERS**Effective Date: 3/2/2025**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	35.00	\$24.44	\$14.32	\$4.61	\$2.80	\$0.00	\$46.17
2	40.00	\$27.94	\$14.32	\$5.22	\$3.20	\$0.00	\$50.68
3	55.00	\$38.41	\$14.32	\$7.07	\$4.40	\$0.00	\$64.20
4	65.00	\$45.40	\$14.32	\$8.30	\$5.20	\$0.00	\$73.22
5	75.00	\$52.38	\$14.32	\$9.53	\$6.00	\$0.00	\$82.23

PNEUMATIC CONTROLS (TEMP.)	3/1/2025	\$68.88	\$12.70	\$13.05	\$8.75	\$0.00	\$103.38
PIPEFITTERS LOCAL 537							
PIPEFITTERS LOCAL 537							

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

PNEUMATIC DRILL/TOOL OPERATOR	6/1/2025	\$41.09	\$9.90	\$9.25	\$8.29	\$0.00	\$68.53
LABORERS	12/1/2025	\$42.47	\$9.90	\$9.25	\$8.29	\$0.00	\$69.91
LABORERS - ZONE 2	6/1/2026	\$43.91	\$9.90	\$9.25	\$8.29	\$0.00	\$71.35
	12/1/2026	\$45.35	\$9.90	\$9.25	\$8.29	\$0.00	\$72.79
	6/1/2027	\$46.80	\$9.90	\$9.25	\$8.29	\$0.00	\$74.24
	12/1/2027	\$48.25	\$9.90	\$9.25	\$8.29	\$0.00	\$75.69
	6/1/2028	\$49.75	\$9.90	\$9.25	\$8.29	\$0.00	\$77.19
	12/1/2028	\$51.25	\$9.90	\$9.25	\$8.29	\$0.00	\$78.69

For apprentice rates see "Apprentice- LABORER"

PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY)	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.21	\$0.00	\$68.95
LABORERS	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.21	\$0.00	\$70.33
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.21	\$0.00	\$71.77
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.21	\$0.00	\$73.21

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

POWDERMAN & BLASTER	6/1/2025	\$41.34	\$9.90	\$9.25	\$9.11	\$0.00	\$69.60

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
LABORERS	12/1/2025	\$42.72	\$9.90	\$9.25	\$9.11	\$0.00	\$70.98
LABORERS - ZONE 2	6/1/2026	\$44.16	\$9.90	\$9.25	\$9.11	\$0.00	\$72.42
	12/1/2026	\$45.60	\$9.90	\$9.25	\$9.11	\$0.00	\$73.86
	6/1/2027	\$47.05	\$9.90	\$9.25	\$9.11	\$0.00	\$75.31
	12/1/2027	\$48.50	\$9.90	\$9.25	\$9.11	\$0.00	\$76.76
	6/1/2028	\$50.00	\$9.90	\$9.25	\$9.11	\$0.00	\$78.26
	12/1/2028	\$51.50	\$9.90	\$9.25	\$9.11	\$0.00	\$79.76
For apprentice rates see "Apprentice- LABORER"							
POWDERMAN & BLASTER (HEAVY & HIGHWAY)	6/1/2025	\$41.34	\$9.65	\$9.25	\$9.21	\$0.00	\$69.45
LABORERS	12/1/2025	\$42.72	\$9.65	\$9.25	\$9.21	\$0.00	\$70.83
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	6/1/2026	\$44.16	\$9.65	\$9.25	\$9.21	\$0.00	\$72.27
	12/1/2026	\$45.60	\$9.65	\$9.25	\$9.21	\$0.00	\$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
POWER SHOVEL/DERRICK/TRENCHING MACHINE	6/1/2025	\$58.33	\$15.55	\$13.25	\$3.25	\$0.00	\$90.38
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$59.78	\$15.55	\$13.25	\$3.25	\$0.00	\$91.83
OPERATING ENGINEERS LOCAL 4	6/1/2026	\$61.08	\$15.55	\$13.25	\$3.25	\$0.00	\$93.13
	12/1/2026	\$62.53	\$15.55	\$13.25	\$3.25	\$0.00	\$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
PUMP OPERATOR (CONCRETE)	6/1/2025	\$57.68	\$15.55	\$13.25	\$3.25	\$0.00	\$89.73
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$59.12	\$15.55	\$13.25	\$3.25	\$0.00	\$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	\$60.40	\$15.55	\$13.25	\$3.25	\$0.00	\$92.45
	12/1/2026	\$61.84	\$15.55	\$13.25	\$3.25	\$0.00	\$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
PUMP OPERATOR (DEWATERING, OTHER)	6/1/2025	\$37.52	\$15.55	\$13.25	\$3.25	\$0.00	\$69.57
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$38.47	\$15.55	\$13.25	\$3.25	\$0.00	\$70.52
OPERATING ENGINEERS LOCAL 4	6/1/2026	\$39.33	\$15.55	\$13.25	\$3.25	\$0.00	\$71.38
	12/1/2026	\$40.28	\$15.55	\$13.25	\$3.25	\$0.00	\$72.33
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
READY-MIX CONCRETE DRIVER	5/1/2025	\$30.50	\$11.57	\$6.65	\$0.00	\$0.00	\$48.72
TEAMSTERS 170	1/1/2026	\$30.50	\$11.97	\$6.65	\$0.00	\$0.00	\$49.12
TEAMSTERS 170 - J.G. MacLellan (Lowell)							
RECLAIMERS	6/1/2025	\$57.68	\$15.55	\$13.25	\$3.25	\$0.00	\$89.73
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$59.12	\$15.55	\$13.25	\$3.25	\$0.00	\$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	\$60.40	\$15.55	\$13.25	\$3.25	\$0.00	\$92.45
	12/1/2026	\$61.84	\$15.55	\$13.25	\$3.25	\$0.00	\$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
RIDE-ON MOTORIZED BUGGY OPERATOR	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.11	\$0.00	\$68.85
LABORERS	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.11	\$0.00	\$70.23
LABORERS - ZONE 2	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.11	\$0.00	\$71.67
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.11	\$0.00	\$73.11
	6/1/2027	\$46.30	\$9.90	\$9.25	\$9.11	\$0.00	\$74.56
	12/1/2027	\$47.75	\$9.90	\$9.25	\$9.11	\$0.00	\$76.01
	6/1/2028	\$49.25	\$9.90	\$9.25	\$9.11	\$0.00	\$77.51
	12/1/2028	\$50.75	\$9.90	\$9.25	\$9.11	\$0.00	\$79.01

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"							
ROLLER/SPREADER/MULCHING MACHINE	6/1/2025	\$57.68	\$15.55	\$13.25	\$3.25	\$0.00	\$89.73
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$59.12	\$15.55	\$13.25	\$3.25	\$0.00	\$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	\$60.40	\$15.55	\$13.25	\$3.25	\$0.00	\$92.45
	12/1/2026	\$61.84	\$15.55	\$13.25	\$3.25	\$0.00	\$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
ROOFER (Inc.Roofing Waterproofing &Roofing Damproofing)	8/1/2025	\$53.53	\$13.28	\$12.67	\$9.03	\$0.00	\$88.51
ROOFERS LOCAL 33	2/1/2026	\$54.78	\$13.28	\$12.67	\$9.03	\$0.00	\$89.76
ROOFERS LOCAL 33							

Apprentice: ROOFER (Inc.Roofing Waterproofing &Roofing Damproofing)**Effective Date: 8/1/2025**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$26.77	\$13.28	\$6.52	\$9.03	\$0.00	\$55.60
2	60.00	\$32.12	\$13.28	\$12.67	\$9.03	\$0.00	\$67.10
3	65.00	\$34.79	\$13.28	\$12.67	\$9.03	\$0.00	\$69.77
4	75.00	\$40.15	\$13.28	\$12.67	\$9.03	\$0.00	\$75.13
5	85.00	\$45.50	\$13.28	\$12.67	\$9.03	\$0.00	\$80.48

Apprentice: ROOFER (Inc.Roofing Waterproofing &Roofing Damproofing)**Effective Date: 2/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$27.39	\$13.28	\$6.52	\$9.03	\$0.00	\$56.22
2	60.00	\$32.87	\$13.28	\$12.67	\$9.03	\$0.00	\$67.85
3	65.00	\$35.61	\$13.28	\$12.67	\$9.03	\$0.00	\$70.59
4	75.00	\$41.09	\$13.28	\$12.67	\$9.03	\$0.00	\$76.07
5	85.00	\$46.56	\$13.28	\$12.67	\$9.03	\$0.00	\$81.54

ROOFER SLATE / TILE / PRECAST CONCRETE	8/1/2025	\$53.78	\$13.28	\$12.67	\$9.03	\$0.00	\$88.76
ROOFERS LOCAL 33	2/1/2026	\$55.03	\$13.28	\$12.67	\$9.03	\$0.00	\$90.01
ROOFERS LOCAL 33							

For apprentice rates see "Apprentice- ROOFER"

SHEETMETAL WORKER	8/1/2025	\$60.98	\$14.91	\$18.74	\$9.53	\$2.98	\$107.14
SHEETMETAL WORKERS LOCAL 17	2/1/2026	\$62.93	\$14.91	\$18.74	\$9.53	\$2.98	\$109.09
SHEETMETAL WORKERS LOCAL 17 - A							

Apprentice: SHEETMETAL WORKER**Effective Date: 8/1/2025**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	42.00	\$25.61	\$14.91	\$6.13	\$0.00	\$0.00	\$46.65
2	42.00	\$25.61	\$14.91	\$6.13	\$0.00	\$0.00	\$46.65

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: SHEETMETAL WORKER							
Effective Date: 8/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
3	47.00	\$28.66	\$14.91	\$11.01	\$1.25	\$1.62	\$57.45
4	47.00	\$28.66	\$14.91	\$11.01	\$1.25	\$1.62	\$57.45
5	52.00	\$31.71	\$14.91	\$11.74	\$1.50	\$1.74	\$61.60
6	52.00	\$31.71	\$14.91	\$11.74	\$1.75	\$1.75	\$61.86
7	60.00	\$36.59	\$14.91	\$12.90	\$2.00	\$1.93	\$68.33
8	65.00	\$39.64	\$14.91	\$13.63	\$2.25	\$2.04	\$72.47
9	75.00	\$45.74	\$14.91	\$15.09	\$2.75	\$2.28	\$80.77
10	85.00	\$51.83	\$14.91	\$16.55	\$2.75	\$2.49	\$88.53
Apprentice: SHEETMETAL WORKER							
Effective Date: 2/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	42.00	\$26.43	\$14.91	\$6.19	\$0.00	\$0.00	\$47.53
2	42.00	\$26.43	\$14.91	\$6.19	\$0.00	\$0.00	\$47.53
3	47.00	\$29.58	\$14.91	\$10.93	\$1.25	\$1.62	\$58.29
4	47.00	\$29.58	\$14.91	\$10.93	\$1.25	\$1.62	\$58.29
5	52.00	\$32.72	\$14.91	\$11.66	\$1.50	\$1.74	\$62.53
6	52.00	\$32.72	\$14.91	\$11.66	\$1.75	\$1.75	\$62.79
7	60.00	\$37.76	\$14.91	\$12.84	\$2.00	\$1.93	\$69.44
8	65.00	\$40.90	\$14.91	\$13.58	\$2.25	\$2.04	\$73.68
9	75.00	\$47.20	\$14.91	\$15.06	\$2.75	\$2.28	\$82.20
10	85.00	\$53.49	\$14.91	\$16.53	\$2.75	\$2.49	\$90.17
SPECIALIZED EARTH MOVING EQUIP < 35 TONS TEAMSTERS JOINT COUNCIL NO. 10	6/1/2025	\$41.24	\$15.57	\$20.17	\$0.00	\$0.00	\$76.98
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/1/2025	\$41.24	\$15.57	\$21.78	\$0.00	\$0.00	\$78.59
	1/1/2026	\$41.24	\$16.17	\$21.78	\$0.00	\$0.00	\$79.19
	6/1/2026	\$42.24	\$16.17	\$21.78	\$0.00	\$0.00	\$80.19
	12/1/2026	\$42.24	\$16.17	\$23.52	\$0.00	\$0.00	\$81.93
	1/1/2027	\$42.24	\$16.77	\$23.52	\$0.00	\$0.00	\$82.53
SPECIALIZED EARTH MOVING EQUIP > 35 TONS TEAMSTERS JOINT COUNCIL NO. 10	6/1/2025	\$41.53	\$15.57	\$20.17	\$0.00	\$0.00	\$77.27
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/1/2025	\$41.53	\$15.57	\$21.78	\$0.00	\$0.00	\$78.88
	1/1/2026	\$41.53	\$16.17	\$21.78	\$0.00	\$0.00	\$79.48
	6/1/2026	\$42.53	\$16.17	\$21.78	\$0.00	\$0.00	\$80.48
	12/1/2026	\$42.53	\$16.17	\$23.52	\$0.00	\$0.00	\$82.22
	1/1/2027	\$42.53	\$16.77	\$23.52	\$0.00	\$0.00	\$82.82
SPRINKLER FITTER SPRINKLER FITTERS LOCAL 550 SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1	3/1/2025	\$72.14	\$11.51	\$7.30	\$16.50	\$0.00	\$107.45

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: SPRINKLER FITTER							
Effective Date: 3/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	35.00	\$25.25	\$11.51	\$13.07	\$0.00	\$0.00	\$49.83
2	40.00	\$28.86	\$11.51	\$13.90	\$0.00	\$0.00	\$54.27
3	45.00	\$32.46	\$11.51	\$14.73	\$0.00	\$0.00	\$58.70
4	50.00	\$36.07	\$11.51	\$15.55	\$0.00	\$0.00	\$63.13
5	55.00	\$39.68	\$11.51	\$16.37	\$0.00	\$0.00	\$67.56
6	60.00	\$43.28	\$11.51	\$17.20	\$0.00	\$0.00	\$71.99
7	65.00	\$46.89	\$11.51	\$18.03	\$0.00	\$0.00	\$76.43
8	70.00	\$50.50	\$11.51	\$18.85	\$0.00	\$0.00	\$80.86
9	75.00	\$54.11	\$11.51	\$19.67	\$0.00	\$0.00	\$85.29
10	80.00	\$57.71	\$11.51	\$20.50	\$0.00	\$0.00	\$89.72

STEAM BOILER OPERATOR	6/1/2025	\$57.68	\$15.55	\$13.25	\$3.25	\$0.00	\$89.73
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$59.12	\$15.55	\$13.25	\$3.25	\$0.00	\$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	\$60.40	\$15.55	\$13.25	\$3.25	\$0.00	\$92.45
	12/1/2026	\$61.84	\$15.55	\$13.25	\$3.25	\$0.00	\$93.89

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN	6/1/2025	\$57.68	\$15.55	\$13.25	\$3.25	\$0.00	\$89.73
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$59.12	\$15.55	\$13.25	\$3.25	\$0.00	\$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	\$60.40	\$15.55	\$13.25	\$3.25	\$0.00	\$92.45
	12/1/2026	\$61.84	\$15.55	\$13.25	\$3.25	\$0.00	\$93.89

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

TELECOMMUNICATION TECHNICIAN	9/1/2025	\$52.94	\$13.00	\$13.97	\$6.98	\$0.00	\$86.89
ELECTRICIANS LOCAL 103	3/1/2026	\$53.49	\$13.00	\$14.23	\$7.20	\$0.00	\$87.92
ELECTRICIANS LOCAL 103	9/1/2026	\$55.02	\$13.00	\$14.28	\$7.20	\$0.00	\$89.50
	3/1/2027	\$55.98	\$13.00	\$14.31	\$7.20	\$0.00	\$90.49
	9/1/2027	\$57.50	\$13.00	\$14.36	\$7.20	\$0.00	\$92.06
	3/1/2028	\$58.46	\$13.00	\$14.38	\$7.20	\$0.00	\$93.04

Apprentice: TELECOMMUNICATION TECHNICIAN							
Effective Date: 9/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	\$23.82	\$13.00	\$0.71	\$0.00	\$0.00	\$37.53
2	45.00	\$23.82	\$13.00	\$0.71	\$0.00	\$0.00	\$37.53
3	50.00	\$26.47	\$13.00	\$13.17	\$3.49	\$0.00	\$56.13
4	50.00	\$26.47	\$13.00	\$13.17	\$3.49	\$0.00	\$56.13
5	55.00	\$29.12	\$13.00	\$13.25	\$3.84	\$0.00	\$59.21
6	60.00	\$31.76	\$13.00	\$13.33	\$4.19	\$0.00	\$62.28
7	65.00	\$34.41	\$13.00	\$13.41	\$4.54	\$0.00	\$65.36
8	70.00	\$37.06	\$13.00	\$13.49	\$4.89	\$0.00	\$68.44

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: TELECOMMUNICATION TECHNICIAN							
Effective Date: 9/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
9	75.00	\$39.71	\$13.00	\$13.57	\$5.24	\$0.00	\$71.52
10	80.00	\$42.35	\$13.00	\$13.65	\$5.58	\$0.00	\$74.58
Apprentice: TELECOMMUNICATION TECHNICIAN							
Effective Date: 3/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	\$24.07	\$13.00	\$0.72	\$0.00	\$0.00	\$37.79
2	45.00	\$24.07	\$13.00	\$0.72	\$0.00	\$0.00	\$37.79
3	50.00	\$26.75	\$13.00	\$13.43	\$3.60	\$0.00	\$56.78
4	50.00	\$26.75	\$13.00	\$13.43	\$3.60	\$0.00	\$56.78
5	55.00	\$29.42	\$13.00	\$13.51	\$3.96	\$0.00	\$59.89
6	60.00	\$32.09	\$13.00	\$13.59	\$4.32	\$0.00	\$63.00
7	65.00	\$34.77	\$13.00	\$13.67	\$4.68	\$0.00	\$66.12
8	70.00	\$37.44	\$13.00	\$13.75	\$5.04	\$0.00	\$69.23
9	75.00	\$40.12	\$13.00	\$13.83	\$5.40	\$0.00	\$72.35
10	80.00	\$42.79	\$13.00	\$13.91	\$5.76	\$0.00	\$75.46
TERRAZZO FINISHERS	8/1/2025	\$66.89	\$11.49	\$15.57	\$8.02	\$0.00	\$101.97
BRICKLAYERS LOCAL 3	2/1/2026	\$68.24	\$11.49	\$15.57	\$8.02	\$0.00	\$103.32
BRICKLAYERS LOCAL 3 - MARBLE & TILE	8/1/2026	\$70.44	\$11.49	\$15.57	\$8.02	\$0.00	\$105.52
	2/1/2027	\$71.84	\$11.49	\$15.57	\$8.02	\$0.00	\$106.92
Apprentice: TERRAZZO FINISHERS							
Effective Date: 8/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$33.45	\$11.49	\$15.57	\$8.02	\$0.00	\$68.53
2	60.00	\$40.13	\$11.49	\$15.57	\$8.02	\$0.00	\$75.21
3	70.00	\$46.82	\$11.49	\$15.57	\$8.02	\$0.00	\$81.90
4	80.00	\$53.51	\$11.49	\$15.57	\$8.02	\$0.00	\$88.59
5	90.00	\$60.20	\$11.49	\$15.57	\$8.02	\$0.00	\$95.28
Apprentice: TERRAZZO FINISHERS							
Effective Date: 2/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$34.12	\$11.49	\$15.57	\$8.02	\$0.00	\$69.20
2	60.00	\$40.94	\$11.49	\$15.57	\$8.02	\$0.00	\$76.02
3	70.00	\$47.77	\$11.49	\$15.57	\$8.02	\$0.00	\$82.85

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate																								
Apprentice: TERRAZZO FINISHERS Effective Date: 2/1/2026 <table><thead><tr><th>Step</th><th>Percent</th><th>Apprentice Base Wage</th><th>Health</th><th>Pension</th><th>Annuity</th><th>Supplemental Unemployment</th><th>Total Rate</th></tr></thead><tbody><tr><td>4</td><td>80.00</td><td>\$54.59</td><td>\$11.49</td><td>\$15.57</td><td>\$8.02</td><td>\$0.00</td><td>\$89.67</td></tr><tr><td>5</td><td>90.00</td><td>\$61.42</td><td>\$11.49</td><td>\$15.57</td><td>\$8.02</td><td>\$0.00</td><td>\$96.50</td></tr></tbody></table>								Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate	4	80.00	\$54.59	\$11.49	\$15.57	\$8.02	\$0.00	\$89.67	5	90.00	\$61.42	\$11.49	\$15.57	\$8.02	\$0.00	\$96.50
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate																								
4	80.00	\$54.59	\$11.49	\$15.57	\$8.02	\$0.00	\$89.67																								
5	90.00	\$61.42	\$11.49	\$15.57	\$8.02	\$0.00	\$96.50																								
TEST BORING DRILLER	6/1/2025	\$51.70	\$9.90	\$9.25	\$9.80	\$0.00	\$80.65																								
LABORERS	12/1/2025	\$53.20	\$9.90	\$9.25	\$9.80	\$0.00	\$82.15																								
LABORERS - FOUNDATION AND MARINE	6/1/2026	\$54.75	\$9.90	\$9.25	\$9.80	\$0.00	\$83.70																								
	12/1/2026	\$56.25	\$9.90	\$9.25	\$9.80	\$0.00	\$85.20																								
For apprentice rates see "Apprentice- LABORER"																															
TEST BORING DRILLER HELPER	6/1/2025	\$47.82	\$9.90	\$9.25	\$9.80	\$0.00	\$76.77																								
LABORERS	12/1/2025	\$49.32	\$9.90	\$9.25	\$9.80	\$0.00	\$78.27																								
LABORERS - FOUNDATION AND MARINE	6/1/2026	\$50.87	\$9.90	\$9.25	\$9.80	\$0.00	\$79.82																								
	12/1/2026	\$52.37	\$9.90	\$9.25	\$9.80	\$0.00	\$81.32																								
For apprentice rates see "Apprentice- LABORER"																															
TEST BORING LABORER	6/1/2025	\$47.70	\$9.90	\$9.25	\$9.80	\$0.00	\$76.65																								
LABORERS	12/1/2025	\$49.20	\$9.90	\$9.25	\$9.80	\$0.00	\$78.15																								
LABORERS - FOUNDATION AND MARINE	6/1/2026	\$50.75	\$9.90	\$9.25	\$9.80	\$0.00	\$79.70																								
	12/1/2026	\$52.25	\$9.90	\$9.25	\$9.80	\$0.00	\$81.20																								
For apprentice rates see "Apprentice- LABORER"																															
TRACTORS/PORTABLE STEAM GENERATORS	6/1/2025	\$57.68	\$15.55	\$13.25	\$3.25	\$0.00	\$89.73																								
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$59.12	\$15.55	\$13.25	\$3.25	\$0.00	\$91.17																								
OPERATING ENGINEERS LOCAL 4	6/1/2026	\$60.40	\$15.55	\$13.25	\$3.25	\$0.00	\$92.45																								
	12/1/2026	\$61.84	\$15.55	\$13.25	\$3.25	\$0.00	\$93.89																								
For apprentice rates see "Apprentice- OPERATING ENGINEERS"																															
TRAILERS FOR EARTH MOVING EQUIPMENT	6/1/2025	\$41.82	\$15.57	\$20.17	\$0.00	\$0.00	\$77.56																								
TEAMSTERS JOINT COUNCIL NO. 10	12/1/2025	\$41.82	\$15.57	\$21.78	\$0.00	\$0.00	\$79.17																								
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2026	\$41.82	\$16.17	\$21.78	\$0.00	\$0.00	\$79.77																								
	6/1/2026	\$42.82	\$16.17	\$21.78	\$0.00	\$0.00	\$80.77																								
	12/1/2026	\$42.82	\$16.17	\$23.52	\$0.00	\$0.00	\$82.51																								
	1/1/2027	\$42.82	\$16.77	\$23.52	\$0.00	\$0.00	\$83.11																								
TUNNEL WORK - COMPRESSED AIR	6/1/2025	\$59.93	\$9.90	\$9.25	\$10.25	\$0.00	\$89.33																								
LABORERS	12/1/2025	\$61.43	\$9.90	\$9.25	\$10.25	\$0.00	\$90.83																								
LABORERS (COMPRESSED AIR)	6/1/2026	\$62.98	\$9.90	\$9.25	\$10.25	\$0.00	\$92.38																								
	12/1/2026	\$64.48	\$9.90	\$9.25	\$10.25	\$0.00	\$93.88																								
For apprentice rates see "Apprentice- LABORER"																															
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE)	6/1/2025	\$61.93	\$9.90	\$9.25	\$10.25	\$0.00	\$91.33																								
LABORERS	12/1/2025	\$63.43	\$9.90	\$9.25	\$10.25	\$0.00	\$92.83																								
LABORERS (COMPRESSED AIR)	6/1/2026	\$64.98	\$9.90	\$9.25	\$10.25	\$0.00	\$94.38																								
	12/1/2026	\$66.48	\$9.90	\$9.25	\$10.25	\$0.00	\$95.88																								

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
TUNNEL WORK - FREE AIR LABORERS	6/1/2025	\$52.00	\$9.90	\$9.25	\$10.25	\$0.00	\$81.40
LABORERS (FREE AIR TUNNEL)	12/1/2025	\$53.50	\$9.90	\$9.25	\$10.25	\$0.00	\$82.90
	6/1/2026	\$55.05	\$9.90	\$9.25	\$10.25	\$0.00	\$84.45
	12/1/2026	\$56.55	\$9.90	\$9.25	\$10.25	\$0.00	\$85.95
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - FREE AIR (HAZ. WASTE) LABORERS	6/1/2025	\$54.00	\$9.90	\$9.25	\$10.25	\$0.00	\$83.40
LABORERS (FREE AIR TUNNEL)	12/1/2025	\$55.50	\$9.90	\$9.25	\$10.25	\$0.00	\$84.90
	6/1/2026	\$57.05	\$9.90	\$9.25	\$10.25	\$0.00	\$86.45
	12/1/2026	\$58.55	\$9.90	\$9.25	\$10.25	\$0.00	\$87.95
For apprentice rates see "Apprentice- LABORER"							
VAC-HAUL TEAMSTERS JOINT COUNCIL NO. 10	6/1/2025	\$41.24	\$15.57	\$20.17	\$0.00	\$0.00	\$76.98
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/1/2025	\$41.24	\$15.57	\$21.78	\$0.00	\$0.00	\$78.59
	1/1/2026	\$41.24	\$16.17	\$21.78	\$0.00	\$0.00	\$79.19
	6/1/2026	\$42.24	\$16.17	\$21.78	\$0.00	\$0.00	\$80.19
	12/1/2026	\$42.24	\$16.17	\$23.52	\$0.00	\$0.00	\$81.93
	1/1/2027	\$42.24	\$16.77	\$23.52	\$0.00	\$0.00	\$82.53
WAGON DRILL OPERATOR LABORERS	6/1/2025	\$42.00	\$9.65	\$9.00	\$8.70	\$0.00	\$69.35
LABORERS - ZONE 2	12/1/2025	\$43.38	\$9.65	\$9.00	\$8.70	\$0.00	\$70.73
	6/1/2026	\$44.82	\$9.65	\$9.00	\$8.70	\$0.00	\$72.17
	12/1/2026	\$46.26	\$9.65	\$9.00	\$8.70	\$0.00	\$73.61
	6/1/2027	\$47.71	\$9.65	\$9.00	\$8.70	\$0.00	\$75.06
	12/1/2027	\$49.16	\$9.65	\$9.00	\$8.70	\$0.00	\$76.51
	6/1/2028	\$50.66	\$9.65	\$9.00	\$8.70	\$0.00	\$78.01
	12/1/2028	\$52.16	\$9.65	\$9.00	\$8.70	\$0.00	\$79.51
For apprentice rates see "Apprentice- LABORER"							
WAGON DRILL OPERATOR (HEAVY & HIGHWAY) LABORERS	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.21	\$0.00	\$68.95
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.21	\$0.00	\$70.33
	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.21	\$0.00	\$71.77
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.21	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
WASTE WATER PUMP OPERATOR OPERATING ENGINEERS LOCAL 4	6/1/2025	\$58.33	\$15.55	\$13.25	\$3.25	\$0.00	\$90.38
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$59.78	\$15.55	\$13.25	\$3.25	\$0.00	\$91.83
	6/1/2026	\$61.08	\$15.55	\$13.25	\$3.25	\$0.00	\$93.13
	12/1/2026	\$62.53	\$15.55	\$13.25	\$3.25	\$0.00	\$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
WATER METER INSTALLER PLUMBERS & GASFITTERS LOCAL 12	3/2/2025	\$69.84	\$14.32	\$12.31	\$8.00	\$0.00	\$104.47
PLUMBERS & GASFITTERS LOCAL 12							
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"							

Outside Electrical

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
CABLE TECHNICIAN (Power Zone) OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 For apprentice rates see "Apprentice- LINEMAN"	8/30/2020	\$29.67	\$9.25	\$0.89	\$1.00	\$0.00	\$40.81
CABLEMAN (Underground Ducts & Cables) OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 For apprentice rates see "Apprentice- LINEMAN"	8/30/2020	\$42.03	\$9.25	\$1.26	\$9.01	\$0.00	\$61.55
DRIVER / GROUNDMAN CDL OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 For apprentice rates see "Apprentice- LINEMAN"	8/30/2020	\$34.62	\$9.25	\$1.04	\$9.03	\$0.00	\$53.94
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs) OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 For apprentice rates see "Apprentice- LINEMAN"	8/30/2020	\$27.20	\$9.25	\$0.82	\$1.00	\$0.00	\$38.27
EQUIPMENT OPERATOR (Class A CDL) OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 For apprentice rates see "Apprentice- LINEMAN"	8/30/2020	\$42.03	\$9.25	\$1.26	\$13.09	\$0.00	\$65.63
EQUIPMENT OPERATOR (Class B CDL) OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 For apprentice rates see "Apprentice- LINEMAN"	8/30/2020	\$37.09	\$9.25	\$1.11	\$9.76	\$0.00	\$57.21
GROUNDMAN OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 For apprentice rates see "Apprentice- LINEMAN"	8/30/2020	\$27.20	\$9.25	\$0.82	\$1.00	\$0.00	\$38.27
GROUNDMAN -Inexperienced (<2000 Hrs.) OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 For apprentice rates see "Apprentice- LINEMAN"	8/30/2020	\$22.25	\$9.25	\$0.82	\$1.00	\$0.00	\$33.32
JOURNEYMAN LINEMAN OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/30/2020	\$49.45	\$9.25	\$1.48	\$16.00	\$0.00	\$76.18

Apprentice: JOURNEYMAN LINEMAN							
Effective Date: 8/30/2020							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$29.67	\$9.25	\$0.89	\$2.50	\$0.00	\$42.31
2	65.00	\$32.14	\$9.25	\$0.96	\$2.50	\$0.00	\$44.85
3	70.00	\$34.62	\$9.25	\$1.04	\$2.50	\$0.00	\$47.41
4	75.00	\$37.09	\$9.25	\$1.11	\$4.00	\$0.00	\$51.45

Outside Electrical

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: JOURNEYMAN LINEMAN Effective Date: 8/30/2020							
		Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
5	80.00	\$39.56	\$9.25	\$1.19	\$4.00	\$0.00	\$54.00
6	85.00	\$42.03	\$9.25	\$1.26	\$4.00	\$0.00	\$56.54
7	90.00	\$44.51	\$9.25	\$1.34	\$6.00	\$0.00	\$61.10
TELEDATA CABLE SPLICER OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	2/4/2019	\$30.73	\$4.70	\$0.92	\$2.25	\$0.00	\$38.60
TELEDATA LINEMAN/EQUIPMENT OPERATOR OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	2/4/2019	\$28.93	\$4.70	\$0.89	\$2.25	\$0.00	\$36.77
TELEDATA WIREMAN/INSTALLER/TECHNICIAN OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	2/4/2019	\$28.93	\$4.70	\$0.89	\$2.25	\$0.00	\$36.77

Additional Apprentice Information

All apprentices must be registered with the Division of Apprenticeship Training(DAS) in accordance with M.G.L.c. 23, §§ 11E-11L. Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the hourly prevailing wage rate established by the Commissioner under the provisions of M.G.L.c. 149, §§ 26-27D.

Apprentice ratios are established by DAS pursuant to M.G.L.c. 23, §§ 11E-11L. Ratios are expressed as the allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified. The ratios listed herein have been taken from relevant private collective bargaining agreements(CBAs) and are provided for illustrative purposes only. They have not been independently verified as being accurate or continuing to be accurate.

Parties having questions regarding what ratio to use should contact DAS.

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STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT
SPECIFICATIONS
(EXECUTIVE ORDER 11246)
Revised April 9, 2019

1. As used in these specifications:
 - a. "Covered area" means the geographical area described in the solicitation from which this contract resulted:
 - b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority.
 - c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
 - d. "Minority" includes:
 - (i) Black (all persons having origins in any of the black African racial groups not of Hispanic origin);
 - (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
 - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
2. 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 provisions of the specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.
3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.
4. The Contractor shall implement the specific affirmative action standards provided in Paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.
5. 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 obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such 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 of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.
7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:
 - a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
 - b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.
 - c. 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. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.
 - d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
 - e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.
 - f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
 - g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., 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.
 - h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

- i. Direct its recruitment efforts both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
 - j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.
 - k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
 - l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
 - m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
 - n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
 - o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
 - p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.
8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.
 9. A single goal for minorities and a separate single 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 Executive Order if a specific minority group of women is underutilized).
 10. The Contractor shall not use the goals and timetables of affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.
 11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.
14. 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 many be required by the Government and keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, 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 and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
15. 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 (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

APPENDIX A

The following goals and timetables for female utilization shall be included in all Federal and federally assisted construction contracts and subcontracts in excess of \$ 10,000. The goals are applicable to the Contractor's aggregate on-site construction workforce whether or not part of that workforce is performing work on a Federal or federally-assisted construction contract or subcontract.

Area covered: Goal for Women apply nationwide

Goals and TimetablesTimetableGoals (percent)

From Apr. 1, 1980 until further notice

6.9

APPENDIX B-80

Until further notice, the following goals for minority utilization in each construction craft and trade shall included in all Federal or federally assisted construction contracts and subcontracts in excess of \$ 10,000 to be performed in the respective geographical areas. The goals are applicable to each nonexempt contractor's total on- site construction workforce, regardless of whether or not part of that workforce is performing work on a Federal, federally assisted or nonfederally related project, contract or subcontract.

Construction contractors participating in an approved Hometown Plan (see 41 CFR 6-4.5) are required to comply with the goals of the Hometown Plan with regard to construction work they perform in the area covered by the Hometown Plan. With regard to all their other covered construction work, such contractors are required to comply with the applicable SMSA or EA goal contained in this Appendix B-80.

Economic AreasSTATE:Goals (percent)

MASSACHUSETTS

004 Boston MA:

SMSA Counties:

1123 Boston-Lowell-Brockton-Lawrence-Haverhill, MA-NH

4.0

MA Essex, MA Middlesex, MA Norfolk, MA Plymouth,

MA Suffolk, NH Rockingham.

5403 Fall River- New Bedford MA, Bristol

1.6

9243 Worcester-Fitchburg-Leominster, MA

1.6

6323 Springfield-Chicopee-Holyoke MA-CT

4.8

MA Hampden, MA Hampshire

Non-SMSA Counties: MA Barnstable, MA Dukes, MA Nantucket

3.6

Non-SMSA Counties: MA Franklin

5.9

APPENDIX C

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the “contractor”) agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Acts and Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Federal Highway Administration (FHWA), as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Non-discrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin (including limited English proficiency), age, sex, disability, or low-income status in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.
3. **Solicitations for Subcontractors, including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor’s obligations under this contract and the Acts and the Regulations relative to nondiscrimination on the grounds of race, color, national origin (including limited English proficiency), age, sex, disability, or low-income status.
4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto, and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Massachusetts Department of Transportation (MassDOT) or FHWA to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor will so certify to MassDOT or FHWA, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a contractor’s noncompliance with the Nondiscrimination provisions of this contract, MassDOT will impose such contract sanctions as it or FHWA may determine to be appropriate, including, but not limited to:
 - a. withholding payments to the contractor under the contract until the contractor complies; and/or
 - b. cancelling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations, and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as MassDOT or FHWA may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request MassDOT to enter into any litigation to protect the interests of MassDOT. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

APPENDIX D

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the “contractor,” which includes consultants) agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

PERTINENT NON-DISCRIMINATION AUTHORITIES:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-Aid programs and projects)
- Federal-Aid Highway Act of 1973 (23 U.S.C. § 324 *et seq.*) (prohibits discrimination on the basis of sex)
- Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. § 794 *et seq.*), as amended (prohibits discrimination on the basis of disability) and 49 CFR Part 27
- The Age Discrimination Act of 1975, as amended (42 U.S.C. § 6101 *et seq.*) (prohibits discrimination on the basis of age)
- Airport and Airway Improvement Act of 1982 (49 U.S.C. § 471, Section 47123), as amended (prohibits discrimination based on race, creed, color, national origin, or sex)
- The Civil Rights Restoration Act of 1987 (PL 100-209) (broadened the scope, coverage, and applicability of Title VI of the Civil Rights Act of 1964, the Age Discrimination Act of 1975, and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms “programs or activities” to include all of the programs or activities of Federal-Aid recipients, sub-recipients, and contractors, whether such programs or activities are Federally funded or not)
- Titles II and III of the Americans with Disabilities Act (42 U.S.C. §§ 12131-12189), as implemented by Department of Transportation regulations at 49 CFR parts 37 and 38 (prohibits discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities)
- The Federal Aviation Administration’s Non-Discrimination Statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex)
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (ensures discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations)
- Executive Order 13166, Improving Access to Services for People with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100)
- Title IX of the Education Amendments Act of 1972, as amended (20 U.S.C. 1681 *et seq.*) (prohibits discrimination on the basis of sex in education programs or activities)

*** END OF DOCUMENT ***

DOCUMENT 00880

Revised January 12, 2022



DEPARTMENT OF LABOR

Employment Standards Administration

MINIMUM WAGES FOR FEDERAL AND FEDERALLY ASSISTED CONTRACTS

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"General Decision Number: MA20250008 09/26/2025

Superseded General Decision Number: MA20240008

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 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)(1).

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:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$17.75 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 2025.
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:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$13.30 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 2025.

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	01/03/2025
1	03/07/2025
2	03/14/2025
3	03/21/2025
4	07/11/2025
5	07/18/2025
6	08/01/2025
7	09/12/2025
8	09/26/2025

BOIL0029-001 01/01/2025

	Rates	Fringes
BOILERMAKER.....	\$ 50.62	28.82

BRMA0001-011 02/01/2023

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.....	\$ 60.35	34.40

BRMA0001-012 02/01/2023

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.....	\$ 58.21	33.71

BRMA0001-013 08/01/2023

LOWELL CHAPTER

MIDDLESEX (Ashland, Framingham, Holliston, Hopkinton, Hudson, Maynard, Natick, Sherbourn, Stow); and NORFOLK (Medfield, Medway, Millis)

	Rates	Fringes
BRICKLAYER.....	\$ 62.40	34.40

BRMA0003-001 08/01/2024

	Rates	Fringes
Marble & Tile Finisher.....	\$ 49.32	35.26
Marble, Tile & Terrazzo Workers.....	\$ 64.52	37.51
TERRAZZO FINISHER.....	\$ 63.44	37.33

BRMA0003-003 08/01/2024

BOSTON CHAPTER

MIDDLESEX (Arlington, Cambridge, Everett, Malden, Medford,
Melrose, Somerville); NORFOLK (Brookline, Milton); and SUFFOLK

	Rates	Fringes
BRICKLAYER.....	\$ 64.50	37.54

BRMA0003-011 08/01/2024

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.....	\$ 64.50	37.54

BRMA0003-012 08/01/2024

	Rates	Fringes
BRICKLAYER WALTHAM CHAPTER - MIDDLESEX (Belmont, Burlington, Concord, Lexington, Lincoln, Stoneham, Sudbury, Waltham, Watertown, Wayland, Weston, Winchester, Woburn).....	\$ 64.50	37.54

BRMA0003-014 08/01/2024

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.....	\$ 64.50	37.54

BRMA0003-025 08/01/2024		

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.....	\$ 64.50	37.54

BRMA0003-033 08/01/2024		

NEWTON CHAPTER

MIDDLESEX (Newton); NORFOLK (Dover, Needham, Wellesley)

	Rates	Fringes
Bricklayer, Plasterer.....	\$ 64.50	37.54

CARP0056-001 08/01/2024		

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.....	\$ 55.79	35.47

CARP0056-002 08/01/2024		

The areas of BARNSTABLE, BRISTOL, PLYMOUTH, and NORFOLK COUNTIES situated OUTSIDE Boston Beltway (I-495) and South of Cape Cod Canal

	Rates	Fringes
PILEDRIVERMAN.....	\$ 51.97	35.47

CARP0056-003 08/01/2024		

Those areas of ESSEX and MIDDLESEX COUNTIES situated OUTSIDE Boston Beltway (I-495)

	Rates	Fringes
PILEDRIVERMAN.....	\$ 49.19	35.47

CARP0056-004 08/01/2024

	Rates	Fringes
DIVER TENDER.....	\$ 61.70	35.47
DIVER.....	\$ 78.11	35.47

CARP0327-002 03/01/2025

MIDDLESEX (Belmont, Cambridge, Everett, Malden, Medford, Somerville); NORFOLK (Brookline, Dedham, Milton); AND SUFFOLK COUNTIES

	Rates	Fringes
CARPENTER.....	\$ 59.94	31.30

CARP0339-002 03/01/2025

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.....	\$ 49.10	31.20

CARP0346-001 03/01/2025

NORFOLK (Braintree, Quincy, Cohasset, Weymouth, etc.) PLYMOUTH (Duxbury, Hanover, Hull, Hingham, Marshfield, Norwell, Pembroke Rockland, Scituate)

	Rates	Fringes
CARPENTER.....	\$ 49.10	31.20

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 04/21/2025

SUFFOLK COUNTY

	Rates	Fringes
MILLWRIGHT.....	\$ 50.47	33.50

CARP1121-005 04/21/2025BARNSTABLE, BRISTOL, DUKES, ESSEX, MIDDLESEX, NANTUCKET,
NORFOLK and PLYMOUTH COUNTIES

	Rates	Fringes
MILLWRIGHT.....	\$ 45.03	33.25

* ELEC0096-001 09/07/2025MIDDLESEX (Ashby, Ashland, Ayer, Ft. Devens, Groton, Hopkinton,
Hudson, Marlboro, Pepperell, Shirley, Stow, Townsend)

	Rates	Fringes
ELECTRICIAN.....	\$ 48.16	36.20
Teledata System Installer.....	\$ 36.12	34.51

ELEC0099-001 06/01/2025

BRISTOL (Attleboro, North Attleboro, Seekonk)

	Rates	Fringes
ELECTRICIAN.....	\$ 56.11	44.10%
Teledata System Installer.....	\$ 42.09	10.45%+15.31

* ELEC0103-002 09/01/2025ESSEX (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.....	\$ 66.17	37.08

* ELEC0103-004 09/01/2025ESSEX (Beverly, Danvers, Essex, Gloucester, Hamilton, Ipswich, Manchester,
Marblehead, Middleton, Peabody, Rockport, Salem, Topsfield, Wenham)

	Rates	Fringes
ELECTRICIAN.....	\$ 66.17	37.08

* ELEC0103-005 09/01/2025

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.....	\$ 66.17	37.08

ELEC0104-001 09/01/2024

	Rates	Fringes
Line Construction:		
Cableman.....	\$ 58.41	30.19+A
Equipment Operator.....	\$ 49.65	26.72+A
Groundman.....	\$ 32.13	12.70+A
Lineman.....	\$ 58.41	30.19+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 09/01/2024

BARNSTABLE, BRISTOL (Except Attleboro, North Attleboro, Seekonk); DUKES; NANTUCKET; PLYMOUTH (Except Hingham and Hull Twp); NORFOLK (Avon, Halbrook, Randolph, Sloughton)

	Rates	Fringes
ELECTRICIAN.....	\$ 50.02	31.09%+15.50

ENGI0004-009 06/01/2025

	Rates	Fringes
Power equipment operators:		
Group 1.....	\$ 57.83	33.70
Group 2.....	\$ 57.18	33.70
Group 3.....	\$ 37.02	33.70
Group 4.....	\$ 46.52	33.70
Group 5.....	\$ 25.02	33.70
Group 6.....	\$ 30.85	33.70

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: Assistant engineer (fireman)

GROUP 5: Oiler (other than truck cranes and gradalls)

GROUP 6: Oiler (on truck cranes and gradalls)

* IRON0007-001 09/16/2025

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, Brockton, 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, Wilmington)

	Rates	Fringes
IRONWORKER		
AREA 1.....	\$ 57.87	37.67
AREA 2.....	\$ 53.46	37.67

* IRON0007-010 09/16/2025		

MIDDLESEX (Ashby, Ashland, Ayer, Boxboro, Holliston, Hopkinton, Hudson, Marlboro, Shirley, Stow, Townsend); NORFOLK (Medway)

	Rates	Fringes
IRONWORKER.....	\$ 57.57	37.67

* IRON0037-002 09/16/2025		

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.....	\$ 43.03	33.53

LABO0022-006 12/01/2024		

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.....	\$ 46.20	29.70
GROUP 2.....	\$ 46.20	29.70
GROUP 3.....	\$ 46.20	29.70
GROUP 4.....	\$ 46.20	29.70
GROUP 5.....	\$ 27.01	29.70
GROUP 6.....	\$ 46.20	29.70

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 12/01/2024

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.....	\$ 38.95	29.70
GROUP 2.....	\$ 38.95	29.70
GROUP 3.....	\$ 38.95	29.70
GROUP 4.....	\$ 38.95	29.70
GROUP 5.....	\$ 27.01	29.70
GROUP 6.....	\$ 46.10	29.70

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 12/01/2024

	Rates	Fringes
Laborers:		
(FREE AIR OPERATION) :		
SHIELD DRIVEN AND LINER		
PLATE IN FREE AIR)		
GROUP 1.....	\$ 50.50	29.70
GROUP 2.....	\$ 50.50	29.70
(OPEN AIR CASSONS,		
UNDERPINNING AND TEST		
BORING INDUSTRIES) :		
TEST BORING & WELL DRILLING		
Driller.....	\$ 50.20	29.70
Laborer.....	\$ 46.20	29.70
(OPEN AIR CASSONS,		
UNDERPINNING AND TEST		
BORING INDUSTRIES) :		
OPEN AIR CASSON,		
UNDERPINNING WORK & BORING		
CREW		
Bottom man.....	\$ 47.35	29.70
Laborers; Top man.....	\$ 46.20	29.70
(TUNNELS, CAISSON &		
CYLINDER WORK IN		
COMPRESSED AIR)		
GROUP 1.....	\$ 47.95	29.70
GROUP 2.....	\$ 58.43	29.70
GROUP 3.....	\$ 58.43	29.70
GROUP 4.....	\$ 58.43	29.70
GROUP 5.....	\$ 58.43	29.70
GROUP 6.....	\$ 58.43	29.70
CLEANING CONCRETE AND		
CAULKING TUNNEL (Both New		
& Existing)		
GROUP 1.....	\$ 50.50	29.70
GROUP 2.....	\$ 50.50	29.70
ROCK SHAFT, CONCRETE		
LINING OF SAME AND TUNNEL		
IN FREE AIR		
GROUP 1.....	\$ 47.95	29.70
GROUP 2.....	\$ 50.50	29.70
GROUP 3.....	\$ 50.50	29.70
GROUP 4.....	\$ 50.50	29.70
GROUP 5.....	\$ 52.50	29.70
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 TUNNEL 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

LABO1421-001 12/02/2024

WRECKING LABORERS:

	Rates	Fringes
Laborers: (Wrecking)		
Group 1.....	\$ 46.25	29.70
Group 2.....	\$ 47.00	29.70
Group 3.....	\$ 47.25	29.70
Group 4.....	\$ 42.25	29.70
Group 5.....	\$ 45.35	29.70
Group 6.....	\$ 46.25	29.70

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 07/01/2024

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.....	\$ 56.76	36.00
Brush, Taper.....	\$ 37.92	30.25
Spray, Sandblast.....	\$ 39.32	30.25

PAIN0035-015 07/01/2024

MIDDLESEX (Cambridge, Everett, Malden, Medford, Somerville)
SUFFOLK COUNTY (Boston, Chelsea) NORFOLK COUNTY (Brookline)

	Rates	Fringes
PAINTER		
NEW CONSTRUCTION:		
Brush, Taper.....	\$ 46.26	36.00
Spay, Sandblast.....	\$ 47.66	36.00
Spray, Sandblast.....	\$ 47.05	30.25
REPAINT:		
Bridge.....	\$ 56.76	36.00
Brush, Taper.....	\$ 44.32	36.00
Spray, Sandblast.....	\$ 45.72	36.00

PLAS0534-001 07/01/2024

ESSEX; MIDDLESEX; NORFOLK AND SUFFOLK COUNTY

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 49.19	40.86

PLUM0004-001 09/01/2025MIDDLESEX (Ashby, Ayer-West of Greenville branch of Boston and
Maine Railroad, Ft. Devens, Groton, Shirley, Townsend)

	Rates	Fringes
Plumbers and Pipefitters.....	\$ 55.00	31.57

PLUM0012-001 03/02/2025ESSEX (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.....	\$ 69.84	36.43

PLUM0012-003 03/02/2025ESSEX (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.....	\$ 69.84	36.43

PLUM0012-006 03/02/2025ESSEX (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.....	\$ 69.84	36.43

PLUM0051-005 08/26/2024		

BARNSTABLE; BRISTOL; DUKES; NANTUCKET; NORFOLK (Avon, Holbrook, Randolph, Stoughton) PLYMOUTH (Remainder of County)

	Rates	Fringes
Plumbers and Pipefitters.....	\$ 52.49	33.60

PLUM0537-001 03/01/2025		

MIDDLESEX (Arlington, Cambridge, Everett, Malden, Medford, Melrose, Reading, Wakefield, Winchester and Woburn); NORFOLK (Bellingham, Braintree, Brookline, Canton, Cohasset, 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.....	\$ 66.58	39.22

TEAM0379-001 06/01/2025		

	Rates	Fringes
Truck drivers:		
Group 1.....	\$ 40.78	37.35+a+b
Group 2.....	\$ 40.95	37.35+a+b
Group 3.....	\$ 41.02	37.35+a+b
Group 4.....	\$ 41.14	37.35+a+b
Group 5.....	\$ 41.24	37.35+a+b
Group 6.....	\$ 41.53	37.35+a+b
Group 7.....	\$ 41.82	37.35+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) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than "SU", "UAVG", "SA", or "SC" denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate 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. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The "SU" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the 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. The date,

6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The "SA" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

- a) a survey underlying a wage determination
- b) an existing published wage determination
- c) an initial WHD letter setting forth a position on a wage determination matter
- d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail 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 an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail 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 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.

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END OF GENERAL DECISION"

"General Decision Number: MA20250021 09/26/2025

Superseded General Decision Number: MA20240021

State: Massachusetts

Construction Type: Highway

County: Middlesex 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)(1).

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:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$17.75 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 2025.
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:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$13.30 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 2025.

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	01/03/2025
1	03/21/2025
2	07/11/2025
3	07/18/2025
4	09/26/2025

* ELEC0103-007 09/01/2025

	Rates	Fringes
ELECTRICIAN.....	\$ 66.17	37.08

ENGI0004-026 06/01/2025		

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
Group 1.....	\$ 57.83	33.70
Group 2.....	\$ 57.18	33.70

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; Gradall; Loader; Paver (Asphalt,
 Aggregate, and Concrete)
 Group 2: Bulldozer; Grader/Blade; Milling Machine; Roller

* IRON0007-031 09/16/2025

	Rates	Fringes
IRONWORKER (ORNAMENTAL, REINFORCING, AND STRUCTURAL).....	\$ 57.87	37.67

LABO0039-002 06/01/2018		

	Rates	Fringes
LABORER		
Asphalt, Includes Raker, Shoveler, Spreader and Distributor.....	\$ 33.50	22.92
Landscape.....	\$ 33.25	22.92

PAIN0035-023 07/01/2024		

	Rates	Fringes
PAINTER (Steel).....	\$ 56.76	36.00

SUMA2014-011 01/11/2017		

	Rates	Fringes

CARPENTER, Includes Form Work....\$ 47.93	19.46
CEMENT MASON/CONCRETE FINISHER...\$ 56.70	21.08
LABORER: Common or General.....\$ 36.58	19.40
LABORER: Concrete Saw (Hand Held/Walk Behind).....\$ 41.78	18.37
LABORER: Guardrail Installation.....\$ 37.70	15.37
OPERATOR: Crane.....\$ 57.61	0.00
OPERATOR: Forklift.....\$ 64.67	0.00
OPERATOR: Mechanic.....\$ 48.14	17.02
OPERATOR: Piledriver.....\$ 44.46	16.94
OPERATOR: Post Driver (Guardrail/Fences).....\$ 41.49	23.07
PAINTER: Spray (Linestriping)....\$ 40.87	13.86
PILEDRIVERMAN.....\$ 45.65	23.33
TRAFFIC CONTROL: Flagger.....\$ 23.00	20.44
TRAFFIC CONTROL: Laborer-Cones/ Barricades/Barrels - Setter/Mover/Sweeper.....\$ 44.49	12.41
TRUCK DRIVER: Concrete Truck....\$ 33.69	15.79
TRUCK DRIVER: Dump Truck.....\$ 38.92	9.73
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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The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

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Washington, DC 20210.

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END OF GENERAL DECISION"

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DOCUMENT A00801

SPECIAL PROVISIONS**WILMINGTON****Federal Aid Project No. NHP(BRR-ON)/HIP(BR)-0034(029)X
Bridge Replacement, W-38-029 (2KV), ST 129 Lowell Street over I-93**

Labor participation goals for this Project shall be 15.3% for minorities and 6.9% for women for each job category. The goals are applicable to both Contractor's and Subcontractor's on-site construction workforce. Refer to Document 00820 for details.

SCOPE OF WORK

All work under this Contract shall be done in conformance with the *2025 Standard Specifications for Highways and Bridges*, the *Supplemental Specifications* contained in this book, the *Construction Standard Details* in effect as of June, 2025, the *1990 Standard Drawings for Signs and Supports*, the *2015 Overhead Signal Structure and Foundation Standard Drawings*, the *2009 Manual on Uniform Traffic Control Devices (MUTCD) with Revisions 1, 2, and 3* and the *November 2022 Massachusetts Amendments to the MUTCD*, the *1968 Standard Drawings for Traffic Signals and Highway Lighting*, the latest edition of *The American Standard for Nursery Stock*, the Plans and these Special Provisions.

The existing Route 129 (Lowell Street) bridge over I-93 is a four-span structure with an overall length of approximately 291 feet and overall width of approximately 54 feet. The bridge will be replaced with a two-span continuous steel plate girder structure with a reinforced concrete deck, and an overall length of 276 feet. The out-to-out deck width will be 50 feet 4 inches with two (2): CP-MTL3 railings with Type II Protective Fence, 6-foot sidewalks, 5-foot shoulders, 2-foot buffers, and 11-foot travel lanes. The wingwalls will have aluminum handrails on top of the CP-MTL3 railings and precast highway guardrail transitions at each corner. The substructure will be comprised of two reinforced concrete cantilever abutments and u-wingwalls, and a reinforced concrete multi-column pier in the median of I-93. All substructure elements will be supported on drilled micropiles, and the pier micropiles will be installed in between the existing timber piles to remain. The bridge replacement shall include necessary repairs to the existing bridge to allow for temporary use during Stage 1 demolition and construction.

The project provides improvements to both approach roadways and the median portion of I-93. It also includes the replacement of the existing guardrail with new barriers in front of the pier and construction of appropriate transitions back to the existing guardrail. The work includes full-depth pavement reconstruction; excavation; pavement milling; pavement resurfacing; installing new drainage structures and pipe; installing new granite curb and sloped edging; constructing ADA compliant cement concrete sidewalks and pedestrian ramps; installing guardrail; installing erosion control; furnishing and spreading loam and seed; installing signs and pavement markings; providing traffic control; and other incidental work listed on the plans and as described in these Special Provisions.

All work shall be performed within, and accessed by, existing State, City, or Town roadway layouts. No rights to enter on, or occupy, private property have been acquired for this Project.

SUBSECTION 7.05 INSURANCE REQUIREMENTS

The insurance requirements set forth in this subsection are in addition to the requirements of the Standard Specifications.

7.05.B: Public Liability Insurance 1. and
7.05.B: Public Liability Insurance 2.

The Massachusetts Department of Transportation and applicable railroads shall be named as additional insureds.

ENVIRONMENTAL PERMITTING

The proposed work does not occur in jurisdictional wetland resources subject to Section 401 or Section 404 of the Clean Water Act; therefore, the project does not require a Water Quality Certification from the Massachusetts Department of Environmental Protection or authorization from the US Army Corps of Engineers. The proposed work qualifies for the bridge exemption authorized in the Transportation Bond Bill and is therefore not subject to the Massachusetts Wetlands Protection Act, the Massachusetts Public Waterfront Act (Chapter 91), or the Massachusetts Environmental Policy Act. If field conditions and/or Contractor-proposed erection, demolition, staging, or other procedures require work to occur in, or otherwise impact water or wetland resource areas, the Contractor is advised that no associated work can occur until all required environmental permits have been obtained allowing such work. The Contractor must notify the District 4 Highway Director, Environmental Engineer, and Resident Engineer in writing at least 60 days prior to desire commencement of the proposed activity. All environmental submittals, including any Contract with Local, State, or Federal environmental agencies, must be coordinated with the District 4 Environmental Engineer. The Contractor is expected to fully cooperate with requests for information and provide same in a timely manner. The Contractor is further advised that the Department will not entertain a delay claim due to the time required to obtain the environmental permits.

CONTRACTOR QUESTIONS AND ADDENDUM ACKNOWLEDGEMENTS

Prospective bidders are required to submit all questions to the Construction Contracts Engineer by 3:00 P.M. on the Tuesday of the previous week before the scheduled bid opening date. Any questions received after this time will not be considered for review by the Department.

Contractors should email questions and addendum acknowledgements to the following email address massdotSpecifications@dot.state.ma.us The MassDOT proposal number and municipality is to be placed in the subject line.

HOLIDAY WORK RESTRICTIONS

(Supplementing Subsection 7.09)

The District Highway Director (DHD) may authorize work to continue during these specified time periods if it is determined by the District that the work will not negatively impact the traveling public. DHD may allow work in those areas on a case by case basis and where work is behind barrier and will not impact traffic

Below are the holiday work restrictions:

New Year's Day (Federal Holiday)

No work on major arterial roadways from 5:00 AM on the day before until the normal start of business on the next subsequent business day. No work on local roadways on the holiday without permission by the DHD and the local police chief.

Martin Luther King's Birthday (Federal Holiday)

No work restrictions due to traffic concerns, however work on local roadways requires permission by the DHD and local police chief.

President's Day (Federal Holiday)

No work restrictions due to traffic concerns, however work on local roadways requires permission by the DHD and local police chief.

Evacuation Day (Suffolk County State Holiday)

No work restrictions due to traffic concerns.

Patriot's Day (State Holiday)

Work restrictions will be in place for Districts 3 and 6 along the entire Boston Marathon route and any other locations that the DHD in those districts determine are warranted so as to not to impact the marathon. All other districts work restrictions will be as per DHD.

Mother's Day

No work on Western Turnpike and Metropolitan Highway System from 5:00 AM on the Friday before, until the normal start of business on the following day.

Memorial Day (Federal Holiday)

No work on major arterial roadways from 5:00 AM on the Friday before, until the normal start of business on the following day.

Bunker Hill Day (Suffolk County State Holiday)

No work restrictions due to traffic concerns.

Juneteenth

No work restrictions due to traffic concerns, however work on local roadways requires permission by the DHD and local police chief.

HOLIDAY WORK RESTRICTIONS (Continued)**Independence Day (Federal Holiday)**

No work on major arterial roadways from 5:00 AM on the day before until the normal start of business on the next subsequent business day. No work on local roadways on the holiday without permission by the DHD and the local police chief.

Labor Day (Federal Holiday)

No work on major arterial roadways from 5:00 AM on the Friday before, until the normal start of business on the following day.

Columbus Day (Federal Holiday)

No work on major arterials from 5:00 AM on the Friday before, until the normal start of business on the following day

Veterans' Day (Federal Holiday)

No work restrictions due to traffic concerns.

Thanksgiving Day (Federal Holiday)

No work on major arterials from 5:00 AM two days before until the normal start of business on the following Monday.

Christmas Day (Federal Holiday)

No work on major arterial roadways from 5:00 AM on the day before until the normal start of business on the next subsequent business day.

2026 FIFA WORLD CUP – BOSTON, MASSACHUSETTS

The 2026 FIFA World Cup will be held at Gillette Stadium in Foxborough and related events will be held throughout the region. Matches and Fan Fest activities are scheduled from June 11, 2026 through July 19, 2026. MassDOT will impose work restrictions as necessary to minimize traffic impacts during FIFA events when the Contractor's operations could impact vehicular traffic, particularly on interstate highways and major arterials throughout the region and local roads near the event site. No additional compensation will be allowed for work restrictions except as determined under Subsection 8.10.

RAMP WORK AND NIGHTTIME WORK RESTRICTIONS

(Supplementing Subsection 7.09)

Allowable ramp closures or partial closures to/from I-93 as shown on the plans with associated detours. Work setups or abutment barrier curing setups requiring ramp closures shall be expedited. Continuous closure of an individual ramp shall not occur longer than one night. Multiple ramps shall not be closed simultaneously.

Work stated in the plans to occur during the nighttime shall be restricted to between the hours of 12:00 AM – 5:00 AM.

CLOSURES OF ROADWAYS AND RAMPS AND ASSOCIATED DETOURS**Route 129**

Full closure of any segment of Route 129 shall not occur outside of the hours of 12:00 AM to 5:00 AM.

I-93

Full closure of any segment of either direction of I-93 shall not occur outside of the hours of 12:00 AM to 5:00 AM.

I-93 Ramps

Full closure of any ramp connection I-93 with Route 129 shall not occur outside of the hours of 12:00 AM to 5:00 AM.

TRUCK SAFETY DEVICES

(Supplementing Subsection 7.04: Motor Vehicles)

All motor vehicles subject to Section 7 of Chapter 90 to be operated under this Contract shall be equipped with safety devices as provided therein and in 540 CMR 4.00.

By December 31, 2025, the Contractor shall certify to the Registry of Motor Vehicles, in a manner prescribed by the Registrar, that all applicable vehicles are equipped with Lateral Protective Devices, Convex Mirrors, Cross Over Mirror(s) and Back Up Cameras in accordance with the requirements of 540 CMR 4.00.

The Contractor shall provide evidence satisfactory to the Department to demonstrate compliance with the above certification requirement for all applicable vehicles operated under this Contract by the Contractor and its subcontractors and vendors in a manner set forth by the Department. Thereafter, the Contractor shall have an affirmative obligation to continue to provide such evidence of compliance on an ongoing basis and no later than 7 days after certification with the Registry of Motor Vehicles of any additional vehicles operated under this Contract by the Contractor and its subcontractors and vendors.

Non-compliance with respect to a vehicle that is subject to 540 CMR 4.00 may subject the Contractor to statutory fines as established in M.G.L. c. 90, § 7 and/or contractual remedies up to and including termination of the Contract.

SUBSECTION 8.14 UTILITY COORDINATION, DOCUMENTATION, AND MONITORING RESPONSIBILITIES

A. GENERAL

In accordance with the provisions of Section 8.00 Prosecution and Progress, utility coordination is a critical aspect to this Contract. This section defines the responsibility of the Contractor and MassDOT, with regard to the initial utility relocation plan and changes that occur as the prosecution of the Work progresses. The Engineer, with assistance from the Contractor shall coordinate with Utility companies that are impacted by the Contractor's operations. To support this effort, the Contractor shall provide routine and accurate schedule updates, provide notification of delays, and provide documentation of the steps taken to resolve any conflicts for the temporary and/or permanent relocations of the impacted utilities. The Contractor shall provide copies to the Engineer of the Contractor communication with the Utility companies, including but not limited to:

- Providing advanced notice, for all utility-related meetings initiated by the Contractor.
- Providing meeting minutes for all utility-related meetings that the Contractor attends.
- Providing all test pit records.
- Request for Early Utility work requirements of this section (see below).
- Notification letters for any proposed changes to Utility start dates and/or sequencing.
- Written notification to the Engineer of all apparent utility delays within seven (7) Calendar Days after a recognized delay to actual work in the field – either caused by a Utility or the Contractor.
- Any communication, initiated by the Contractor, associated with additional Right-of-Way needs in support of utility work.
- Submission of completed Utility Completion Forms.

B. PROJECT UTILITY COORDINATION (PUC) FORM

The utility schedule and sequence information provided in the Project Utility Coordination Form (if applicable) is the best available information at the time of the bid and has been considered in setting the contract duration. The Contractor shall use all of this information in developing the bid price and the Baseline Schedule Submission, inclusive of the individual utility durations sequencing requirements, and any work that has been noted as potentially concurrent utility installations.

C. INITIATION OF UTILITY WORK

The Engineer will issue all initial notice-to-proceed dates to each Utility company based on either the:

- 1) Contractor's accepted Baseline Schedule
- 2) An approved Early Utility Request in the form of an Early Utility sub-net schedule (in accordance with the requirements of this Subsection)
- 3) An approved Proposal Schedule

C.1 - BASELINE SCHEDULE – UTILITY BASIS

The Contractor shall provide a Baseline Schedule submission in accordance with the requirements of Subsection 8.02 and inclusive of all of the information provided in the PUC Form that has been issued in the Contract documents. This is to include the utility durations, sequencing of work, allowable concurrent work, and all applicable considerations that have been depicted on the PUC Form.

SUBSECTION 8.14 (Continued)

C.2 – EARLY UTILITY REQUEST – (aka SUBNET SCHEDULE) PRIOR TO THE BASELINE
All early utility work is defined as any anticipated/required utility relocations that need to occur prior to the Baseline Schedule acceptance. In all cases of proposed early utility relocation, the Contractor shall present all known information at the pre-construction conference in the form of a ‘sub-net’ schedule showing when each early utility activity needs to be issued a notice-to-proceed. The Contractor shall provide advance notification of this intent to request early utility work in writing at or prior to the Pre-Construction meeting. Prior to officially requesting approval for early utility work, the Contractor shall also coordinate with MassDOT and all utility companies (private, state or municipal) which may be impacted by the Contract. If this request is acceptable to the Utilities and to MassDOT, the Engineer will issue a notice-to-proceed to the affected Utilities, based on these accepted dates.

C.3 – PROPOSAL SCHEDULE - CHANGES TO THE PUC FORM

If the Contractor intends to submit a schedule (in accordance with MassDOT Standard Specifications, Division I, Subsection 8.02) that contains durations or sequencing that vary from those provided in the Project Utility Coordination (PUC) Form, the Contractor must submit this as an intended change, in the form of a Proposal Schedule and in accordance with MassDOT Standard Specifications, Division I, Subsection 8.02. These proposed changes are subject to the approval of the Engineer and the impacted utilities, in the form of this Proposal Schedule and a proposed revision to the PUC form. The Contractor shall not proceed with any changes of this type without written authorization from the Engineer, that references the approved Proposal Schedule and PUC form changes. The submission of the Baseline Schedule should not include any of these types of proposed utility changes and should not delay the submission of the Baseline Schedule. As a prerequisite to the Proposal Schedule submission, and in advance of the utility notification(s) period, the Contractor shall coordinate the proposed utility changes with the Engineer and the utility companies, to develop a mutually agreed upon schedule, prior to the start of construction.

D. UTILITY DELAYS

The Contractor shall notify the Engineer upon becoming aware that a Utility owner is not advancing the work in accordance with the approved utility schedule. Such notice shall be provided to the Engineer no later than seven (7) calendar days after the occurrence of the event that the Contractor believes to be a utility delay. After such notice, the Engineer and the Contractor shall continue to diligently seek the Utility Owner’s cooperation in performing their scope of Work.

In order to demonstrate that a critical path delay has been caused by a third-party Utility, the Contractor must demonstrate, through the requirements of the monthly Progress Schedule submissions and the supporting contract records associated with Subsection 8.02, 8.10 and 8.14, that the delays were beyond the control of the Contractor.

SUBSECTION 8.14 (Continued)

All documentation provided in this section is subject to the review and verification of the Engineer and, if required, the Utility Owner. In accordance with MassDOT Specifications, Division I, Subsection 8.10, a Time Extension will be granted for a delay caused by a Utility, only if the actual duration of the utility work is in excess of that shown on the Project Utility Coordination Form, and only if;

- 1) proper Notification of Delay was provided to MassDOT in accordance with the time requirements that are specified in this Section
- 2) the utility delay is a critical path impact to the Baseline Schedule (or most recently approved Progress Schedule)

E. LOCATION OF UTILITIES

The locations of existing utilities are shown on the Contract drawings as an approximation only. The Contractor shall perform a pre-construction utility survey, including any required test pits, to determine the location of all known utilities no later than thirty (30) calendar days before commencing physical site work in the affected area.

F. POST UTILITY SURVEY – NOTIFICATION

Following completion of a utility survey of existing locations, the Contractor will be responsible to notify the Engineer of any known conflicts associated with the actual location of utilities prior to the start of the work. The Engineer and the Contractor will coordinate with any utility whose assets are to be affected by the Work of this Contract. A partial list of utility contact information is provided in the Project Utility Coordination Form.

G. MEETINGS AND COOPERATION WITH UTILITY OWNERS

The Contractor shall notify the Engineer in advance of any meeting they initiate with a Utility Owner's representative to allow MassDOT to participate in the meeting if needed.

Prior to the Pre-Construction Meeting, the Contractor should meet with all Utility Owners who will be required to perform utility relocations within the first 6 months of the project, to update the affected utilities of the Project Utility Coordination Form and all other applicable Contract requirements that impact the Utilities. The Contractor shall copy the Engineer on any correspondence between the Utility Owner and the Contractor.

H. FORCE ACCOUNT / UTILITY MONITORING REQUIREMENTS

The Engineer will be responsible for recording daily Utility work force reports. The start, suspension, re-start, and completion dates of each of the Utilities, within each phase of the utility relocation work, will be monitored and agreed to by the Engineer and the Contractor as the work progresses.

I. ACCESS AND INSPECTION

The Contractor shall be responsible for allowing Utility owners access to their own utilities to perform the relocations and/or inspections. The Contractor shall schedule their work accordingly so as not to delay or prevent each utility from maintaining their relocation schedule.

READING MUNICIPAL LIGHT DEPT. EMERGENCY TELEPHONE NUMBERS

ELECTRIC:

Outage/ Emergency: 1-781-942-6598

New Service: 1-781-942-6598

Customer Support: 1-781-942-6598

READING MUNICIPAL LIGHT DEPARTMENT (RMLD) STANDARDS

The RMLD Electric Service Requirements Handbook is provided in the Document A00803. Additional information is available at <https://www.rmld.com/about-rmld/pages/electric-service-requirements-handbook>.

RMLD follows National Grid Construction Standards provided in Document A00804.

NATIONAL GRID EMERGENCY TELEPHONE NUMBERS

GAS:

Emergency: 1-800-233-5325

New Service: 1- 877-696-4743

Customer Support: 1-800-732-3400

VALUE ENGINEERING CHANGE PROPOSAL

This Subsection defines the conditions and requirements which apply to Value Engineering Change Proposals (“VECPs”). The purpose of this provision is to encourage the Contractor to propose changes in certain project requirements that will maintain the project’s functional requirements at a savings in contract time, contract price, or both. The net savings obtained by using a VECP that meets the conditions and requirements set forth here will be shared by the Contractor and MassDOT.

VECP’s under this provision are to be initiated, developed and submitted to MassDOT by the Contractor. The VECP must show the contemplated changes to the Drawings, Specifications and other requirements in the Contract. When a VECP submitted pursuant to this section is fully accepted by MassDOT, the VECP will be implemented by the Contractor and paid using the current cost and resource loaded schedule. Contractor shall demonstrate that the VECP is equal to, or better than, the original design or material; that there is an interest in public safety within the VECP; that there is a life-cycle cost benefit; and/or that end users will benefit from the shortened schedule. VECPs shall be consistent with the MassHighway/MassDOT Standard Specifications for Highways and Bridges and other applicable reference documents and directives. Any proposed deviation from these documents will need to be clearly identified in the VECP Proposal Documents, and must be approved by MassDOT’s Chief Engineer before accepting this VECP.

- A. In order to be considered for MassDOT review each VECP shall:
1. Be clearly labeled pursuant to this Subsection;
 2. Yield a net savings at least two hundred and fifty thousand (250,000.00) Dollars and/or a net saving of contract completion duration of at least three (3) months;
 3. The proposed changes to contract items must:
 - a. maintain the specified items’ required functions (service life, reliability);
 - b. meet applicable safety regulations and codes;
 - c. material substitutions must be in accordance with DOT prequalified/preapproved products and must be tested in accordance with standard material specs/testing methods (and considering all relevant environmental, load, and other relevant factors);
 - d. show economy of operation, ease of maintenance, ease of construction, and necessary standardized features and appearance; and
 4. Shall not require an extension of Contract Time or Contract Milestones, with the exception of cases when there are anticipated significant cost saving.

VALUE ENGINEERING CHANGE PROPOSAL (Continued)

The thresholds above are considered to be a general guideline. MassDOT will consider VECPs outside of these thresholds if a significant benefit is demonstrated. Additionally, notwithstanding this VECP process, MassDOT will consider minor revisions in the form of a Contract Modification.

Further, any VECP submitted shall be in sufficient detail to clearly define the proposed change. The Contractor's failure to provide information of the type, detail and in a format to facilitate the MassDOT's review, may be grounds for rejection of the VECP. Additionally, the Contractor will not be entitled to any equitable adjustment or increased Time, due to any aspect of any of the proposed VECP including permitting, right of way, utility coordination or delayed responses by MassDOT. If, after the progression of the work associated with the executed Contract Modification for the VECP, any additional costs are realized by the Contractor or any of the sub- consultants, sub-contractors, or suppliers, the Contractor shall be obligated to pay for any and all costs.

B. The following initial items shall be provided by the Contractor for MassDOT's review. *Items 1-6 need to be submitted prior to the start of MassDOT's review of the VECP and item 7 is an important consideration for the pricing of the VECP and the timeline of the proposed VECP schedule.*

1. **VECP Description:** A description of the difference between the existing and the proposed Contract requirements, and the comparative advantages and disadvantages of each;
2. **VECP Change Listing:** A listing of the Contract requirements that will need to be changed, modified, or reviewed as well as the proposed Contract document changes in the Instructions to Bidders, Contract, Standard Specifications, General Requirements and Special Provisions required by the VECP.
3. **Construction Schedule Update:** Any changes in the Contract Time(s) or Contract Milestone(s), that will result from acceptance of the VECP, shall be accompanied by a contemporaneous schedule analysis (*i.e., the Contractor's baseline schedule submission, all past/required monthly schedule updates, a detailed assessment of all past delays, and a resource loaded Critical Path Method schedule as specified in Section 8.0 / Subsection 8.02 of this Contract*) of the projected Work that remains including the proposed VECP related schedule changes (*inclusive of the timeline to review accept the VECP and the timeline for implementing the design changes*) in the remaining work. This shall be submitted in the form of a Proposal Schedule until the VECP has been formally accepted. Note: All of this information is to be updated, recertified, and formally accepted by MassDOT before final acceptance of this this VECP is issued.

VALUE ENGINEERING CHANGE PROPOSAL (Continued)

4. ***Date for MassDOT's Acceptance:*** A statement that clearly justifies the date by which the VECP must be accepted to obtain the maximum price reduction, noting any effect upon the Contract Time(s) and/or Contract Milestone(s). This statement must include a narrative that demonstrates the most recent construction schedule has been utilized to justify that proposed acceptance date (*e.g. "in order to start to fabricate critical materials, authorization must be provided to work on the shop drawings by no later than [date]"*). The Contractor should allow for at least sixty (60) to ninety (90) days for acceptance by MassDOT once all of the VECP documentation has been provided. Acceptance shall mean that MassDOT has received a finalized and executed contract modification. However, this is a proposed Contract change.

The Contractor is fully obligated to progress the Work of the original Contract and MassDOT is not liable for any delays or costs that may occur in the review phase of any VECP proposal.

5. ***Cost and Savings Estimates:*** A detailed estimate of the anticipated net savings, calculated as follows:
- a. ***Original Scope:*** Isolate the cost of performing the original contract construction activities, in accordance with the original Contract Documents, as originally bid by the Contractor, that are anticipated to be superseded by the VECP. *This cost is to include any original contract scope that is anticipated to be altered or eliminated by the VECP such as, shop drawing preparation, inspection work, testing, maintenance of traffic, or any other original contract costs, that have yet to have been performed at the time of this VECP submission.*
 - b. ***New VECP Scope:*** Calculate the cost of performing the comparable construction activities associated with the VECP.
 - c. ***Contractor's Engineer & Inspection:*** Calculate the cost of engineering, inspection, and design work by the Contractor's Engineer/Designer. This should be a realistic estimate of the costs of any required engineering, design and review work by the Contractor's Engineer.
 - d. ***MassDOT's Costs:*** MassDOT's estimate of costs to perform engineering/design reviews, cost estimate reviews, schedule reviews, and any other administrative costs to review and recommend implementation of the proposed VECP. (*including all anticipated increased costs to MassDOT on other Contracts and all anticipated follow-on increased costs to MassDOT, if any*) as provided by MassDOT. MassDOT's estimated costs must be included the VECP calculation and will be provided by MassDOT in support of the VECP evaluation process.
 - e. ***Other Costs:*** Estimated costs associated with any revisions to other project related costs, such as Environmental Permits or Right of Way acquisitions, including other agency or municipality costs, as provided by MassDOT.

VALUE ENGINEERING CHANGE PROPOSAL (Continued)Net Savings:

The net savings to be split between MassDOT and the Contractor shall be calculated using the items above as follows: $a - (b+c+d+e) = \text{net savings}$

6. The Contractor shall also provide:

- a. A proposed Change Order, which explains and justifies any required Equitable Adjustment in the Contract Price.
- b. The Contractor's actual costs expended for developing the VECP as of the date of the VECP submission;

7. Design Changes and Drawings: The costs that are outlined above should be inclusive of the following design and engineering responsibilities.

- a. Design changes shall be prepared and stamped by the Contractor's professional designer and/or engineer. In addition, in the development of the VECP; the Contractor is responsible for anticipating and managing all aspects associated with any VECP design work that must be performed by a licensed Engineer.
- b. The Contractor's engineer must analyze and stamp all components of any aspect of the project that has been redesigned, changed, or altered as a result of this VECP.
- c. The Contractor's engineer shall provide all calculations and supporting design/engineering documentation that was utilized to develop the changes and stamped drawings. These will be used by MassDOT's Designer-of-Record to review the VECP changes. The Contractor is limited to selecting only those engineer's that have been pre-qualified by MassDOT's A&E Board.
- d. MassDOT's Designer-of-Record will review and respond to all completed design submissions related to this VECP within thirty (30) calendar days, unless determined to be a non-critical path item.
- e. MassDOT will be responsible for estimating and managing MassDOT's Designer-of-Record during the VECP review and implementation. Should any significant conflicts arise, between the Contractor's Engineer and MassDOT's Designer-of-Record, the DOT and the Contractor will work expeditiously to resolve the conflict. Should this type of conflict continue for greater than five (5) days, the Contractor is to bear all financial and time related impacts of such delay and must seek to resolve the design conflict, in an acceptable manner to MassDOT. The resolution of this conflict will be funded at the Contractor's expense – exclusive of the net saving that was agreed to at the execution of the contract modification for this VECP.
- f. The Contractor's Engineer may also be required to inspect the construction work. The Contractor is to include such anticipated inspection costs in the initial VECP.

VALUE ENGINEERING CHANGE PROPOSAL (Continued)

- g. MassDOT's Designer of Record will remain the Designer-of-Record for the entire Project. Any costs incurred in the use of MassDOT's Designer-of-Record by MassDOT or Contractor associated with the review of a VECP are to be included in the calculated net savings.
- C. Approval of the VECP shall not occur until a Contract Modification, incorporating the VECP, is issued by MassDOT and properly executed by the Contractor. MassDOT may accept or reject part or all of any VECP at any time prior to an executed Contract Modification for the applicable VECP. The decision of MassDOT, concerning acceptance or rejection of any VECP, shall be final and shall not be subject to dispute resolution.

It is expected that several weeks may go by before the final VECP documentation has been executed with a Contract Modification. Therefore, MassDOT intends to make certain that the initial cost estimate information has not changed before entering into a Contract Modification. As the VECP evaluation process is finalized, and prior to the signed Contract Modification for the VECP, the Contractor and MassDOT must re-certify the current status of the originally proposed cost and/or schedule savings.

Until a contract modification is issued and schedule and cost/savings re-certification is complete and accepted by MassDOT, the Contractor shall remain obligated to perform the Work in accordance with the terms and conditions of the original Contract Documents.

Upon completion of the work associated with the VECP, MassDOT may require verification that the VECP savings has been achieved.

- D. VECPs will be processed (distributed, reviewed, commented upon, accepted or rejected) expeditiously (pursuant to M.G.L. c. 30, § 39R); however, as this is an elective modification to the contract, MassDOT shall not be liable for any delay or cost in the review and acceptance of the VECP. During the review of the VECP, the Contractor remains obligated to progress the original Contract scope, and schedule, as planned; until a Contract Modification, accepting the Contractor re-certified VECP, has been executed by MassDOT.

The Contractor has the right to withdraw part, or all of any VECP, prior to acceptance by MassDOT. Such withdrawal shall be made in writing to the Engineer. The Contractor shall state the period of time, from the date of the initial VECP submittal, that the VECP shall remain valid and feasible. Revision of this validity and feasibility period shall be allowed only by mutual agreement of the Contractor and the Engineer in writing.

If the Contractor desires to withdraw the proposal prior to the expiration of this period for non-technical reason, MassDOT reserves the right to recover all actual costs that have been incurred to MassDOT.

VALUE ENGINEERING CHANGE PROPOSAL (Continued)

If the Contractor withdraws the VEC Proposal, MassDOT reserves the right to proceed with the VECP or any portion of the VECP as a normal change and the Contractor waives any right it may have had to share in net savings thereunder.

For purposes of this provision, expiration of the time established by the Contractor for approval shall be considered as withdrawal by the Contractor if MassDOT requests an extension of that time and the Contractor does not provide a written extension.

- E. With regard to unknown conditions or sub-surface work, in general, the expectation is that the Contractor and MassDOT will strive to gain enough knowledge about the risks in order to provide a forward-priced Change Proposal. Therefore, any costs to fully evaluate the proposal, such as additional borings and/or test pits, must be considered in the cost evaluation of whether the VECP is worth pursuing. However, if it is impractical to gather conclusive exploratory information, before the VECP is executed, MassDOT may consider provisions in the VECP that clearly identifies the risk sharing (cost and time) related specifically to the unknown/sub-surface conditions. If these VECP provisions are acceptable to MassDOT they are to include supplemental language to provide a determination of the final savings/cost, and time impacts, no later than 45 days after the sub-surface work is completed. All other aspects of the VECP, unrelated to these Provisions, will be binding upon execution of the VECP.

COMPLIANCE WITH THE NATIONAL DEFENSE AUTHORIZATION ACT**(Supplementing Subsection 7.01)**

On all projects, the “Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment” Regulation (2 CFR 200.216) prohibits the Contractor from using or furnishing the following telecommunications equipment or services:

- Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).
- For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).
- Telecommunications or video surveillance services provided by such entities or using such equipment.
- Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

This prohibition applies to all products manufactured by the aforementioned companies, including any individual components or parts.

By submitting a bid on a project, the Contractor certifies that all work will be in compliance with the terms of 2 CFR 200.216. The Contractor shall submit a COC indicating compliance with the above provisions for all telecommunications equipment or services included in the Contract.

Payment for the item in which the materials are incorporated may be withheld until these COCs are received. Any cost involved in furnishing the certificate(s) shall be borne by the Contractor.

BIDDERS LIST

Pursuant to the provisions of 49 CFR Part 26.11 all official bidders will be required to report the names, addresses and telephone numbers of all firms that submitted bids or quotes in connection with this project. Failure to comply with a written request for this information within 15 business days may result in a recommendation to the Prequalification Committee that prequalification status be suspended until the information is received.

The Department will survey all firms that have submitted bids or quotes during the previous year prior to setting the annual goal and shall request that each firm report its age and gross receipts for the year.

BUILD AMERICA BUY AMERICA PREFERENCE

On Federally-aid projects the Buy America (23.CFR § 635.410) and Build America, Buy America Act . requires the following,

- (1) all iron and steel used in the project are produced in the United States--this means all manufacturing processes, from the initial melting stage through the application of coatings, must occur in the United States. Foreign steel and iron can be used if the cost of the materials does not exceed 0.1% of the total Contract cost or \$2,500, whichever is greater. The action of applying a coating to a covered material (i.e., steel and iron) is deemed a manufacturing process subject to Buy America. Coating includes epoxy coating, galvanizing, painting and any other coating that protects or enhances the value of a material subject to requirements of Build America, Buy America. Steel used for temporary support of excavation, including H piles, soldier piles, and sheeting when the steel is required to be left in place is subject to requirements of Build America, Buy America. Temporary steel, shall remain in place when it falls within the influence zone of the soil supporting any structure or railroad tracks.
- (2) all manufactured products used in the project are produced in the United States—this means the manufactured product was manufactured in the United States; and
- (3) all construction materials are manufactured in the United States—this means that all manufacturing processes for the construction material occurred in the United States. “Construction materials” includes an article, material, or supply—other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives—that is or consists primarily of:
 - non-ferrous metals,
 - plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables),
 - glass (including optic glass),
 - lumber; or
 - drywall.

The Buy America preference only applies to articles, materials, and supplies that are consumed in, incorporated into, or affixed to an infrastructure project. As such, it does not apply to tools, equipment, and supplies, such as temporary scaffolding, brought to the construction site and removed at or before the completion of the infrastructure project. Nor does a Buy America preference apply to equipment and furnishings, such as movable chairs, desks, and portable computer equipment, that are used at or within the finished infrastructure project but are not an integral part of the structure or permanently affixed to the infrastructure project.

All articles, materials, and supplies should be classified as an iron or steel product, a manufactured product, or another product as specified by law or in 2 CFR part 184 (such other products specified by law or in 2 CFR part 184 include “excluded materials” and “construction materials”); an article, material, or supply must not be considered to fall into multiple categories.

NOTE: The requirements for manufactured products indicated in paragraph (2) above are not in effect for this Contract.

**GENERAL REQUIREMENTS FOR DEMOLITION AND
WORK INVOLVING PAINTED STEEL**

(02/06/2020)

Demolition and work involving painted steel shall conform to the requirements of Subsection 961 of the Standard Specifications.

Work Involving Painted Steel.

Hazardous materials shall be removed in the immediate area of any intended welding, heating, saw cutting or burning of steel. Hazardous material removal is required to allow the demolition of structural steel, railings, drainage systems, utility supports, steel lamp posts, etc.

The contractor shall assume that the coatings on the steel contain lead (Pb), unless otherwise determined by testing. The contractor shall certify in writing to the Engineer the results of all testing, and shall also certify that any lead (Pb) coated steel removed from the project was not reused or buried, but was sent to a scrap metal recycling facility.

Implement and maintain programs and procedures, which comply with the requirements of this specification and all applicable standards and regulations. Comply with all applicable regulations even if the regulation is not specifically referenced herein. If a state or local regulation is more restrictive than the regulation of this specification, follow the more restrictive requirements.

This requirement is intended only for the demolition and preparation prior to repair and does not include provisions for recoating of steel.

Environmental

All applicable portions of Subsections 961.65 “Worker Protection” and 961.66 “Environmental Protection and Monitoring” shall be followed when performing this work.

During chemical stripping a hand washing facility may be used in lieu of a decontamination/changing facility.

Hazardous material shall be collected during the disassembly and disposed of as outlined in Subsection 961.68 “Handling of Hazardous Waste and Reporting Release Programs”.

The applicable submittals shall be according to Subsection 961.69 “Submittals”.

Cleaning/Removal**Cutting Or Burning Of Steel**

All surfaces to be welded, heated, saw cut or burned shall be cleaned so as to remove all contaminants and/or hazardous materials, which could be discharged to the environment as a function of the subsequent operations.

**GENERAL REQUIREMENTS FOR DEMOLITION AND
WORK INVOLVING PAINTED STEEL** (Continued)

Lead paint shall be removed in its entirety in an area prescribed by a 6 inch (15 cm) minimum offset from the required work. The paint removal operation may be dry abrasive blasting, wet abrasive blasting or chemical stripping.

Proper level of containment shall be used when performing this work in accordance with Subsection 961.67 "Containment". Full containment is not required during chemical stripping operation however; the Contractor shall install proper shielding and/or tarpaulins under the chemical stripping operations in order to catch all debris generated during this procedure. A cleaned area must be inspected and approved before the demolition operations are started.

During cleaning operations the Contractor shall be required to furnish and erect temporary floodlights illuminating the steel surface at a minimum of 30-foot candles. This lighting shall be used in areas where there is insufficient lighting for proper cleaning operations and inspection. The Contractor shall supply electrical power.

The Contractor shall provide support for interim and final inspection of the bridge during cleaning operations. This support shall include the necessary traffic controls and safe access to the work.

Mechanical Disassembly Of Steel

All surfaces to be mechanically disassembled by shear cutting or removing bolts or rivets shall not require deleading. When shear cutting or removing bolts or rivets, the Contractor shall not use any method that will cause dust and/or particles to be emitted and/or dispersed into the environment to an extent that would expose the workers above the Action Levels of 30 μ g/m³.

For purposes of limiting the lead (Pb) dust, the Contractor will be required to dampen the lead paint work areas.

The contractor shall install a proper shielding and/or tarpaulins under all lead-paint-coated surfaces to be shear cut or bolts or rivets ordered removed in order to catch any loose lead paint chips, dust or particles.

PIGEON WASTE

The Contractor shall remove and dispose of the pigeon waste and any other debris accumulated on the steel members and bridge seats in areas where work is being performed. Pigeon waste and debris material contaminants will require special handling and disposal in accordance with all Federal, state, and local requirements. No separate payment will be made for removal and disposal of pigeon waste. Cost shall be incidental to the contract pay items.

CONTAMINATED SOIL

Soil to be removed from the project area shall not be assumed to be uncontaminated and must be evaluated prior to off-site management for potential contamination with hazardous materials. No soil may be disposed of off-site without proper assessment by the contractor and approval from the Resident Engineer (RE), District Environmental Engineer (DEE), or the project designee.

SOIL STOCKPILING DIRECTIVE P-22-001

Any stockpiling of soil must be performed in compliance with Policy Directive P-22-001, Off-Site Stockpiling of Soil from MassDOT Construction Projects. This directive limits the allowable locations for off-site stockpiling of soil generated during MassDOT projects and includes various requirements that must be satisfied by the contractor prior to off-site stockpiling. The Contractor is responsible for identifying a suitable stockpile location.

EMERALD ASH BORER ADVISORY

To the extent possible, all trees and brush shall be disposed on site, typically chipped and spread in place. When trees or brush must be removed, such as in urban, or otherwise populated areas, Contractor shall identify proposed location for disposal, and provide written notification to the Engineer for approval. Disposal shall be in the city or town of project, or at minimum, within county, of construction operations.

EQUIVALENT SINGLE AXLE LOADS (ESALS)

The estimated traffic level to be used for SUPERPAVE HMA mixture designs for this Contract, expressed in Equivalent Single Axle Loads (ESALs) for the design travel lane over a 20-year period, is 3.18 Million 18-kip (80 kn) ESALs.

MATERIAL OPTIONS

The Contractor shall inform the Engineer of his option prior to the installation of the material. Once the option is designated, all material for the option item(s) shall remain the same throughout the job.

<u>OPTIONS</u>		
<u>Item Number</u>	<u>Item Description</u>	<u>Unit</u>
234.12	12 Inch Drainage Pipe-Option	Foot
235.12	12 Inch Drainage Pipe Flared End – Option	Each

Pipe Options
Reinforced Concrete Pipe
Corrugated Plastic (Polyethylene) Pipe
Corrugated Plastic (Polypropylene) Pipe

SUBSECTION 8.02 SCHEDULE OF OPERATIONS

Replace this subsection with the following:

An integrated cost and schedule controls program shall be implemented by the Contractor to track and document the progress of the Work from Notice to Proceed (NTP) through the Contractor Field Completion (CFC) Milestone. The Contractor's schedules will be used by the Engineer to monitor project progress, plan the level-of-effort required by the Department's work force and consultants and as a critical decision-making tool. Accordingly, the Contractor shall ensure that it complies fully with the requirements specified herein and that its schedules are both accurate and updated as required by the specification throughout the life of the project. Detailed requirements are provided in Division II, Section 722 Construction Scheduling.

SECTION 722 CONSTRUCTION SCHEDULING DESCRIPTION

722.20 General

The Contractor's approach to prosecution of the Work shall be disclosed to the Department by submission of a Critical Path Method (CPM) schedule and a cost/resource loaded Construction Schedule as defined by the schedule type set forth below. These requirements are in addition to any requirements imposed in other sections.

This section establishes the requirement for scheduling submissions. There are four schedule types identified as types A, B, C and D.

All schedules shall be prepared and submitted in accordance with this specification and the instructions contained in the Construction Schedule Toolkit located on the MassDOT-Highway Division website at <https://www.mass.gov/info-details/massdot-highway-contractors-schedule-toolkit>.

Type A –

- Schedule Planning Session
- Baseline CPM Schedule
- Monthly Update CPM Schedule
- Short-term Construction Schedule
- Contract Schedule Update Meeting
- Cost-loaded & Resource Loaded CPM
- Resources Graphic Reporting
- Cash Flow Projections from the CPM
- Cash Flow Charts
- Monthly Projected Spending Report (PSR)
- Contractor-furnished CPM software and computer

Type B –

- Schedule Planning Session
- Baseline CPM Schedule
- Monthly Update CPM Schedule
- Short-term Construction Schedule
- Contract Schedule Update Meeting
- Cost-loaded & Resource Loaded CPM
- Monthly Projected Spending Report (PSR)
- Contractor-furnished CPM software and computer

Type C –

- Schedule Planning Session
- Baseline CPM Schedule
- Monthly Update CPM Schedule
- Short-term Construction Schedule
- Contract Schedule Update Meeting
- Monthly Projected Spending Report (PSR)
- Contractor-furnished CPM software and computer

SECTION 722 (Continued)**Type D -**

- Bar chart schedule updated monthly or at the request of the Engineer
- Short-term Construction Schedule
- Monthly Projected Spending Report (PSR)

EQUIPMENT, PERSONNEL**722.40 General****A. Software Requirements**

The Contractor shall use Primavera P6 computer scheduling software.

In addition to the requirements of Section 740 – Engineer’s Field Office and Equipment, the Contractor shall provide to the Department one (1) copy of the scheduling software, one (1) software license and one (1) computer capable of running the scheduling software for the duration of the Contract. This computer and software shall be installed in the Engineer’s Field Office. The computer and software shall be maintained and serviced at no additional cost to the Department.

B. Scheduler Requirements

The Scheduler shall be approved by the Engineer.

For Type A, B and C Schedules the name of the Contractor’s Project Scheduler together with his/her qualifications shall be submitted to the Department for approval by the Engineer within seven (7) Calendar Days after NTP. The Project Scheduler shall have a minimum of five (5) years of project CPM scheduling experience, three (3) years of which shall be on projects of similar scope and value as the project for which the Project Scheduler is being proposed. References shall be provided from past projects that can attest to the capabilities of the Project Scheduler.

SCHEDULING METHODS**722.60 General****A. Schedule Planning Session**

The Contractor shall conduct a schedule planning session prior to submission of the Baseline Schedule. This session will be attended by the Department and its consultants. During this session, the Contractor shall present its planned approach to the project including, but not limited to:

1. the Work to be performed by the Contractor and its subcontractors;
2. the planned construction sequence and phasing; planned crew sizes;
3. summary of equipment types, sizes, and numbers to be used for each work activity;
4. all early work related to third party utilities;
5. identification of the most critical submittals and projected submission timelines;
6. estimated durations of major work activities;
7. the anticipated Critical Path of the project and a summary of the activities on that Critical Path;
8. a summary of the most difficult schedule challenges the Contractor is anticipating and how it plans to manage and control those challenges;

SECTION 722 (Continued)

9. a summary of the anticipated quarterly cash flow over the life of the project.

This will be an interactive session and the Contractor shall answer all questions that the Department and its consultants may have. The Contractor shall provide a written summary of the information presented and discussed during the session to the Engineer. The Contractor's Baseline Schedule and accompanying Schedule Narrative shall incorporate the information discussed at this Schedule Planning Session.

B. Schedule Reviews by the Department**1. Baseline Schedule Reviews**

The Engineer will respond to the Baseline Schedule Submission within thirty (30) Calendar Days of receipt providing comments, questions and/or disposition that either accepts the schedule or requires revision and resubmittal. Rejected Baseline Schedules shall be resubmitted within fifteen (15) Calendar Days after receipt of the Engineer's comments.

2. Contract Progress Schedule / Monthly Update Reviews / Recovery Schedules

The Engineer will respond to each submittal within twenty-one (21) Calendar Days. Rejected schedules shall be resubmitted by the Contractor within five (5) Calendar Days after receipt of the Engineer's comments.

The Engineer's review comments shall not be construed as direction to change the Contractor's means and methods. The review and acceptance of the CPM schedule does not relieve the Contractor of the responsibility for accomplishing the work within the contract required completion dates. Omissions and errors in the accepted CPM schedule shall not excuse performance less than that required by the Contract.

722.61 Schedule Content and Preparation Requirements

All schedules shall be prepared and submitted in accordance with the instructions contained in the Construction Schedule Toolkit located on the MassDOT-Highway Division website at:

<https://www.mass.gov/info-details/massdot-highway-contractors-schedule-toolkit>

and the following:

A. LOGIC

The schedules shall divide the Work into activities with appropriate logic ties to show:

1. conformance with the requirements of this Section and Division I, Subsection 8.02 - Schedule of Operations
2. the Contractor's overall approach to the planning, scheduling, and execution of the Work
3. conformance with any additional sequences of Work required by the Contract Documents, including, but not limited to, Subsection 8.03 - Prosecution of Work and Subsection 8.06 – Limitations of Operations.

SECTION 722 (Continued)**B. ACTIVITIES**

The schedule shall clearly define the progression of the Work from the Notice to Proceed (NTP) to Contractor Field Completion (CFC) by using separate activities, or including attributes within appropriate activities, to address each of the following:

1. Notice to Proceed
2. Work Breakdown Structure
3. The Critical Path is clearly defined and organized.
4. Float shall be clearly identified.
5. Detailed activities to satisfy permit requirements.
6. Subcontractor approvals at fifteen (15) Calendar Days from submittal to response
7. The preparation and submission of shop drawings, procedures, and other required submittals, with a planned duration that is to be demonstrated to the Engineer as reasonable.
8. The review and return of shop drawings, procedures, and other required submittals, approved or with comments, the duration of which shall be thirty (30) Calendar Days, unless otherwise specified or as approved by the Engineer.
9. Procurement of fabricated materials and equipment with long lead times, including time for review and approval of submittals required before procuring and fabricating.
10. Each component of the Work defined by specific activities.
11. Right-of-Way (ROW) takings that have been identified in the Contract.
12. Early Utility Relocation (by others) that has been identified in the Contract.
13. Interfaces with adjacent work, utility companies, other public agencies, sensitive abutters, and/or any other third-party work affecting the Contract.
14. Utility work to be performed in accordance with the Project Utility Coordination (PUC) Form as provided in Section 8.14 - Utilities Coordination, Documentation and Monitoring Responsibilities
15. Access Restraints – restrictions on access to areas of the Work that are defined by the Department in the bid package, in Subsection 8.06 – Limitations of Operations or elsewhere in the Contract
16. Limitations of Work – time of year restrictions and any other limitations identified in the contract
17. Traffic work zone set-up and removal, night work and phasing
18. Material Certifications
19. Milestones listed in Subsection 8.03 - Prosecution of Work or elsewhere in the Contract Documents
20. For Type A and B Contracts only: All items to be paid for, including all Unit Price and Lump Sum pay items, shall be identified by activity. This shall include all non-construction activities such as engineering work; purchase of permanent materials and equipment, purchase of structural steel stock, equipment procurement, equipment delivery to the site or storage location and the representative amount of overhead/indirect costs that was included in the Contractor's Bid Prices.

SECTION 722 (Continued)

21. Contractor's request for validation of FBU (ready to open to traffic)
22. Full Beneficial Use (FBU) Contract Milestone per the following requirements: The majority of contract Work has been completed and the asset(s) has been opened for full multi-modal transportation use, except for limited contract work items that do not materially impair or hinder the intended public use of the transportation facility. All anticipated lane takings have been completed, except for minor, short term work items and as defined in Subsection 8.03 - Prosecution of Work
23. The Department's confirmation of completed work to allow for FBU.
24. Contractor's request for validation of Substantial Completion
25. Department generated punch list of twenty-one (21) Calendar Days
26. Substantial Completion Contract Milestone as defined in the standard specifications.
27. Punch list Completion Period of at least thirty (30) Calendar Days per the requirements of Subsections 5.11 - Final Acceptance, 7.15 - Claims Against Contractors for Payment of Labor, Materials and Other Purposes
28. Contractor confirmation that all punchlist work and documentation has been completed.
29. Physical Completion of the Work Contract Milestone per the requirements of Subsections 5.11 - Final Acceptance and 8.03 - Prosecution of Work
30. Documentation Completion per the requirements of Subsections 5.11 - Final Acceptance and 8.03 - Prosecution of Work
31. Contractor Field Completion Contract Milestone (which can also be considered the completion date) per the following requirements: All physical contract Work is complete including punchlist. The Contractor has fully de-mobilized from field operations and as defined in Subsection 5.11

C. EARLY AND LATE DATES

Early Dates shall be based on proceeding with the Work or a designated part of the Work exactly on the date when the corresponding Contract Time commences. Late Dates shall be based on completing the Work or a designated part of the Work exactly on the corresponding Contract Time, even if the Contractor anticipates early completion.

D. DURATIONS

Activity durations shall be in Work Days. Planned Original Durations shall be established with consideration of resources and production rates that correspond to the Contractor's Bid Price. Within all of the Department-required schedules, the Contractor shall plan the Work using durations for all physical construction activities of no less than one (1) Work Day and no greater than fourteen (14) Work Days, unless approved by the Engineer as part of the Baseline Schedule Review.

SECTION 722 (Continued)

Should there be an activity with a duration that is determined by the Engineer to be unreasonable, the Contractor will be asked to provide a basis of the duration using bid documents, historic production rates for similar work, or other form of validation that is acceptable to the Engineer. Should the Contractor and the Engineer be unable to agree on reasonable activity durations, the Engineer will, at a minimum, note the disagreement in the Baseline Schedule Review along with a duration the Engineer considers reasonable and the basis for that duration. A schedule that contains a substantial number of activities with durations that are deemed unreasonable by the Engineer will not be accepted.

E. MATERIALS ON HAND

The Contractor shall identify in the Baseline Schedule all items of permanent materials (Materials On Hand) for which the Contractor intends to request payment prior to the incorporation of such items into the Work.

F. ACTIVITY DESCRIPTIONS

The Contractor shall use activity descriptions in all schedules that clearly describe the work to be performed using a combination of words, structure numbers, station numbers, bid item numbers, work breakdown structure (WBS) and/or elevations in a concise and compact label.

G. ACTIVITY IDENTIFICATION NUMBERS

The Contractor shall use the activity identification numbering system specified in the MassDOT Highway Division Contractor Construction Schedule Toolkit.

H. ACTIVITY CODES

The Contractor shall use the activity codes specified in the MassDOT Highway Division Contractor Construction Schedule Toolkit.

I. CALENDARS

Different calendars may be created and assigned to all activities or to individual activities. Calendars define the available hours of work in each Calendar Day, holidays and general or project-specific non-Work Days such as Fish Migration Periods, time-of-year (TOY) restrictions and/or area roadway restrictions. All calendars shall extend two years beyond the current project completion date.

Project Special Provisions identify specific calendar restrictions some examples of special calendars include, but are not limited to:

- Winter Shutdown Period, specific work is required by separate special provision to be performed during the winter. See Special Provision 8.03 (if applicable)
- Peak traffic hours on heavily traveled roadways. This shall be from 6:30 am to 9:30 am and from 3:30 pm to 7:00 pm, unless specified differently elsewhere in the Contract.
- Special requirements by sensitive abutters, railroads, utilities and/or other state agencies as defined in the Contract.
- Planting seasons for trees, shrubs and grasses and wetlands mitigation work.

SECTION 722 (Continued)

- Cape Cod and the Islands Summer Roadway Work Restrictions: A general restriction against highway and bridge construction is enforced between Memorial Day and Labor Day, unless otherwise directed by the Engineer. Cape Ann Summer Roadway Work Restrictions: While there are no general restrictions for Cape Ann as there are for Cape Cod and the Islands, project-specific restrictions may be enforced.
- Turtle and/or Fish Migration Periods and/or other in-water work restrictions: Refer to the Project Special Provisions for specific restrictions.
- Working over Waterways Restricted Periods.
- Night-time paving and striping operations, traffic, and temperature restrictions.
- Utility Restrictions shall be as specified within the Contract.

J. FLOAT

For the calculation of float in the CPM schedule, the setting for *Retained Logic* is required for all schedule submissions, starting with the Baseline Schedule Submission. Should the Contractor have a reason to propose that an alternative calculation setting such as *Progress Override* be used, the Contractor shall obtain the Engineer's approval prior to modifying to this setting.

K. COST AND RESOURCE LOADING (Types A and B only)

For all Type A and B Schedules, the Contractor shall provide a cost and resource-loaded schedule with an accurate allocation of the costs and resources necessary to complete the Work. The costs and resources shall be assigned to all schedule activities in order to enable the Contractor to efficiently execute the Contract requirements and the Engineer to validate the original plan, monitor progress, provide cash flow projections, and analyze delays.

1. Each schedule activity shall have an assigned cost that accurately represents the value of the Work. Each schedule activity shall have its resources assigned to it by craft and the anticipated hours to accomplish the work. Each schedule activity's equipment resources shall be assigned to it by equipment type and hours operated. Front-loading or other unbalancing of the cost distribution will not be permitted.
2. The sum of the cost of all schedule activities shall be equal to the Contractor's Bid Price.
3. Indicating the labor hours per individual, per day, by craft and equipment hours/day will be acceptable.
4. The Engineer reserves the right to use the cost-loading as a means to resolve changes, disputes, time entitlement evaluations, increases or decreases in the scope of Work, unit price renegotiations and/or claims.
5. For all Type A and B Schedules, all subnets, fragnets, Proposal Schedules, and Recovery Schedules shall be cost and resource- loaded to help to quickly validate and monitor the duration of the Work to be performed.
6. For Type A Schedules, cost-loading of the schedule will also be used for cash flow projection purposes.
7. The cost-loading of each activity shall indicate the portion of the cost for that activity that is applicable to a specific bid item (cost account.) The total cost for each cost account must equal the bid item price.

SECTION 722 (Continued)**L. NOT TO BE USED IN THE CONTRACTOR'S CPM SCHEDULE**

1. Milestones or constraint dates not specified in the Contract.
2. Scheduled work not required for the accomplishment of a Contract Milestone
3. Use of activity durations, logic ties and/or sequences deemed unreasonable by the Engineer.
 4. Delayed starts of follow-on trades.
 5. Float suppression techniques.
 6. Leads such as leads, lags, SS, SF, & FF relationships without the expressed permission of the Department.

722.62 Submittal Requirements

All schedules shall be prepared and submitted in accordance with the requirements listed below.

Each monthly Contract Progress Schedule submittal shall be uniquely identified.

Each Submission shall, at a minimum, include the following:

- a. Narrative
- b. Schedule submittals shall be signed by the Scheduler
- c. Schedule Printout - All Activities
- d. Schedule Printout - Critical Path Layout
- e. Schedule Printout - Remaining Work
- f. Schedule Printout - Top 3 Float Path
- g. Work Breakdown Structure (WBS) Summary
- h. Project Spending Report (PSR) in Portable Document Format (.PDF)
- i. Project Spending Report (PSR) in Microsoft Excel spreadsheet (.XLS)
- j. Oracle Primavera P6 Schedule File (.XER)

All digital file submittals will be labeled with the following information.

- Contract Number
- Project Number
- Project locations (i.e., town(s))
- Brief description
- Submittal description (i.e., UP07)
- Data Date (MM-DD-YY)
- File Description (i.e., Critical Path)

Example: C110464 (P606309) - Orange Route 2 over 202 – UP23 (07-15-22) - Critical Path

A. Narratives

A written narrative shall be submitted with every schedule submittal. The narrative shall:

1. itemize and describe the flow of work for all activities on the Critical Path in a format that includes any changes made to the schedule since the previous Contract Progress Schedule / Monthly Update or the Baseline Schedule, whichever is most recent.
2. provide a description of any specification requirements that are not being followed. Identify those that are improvements and those that are not considered to be meeting the requirements.

SECTION 722 (Continued)

3. provide all references to any Notice of Delay that has been issued, within the time period of the Contract Progress Schedule Update, by letter to the Engineer. Note that any Notice of Delay that is not issued by letter will not be recognized by the Engineer. See Subsection 722.64.A – Notice of Delay.
4. provide a description of each third-party utility's planned vs. actual progress and note any that are trending late or are late per the durations and commitments as provided in the PUC Form; provide a description of the five (5) most important responses needed from the Department and the need date for the responses in order to maintain the current Schedule of Record.
5. provide a description of all critical issues that are not within the control of the Contractor or the Department (third party) and any impact they had or may have on the Critical Path.
6. provide a description of any possible considerations to improve the probability of completing the project early or on time.
7. compare Early and Late Dates for activities on the Critical Path and describe reasons for changes in the top three (3) most critical paths.
8. describe the Contractor's plan, approach, methodologies, and resources to be employed for completing the various operations and elements of the Work for the top three (3) most critical paths. For update schedules, describe and propose changes to those plans and verify that a Proposal Schedule is not required.
9. describe, in general, the need for shifts that are not 5 days/week, 8 hours/day, the holidays that are inserted into each calendar and a tabulation of each calendar that has been used in the schedule.
10. describe any out-of-sequence logic and provide an explanation of why each out-of-sequence activity does not require a correction, if one has not been provided, and an adequate demonstration that these changes represent the basis of how these activities will be built, including considerations for resources, dependencies, and previously approved production rates.
11. identify any possible duration increases resulting from actual or anticipated unit price item quantity overruns as compared to the baseline duration, with a corresponding suggestion to mitigate any possible delays to the Critical Path. If the delay is anticipated to impact the Critical Path, refer to Subsections 4.06 – Increased or Decreased Contract Quantities and 8.10 – Determination and Extension of Contract Time for Completion and submit a letter to the Engineer notifying of a potential delay.
12. include a schedule log consisting of the name of the schedule, the data date and the date submitted.
13. include and describe any notifications, communications and coordination meetings with third-parties such as utility companies that occurred from the last update including personnel names, job titles and contact information, date of meeting(s)/correspondence(s), topics discussed, and reasons the third party provided for deviations from the PUC form.

SECTION 722 (Continued)**B. CPM Bar Charts**

One (1) timescaled bar chart containing all activities shall be prepared and submitted using a scale that yields readable plots and that meets the requirements of Subsection 722.61 – Schedule Content and Preparation Requirements. Activities shall be linked by logic ties and shown on their Early Dates. Critical Paths shall be highlighted, and Total Float shall be shown for all activities.

A second timescaled bar chart shall also be prepared containing only the Critical Path or, if the Critical Path is not the longest path, the Longest Path using a scale that yields readable plots and that meets the requirements of Subsection 722.61 – Schedule Content and Preparation Requirements. Activities shall be linked by logic ties and shown on their Early Dates. Total Float shall be shown for all activities.

C. Detailed Activity Schedule Comparisons

A Detailed Activity Schedule Comparison (DASC) is a simple reporting tool in the format of a graphical report that will provide Resident Engineers with immediate, timely and up-to-date information. The DASC consists of an updated bar chart that overlays the current time period's bar chart onto the previous time period's bar chart for an easily read comparison of progress during the present and previous reporting periods.

D. Activity Cost Report and Monthly Cash Flow Projections (Type A only)

With each Contractor Quantity Estimate (CQE), the Contractor shall submit an Activity Cost Report and Cash Flow Projection that includes all activities grouped by Contract Bid Item.

The Activity Cost Report shall be generated from the Schedule of Record and shall be the basis of the Monthly Cash Flow Projection. Within each contract Bid Item, activities shall be sequenced by ascending activity identification number and shall show:

1. activity ID and description,
2. forecast start and finish dates for each activity and,
3. when submitted as a revised schedule, actual start, and finish dates for each completed activity.
4. any variance to the estimated contract quantity shall be shown.

E. Resource Graphs (Type A only)

Monthly and cumulative resource graphs for the remaining Contract period using the Early Dates and Late Dates in the Contract Progress Schedule shall be included as part of each schedule submittal.

SECTION 722 (Continued)**F. Projected Spending Reports**

A Projected Spending Report (PSR) shall be prepared and submitted monthly. The PSR shall indicate the monthly spending (cash flow) projection for each month from NTP to Contractor Field Completion (CFC). Each month's actual spending shall be calculated using all CQEs paid during that month. The Projected Spending Report (PSR) shall be depicted in a tabular format and provided in both an .XLS and .PDF.

722.63. Progress Schedule Requirements**A. Baseline Schedule**

The Baseline Schedule shall be due thirty (30) Calendar Days after Notice to Proceed (NTP). The Baseline Schedule shall only reflect the Work awarded to the Contractor and shall not include any additional work involving Extra Work Orders or any other type of alleged delay. The Baseline Schedule shall be prepared and submitted in accordance with Subsections 722.61 - Schedule Content and Preparation Requirements and 722.62 - Submittal Requirements. Once the Baseline Schedule has been accepted by the Engineer, with or without comments, it shall represent the as-planned schedule for the Work and become the Contract Progress Schedule of Record until such time as the schedule is updated or revised under Subsections 722.63.C - Contract Progress Schedules / Monthly Updates, 722.64.C - Recovery Schedules and 722.64.D - Proposal Schedules.

The Cost and Resource-Loading information (Types A and B only) shall be provided by the Contractor within forty-five (45) Calendar Days after NTP.

The Engineer's review comments on the Baseline Schedule and the Contractor's responses to them will be maintained for the duration of the Contract and will be used by the Engineer to monitor the Contractor's work progress by comparing it to the Contract Progress Schedule / Monthly Update.

B. Interim Progress-Only Schedule Submissions

The first monthly update of the Contract Progress Schedule/Monthly Update is due within seventy (70) Calendar Days after Notice to Proceed (NTP.) The Baseline Schedule review period ends at sixty (60) Calendar Days after NTP, see Subsection 722.60.B - Schedule Reviews by the Department. If the Baseline Schedule has not been accepted within sixty (60) Calendar Days after NTP, an Interim Progress-Only Schedule shall be due within seventy (70) Calendar Days after NTP. The purpose of the Interim Progress-Only Schedule is to document the actual progress of all activities, including non-construction activities, from NTP until the Baseline Schedule is accepted.

SECTION 722 (Continued)**C. Contract Progress Schedules / Monthly Updates**

The first Contract Progress Schedule shall be submitted by the Contractor no later than seventy (70) Calendar Days after NTP. The data date for this first Progress Schedule shall be two months (approximately sixty (60) Calendar Days) after NTP. Subsequent Progress Schedules shall be submitted monthly.

Each Contract Progress Schedule shall reflect progress up to the data date. Updated progress shall be limited to asbuilt sequencing and asbuilt dates for completed and inprogress activities. Asbuilt data shall include actual start dates, remaining Work Days and actual finish dates for each activity, but shall not change any activity descriptions, the Original Durations, or the Original Resources (as planned at the time of bid), without the acceptance of the Engineer. If any activities have been completed out-of-sequence, the Contractor shall propose new logic ties for affected in-progress and future activities that accurately reflect the previously approved sequencing. Alternatively, the Contractor may submit to the Engineer for approval an explanation of why an out-of-sequence activity does not require a correction and an adequate demonstration that the changes accurately represent how the activities will be built, including considerations for resources, dependencies, and previously approved production rates. Once approved by the Engineer, the Contractor may incorporate the changes in the next Contract Progress Schedule/Monthly Update with the affected activities clearly identified and explained in the Schedule Narrative.

No revisions to logic ties, sequence, description, or duration of future activities; or planned resource costs shall be made without prior approval by the Engineer.

Any proposed logic changes for in-progress or future activities shall be submitted to the Engineer for approval before being incorporated into a Contract Progress Schedule. The logic changes must be submitted using a Proposal Schedule or a schedule fragnet submission. Once approved by the Engineer, the Contractor may incorporate the logic in the next Contract Progress Schedule/Monthly Update with the affected activities clearly identified and explained in the Schedule Narrative.

For any proposed changes to the original sequence, description or duration of future activities, the Contractor shall submit to the Engineer for approval an explanation of how the proposed description or duration change reflects how the activity will be progressed, including considerations for resources and previously approved production rates. Any description or duration change that does not accurately reflect how the activity will be progressed will not be approved by the Engineer. Once approved by the Engineer, the Contractor may incorporate the changes in the next Contract Progress Schedule/Monthly Update with the affected activities clearly identified and explained in the Schedule Narrative.

Contract Progress Schedules that extend performance beyond the Contract Time or beyond any Contract Milestone shall not be approved by the Engineer. The Contractor shall submit a Recovery Schedule, or a Time Entitlement Analysis, if any Contract Progress Schedule/Monthly Update indicates a failure to meet the Contract Dates.

SECTION 722 (Continued)**D. Short-Term Construction Schedule**

The Contractor shall provide a Short-Term Construction Schedule that details daily work activities, including any multiple shift work that the Contractor intends to conduct, in a spreadsheet format. The daily activities shall directly correspond to the Contract Progress Schedule activities, with a matching reference to the activity identification number in the Contract Progress Schedule and may be at a greater level of detail. The Short-Term Construction Schedule shall be submitted every two weeks. It shall display all work for a thirty-five (35) Calendar Day period consisting of completed work for the two (2) week period prior and all planned work for the following three (3) week period. The initial submission shall be provided no later than thirty (30) Calendar Days after NTP or as required by the Engineer.

The Contractor shall be prepared to discuss the Short-Term Construction Schedule, in detail, with the Engineer in order to coordinate field inspection staff requirements, the schedule of work affecting abutters and any corresponding work with affected utilities. Short-Term Construction Schedules shall be prepared and submitted in accordance with Subsections 722.61 - Schedule Content and Preparation Requirements and 722.62 - Submittal Requirements.

722.64 Impacted Schedule Requirements**A. Notice of Delay**

The Contractor shall notify the Engineer in writing, with copies to the District and State Construction Engineers, within fifteen (15) of the start of any delays to the Critical Path that are caused by actions or inactions that were not within the control of the Contractor. Delay notifications that are not provided in a letter to the Engineer, such as a delay notification in the schedule narrative, will not be recognized as contractual notice in the determination of any Time Extension related to the impacts to the work associated with this specific alleged delay. Should such a delay continue for more than one (1) week, the Contractor shall note it in the Schedule Narrative until the delay is no longer impacting the Critical Path for the completion of the Contract Milestones. The Engineer will evaluate the alleged delay and its impact and will respond to the Contractor within ten (10) Calendar Days after receipt of a notice of delay.

B. Time Entitlement Analysis

A Time Entitlement Analysis (TEA) shall consist of a descriptive narrative, prepared in accordance with Subsection 722.62.A - Narratives, and an as-built CPM schedule, which may be in the form of a schedule fragmet that has been developed from the project's Contract Progress Schedule of Record, and illustrates the impact of a delay to the Critical Path, Contract Milestones and/or Contract Completion Date as required in Subsection 8.10 - Determination and Extension of Contract Time for Completion. TEAs shall also be used to determine the schedule impact of proposed Extra Work Orders (EWO) as also required in Subsection 8.10.

TEAs shall be prepared and submitted in accordance with the requirements of Subsections 722.61 - Schedule Content and Preparation Requirements and 722.62 - Submittal Requirements and shall be based on the Contract Progress Schedule of Record applicable at the start of the delay or impact from an EWO. A TEA fragmet must start with a specific new activity describing the work contained in either a Notice of Delay previously submitted to the Department per Subsection 722.64.A - Notice of Delay or an EWO.

SECTION 722 (Continued)

TEAs shall be submitted:

1. as part of any Extra Work Order that may impact Contract Time,
2. with a request for a Time Extension,
3. within fifteen (15) Calendar Days after a request for a TEA by the Engineer for any other reason.

A TEA shall be submitted to the Engineer before any Time Extension is granted to the Contractor. Time Extensions will not be granted unless the TEA accurately reflects an evaluation of all past delays and the actual events that occurred that impacted the Critical Path. The TEA must also demonstrate a plan for the efficient completion of all of the remaining work through an optimized CPM Schedule. The analysis shall include all delays, including Contractor-caused delays, and shall be subdivided into timeframes and causes of delays.

TEAs shall incorporate any proposed activities, logic ties, resource considerations, and activity costs required to demonstrate the schedule impacts most efficiently in addition to detailing all impacts to existing activities, logic ties, the Critical Path, Contract Milestones, and the Contract Completion Date. In addition, TEAs shall accurately reflect any changes made to activities, logic ties, restraints, and activity costs, necessitated by an Extra Work Order or other schedule impact, for the completion of the remaining work. The Contractor shall provide TEAs that demonstrate that all delays have been mitigated to the fullest extent possible without requiring an Equitable Adjustment to the original bid basis.

All TEAs shall clearly indicate any overtime hours, additional shifts and the resources that are proposed to be incorporated in the schedule. The Engineer shall have final discretion over the use of overtime hours and additional shifts. The Engineer shall have the right to require that overtime hours and/or additional shifts be used to minimize the duration of Time Extensions if it is determined to be in the best interest of the Department to do so.

When accepted, the changes included in a TEA shall be incorporated into the next Contract Progress Schedule per the requirements of Subsection 722.63.C - Contract Progress Schedules / Monthly Updates. During the review of any TEA, all Contract Progress Schedules shall continue to be submitted as required.

The Engineer may request that the Contractor prepare a Proposal Schedule or a Recovery Schedule to further mitigate any delays that are shown in the accepted TEA or Contract Progress Schedule.

C. Recovery Schedules

The Contractor shall promptly report to the Engineer all schedule delays during the prosecution of the Work. Contract Progress Schedules that predict performance extended beyond the Contract Time or beyond any Contract Milestone shall not be approved as the schedule of record. This requirement is critical to the Department's ability to make informed decisions regarding Contract Time and costs.

The Contractor shall submit a Recovery Schedule within fifteen (15) Calendar Days of a Contract Progress Schedule submission that shows failure to meet the Contract Dates unless a recovery schedule is waived by the Department. Waiving the recovery schedule does not relieve the contractor of the responsibility for the delay. The Department may revoke the waiver of a Recovery Schedule, at which time a Recovery Schedule shall be submitted within fifteen (15) Calendar Days of the Contractor being notified.

Changes represented in accepted Recovery Schedules shall be incorporated into the next Contract Progress Schedule.

SECTION 722 (Continued)**D. Proposal Schedules**

A Proposal Schedule is an alternative schedule used to evaluate proposed changes to the Contract scope or significant alternatives to previously approved approaches to complete the Work, which may include changes to activity durations, logic, and sequence. For Types A and B Schedules, the Proposal Schedule shall be cost and resource loaded.

A Proposal Schedule may be requested by the Department at any time or may be offered by the Contractor. The Engineer may request that the Contractor prepare a Proposal Schedule to further mitigate any delays that are shown in an accepted TEA or Contract Progress Schedule.

The Contractor shall submit the Proposal Schedule within thirty (30) Calendar Days of a request from the Department.

The Proposal Schedule shall not be considered a Schedule of Record until the logic, durations, narrative, and basis of the Proposal Schedule have been accepted by the Engineer. If the Proposal Schedule took the form of a fragnet, it must be incorporated into the Contract Progress Schedule of Record showing the current progress of all other activities and the impacts/results of the changes made by the Proposal Schedule before the Proposal Schedule is accepted by the Department.

Proposal Schedules shall clearly indicate any proposed acceleration including overtime hours, additional shifts, and the resources that are proposed to be incorporated in the schedule. The Engineer shall have final discretion over the use of overtime hours and additional shifts. Proposal Schedules that contain a cost element shall be submitted with a separate Cost Proposal.

Changes represented in the accepted Proposal Schedules shall be incorporated into the next Contract Progress Schedule. During the review of any Proposal Schedule, all Contract Progress Schedules shall continue to be required every month.

E. Disputes

All schedules shall be submitted, reviewed, dispositioned, and accepted in the timely manner specified herein so as to provide the greatest possible benefit to the execution of this Contract.

The Contractor may dispute a decision by the Engineer by filing a claim notice within seven (7) days after the Contractor's request for additional time has been denied or if the Contractor does not accept the number of days granted in a time extension. The Contractor's claim notice shall include a revised time entitlement analysis that sufficiently explains the basis of the time-related claim. Failure to submit the required time entitlement analysis with the claim notice shall result in denial of the Contractor's claim. A determination on the Contractor's claim shall be in accordance with Subsection 7.16 Claims of Contractor for Compensation. Pending resolution of any dispute, the last schedule accepted by the Engineer will remain the Contract Schedule of Record.

SECTION 722 (Continued)**722.65 Schedule Type D Requirements**

This section is to detail the requirements for Type D Schedules and is separate from the requirements listed above. These schedules are intended for a project in which a more formal schedule would not be practical.

Schedules for Type D projects shall be submitted for each work assignment. The Schedule Type D shall be submitted electronically in .XLS and .PDF format and meet the following requirements. The schedule requirements for work assignments that are anticipated to last three weeks or less shall conform to the requirements for Short-term Construction Schedules below.

Work assignments that are anticipated to last longer than three weeks shall submit a bar chart baseline and provided update schedules upon request of the engineer as required under Bar Chart Schedule below in addition to meeting the Short-term Construction schedule requirements.

A. Bar Chart Schedule

A Bar Chart that shall include the following:

- Work Assignment start date.
- Activities to identify.
 - Major work operations broken down to be no longer than 14 days.
 - Procurement of fabricated materials and equipment with long lead times, including time for review and approval of submittals required before procuring and fabricating.
 - The preparation and submission of shop drawings, procedures, and other required submittals, with a planned duration that is to be demonstrated to the Engineer as reasonable.
 - The review and return of shop drawings, procedures, and other required submittals, approved or with comments, the duration of which shall be shown as thirty (30) Calendar Days,
 - Detailed activities to satisfy permit requirements.
 - Subcontractor approvals at fifteen (15) Calendar Days from submittal to response
 - Project Close out activities including a 21-calendar day creation of a punchlist activity and 30 calendar day minimum completion of punchlist activity.
- Interfaces with adjacent work, utility companies, other public agencies, sensitive abutters, and/or any other third-party work affecting the Contract.
- Access Restraints – restrictions on access to areas of the Work
- Traffic work zone set-up and removal, night work and phasing
- Contract Milestones including Full beneficial Use, Substantial Completion and Contractor Field Completion

The Bar Char Schedule shall be provided at the beginning of the project and updated with each work order created for the project.

SECTION 722 (Continued)**B. Short-Term Construction Schedule**

The Contractor shall provide a Short-Term Construction Schedule that details daily work activities, including any multiple shift work that the Contractor intends to conduct, in a spreadsheet format. The daily activities shall directly correspond to the Contract Progress Schedule activities, with a matching reference to the activity identification number in the Contract Progress Schedule and may be at a greater level of detail. See schedule toolkit for suggested format.

The Short-Term Construction Schedule shall be submitted every two weeks. It shall display all work for a thirty-five (35) Calendar Day period consisting of completed work on the assignment for the two week period prior and all planned work for the following three week period. The initial submission shall be provided no later than thirty (30) Calendar Days after NTP or as required by the Engineer.

The Contractor shall be prepared to discuss the Short-Term Construction Schedule, in detail, with the Engineer in order to coordinate field inspection staff requirements, the schedule of work affecting abutters and any corresponding work with affected utilities.

C. Project Spending Report (PSR)

A Projected Spending Report (PSR) shall be prepared and submitted monthly. The PSR shall be for all active work assignments, broken down by work assignment. The PSR shall indicate the monthly spending (cash flow) projection for each month from NTP to Contractor Field Completion (CFC). Each month's actual spending shall be calculated using all CQEs paid during that month. The Projected Spending Report (PSR) shall be depicted in a tabular format and provided in both an .XLS and .PDF

SECTION 722 (Continued)**COMPENSATION****722.80 Method of Measurement****Schedule of Operations (Type A, B and C)**

The project bid documents specify the fixed-price amounts to be paid to the Contractor for the Project Schedule requirements contained herein. Each bidder shall include this fixed price bid item amounts in their bid. Failure to do so may be grounds for the rejection of the bid.

This fixed price amount is for payment purposes only and is separate from what the Department considers to be the Contractor's General Condition costs. If the Contractor deems it necessary to include additional costs to provide all of the requirements of this section, these additional costs shall be included in the Contractor's overall bid price.

All required schedule-related work, including, but not limited to computers, computer software, the planning and coordination with utilities, training, schedule preparation and schedule submittals will be paid for under the fixed price amount.

Twenty percent (20%) of this pay item will be paid upon the Engineer's acceptance of the Contractor's Baseline Schedule, prepared and submitted in accordance with Subsection 722.63.A.

The remaining eighty percent (80%) of this pay item will be paid in equal monthly installments distributed across the Contract Duration from Notice to Proceed (NTP) to Contractor Field Completion (CFC), less the 2 months required for the submittal and review of the Baseline Schedule in accordance with the following formula:

$$\text{Monthly Payment} = \frac{\text{Remaining Fixed Price amount (80\% of the Item Cost.)}}{\text{Contract Duration in whole months} - 2 \text{ months}}$$

The Schedule of Operations pay item will be adjusted to pay for only the actual quantity of schedules that have been submitted in accordance with this section.

Should there be a Time Extension granted to the Contractor, the Engineer may provide an Equitable Adjustment for additional Contract Progress Schedule Updates at intervals directed by the Engineer. The monthly payment will be the basis for this Equitable Adjustment.

Schedule of Operations (Type D)

For projects assigned with Type D schedule requirements, all scheduling work shall be considered incidental to the project with no separate payment under this section.

SECTION 722 (Continued)**722.81 Basis of Payment**

The timely and accurate submission of the Baseline Schedule is critical to the Contract and the Department's ability to make informed decisions. Only payments under Item 740 - Engineer's Field Office and Item 748 - Mobilization will be made until the Baseline Schedule is accepted by the Engineer.

All required schedule-related work, including, but not limited to computers, computer software, the planning and coordination with utilities, training, schedule preparation and schedule submittals (including monthly progress schedules, short-term schedules, project spending reports, TEAs, recovery schedules or impacted schedules) shall be included in this work.

No payment for any other pay item will be processed beyond seventy-five (75) Calendar Days from Notice to Proceed (NTP) until the Baseline Schedule is accepted by the Engineer. Until the Engineer's acceptance of the Baseline Schedule, the combined total of all payments made to the Contractor will be limited to an amount no greater than the total price for Item 748 - Mobilization or 3% of the contract price, whichever is less.

All Contract Progress Schedule Updates submitted later than ten (10) Calendar Days after the CQE (Contract Quantity Estimate) completion date, or greater than forty (40) Calendar Days from the Data Date of the previous submission, will be deemed to be no longer useful and will not qualify for payment. The late submission of Impacted schedules, including TEAs, recovery schedules and proposal schedules will result in the forfeiture of the monthly payment for the month in which they were due and subsequent months until the submission is made. Late submission of missed submittals will not result in recovery of the previously forfeited portion of the Schedule of Operations Fixed Price Payment Item.

Failure to submit schedules as and when required may result in the forfeiture of that portion of the Schedule of Operations Fixed Price Payment and/or the withholding of the full or partial CQE payments by the Engineer.

Failure to submit schedules that are acceptable to the Engineer may result in the forfeiture of that portion of the Schedule of Operations Fixed Price Payment and/or the withholding of the full or partial CQE payments by the Engineer.

The Schedule of Operations pay item will be adjusted to pay for only the actual quantity of schedules that have been submitted in accordance with this section.

The Contractor's failure or refusal to comply with the requirements of this Section shall be reasonable evidence that the Contractor is not prosecuting the Work with due diligence and may result in the Engineer withholding of full or partial payments of all work performed.

722.82 Payment Items

722.1	SCHEDULE OF OPERATIONS (TYPE A) - FIXED PRICE \$ _____	LUMP SUM
722.2	SCHEDULE OF OPERATIONS (TYPE B) - FIXED PRICE \$ _____	LUMP SUM
722.3	SCHEDULE OF OPERATIONS (TYPE C) - FIXED PRICE \$ _____	LUMP SUM

ITEM 102.521**TREE AND PLANT PROTECTION FENCE****FOOT**

The work under this Item shall conform to the relevant provisions of Sections 644 and 771 of the Standard Specifications and the following:

Work under this item shall consist of furnishing, installing, and maintaining tree and plant protection fence(s) in a vertical and taut position; removing and resetting fencing as may be required; and final removal of protection fence(s) at the completion of construction activities, or as otherwise required by the Engineer.

The purpose of the fencing is to signify a construction work-free zone and physical barrier, thereby preventing damage to tree roots, tree trunks, soil, and all other vegetation within this delineated Tree and Plant Protection Zone (TPPZ), as shown on the Drawings, as required by the Engineer, and as described herein.

Protection shall be for the duration of the construction activities unless otherwise required by the Engineer.

MATERIALS

Tree and plant protection fence(s) shall provide a minimum forty-eight (48) inch tall barrier, that remains vertical and taut. The Fence shall be orange plastic safety fence (recommended where high visibility is necessary), or wooden snow fencing, or other approved material. Posts and anchoring materials shall be incidental to the work.

Per requirements of the Engineer, additional posts, deeper post depths, and/or additional attachments shall be used if the fabric or fence sags, leans or otherwise is not providing visible or physical protection to the TPPZ.

REFERENCES

If requested, the Contractor shall provide to the Engineer one copy of the American National Standards Institute (ANSI) A300 Standard Practices for Tree, Shrub, and Other Woody Plant Maintenance Part 1, Pruning and Part 5, Construction Management Standard. Provision of reference shall be incidental to this item.

ESTABLISHMENT OF THE TPPZ

Fencing shall be used to delineate and establish the TPPZ, adjacent to construction areas, staging areas, stockpile areas, as shown on the Drawings, and/or as required by the Engineer.

Fencing shall be located as close to the work zone limit and as far from tree trunk(s) and plants as possible to maximize the area to be protected. Fence shall run parallel and adjacent to construction activity to create a barrier between the work zone and the root zone or designated limit of plants and soils to be protected.

ITEM 102.521 (Continued)

When construction activities surround (or have the potential to surround) trees or plants to be protected, a circular enclosure shall be used. In these instances, the TPPZ limit shall be the drip line of each tree or as close as possible to the drip line, and/or as shown on the Drawings. The drip line is defined as the outermost limit of tree canopy.

The Contractor shall not engage in any construction activity within the TPPZ without the approval of the Engineer. Activities may include operating, moving, or storing equipment, supplies, or materials; and locating temporary facilities, including trailers or portable toilets. Accessing or traversing the TPPZ shall not be permitted.

METHOD OF WORK

TPPZ fencing shall be installed prior to any construction work or staging activities. Fence(s) shall be repositioned where and as necessary for optimum tree and plant protection. Repositioning shall be incidental to this item. TPPZ fencing shall not be moved without prior approval by the Engineer.

The TPPZ shall be protected at all times from compaction of the soil; damage of any kind to trunks, bark, branches, leaves, and roots of all plants; and contamination of the soil with construction materials, debris, silt, fuels, oils, and any chemicals substance.

After construction activities are completed, or when required by the Engineer, fencing, stakes, and other anchoring materials, if any, shall be removed and disposed off-site by the Contractor.

REQUIRED WORK WITHIN THE TPPZ

In the event that grading, trenching, utility work, or storage is unavoidable within the TPPZ, the Engineer shall be notified. Measures may be required for tree protection and preservation, including air spading; the use of six (6) inch depth of wood chips or approved matting for root protection; pruning of branches; and/or trunk protection. These protection measures shall be paid under applicable contract items.

Landscaping work specified within the TPPZ shall be accomplished by hand tools. Where handwork is not feasible, with permission of the Engineer, work shall be conducted with the smallest mechanized equipment necessary.

TREE AND PLANT INJURY OR LOSS

If the TPPZ is encroached by construction activity without approval, at the discretion of the Engineer, the Contractor may be required to provide a more durable barrier (e.g., Jersey Barriers, chain link fence (if not already in use) to secure the area. Costs of furnishing and installing additional or more durable barrier(s) shall be borne by the Contractor.

In such cases of encroachment, soils shall be considered compacted and tree root injury will be assumed. Action shall be taken as specified below.

ITEM 102.521 (Continued)

In the event that trees designated for protection under this item are injured, including root injury from unapproved trespassing onto the root zone, the Contractor shall, at his own expense, secure the services of an Arborist, described under Item 102.55. The Arborist shall be approved by MassDOT.

In the event of spills, compaction or injury, the Contractor shall take corrective action immediately using methods approved by the Engineer, in coordination with the Arborist.

If, based on the recommendations of the Arborist, the Engineer determines that injuries can be remedied by corrective measures, such as repairing trunk or limb injury, soil compaction remediation, pruning, and/or watering; the injury shall be repaired as soon as possible, within the appropriate season for such work, and according to industry standards.

If, based on the recommendations of the Arborist, the Engineer determines that injuries are irreparable, or that the injuries are such that the tree is sufficiently compromised to pose a future safety hazard, the tree shall be removed. Tree removal shall include cleanup of all wood, grinding of the stump to a depth sufficient to plant a replacement tree or plant, removal of all chips from the stump site, and filling the resulting hole with topsoil. Such tree removal(s), grinding, debris removal, and filling, shall be at the Contractor's expense.

Tree removal from improper or inadequate protection of the TPPZ shall result in the Engineer assessing the Contractor monetary damages consistent with industry standards for assessed value and/or replacement.

Shrubs removals from improper or inadequate protection of the TPPZ shall be replaced with plants of similar species and equal size or the largest size plants reasonably available. The Engineer shall approve the size, quality, and quantity of the replacement plant(s). Each replacement shall include a minimum of one year of watering and establishment care, specified under Subsection 771.

ITEM 102.521 (Continued)**METHOD OF MEASUREMENT AND BASIS OF PAYMENT**

Tree and Plant Protection Fence will be measured by the FOOT, complete in place, by the length along the top of the fence.

Tree and plant protection fence will be paid for under the contract unit price per FOOT, complete in place and shall include all materials, labor, and equipment required to furnish, install, anchor, maintain, and remove the fence upon completion, as described herein. Posts, temporary footings, anchoring and removal upon completion, shall be incidental to this item.

No separate payment will be made for costs of remedial actions, including addition of more durable barriers, Arborist services, tree or plant removal, shrub replacement and establishment, but all costs in connection therewith shall be included in the Contract unit price bid.

Tree damages assessed, due to lack of or improper tree and plant protective measures being taken, shall be deducted from the contract price of the work.

Payment for work under this item will be scheduled as follows:

- Forty (40) percent of the value payment will be made upon installation of fencing.
- Sixty (60) percent of the value payment will be made when fencing materials have been maintained to function as specified, for the intended duration, and removed and disposed off-site at the completion of protection measure requirement.

ITEM 114.1**DEMOLITION OF SUPERSTRUCTURE OF
BRIDGE NO. W-38-029****LUMP SUM**

The work under this Item shall conform to the relevant provisions of Subsections 112, 950, and 960 of the Standard Specifications and the following:

The work under this Item consist of furnishing all material, labor, equipment, and tools necessary to perform the removal and satisfactory disposal of the entire superstructure of the existing bridge as shown on the Plans or as directed by the Engineer. Except as specified, all materials and debris shall become property of the Contractor, and shall be recycled, reused or disposed of in accordance with applicable Local, State and Federal requirements.

The temporary support of the deck overhang required to accommodate the staged construction scheme shown in the Plans, shall be incidental to this item. The temporary support of the existing deck overhang shall be designed and constructed as required to allow the safe use of the existing structures to be maintained, and construction of proposed structures. The design of the temporary deck overhang support system shall conform to industry standards and all OSHA requirements. The Contractor shall determine the final locations and design of the deck overhang support system to provide necessary clearance for demolition and construction. The temporary deck overhang support system shall be fully designed by the Contractor to carry all applicable AASHTO loads. It shall be designed in accordance with the AASHTO Guide Design Specifications for Bridge Temporary Works, 2nd Edition 2017, and all interims published as of the bid opening date. The temporary support of the existing deck overhang must be designed and stamped by a Professional Engineer registered in the Commonwealth of Massachusetts. Complete detailed drawings and calculations shall be submitted to the Engineer for approval. Written approval must be obtained prior to installation of temporary support of the existing deck overhang. Furnishing such plans and calculations shall not relieve the Contractor of sole responsibility for safety of the public, personnel, equipment, and structures, as well as successful completion of the Project.

The existing timber cribbing, steel support shoring tower and column shall be evaluated by the Engineer prior to demolition of the existing superstructure begins for consideration of re-use. If the Engineer determines the cribbing can be re-used, he or she will provide direction for delivery and storage at 9 Causeway Road, Wilmington. All associated work for salvaging and delivering the existing timber cribbing and steel support shoring tower and column shall be considered incidental to this Item.

ITEM 114.1 (Continued)

The Department makes no assurances regarding the presented conditions, dimensions, and materials of the existing structure as shown on the Contract Drawings. The Contractor shall verify all the existing conditions and construction features of the bridges to be demolished, as necessary, for the proper planning and completion of the work. The Contractor shall base his/her bid on his/her own findings without any additional compensation for variances from the Plans or these Special Provisions regarding actual conditions for the items to be removed.

The following is a description of elements to be demolished:

Superstructure

Elements of the superstructure to be removed and disposed of under this item include but are not limited to:

1. Metal bridge railing and protective screen
2. Concrete deck slab, and sidewalk
3. Steel girders and cross-frame members
4. Steel bearing assemblies and existing electrical conduits under the bridge
5. Existing temporary metal barrier on the bridge
6. Existing timber shielding under the bridge, regardless of condition

Demolition work for the existing bridge superstructure shall conform to the construction staging sequence outlined in the Construction Drawings. The Contractor shall schedule demolition operations subject to the compliance with the general construction phasing scheme and subject to approval of the Engineer. Means and methods of performing the demolition work are the responsibility of the Contractor.

The Contractor shall prepare and submit a plan indicating his/her proposed demolition procedures and methods to be used, including equipment, tools, devices, crane capacity and location(s), schedule of operations, etc. to the Engineer for approval. The requirements for equipment and all procedures utilized shall be in conformance with the intent of Subsection 960.61, Erection, of the Standard Specifications for Highway and Bridges and the Supplemental Specifications. The demolition procedure and any necessary calculations and drawings shall be stamped by a Professional Engineer registered in the Commonwealth of Massachusetts, certifying that all existing structural members are suitably braced and supported throughout the demolition process. Work under this Item may not commence until the Engineer has given written approval of the method of demolition.

Plan files of the existing structure are electronically provided with the Contract Documents.

All materials removed in this demolition shall become property of the Contractor and shall be recycled, reused, or disposed of in accordance with all applicable Local, State, and Federal requirements. Any damage to any bridge components that are designed to remain that are damaged as a result of the Contractor's operations shall be repaired by the Contractor to the satisfaction of the Engineer and at no additional expense. The Contractor shall be responsible for protecting the existing utilities that pass over, under and/or are attached to the bridge from any damage.

ITEM 114.1 (Continued)

Note: Existing electrical conduits over the bridge contain inactive electrical cables. Reading Municipal Light is expected to salvage those cables when the Contractor makes them available.

BASIS OF PAYMENT

Item 114.1 “Demolition of Superstructure of Bridge No. W-38-029” will be paid at the Contract Lump Sum Bid Price, which price shall include full compensation for all labor, tools, equipment, materials, submittals, testing, loading, transportation, disposal, approvals, and permits required for the completion of the work.

The Contractor will make his/her own investigation of the structure to be demolished including the materials that are a part of or may be stored in the structure. No increase will be made to the bid price due to the nature of the materials involved in the demolition. All costs for permits, dump fees, taxes, special handling of hazardous materials, shall be included in the Contract bid price of the demolition item.

The Contractor shall submit in duplicate for approval, by the Engineer, a cost schedule for the “Demolition of Superstructure of Bridge No. W-38-029”. The approval of the cost schedule by the Engineer shall not be considered as a guarantee to the Contractor of the quantities assumed in developing any part of the submittal cost schedule. The schedule is only for the purpose of estimating partial payments, and it shall not affect the Contract terms in any way.

The Engineer shall make partial payments in proportion as the demolition work progresses with the final ten percent (10%) paid upon the satisfactory removal of demolition material from the site.

The demolition of the substructure of the existing bridge is specified and paid for separately under Item No. 127.1 Reinforced Concrete Excavation.

The Contractor shall be responsible for providing a temporary protective shielding system to prevent any debris from falling onto I-93 as a result of their operation. The cost of providing, installing and removing the temporary protective shielding will be paid for separately under Item No. 994.01 Temporary Protective Shielding for Bridge No. W-38-029.

ITEM 127.1**REINFORCED CONCRETE EXCAVATION****CUBIC YARD**

The work under this Item shall conform to the relevant provisions of Subsections 112, 120 and 140 of the Standard Specifications and the following:

The work under this Item consist of furnishing all labor, materials and equipment necessary to demolish and remove elements of the substructure of the existing bridge as indicated on the Contract Drawings and as required by the Engineer. Except as specified, all materials and debris shall become the property of the Contractor, and shall be recycled, reused or disposed of in accordance with applicable Local, State and Federal requirements. Should the edges of the final surfaces where concrete is to be removed under this Item be saw cut, all costs in connection with such work shall be considered incidental to this Item.

The following is a description of elements to be demolished:

Elements of the substructure to be removed and disposed of under this item include but are not limited to:

- a. Abutment backwalls in their entirety
- b. Abutment stems and footings for the limits shown on the Plans
- c. Wingwalls stems and footings for the limits shown on the Plans
- d. Pier caps in their entirety
- e. Pier columns and footings for the limits shown on the Plans
- f. Trimming of the existing timber piles for the limits and length exposed during excavation for installation of the new footings
- g. Approach slabs in their entirety

Please note that removal of the existing substructure elements below grade, and trimming of the existing timber piles, shall be done using methods that do not impact the integrity of the portions of the timber piles to remain.

A suggested sequence of construction is shown on the construction drawings. The Contractor shall schedule concrete excavation operations subject to compliance with the general construction phasing scheme and subject to the approval of the Engineer. Means and methods of performing the concrete excavation work are the responsibility of the Contactor.

No material shall be disposed of on-site and the Contractor shall take all necessary precautions to prevent debris from falling onto the I-93.

The existing pier cap will require temporary shoring for its support after the first phase of construction.

Four (4) weeks prior to the start of demolition, the Contractor shall submit to the Engineer, for review and approval, a detailed method of demolition and dust control, including all equipment to be used at each location, and the method of preventing falling debris. Legal documentation indicating an approved disposal location for all waste material resulting from the demolition shall be submitted.

ITEM 127.1 (Continued)**METHOD OF MEASUREMENT**

Item 127.1 will be measured for payment by the Cubic Yard of the existing substructure concrete removed.

BASIS OF PAYMENT

Item 127.1 will be paid for by the unit of Cubic Yard which price shall be full compensation for all labor, equipment, materials, tools, sawcutting, submittals, transportation, disposal fees and all incidental costs required to complete the work.

The cost of designing, providing, installing and removing the temporary shoring will be paid for separately under Item No. 950.1 Temporary Shoring Bridge No. W-38-029.

Temporary protective shielding will be paid under Item 994.01, as required by the Engineer.

**ITEM 127.4 REINFORCED CONCRETE DECK EXCAVATION SQUARE YARD
(FULL DEPTH)**

The work under this Item shall conform to the relevant provisions of Subsections 112, 120 and 140 of the Standard Specifications and the following:

The work under this Item shall include furnishing all labor, materials and equipment necessary that would allow the existing structures to remain in service and to demolish and remove deteriorated areas of the existing bridge deck for the full depth, as needed during construction to perform emergency repairs. Except as specified, all materials and debris shall become the property of the Contractor, and shall be recycled, reused or disposed of in accordance with applicable Local, State and Federal requirements.

During the prosecution of the Work, the Engineer may reject the use of any method or equipment which causes undue vibration or possible damage to the structure or any part thereof. Pneumatic hammers heavier than the nominal 25 pounds mass shall not be used unless approved by the Engineer.

METHOD OF MEASUREMENT

Item 127.4 will be measured for payment in place by the Square Yard of the existing bridge deck removed.

BASIS OF PAYMENT

Item 127.4 will be paid at the Contract unit bid price per Square Yard which price shall be full compensation for all labor, equipment, materials, tools, temporary support systems, transportation, disposal fees and all other incidental items necessary to complete the work.

Payment of rapid setting concrete material used to patch the repair will be made under Item 909.5.

Payment for replacing and installing new reinforcing steel in the bridge deck repairs will be paid under Item 910.

Payment for replacing and installing new mechanical reinforcing bar splicers in the bridge deck repairs will be paid under Item 910.4.

Temporary protective shielding will be paid under Item 994.01, as required by the Engineer.

ITEM 127.41 REINFORCED CONCRETE DECK EXCAVATION CUBIC YARD
(PARTIAL DEPTH)

The work under this Item shall conform to the relevant provisions of Subsections 112, 120 and 748 of the Standard Specifications and the following:

The work under this Item is intended to be used for partial depth bridge deck repairs that would allow the existing structures to remain in service.

The work under this Item shall include furnishing all labor, materials and equipment necessary to demolish and remove deteriorated areas of the existing bridge deck for a partial depth, as needed during construction to perform emergency repairs. For bridge deck excavation, the work under this item shall include any wearing surface removal, as well as the reinforced concrete deck below. Except as specified, all materials and debris shall become the property of the Contractor, and shall be recycled, reused or disposed of in accordance with applicable Local, State and Federal requirements.

During the prosecution of the Work, the Engineer may reject the use of any method or equipment which causes undue vibration or possible damage to the structure or any part thereof. Pneumatic hammers heavier than the nominal 25 pounds mass shall not be used unless approved by the Engineer.

Minimum depth of excavation to sound concrete shall be one inch (1") beyond the inner most layer of reinforcing steel, but not less than four inches (4") from the original surface. The Contractor shall stop excavating deteriorated concrete when the depth of excavation reaches six inches (6") and shall notify the Engineer immediately. The edges of the patch shall be cut to neat lines by saw cutting or by methods approved by the Engineer, and the patch areas shall be made rectangular in shape, if possible, with horizontal and vertical edges and avoid over cutting square corners.

The Contractor shall limit the extent of concrete excavation as shown on the repair sequence contract drawings. If the Contractor exceeds the limits of excavation as shown on the repair sequence contract drawings, then temporary shoring shall be installed to alleviate loading on the substructure, at no additional cost to the Department. The Contractor may submit an alternate method of reinforced concrete excavation to be approved by the Engineer. The alternate method, if approved by the Engineer, shall not incur any additional costs to MassDOT, and Item 127.41 will be paid at the contract unit bid price regardless of the method used to complete the work.

The Contractor shall take all measures necessary to protect pedestrian and vehicular traffic from the construction operations. No debris, tools or incidental equipment of any kind will be permitted to fall where vehicular or pedestrian traffic exists. Any material that accidentally falls into such areas shall be removed immediately.

The Contractor shall take all precautions necessary so as not to damage that portion of the structure, including reinforcing steel, which is to remain. This includes determining the concrete cover to the steel bars at the edge of each patch prior to excavating concrete. Any steel that is unsuitable for further use through no fault of the Contractor shall be replaced under Item 910.1: Steel Reinforcement for Structures - Epoxy Coated. All reinforcing steel that is loose shall be tied tightly together using epoxy coated wire ties.

ITEM 127.41 (Continued)**METHOD OF MEASUREMENT**

Item 127.41 will be measured per Cubic Yard of concrete or wearing surface excavated, removed, and properly disposed of.

BASIS OF PAYMENT

Item 127.41 will be paid for at the Contract unit bid price per Cubic Yard of the existing bridge deck removed which price shall be full compensation for all labor, equipment, materials, tools, temporary support systems, scaffolding, transportation, disposal fees and all other incidental costs necessary to complete the work.

Payment of rapid setting concrete material used to patch the repair will be compensated under Item 909.5.

Payment for replacing and installing new reinforcing steel in the bridge deck repairs will be paid under Item 910.

Payment for replacing and installing new mechanical reinforcing bar splicers in the bridge deck repairs will be paid under Item 910.4.

Temporary protective shielding will be paid under Item 994.01, as required by the Engineer.

ITEM 180.01 ENVIRONMENTAL HEALTH AND SAFETY PROGRAM LUMP SUM

The work shall consist of ensuring the health and safety of the Contractor's employees and subcontracting personnel, the Engineer, their representatives, the environment, and public welfare from any on-site chemical contamination present in air, soil, water and sediment.

The Contractor shall prepare and implement a site-specific Environmental Health and Safety Plan (EHASP) which has been approved and stamped by a Certified Industrial Hygienist (CIH) and includes the preparer's name and work experience. The EHASP shall include appropriate components required by OSHA Standard 29 CFR 1910.120(b) and the Massachusetts Contingency plan (MCP) 310 CMR 40.0018 and must comply with all applicable state and federal laws, regulations, standards and guidelines, and provide a degree of protection and training appropriate for implementation on the project. The EHASP shall be a dynamic document with provision for change to reflect new information, new practices or procedures, changing site environmental conditions or other situations which may affect site workers and the public. The EHASP shall be developed and implemented independently from the standard construction HASP required to work on all MassDOT construction projects.

Health and safety procedures provided by the Contractor shall comply with all the appropriate regulations that address employee working conditions, including but not limited to standards established by OSHA and National Institute for Occupational Safety and Health (NIOSH). Equipment used for the purpose of health and safety shall be approved by and meet pertinent standards and specifications of the appropriate regulatory agencies.

A copy of the most up-to-date version of the EHASP shall be maintained on-site at all times by the Contractor. The on-site copy shall contain the signature of the Engineer and each on-site employee of the MassDOT, Contractor, and Subcontractors involved with on-site activities. The employee's signature on the EHASP shall be deemed prima facie evidence that the employee has read and understands the plan. Updated copies of signature sheets shall be submitted to the Engineer.

The EHASP shall specify a Contractor Site Safety and Health Officer responsible for implementation of the EHASP and to oversee all construction activities, including handling, storage, sampling and transport, which require contact with or exposure to potentially hazardous materials.

The level of protection, required to ensure the health and safety of on-site personnel will be stipulated in the EHASP. The Site Safety and Health Officer shall implement the EHASP based on changing site and weather conditions, type of operation or activity, chemical compounds identified on-site, concentration of the chemicals, air monitoring data, physical state of the hazardous materials, potential duration of exposure to hazardous materials, dexterity required to perform work, decontamination procedures, necessary personnel and type of equipment to be utilized.

ITEM 180.01 (Continued)

During implementation of the EHASP, a daily log shall be kept by the Site Safety and Health Officer and a copy shall be provided weekly to the Engineer. This log shall be used to record a description of the weather conditions, levels of personal protection being employed, screening data and any other information relevant to on-site environmental safety conditions. The Site Safety and Health Officer shall sign and date the daily log.

BASIS OF PAYMENT

Preparation and implementation of the Environmental Health and Safety Program, including the monitoring, protection and storage of all contaminated materials, as well as subsequent modifications to the EHASP, will be measured and paid for at the Lump Sum Bid Price.

Payment of 50% of the Environmental Health and Safety Program contract price will be made upon the initial acceptance of the EHASP by the Engineer. Payment of the remaining 50% of the Environmental Health and Safety Program contract price will be made upon completion of the work. The bid price shall include preparation and implementation of the EHASP as well as the cost for its enforcement by the Site Safety and Health Officer along with any necessary revisions and updates. The work of implementing the Environmental Health and Safety Program includes work involving, but not limited to, the monitoring, protection, and storage of all contaminated materials.

ITEM 180.02**PERSONAL PROTECTION LEVEL C UPGRADE****HOUR**

The work shall consist of providing appropriate personal protective equipment (PPE) for all personnel in an area either containing or suspected of containing a hazardous environment.

Contingencies for upgrading the level of protection for on-site workers will be identified in the EHASP and the Contractor shall have the capability to implement the personal protection upgrade in a timely manner. The protective equipment and its use shall be in compliance with the EHASP and all appropriate regulations and/or standards for employee working conditions.

Personal Protection Level C Upgrade will be measured and paid only upon upgrade to Level C and will be at the contract unit price, per hour, per worker, required in Level C personal protection. No payment will be made to the Contractor to provide Level D PPE.

ITEM 180.03**LICENSED SITE PROFESSIONAL SERVICES****HOUR**

Within limited areas of the project site, media (i.e. soils, sediments, surface water and/or groundwater) requiring evaluation and/or management under the Massachusetts Contingency Plan (MCP) may be encountered. A Licensed Site Professional (LSP) shall be required to provide the services necessary to comply with the requirements of the MCP. These services may include a site walk, field screening, sampling, analysis and characterization of potentially contaminated media, preparation and implementation of Immediate Response Action (IRA) Plans, Utility-Related Abatement Measure (URAM) and Release Abatement Measure (RAM) Plans, Imminent Hazard Evaluations, status reports, transmittal forms, release notification forms, risk assessments, completion statements, and related documents required pursuant to the MCP. LSP services shall also be necessary to temporarily move material generated on the project to an off-site storage location.

The name and qualifications of the LSP and all environmental technicians to be assigned to the project shall be submitted to the Engineer for approval at least four weeks prior to initial site activities. The LSP shall have a current, valid license issued by the Massachusetts Board of Registration of Hazardous Waste Site Cleanup Professionals. The LSP shall have significant experience in the oversight of MCP activities at active construction sites. Qualification packages for the LSP and each technician shall include a resume, all recent work assignments with responsibilities identified (previous 5 years), and applicable training and certifications. A list of all Notices of Noncompliance, Notice of Audit Findings and Enforcement Orders issued by the Massachusetts Department of Environmental Protection (DEP) shall be submitted for all work assignments listed for the LSP and environmental technicians. Upon approval of the LSP Qualifications, the LSP will be designated as the LSP of Record unless MassDOT designates in writing otherwise. The LSP of Record will serve as the primary point of contact for all hazardous material matters on the project.

The LSP shall evaluate soil and/or sediment with discoloration, odor, elevated field screening results, presence of petroleum liquid or sheen on the groundwater surface, or any abnormal gas or materials in the ground which are known or suspected to be oil or hazardous materials. Excavated soil and sediment which is suspected of petroleum contamination shall be field screened using the jar headspace procedures according to established DEP Guidance. All field screening equipment must be pre-approved by the Engineer. The LSP shall ensure proper on-site calibration of all field screening instrumentation.

The Engineer shall be contacted immediately when observations or any field screening results verify contamination requiring further analysis, and/or enhanced management of suspect media. Any enhanced management of contaminated soil to ensure proper stockpiling and storage is incidental to the LSP Services item. The LSP shall evaluate the need for confirmatory sampling prior to backfill in areas where contaminated material has been excavated and disposed off-site for compliance with applicable regulatory requirements. The Engineer shall approve the locations of the testing sites prior to the sampling.

Contaminated media shall be handled in accordance with all applicable state and federal statutes, regulations, and policies. The LSP shall adequately evaluate contaminated media for compliance with the requirements of the MCP and Department Policies.

ITEM 180.03 (Continued)

The Contractor and the LSP shall be aware of the reporting requirements for releases of oil and/or other hazardous material (OHM) as set forth in federal and state laws and regulations and both shall be held responsible for performing the work in accordance with all applicable Federal and State laws and regulations. The LSP shall maintain written records in a clear and concise tabular format which tracks the excavation, stockpiling, analysis and reuse/disposal of all known/suspect contaminated media. These records shall be up-to-date and submitted to the Engineer on a bi-weekly basis. The LSP shall review and summarize the laboratory data from any analyses performed on contaminated media in a tabular format and compare the results to applicable reporting thresholds. A report shall be delivered to the Engineer outlining the material sampling methods, laboratory analysis results, evaluation of applicable regulatory exemptions, reporting obligations, and proposed course of action. The laboratory report together with Chain of Custody forms for all analytical results shall be submitted to the Engineer within 14 days after completion of such analyses.

The LSP and Contractor shall be held responsible for the submission of all MCP-related documents to the Engineer at least 14 days in advance of any timeframe specified in the MCP and for the timely submission of data and tracking information as noted within this Item. All documents prepared under this Item must be reviewed and signed by the approved LSP. The Contractor and LSP shall be responsible for all fines, damages, and enforcement requirements imposed by applicable regulatory agencies for failure to meet regulatory and contract timeframes. No compensation will be provided for such fines, damages, and enforcement actions.

The Contractor and the LSP shall be aware of the reporting requirements for releases of oil and/or other hazardous material (OHM) as set forth in federal and state laws and regulations and shall both be held responsible for performing the work in accordance with all applicable Federal and State laws and regulations.

If the Contractor causes a release of OHM, the Contractor shall be responsible for assessing and remediating the release in accordance with all pertinent State and Federal regulations, including securing the services of a LSP, at his own expense.

The LSP shall coordinate all activities involving both MassDOT and the DEP through the Engineer. Any notification of release shall be approved by the Engineer before submittal to the DEP, except if an imminent hazard condition exists as defined in 309 CMR 4.03(4)(b).

LABORATORY TESTING IN SUPPORT OF LSP SERVICES

Laboratory testing provides for analytical testing in support of LSP services related to maintaining MCP compliance, such as delineating the extent and type of contamination present. Sampling and testing for disposal purposes are not included and are incidental to Items 181.11-181.14.

ITEM 180.03 (Continued)

In order to maintain compliance with the MCP and Department Policies or other regulatory requirements, the LSP shall request approval from the Engineer to obtain samples from various locations and depths within the project area and to perform laboratory analyses on those samples. No sampling shall be conducted without prior approval from the Engineer. The samples shall be delivered to a DEP-certified laboratory using proper chain-of-custody documentation for analyses which, depending upon site conditions and suspected and/or identified contaminants of concern, may include, but are not limited to, metals, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, polycyclic aromatic hydrocarbons (PAHs), extractable petroleum hydrocarbons (EPHs) and volatile petroleum hydrocarbons (VPHs). Subsequent testing, depending upon initial results, may be required for Toxicity Characteristic Leaching Procedure (TCLP) analyses (EPA Method 1311) for metals.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

LSP Services for work under this item will be measured per person, per hour of service provided by LSP, Environmental Technicians and other approved personnel. Travel time shall not be included in the billable hours.

The quantity and type of laboratory tests must be approved by the Engineer beforehand. The Contractor will be reimbursed upon satisfactory written evidence of payment. The Contractor may be required to obtain cost estimates from three DEP certified laboratories for the Engineer to choose the service provider.

LSP Services will be paid at the Contractor bid price for each hour, or fraction thereof, spent to perform the work as described above. The bid price shall be a blended rate that includes the cost of the LSP, environmental technicians and other personnel, the performance of all work tasks and field screening, including required equipment, materials and instrumentation, and production of all documentation described above. All requests for payment must be accompanied by the following information: the names of the personnel associated with the work charged under LSP Services, dates and hours worked, work conducted, including, where appropriate, locations as identified on the construction plans, and a copy of the field diary for the dates submitted.

Laboratory testing will be reimbursed upon receipt of paid invoices for testing approved by the Engineer.

This item is for LSP work for compliance with the MCP and Department Policies. LSP hours and any laboratory testing related to off-site disposal of excess soil and sediment is incidental to Items 181.11 through 181.14 (including, but not limited to, disposal characterization, disposal package preparation, landfill acceptance, shipment paperwork preparation, field screening, and tracking).

<u>ITEM 181.11</u>	<u>DISPOSAL OF UNREGULATED SOIL</u>	<u>TON</u>
<u>ITEM 181.12</u>	<u>DISPOSAL OF REGULATED SOIL - IN-STATE FACILITY</u>	<u>TON</u>
<u>ITEM 181.13</u>	<u>DISPOSAL OF REGULATED SOIL - OUT-OF-STATE FACILITY</u>	<u>TON</u>
<u>ITEM 181.14</u>	<u>DISPOSAL OF HAZARDOUS WASTE</u>	<u>TON</u>

The work under these Items shall include the transportation and disposal of contaminated material excavated, or excavated and stockpiled. It shall also include the cost of any additional laboratory analyses required by a particular disposal facility beyond the standard disposal test set.

Excavation of existing subsurface materials may include the excavation of contaminated soils. The Contractor shall be responsible for the proper coordination of characterization, transport and disposal, recycling or reuse of contaminated soils. Disposal, recycling or reuse will be referred to as “disposal” for the purposes of this specification. However, regardless of the use of the term herein, there will be no compensation under these items for reuse within the project limits. The Contractor will be responsible for coordinating the activities necessary for characterization, transport and disposal of contaminated soils. Such coordination will include the Engineer and his/her designee overseeing management of contaminated materials. Contaminated soils must be disposed of in a manner appropriate for the soil classification as described below and in accordance with the applicable laws of local, state and federal authorities. The Contractor shall be responsible for identifying disposal facility (ies) licensed to accept the class of contaminated soils to be managed and assure that the facility can accept the anticipated volume of soil contemplated by the project. The Contractor shall be responsible for hiring a Licensed Site Professional (LSP) and all ancillary professional services including laboratories as needed for this work. The Contractor will be responsible for obtaining all permits, approvals, manifests, waste profiles, Bills of Lading, etc. subject to the approval of the Engineer prior to the removal of the contaminated soil from the site. The Contractor and LSP shall prepare and submit to the Engineer for approval all documents required under the Massachusetts Contingency Plan (MCP) and related laws and environmental regulations to conduct characterization, transport, and disposal of contaminated materials.

CLASSES OF CONTAMINATED SOILS

The Contractor and its LSP shall determine if soil excavated or soil to be excavated is unregulated soil or contaminated soil as defined in this section. Such materials shall be given a designation for purposes of reuse or disposal based on the criteria of the MCP. Soils and sediments which are not suitable for reuse will be given a designation for purposes of off-site disposal based on the characterization data and disposal facility license requirements. The Classes of Contaminated Soils are defined as follows:

ITEMS 181.11 through 181.14 (Continued)

UNREGULATED SOIL consists of soil, fill and dredged material with measured levels of oil and hazardous material (OHM) contamination at concentrations below the applicable Reportable Concentrations (RCs) presented in the MCP. Unregulated soil consists of material which may be reused (or otherwise disposed) as fill within the Commonwealth of Massachusetts subject to the non-degradation criteria of the MCP (310 CMR 40.0032(3), in a restricted manner, such that they are sent to a location with equal or higher concentrations of similar contaminants. Disposal areas include licensed disposal facilities, approved industrial settings in areas which will be capped or covered with pavement or loamed and seeded, and for purposes of this project should be reused as fill within the project site construction corridor whenever possible. The material cannot be placed in residential and/or environmentally sensitive (e.g. wetlands) areas. Under no circumstances shall contaminated soils be placed in an uncontaminated or less contaminated area (including the area above the groundwater table if this area shows no sign of contamination).

The Contractor shall submit to MassDOT the proposed disposal location for unregulated soils for approval. If such a disposal location is not a licensed disposal facility, the Contractor shall submit to the Engineer analytical data to characterize the disposal area sufficiently to verify that the unregulated material generated within the MassDOT construction project limits is equal to or less than the contaminant levels at the disposal site and meets the non-degradation requirements of the MCP. In addition, the Contractor shall provide written confirmation from the owner of the proposed disposal location that they have been provided with the analytical data for both the materials to be disposed as well as the disposal site characterization and that s/he agrees to accept this material. A Material Shipping Record or Bill of Lading, as appropriate, shall be used to track the off-site disposal of unregulated soil and a copy, signed by the disposal facility or property owner, shall be provided to the Engineer in order to document legal disposal of the unregulated material.

The cost of on-site disposal of unregulated soil within the project area will be considered incidental to the item of work to which it pertains.

ITEMS 181.11 through 181.14 (Continued)

REGULATED SOIL consists of materials containing measurable levels of OHM that are equal to or exceed the applicable Reportable Concentrations for the site as defined by the MCP, 310 CMR 40.0000. Regulated soil which meets the MCP reuse criteria of the applicable soil/groundwater category for this project area may be reused on site provided that it meets the appropriate geotechnical criteria established by the Engineer. Regulated Soil may be reused (as daily or intermediate cover or pre-cap contouring material) or disposed (as buried waste) at lined landfills within the Commonwealth of Massachusetts or at an unlined landfill that is approved by the Massachusetts Department of Environmental Protection (DEP) for accepting such material, in accordance with DEP Policy #COMM-97-001, or at a similar out-of-state facility. It should be noted that soils which exceed the levels and criteria for disposal at in-state landfills, as outlined in COMM-97-001, may be shipped to an in-state landfill, but require approval from the DEP Division of Solid Waste Management and receiving facility. An additional management alternative for this material is recycling into asphalt. Regulated Soils may also be recycled at a DEP approved recycling facility possessing a Class A recycling permit subject to acceptance by the facility and compliance with DEP Policy #BWSC-94-400. Regulated Soil removed from the site for disposal or treatment must be removed via an LSP approved Bill of Lading, Manifest or applicable material tracking form. This type of facility shall be approved/permitted by the State in which it operates to accept the class of contaminated soil in accordance with all applicable local, state and federal regulations.

HAZARDOUS WASTE consists of materials which must be disposed of at a facility permitted and operated in full compliance with Federal Regulation 40 CFR 260-265, Massachusetts Regulation 310 CMR 30.000, Toxic Substances Control Act (TSCA) regulations, or the equivalent regulations of other states, and all other applicable local, state, and federal regulations. All excavated materials classified as hazardous waste shall be disposed of at an out-of-state permitted facility. This facility shall be a RCRA hazardous waste or TSCA facility, or RCRA hazardous waste incinerator. This type of facility shall be approved/permitted by the State in which it operates to accept hazardous waste in accordance with all applicable local, state and federal regulations and shall be permitted to accept all contamination which may be present in the soil excavate. The Contractor shall ensure that, when needed, the facility can accept TSCA waste materials i.e. polychlorinated biphenyls (PCBs). Hazardous waste must be removed from the site for disposal or treatment via an LSP approved Manifest.

MONITORING/SAMPLING/TESTING REQUIREMENTS

The Contractor shall be responsible for monitoring, sampling and testing during and following excavation of contaminated soils to determine the specific class of contaminated material. Monitoring, sampling and testing frequency and techniques should be performed in accordance with Item 180.03 – LSP Services. Additional sampling and analysis may be necessary to meet the requirements of the disposal facility license. The cost of such additional sampling and analysis shall be included in the bid cost for the applicable disposal items. The Contractor shall obtain sufficient information to demonstrate that the contaminated soil meets the disposal criteria set by the receiving facility that will accept the material.

ITEMS 181.11 through 181.14 (Continued)

No excavated material will be permanently placed on-site or removed for off-site disposal until the results of chemical analyses have been received and the materials have been properly classified. The Contractor shall submit to the Engineer results of field and laboratory chemical analyses tests within seven days after their completion, accompanied by the classification of the material determined by the Contractor, and the intended disposition of the material. The Contractor shall submit to the Engineer for review all plans and documents relevant to LSP services, including but not limited to, all documents that must be submitted to the DEP.

WASTE TRACKING:

Copies of the fully executed Weight Slips/Bills of Lading/ Manifests/Material Shipping Records or other material tracking form received by the Contractor from each disposal facility and for each load disposed of at that facility, shall be submitted to Engineer and the Contractor's LSP within three days of receipt by the Contractor. The Contractor is responsible for preparing and submitting such documents for review and signature by the LSP or other appropriate person with signatory authority, three days in advance of transporting soil off-site. The Contractor shall furnish a form attached to each manifest or other material tracking form for all material removed off-site, certifying that the material was delivered to the site approved for the class of material. If the proposed disposition of the material is for reuse within the project construction corridor, the Contractor shall cooperate with MassDOT to obtain a suitable representative sample(s) of the material to establish its structural characteristics in order to meet the applicable structural requirements as fill for the project.

All material transported off-site shall be loaded by the Contractor into properly licensed and permitted vehicles and transported directly to the selected disposal or recycling facility and be accompanied by the applicable shipping paper. At a minimum, truck bodies must be structurally sound with sealed tail gates, and trucks shall be lined and loads covered with a liner, which shall be placed to form a continuous waterproof tarpaulin to protect the load from wind and rain.

DECONTAMINATION OF EQUIPMENT

Tools and equipment which are to be taken from and reused off site shall be decontaminated in accordance with applicable local, state and federal regulations. This requirement shall include, but not be limited to, all tools, heavy machinery and excavating and hauling equipment used during excavation, stockpiling and handling of contaminated material. Decontamination of equipment is considered incidental to the applicable excavation item.

ITEMS 181.11 through 181.14 (Continued)**REGULATORY REQUIREMENTS**

The Contractor shall be responsible for adhering to regulations, specifications and recognized standard practices related to contaminated material handling during excavation and disposal activities. MassDOT shall not be responsible at any time for the Contractor's violation of pertinent State or Federal regulations or endangerment of laborers and others. The Contractor shall comply with all rules, regulations, laws, permits and ordinances of all authorities having jurisdiction including, but not limited to, Massachusetts DEP, the U.S. Environmental Protection Agency (EPA), Federal Department of Transportation (DOT), Massachusetts Water Resources Authority (MWRA), the Commonwealth of Massachusetts and other applicable local, state and federal agencies governing the disposal of contaminated soils.

All labor, materials, equipment and services necessary to make the work comply with such regulations shall be provided by the Contractor without additional cost to MassDOT. Whenever there is a conflict or overlap within the regulations, the most stringent provisions shall apply. The Contractor shall reimburse MassDOT for all costs it incurs, including damages and/or fines, as a result of the Contractor's failure to adhere to the regulations, specifications, recognized standard practices, etc., that relate to contaminated material handling, transportation and disposal.

SUBMITTALS**I. Summary of Sampling Results, Classification of Material and Proposed Disposal Option.**

The following information, presented in tabular format, must be submitted to the Engineer for review and approval prior to any reuse on-site or disposal off-site. This requirement is on-going throughout the project duration. At least two weeks prior to the start of any excavation activity, the Contractor shall submit a tracking template to be used to present the information as stipulated below. Excavation will not begin until the format is acceptable to MassDOT.

Characterization Reports will be submitted for all soil, sediment, debris and groundwater characterized through the sampling and analysis program. Each report will include a site plan which identifies the sampling locations represented in the Report. The Construction Plan sheets may be used as a baseplan to record this information.

The Sampling Results will be presented in tabular format. Each sample will be identified by appropriate identification matching the sample identification shown on the Chain of Custody Record. The sample must also be identified by location (e.g. grid number or stockpile number). For each sample, the following information must be listed: the classification (unregulated, regulated, etc.), proposed disposal option for the stockpile or unit of material represented, and, all analytical results.

ITEMS 181.11 through 181.14 (Continued)

Each Characterization Report will include the laboratory analytical report and Chain of Custody Record for the samples included in the Report.

II. Stockpiling, Transport, and Disposal.

At least two weeks prior to the start of any excavation activity, the Contractor shall submit, in writing, the following for review and shall not begin excavation activity until the entire submittal is acceptable to MassDOT.

Excavation and Stockpiling Protocol:

Provide a written description of the management protocols for performing excavation and stockpiling and/or direct loading for transport, referencing the locations and methods of excavating and stockpiling excavated material.

Disposal and Recycling Facilities:

1. Provide the name, address, applicable licenses and approved waste profile for disposal and/or recycling location(s) where contaminated soil will be disposed. Present information substantiating the suitability of proposed sites to receive classifications of materials intended to be disposed there, including the ability of the facility to accept anticipated volumes of material.
2. Provide a summary of the history of compliance actions for each disposal/recycling facility proposed to be used by the Contractor. The compliance history shall include a comprehensive list of any state or federal citations, notices of non-compliance, consent decrees or violations relative to the management of waste (including remediation waste) at the facility. Material should not be sent to facilities which are actively considered by the DEP, USEPA or other responsible agency to be in violation of federal, state or local hazardous waste or hazardous material regulations. MassDOT reserves the right to reject any facility on the basis of poor compliance history.

Transportation:

The name, address, applicable license and insurance certificates of the licensed hauler(s) and equipment and handling methods to be used in excavation, segregation, transport, disposal or recycling.

III. Material Tracking and Analytical Documentation for Reuse/Disposal.

The following documents are required for all excavation, reuse and disposal operations and shall be in the format described. At least two weeks prior to the start of any excavation or demolition activity, the Contractor shall submit the tracking templates required to present the information as stipulated below. Excavation or demolition will not begin until the format is acceptable to MassDOT.

ITEMS 181.11 through 181.14 (Continued)

All soils, sediments and demolition debris must be tracked from the point of excavation to stockpiling to onsite treatment/processing operations to off-site disposal or onsite reuse as applicable.

Demolition Debris:

Demolition debris must be tracked if the debris is stockpiled at a location other than the point of origin or if treatment or material processing is conducted. Identification of locations will be based on the station-offset of the location. The tracking table will identify date and point of generation, any field screening such as PID or dust monitoring, visual observations/comments, quantity, and stockpile ID/processing operation location. For each unit of material tracked, the table will also track reuse of the material on-site, providing reuse date, location of reuse as defined by start and end station, width of reuse location by offset, the fill elevation range, quantity, and finish grade for said location. For demolition debris which is not reused on site, the table will also track disposal of the material as defined by disposal date, quantity and disposal facility. The table must provide a reference to any analytical data generated for the material.

Soil/Sediment:

Soil excavation will be identified based on the station-offset of the excavation location limits. The tracking table will identify date and point of generation, any field screening such as PID or dust monitoring, visual observations, quantity, and stockpile number/location. For each unit of material tracked, the table will also track reuse of the material on-site and disposal of the material off-site using the same categories identified for demolition debris above.

Method Of Measurement And Basis Of Payment

Disposal of contaminated soil shall be measured for payment by the Ton of actual and verified weight of contaminated materials removed and disposed of. The quantities will be determined only by weight slips issued by and signed by the disposal facility. The most cost-effective, legal disposal method shall be used. The work of the LSP for disposal under all of these items shall be incidental to the work with no additional compensation.

ITEM 181.11 Measurement for Disposal of Unregulated Soil shall be under the Contract Unit Price by the weight, in tons, of contaminated materials removed from the site and transported to and disposed of at an approved location or licensed facility, and includes any and all costs for approvals, permits, fees and taxes, additional testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEM 181.12 Measurement for Disposal of Regulated Soil – In-State Facility shall be under the Contract Unit Price by the weight in tons of contaminated materials removed from the site and transported to and disposed of at an approved in-state facility, and includes any and all costs for approvals, permits, fees and taxes, testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEMS 181.11 through 181.14 (Continued)

ITEM 181.13 Measurement for Disposal of Regulated Soil - Out-of-State Facility shall be under the Contract Unit Price by the weight in tons of contaminated materials removed from the site and transported to and disposed of at an approved out-of-state facility, and includes any and all costs for approvals, permits, fees and taxes, testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEM 181.14 Measurement for Disposal of Hazardous Waste shall be under the Contract Unit Price by the weight in tons of hazardous waste removed from the site and transported to and disposed of at the licensed hazardous waste facility, and includes any and all costs for approvals, permits, fees and taxes, testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEM 235.12**12 INCH DRAINAGE PIPE FLARED
END - OPTION****EACH**

The work under this Item shall conform to the relevant provisions of Subsection 230 of the Standard Specifications and the following:

CONSTRUCTION METHODS

12 Inch Drainage Pipe Flared End – Option shall be installed as shown on the plans.

METHOD OF MEASUREMENT

Item 235.12 will be measured for payment by EACH drainage pipe flared end – option installed, complete in place.

BASIS OF PAYMENT

Item 235.12 will be paid for at the Contract unit price per EACH, which price shall include all labor, material, equipment, and all incidental costs required to complete the work.

ITEM 272.12**12 INCH AND UNDER PIPE REMOVED
AND DISCARDED****FOOT**

The work under this item shall conform to the relevant provisions of Subsections 140, 150 and 270 of the Standard Specifications and the following:

The work shall consist of removing and discarding existing utility pipe that is 12 inches in diameter and under as required and as designated on the Plans to be removed and are located outside the pay limits of excavation required under other items of Work.

Trench excavation greater than a depth of 5.0 feet and rock excavation will be measured as specified in Subsection 140.80 for Class B Trench Excavation and Class B Rock Excavation, respectively.

Removal of drain lines shown on the Plans to be existing within the same trench limits as proposed drain lines shall be removed as incidental work when proposed drain lines are relocated for the convenience of the Contractor.

Backfill and compaction for trenches 5.0 feet or less in depth shall be included in the work. Backfill for the part of a trench which is more than 5.0 feet in depth shall be included in the item for Class B Trench Excavation.

If borrow material is used for backfilling, it will be paid for at the contract unit price per cubic yard of the kind of borrow required.

Existing utility pipes designated on the plans to be removed and are located within the excavation limits of other work shall be considered incidental to that item of work. Over excavation required for trenches 5.0 feet or less in total depth shall be measured under Item 141. Class A Trench Excavation. Over excavation for trenches more than 5.0 feet in total depth shall be measured under Item 142. Class B Trench Excavation.

METHOD OF MEASUREMENT

Item 272.12 will be measured for payment by the Foot in place along the centerline of pipe of 12 Inch and Under Pipe Removed and properly disposed.

BASIS OF PAYMENT

Item 272.12 will be paid at the Contract unit price per foot, which price shall include all labor, materials, equipment, existing utility support and incidental costs required to complete the work.

ITEM 477.01**MILLING AND FILLING RUMBLE STRIP****FOOT**

The work under this Item shall conform to the relevant provisions of Subsection 415 Pavement Milling, Section 450 Quality Assurance of Hot Mix Asphalt Pavement specifications and the following:

The work under this item shall consist of excavating by milling and patching existing rumble strips on paved shoulders in areas of lane shifts or as required to implement traffic control plan prior to bridge phasing work.

The removal of the existing rumble strips shall be performed by a milling machine at a depth of one and one half (1 1/2) inches and a width of two (2) feet. Prior to filling the milled strip, an asphalt emulsion for tack coat shall be applied to the milled surface at a rate of 0.07 gallons per square yard. Asphalt to fill the milled strip shall be Hot Mix Asphalt and meet the specifications for Surface Course as described in the Standard Specifications Section M3.06. Hot Mix Asphalt shall be repaved flush with the existing shoulder and compacted in accordance with Subsection 450. of the Standard Specifications prior to opening to traffic.

All cleaning sweeping shall be incidental to this item. Pavement Millings resulting from the operation shall become the property of the Contractor and remove and dispose of off the project site in a manner approved by the Engineer.

METHOD OF MEASUREMENT

Item 477.01 will be measured for payment by the foot of rumble strips removed and patched to the limits established by the Engineer..

BASIS OF PAYMENT

Item 477.01 will be paid at the Contract unit bid price per Foot of existing rumble strips removed and filled in conjunction with bridge phasing work. Payment shall be full compensation for milling at the depth and width specified above and shall include the asphalt emulsion for tack coat, HMA Top Course, compaction, and all other labor, equipment, tools, materials and incidental costs required to complete the work.

ITEM 504.2**GRANITE CURB TYPE VA4 – SPLAYED END****EACH**

The work under this item shall conform to the relevant provisions of Subsection 501 and includes furnishing and installing Granite Curb Type VA4– Splayed End as shown on the Contract Drawings and the following:

The work to be done under this Item shall consist of furnishing and installing straight or curved granite splayed end transition curb where vertical granite curb transitions to granite sloped edging or HMA curb. Locations as shown on the plans.

Materials

Materials shall meet Materials Specification for VA4 curb and be in accordance with Subsections M9.04.0, M9.04.01, and M9.04.02 of the Standard Specifications. Curb shall be as shown on the Plans. Standard length shall be 6.0 feet.

The splayed end transition curb shall consist of a single granite curb stone, with a tapered wedge cut from the top front edge, on the left or right as appropriate. The tapered wedge shall present a neat and uniform appearance with the overall stone, and shall be formed using the same method (sawcut or split) used to shape the top surface of the original stone. Modifying a common curb stone by hand cutting or chipping will not be accepted.

Construction Methods

Granite Curb Type VA4– Splayed End shall be installed to the line and grade as shown on the Plans.

METHOD OF MEASUREMENT

Item 504.2 will be measured for payment by Each Granite Curb Type VA4– Splayed End installed complete in place.

BASIS OF PAYMENT

Item 504.2 will be paid for at the Contract unit bid price per Each, which price shall include all labor, materials and incidental costs required to install the curb. No distinction will be made between curb stones that transition to the left or to the right. No distinction will be made for curved transition curbs of different radii.

ITEM 628.211 TRANSITION TO NCHRP 350 GUARDRAIL, DEEP POST EACH**Description**

The work to be done under this Item consists of furnishing and installing the transition to NCHRP 350 Guardrail, deep post as required by the Engineer and shall be in accordance with Subsection 601 of the Standard Specifications, Construction Standard Drawing 601.0.5, and the following:

Materials

Materials shall meet the requirements specified in Subsection 601.40.

Construction Methods

The Contractor shall furnish and install the transition to NCHRP 350 Guardrail, deep post which shall consist of three beam, deep posts, terminal connector, and end section as shown on the plans. Post spacing shall be as Construction Standard 628.21.1.

Method of Measurement

Item 628.211 will be measured for payment as individual units 34 ft-4.5 in. in length, measured over two 12-ft-6-in. and one 9-ft-4.5-in. panels, complete in place as shown on the plans.

Basis of Payment

Item 628.211 will be paid for at the Contract unit bid price per Each unit, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

ITEM 628.5**TEMPORARY IMPACT ATTENUATOR
REMOVED AND DISCARDED****EACH**

The work under this item shall conform to the relevant provisions of Subsection 628 of the Standard Specifications and shall consist of removing, transporting and disposing the temporary impact attenuators located on the north side of SR 129 (Lowell Street) and along I-93.

The impact attenuators shall be carefully removed to avoid damaging the roadway. The impact attenuators shall be removed and disposed off-site by the Contractor. The Contractor shall coordinate this work with the Engineer.

METHOD OF MEASUREMENT

Item 628.5 will be measured for payment by Each temporary impact attenuator removed and discarded.

BASIS OF PAYMENT

Item 628.5 will be paid at the Contract unit bid price per Each, which price shall include all labor, materials, equipment, and incidental costs required to complete the work.

ITEM 665.2 **CHAIN LINK FENCE REMOVED AND DISCARDED** **FOOT**

The work under this Item shall conform to the relevant provisions of Subsection 665 of the Standard Specifications and the following:

Construction Methods

The Contractor shall remove the existing link fence, posts, bracing, hardware and footings and legally dispose of all material away from the site.

The work shall also include removing the existing supports, excavating of the existing foundations according to Subsection 120, the disposal of the concrete foundations, the backfilling with compacted gravel of the holes resulting from the excavation.

Method of Measurement

Item 628.5 will be measured for payment per foot of chain link fence removed and discarded, measured in its original location before removing.

Basis of Payment

Item 628.5 will be paid at the Contract unit bid price per foot which price shall include all labor, materials, equipment, excavation and removal and disposal of existing supports, foundations, backfilling, area restoration, and incidental costs required to complete this work.

ITEM 697.1**SILT SACK****EACH**

Work under this item shall conform to the relevant provisions of Subsections 227 and 670 of the Standard Specifications and the following:

The work under this item includes the furnishing, installation, maintenance and removal of a reusable fabric sack to be installed in drainage structures for the protection of wetlands and other resource areas and the prevention of silt and sediment from the construction site from entering the storm water collection system. Devices shall be ACF Environmental (800)-448-3636; Reed & Graham, Inc. Geosynthetics (888)-381-0800; The BMP Store (800)-644-9223; or approved equal.

CONSTRUCTION

Silt sacks shall be installed in retained existing and proposed catch basins and drop inlets within the project limits and as required by the Resident Engineer.

The silt sack shall be as manufactured to fit the opening of the drainage structure under regular flow conditions, and shall be mounted under the grate. The insert shall be secured from the surface such that the grate can be removed without the insert discharging into the structure. The filter material shall be installed and maintained in accordance with the manufacturer's written literature and as directed by the Engineer.

Silt sacks shall remain in place until the placement of the pavement overlay or top course and the graded areas have become permanently stabilized by vegetative growth. All materials used for the filter fabric will become the property of the Contractor and shall be removed from the site.

The Contractor shall inspect the condition of silt sacks after each rainstorm and during major rain events. Silt sacks shall be cleaned periodically to remove and disposed of accumulated debris as required. Silt sacks, which become damaged during construction operations, shall be repaired or replaced immediately at no additional cost to the Department.

When emptying the silt sack, the contractor shall take all due care to prevent sediment from entering the structure. Any silt or other debris found in the drainage system at the end of construction shall be removed at the Contractors expense. The silt and sediment from the silt sack shall be legally disposed of offsite. Under no condition shall silt and sediment from the insert be deposited on site and used in construction.

All curb openings shall be blocked to prevent stormwater from bypassing the device.

All debris accumulated in silt sacks shall be handled and disposed of as specified in Subsection 227 of the Standard Specifications.

COMPENSATION

Silt sacks will be measured and paid at the Contract unit price per each, complete in place, which price shall include all labor, materials, equipment and incidental costs required to complete the work. No separate payment will be made for removal and disposal of the sediment from the insert, but all costs in connection therewith shall be included in the Contract unit bid price.

ITEM 698.1
ITEM 698.3
ITEM 698.4

GEOTEXTILE FABRIC FOR STABILIZATION
GEOTEXTILE FABRIC FOR SEPARATION
GEOTEXTILE FABRIC FOR PERMANENT
EROSION CONTROL

SQUARE YARD
SQUARE YARD
SQUARE YARD

Description

The work to be performed under these Items consists of furnishing and placing geotextile fabric in accordance with the Standard Specifications, the manufacturer's directions and the details shown on the plans.

Materials

Geotextile fabric for permanent erosion control and Geotextile fabric for separation shall conform to the requirements of AASHTO M 288 for the intended application in accordance with Subsection M9.50.0 of the Standard Specifications and shall be one of those included on MassDOT's Qualified Construction Materials List.

Construction Methods

Geotextile fabric for stabilization shall be used for the special slope paving.

Geotextile fabric for permanent erosion control shall be embedded into the embankment as shown on the plans. Fabric shall be overlapped 12 inches minimum.

Geotextile fabric for separation shall be installed in the riprap sections as shown on the plans.

Method of Measurement

Items 698.1, 698.3 and 698.4 will be measured for payment in square yards of the respective geotextile fabric installed, complete in place. Overlapped material will not be included in the measurement.

Basis of Payment

Items 698.1, 698.3 and 698.4 will be paid for at the respective Contract unit bid price per square yard, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

ITEM 740. ENGINEER'S FIELD OFFICE AND EQUIPMENT (TYPE A) MONTH

The work under this Item shall conform to the relevant provisions of Subsection 740 of the Standard Specifications and the following:

Three computer systems and printer system meeting minimum requirements set forth below including installation, maintenance, power, paper, disks, and other supplies shall be provided at the Resident Engineer's Office:

All equipment shall be UL approved and Energy Star compliant.

The Computer System shall meet the following minimum criteria or better:

Processor:	Intel, 3.5 GHz
System Memory (RAM):	12 GB
Hard Drive:	500 GB
Optical Drive:	DVD-RW/DVD+RW/CD-RW/CD+RW
Graphics Card:	8 GB
Network Adapter:	10/100 Mbit/s
USB Ports:	6 USB 3.0 ports
Keyboard:	Generic
Mouse:	Optical mouse with scroll, MS-Mouse compliant
Video/Audio	the computer system shall be capable of allow video calling and recording:
Video camera	shall be High Definition 1080p widescreen capable video calling and recording with built in microphone. The microphone system shall capture natural audio while filtering out background noise.
Audio	shall be stereo multimedia speaker system delivering premium sound.
OS:	Latest Windows Professional with all security updates
Web Browser:	Latest Internet Explorer with all security updates
Applications:	Latest MS Office Professional with all security updates
	Latest Adobe Acrobat Professional with all security updates
	Latest Autodesk AutoCAD LT
	Antivirus software with all current security updates maintained through the life of the contract.
Monitors:	Two 27" LED with Full HD resolution. Max. resolution 1920 x 1080
Flash drives:	2 (two) - 128GB USB 3.0
Internet access:	High Speed (min. 24 mbps) internet access with wireless router.

ITEM 740. (Continued)

The Multifunction Printer System shall meet the following minimum criteria or better:

Color laser printer, fax, scanner, email and copier all in one with the following minimum capabilities:

- Estimated volume 8,000 pages per month
- LCD touch panel display
- 50 page reversing automatic document feeder
- Reduction/enlargement capability
- Ability to copy and print 11" x 17" paper size
- email and network pc connectivity
- Microsoft and Apple compatibility
- ability to overwrite latent images on hard drive
- 600 x 600 dpi capability
- 30 pages per minute print speed (color),
- 4 Paper Trays Standard (RADF) (not including the bypass tray)
- Automatic duplexing
- Finisher with staple functions
- Standard Ethernet. Print Controller
- Scan documents to PDF, PC and USB
- ability to print with authenticated access protection

The Contractor shall supply a maintenance contract for next day service, and all supplies (toner, staples, paper) necessary to meet estimated monthly usage.

The Engineer's Field Office and the equipment included herein including the computer systems, and printer shall remain the property of the Contractor at the completion of the project. Disks, flash drives, and card readers with cards shall become the property of the Department.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Compensation for this work will be made at the contract unit bid price per month which price includes full compensation for all services and equipment, and incidentals necessary to provide equipment, maintenance, insurance as specified and as directed by the Engineer.

ITEM 748.1**EMERGENCY RESPONSE****EACH**

The work under this Item shall conform to the relevant Provisions of Subsection 748 of the Standard Specifications and the following:

This Item shall consist of preparatory work and operations for emergency response after notification from the Engineer. It shall include preparations necessary for the movement of personnel, equipment, and incidentals to the project site for the establishment of an effective response associated with emergency repairs to areas of deteriorated cement concrete and bituminous concrete overlay in the existing reinforced concrete deck during construction, and to the existing steel beams, as required by the Engineer.

Materials and labor required for the repairs will be paid under the appropriate item from the following: 127.4, 127.41, 909.5, 910., 910.4, and 960.904.

Note: The Contractor is required to commence emergency work within (4) four hours of notification.

METHOD OF MEASUREMENT

Item 748.1 will be measured for payment by Each notified emergency Work Order when the Contractor commences work within (4) four hours of notification.

BASIS OF PAYMENT

Item 748.1 will be paid for at the Contract unit price per Each, which price shall be full compensation for all costs associated with ensuring prompt response to emergency situations and to get equipment to an emergency location in time.

In the event that the Contractor does not satisfy the (4) four hours response time, payment for Emergency Response will be made only at the discretion of the Engineer.

All labor, material and equipment to perform the emergency work will be paid for under the appropriate pay items.

ITEM 751.765 COMPOST AND SEED OVER MODIFIED ROCK CUBIC YARD
GENERAL

The work under this Item shall conform to the relevant provisions of Subsections 751, 767, and 765 of the Standard Specifications and the following.

Work shall consist of furnishing and pneumatically applying compost in conjunction with the specified native seed on designated areas of modified rock and achieving satisfactory establishment of seeded species as specified herein.

QUALIFICATIONS

Compost application and seeding shall be done by a company having a minimum of five years of experience with native seed establishment. Prior to beginning work, the seeding Contractor shall furnish proof of qualifications to the Engineer for approval. Proof of qualifications shall include providing documentation (photos and contacts) to demonstrate knowledge and expertise with native seeding and establishment and proof of having completed successful native seeding projects.

MATERIAL AND SUBMITTALS**Compost**

Compost shall meet the relevant provisions for Type 2 Compost, found in Section M1.06 of the Supplemental Standard Specifications.

The Engineer shall approve the Contractor's equipment for application.

Seed Mix

Seed Mixes and Submittals shall be per the item(s) for the permanent seed mix. Mix shall be:

765.472 Steep Slope Mid-Height Mix

Botanical Name	Common Name	% Mix By Weight (PLS)
Grass		
Cover Crop - Secale cereale/Avena	Cover Crop - Grain Oats/Rye	40.0%
Schizachyrium scoparium 'Albany Pine'	Little Bluestem 'Albany Pine'	30.0%
Elymus virginicus	Virginia Wild Rye	8.0%
Elymus canadensis	Canada Wild Rye	5.0%
Panicum virgatum	Switch Grass	4.5%
Agrostis perennans	Upland Bentgrass	3.0%
Dichanthelium clandestinum 'Tioga'	Deertongue grass 'Tioga'	2.3%
		92.8%

ITEM 751.765 (Continued)**Herb/Forb**

Echinacea purpurea	Purple Coneflower	3.0%
Chamaecrista fasciculata	Partridge Pea	2.0%
Penstemon digitalis	Beard-tongue	0.7%
Monarda fistulosa	Wild Bergamot	0.3%
Asclepias syriaca	Common Milkweed	0.2%
Lespedeza capitata	Roundhead Bush Clover	0.2%
Rudbeckia hirta-VT ecotype	Black-eyed Susan-VT ecotype	0.1%
Aster prenanthoides	Zig Zag Aster	0.1%
Solidago nemoralis	Grey Goldenrod	0.1%
Aster pilosus	Heath Aster	0.1%
Aster laevis NY Ecotype	Smooth Aster NY Ecotype	0.1%
Pycnanthemum tenuifolium	Slender Mountain Mint	0.1%
Solidago juncea	Early Goldenrod	0.1%
Asclepias incarnata	Swamp Milkweed	0.1%

7.2%**Seeding Rate: 75.0 lbs PLS/Acre****100.0%****SEEDING SEASON**

The season for seeding native mixes is April 1 - May 15 and October 1 - December 1 for dormant seeding. Written approval must be obtained for seeding outside the seeding season and, if approved, the permanent seed rate shall be increased by 50%

CONSTRUCTION METHODS

Method of application and equipment to be used shall be reviewed and approved by the Engineer prior to placement of material.

Placement of Compost

Compost shall be placed as shown on the Plans and in the Detail and as required by the Engineer. Material shall be placed so that settled material is at or slightly below the surface plane of the stone. The Contractor shall ensure that there will be adequate quantity, including adjustment for settlement.

For purposes of estimation, required compost quantities should be 300 cubic yards per acre to achieve the target depth.

ITEM 751.765 (Continued)**Seeding**

For areas smaller than half an acre, unless otherwise approved by the Engineer, seeding shall be done by broadcast method. Seeding shall be done in conjunction with or immediately following Compost application. Alternative seeding methods must be submitted and approved by the Engineer 14 days in advance of compost and seed application.

Hydroseeding

Hydroseeding may be used for sites over half an acre in size or when the rock slope does not permit safe application via a broadcasting method. Hydroseed shall be per the manufacturer's directions and as follows.

Tank and hoses shall be cleaned from all previous hydroseeding and hydromulching projects. Seed shall be mixed into the slurry immediately before application and slurry applied within 30 minutes after seeds have been placed in the tank. Once seed has been placed in the tank, tank shall be agitated only enough to mix the seeds and keep slurry from separating.

When Seeding Occurs after Application of Compost or after December 1

When seeding is done more than 3 days after Compost application or when Compost is applied after December 1, seeding rate shall be increased by 50%.

Over-Seeding

Large extents of bare area (greater than 5-6 feet and depending on modified rock slope conditions) shall be over-seeded with the specified mix during the appropriate season for seeding. Rates, methods, and submittals shall be as specified under the relevant Seed Mix Item and Materials above.

Over-seeding, mulch, watering, and all work for over-seeding shall be incidental.

Determining Satisfactory Establishment

A reasonably well-established stand of the specified seeded species as determined by the Engineer and the MassDOT Landscape Architect or designated Specialist will be required for Final Acceptance. The expectation is that an acceptable number and variety of the desired permanent seeded species will be visible. For seeding with compost over modified rock this shall generally be:

- A minimum of 50% coverage by the specified permanent seeded species after one growing season (considered June-September 15). Of that percentage, generally, depending on the mix species:
 - At least 2 types of permanent seeded grass species shall be visible.
 - At least 2 species of wildflowers shall be visible.
- There will be no more than 25% coverage by weed species.

ITEM 751.765 (Continued)

- There will be no invasive or aggressive species within the stand at the time of acceptance.
- There shall be no evidence of seed from non-native mixes (ex., clover) due to using an incorrect or modified mix or due to failure to clean the hydroseeding tank if a hydroseeder is used.

Invasive and aggressive weeds (such as mugwort, vetch, knapweed, and chicory) must be cut, pulled with roots removed, or treated with herbicide by a licensed and approved applicator prior to going to seed for Interim Acceptance. Weed removal shall be coordinated with MassDOT Landscape Architect. No herbicides shall be used without approval and coordination with MassDOT Landscape Design Section.

Acceptance of Seeding and Establishment Work

Conditional Acceptance shall be based on approval of seed mix submittals and proper application of seed as specified herein.

Final Acceptance of Seed Establishment shall be given upon satisfactory Establishment as described above. If the seeded area fails to meet the requirements of Establishment by the end of the growing season, contractor shall propose and implement remediations and site shall be inspected during the following growing season after July 1st. Otherwise, Contractor shall forego the payment for Final Acceptance. All remediation shall be at the contractor's expense.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Compost and Seed for Modified Rock will be measured and paid for at the Contract unit price per Cubic Yard which price shall include all labor, materials, equipment, site preparation, and all incidental costs required to complete the work.

Native Seed Mix shall be compensated at the bid price per the specified seed mix item by pound.

Schedule of payment shall be as follows:

- 60% upon approval of Compost application and Conditional Acceptance of seeding as specified above
- 40% upon Final Acceptance of Seed Establishment

ITEM 765.472**STEEP SLOPE MID-HEIGHT MIX****POUND**

Work under this item shall consist of furnishing the mix(es) specified below in the required quantity.

SUBMITTALS

- 1) Pre-Verification of Seed Availability. Within 30 days after the Notice to Proceed, the Contractor shall submit to the Engineer the supplier's verification of availability of seed species in the required quantities and for the anticipated date of seeding. Verification shall be on the supplier's letterhead and notarized by the supplier's notary. Species not expected to be available should be noted and substitutions recommended.
- 2) Final Verification of Seed Availability. No earlier than 21 days prior to ordering, the Contractor shall submit to the Engineer the supplier's verification of availability of seed species and in the required quantities. Verification shall be on the supplier's letterhead and notarized by the supplier's notary. A copy of this submittal shall be forwarded to the MassDOT Landscape Design Section. Substitutions or changes in the mix at this time must be approved by MassDOT Landscape Design Section.
- 3) Seed Worksheet provided herein shall be submitted to the Engineer prior to ordering seed to determine the number of pounds of Pure Live Seed required.
- 4) Seed Tags. The contractor shall submit original seed tags from each bag of seed used on the project or ensure that each tag is photo documented by the Engineer while on the unopened bag.

Number of tags submitted must correspond to number of bags delivered.

Species listed on the seed tag shall match the Final Verification of Seed Availability (Submittal #2) unless approved otherwise. Tag must include: variety and species name; lot number; purity; percentage of inert matter; percentage of weeds, noxious seeds, and other crop seeds; germination, dormant or hard seed; total viability; origin of seed; germination test date, net weight, and name and address of seller. The origin of seed must be listed on the seed tag for all species in the mix to provide verification of original (generation 0) seed source. The smallest known geographic area (township, county, ecotype region, etc.) shall be listed. Ecotypes and cultivars shall be as close to Massachusetts as possible and appropriate to the site conditions.

A copy of this submittal shall be forwarded to the MassDOT Landscape Design Section.

ITEM 765.472 (Continued)

- 5) Verification of Seed Delivery. Prior to payment, contractor shall submit the Seed Delivery Verification form contained within the contract or the Supplier's Verification on company letterhead or a bill of lading. Supplier verification must include all information requested on the Verification form within this contract. The bill of lading must include variety and species name, lot number, net weight shipped, date of sale, invoice, project or seeding location, and name and address of Supplier. All information must be filled in and complete for acceptance. Information must match the seed tags and quantity of seed used on the job. A copy of this submittal shall be forwarded to the MassDOT Landscape Design Section
- 6) Seed Sample. If requested or if seed is from a previously opened bag, the contractor may be asked to submit to the Engineer a sample of seed from the seed bag (1-2 cups) at the time of seeding.

SEEDING SEASON

The appropriate seeding seasons are:

Spring: April 1 - May 15

Fall: October 1 - December 1 for dormant seeding

PERMANENT SEED MIX(ES)**Calculating Pure Live Seed (PLS)**

Quantities specified are PURE LIVE SEED. Greater quantities of ordered seed may be required to achieve actual specified seeding rates.

Pure Live Seed (PLS) is defined as a percentage calculated by multiplying the percent of pure seed by the percent of viable seed (total germination, hard seed, and dormant seed). For example:

If a seed label indicates 90% purity, 78% germination, 10% hard seed, and 2% dormancy, it is calculated to be $90\% \times [78 + 10 + 2]\% = 81\%$ PLS.

Therefore, each pound of PLS would need $1 \text{ pound} / 0.81 = 1.2$ pounds of seed with a 90% purity and 90% total germination

Seed Mix(es) shall be as specified below. Ecotypes and cultivars shall be as close to Massachusetts as possible and appropriate to the site conditions.

ITEM 765.472 (Continued)**765.472 Steep Slope Mid-Height Mix**

Steep Slope Mid-Height Mix shall be used in conjunction with Compost and Seed Over Modified Rock.

Botanical Name	Common Name	% Mix By Weight (PLS)
Grass		
Cover Crop - Secale cereale/Avena	Cover Crop - Grain Oats/Rye	40.0%
Schizachyrium scoparium 'Albany Pine'	Little Bluestem 'Albany Pine'	30.0%
Elymus virginicus	Virginia Wild Rye	8.0%
Elymus canadensis	Canada Wild Rye	5.0%
Panicum virgatum	Switch Grass	4.5%
Agrostis perennans	Upland Bentgrass	3.0%
Dichanthelium clandestinum 'Tioga'	Deertongue grass 'Tioga'	2.3%
		92.8%
Herb/Forb		
Echinacea purpurea	Purple Coneflower	3.0%
Chamaecrista fasciculata	Partridge Pea	2.0%
Penstemon digitalis	Beard-tongue	0.7%
Monarda fistulosa	Wild Bergamot	0.3%
Asclepias syriaca	Common Milkweed	0.2%
Lepedeza capitata	Roundhead Bush Clover	0.2%
Rudbeckia hirta-VT ecotype	Black-eyed Susan-VT ecotype	0.1%
Aster prenanthoides	Zig Zag Aster	0.1%
Solidago nemoralis	Grey Goldenrod	0.1%
Aster pilosus	Heath Aster	0.1%
Aster laevis NY Ecotype	Smooth Aster NY Ecotype	0.1%
Pycnanthemum tenuifolium	Slender Mountain Mint	0.1%
Solidago juncea	Early Goldenrod	0.1%
Asclepias incarnata	Swamp Milkweed	0.1%
		7.2%
Seeding Rate: 75.0 lbs PLS/Acre		100.0%

Application Rate

765.472 Steep Slope Mid-Height Mix: 75 lbs/acre PLS. No cover crop shall be applied.

ITEM 765.472 (Continued)

Any species substitutions shall be with a species having similar characteristics and function. Substitutions must be approved by MassDOT Landscape Design Section per the documentation submittal process.

50% Increase Adjustment for Field Conditions

Seeding under the following conditions requires a 50% increase in the permanent mix at the time of construction:

- Seeding out of season
OR
- Seeding after Compost Blanket has been applied (unless already increased for out of season).

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 765.472 Steep Slope Mid-Height Mix will be measured for payment by the pound of Pure Live Seed delivered and complete in place.

Item 765.472 Steep Slope Mid-Height Mix will be paid at the contract unit bid price per pound of Pure Live Seed delivered upon approval of all Seed Submittal Documentation. Overseeding required to correct poor germination or establishment shall be incidental to the item.

Application and care of native seed mix will be paid for separately under Item 751.765 Compost and Seed Over Modified Rock.

ITEM 767.121**SEDIMENT CONTROL BARRIER****FOOT**

The work under this item shall conform to the relevant provisions of Subsections 670, 751 and 767 of the Standard Specifications and shall include the furnishing and placement of a sediment control barrier. Sediment control barrier shall be installed prior to disturbing upslope soil.

The purpose of the sediment control barrier is to slow runoff velocity and filter suspended sediments from storm water flow. Sediment barrier may be used to contain stockpile sediments, to break slope length, and to slow or prevent upgradient water or water off road surfaces from flowing into a work zone. Contractor shall be responsible for ensuring that barriers fulfill the intent of adequately controlling siltation and runoff.

Twelve-inch diameter (after installation) compost filter tubes with biodegradable natural fabric (i.e., cotton, jute, burlap) are intended to be the primary sedimentation control barrier. Photo-biodegradable fabric shall not be used.

For small areas of disturbance with minimal slope and slope length, the Engineer may approve the following sediment control methods:

- 9-inch compost filter tubes
- Straw bales which shall be trenched

No straw wattles may be used. Additional compost filter tubes (adding depth or height) shall be used at specific locations of concentrated flow such as at gully points, steep slopes, or identified failure points in the sediment capture line.

When required by permits, additional sediment barrier shall be stored on-site for emergency use and replacement for the duration of the contract.

Where shown on the plans or when required by permits, sedimentation fence shall be used in addition to compost filter tubes and straw bales and shall be compensated under that item.

Sediment control barriers shall be installed in the approximate location as shown on the plans and as required so that no excavated or disturbed soil can enter mitigation areas or adjacent wetlands or waterways. If necessary to accommodate field conditions and to maximize effectiveness, barrier locations may be shifted with approval from the Engineer. Barriers shall be in place prior to excavation work. No work shall take place outside the barriers.

MATERIALS AND CONSTRUCTION

Prior to initial placement of barriers, the Contractor and the Engineer shall review locations specified on the plans and adjust placement to ensure that the placement will provide maximum effectiveness.

ITEM 767.121 (Continued)

Barriers shall be staked, trenched, and/or wedged as specified herein and according to the Manufacturer's instructions. Barriers shall be securely in contact with existing soil such that there is no flow beneath the barrier.

Compost Filter Tube

Compost material inside the filter tube shall meet M1.06.0, except for the following: no peat, manure or bio-solids shall be used; no kiln-dried wood or construction debris shall be allowed; material shall pass through a 2-inch sieve; and the C:N ratio shall be disregarded.

Outer tube fabric shall be made of 100% biodegradable materials (i.e., cotton, hemp or jute) and shall have a knitted mesh with openings that allow for sufficient water flow and effective sediment capture.

Tubes shall be tamped, but not trenched, to ensure good contact with soil. When reinforcement is necessary, tubes shall be stacked as shown on the detail plans.

Straw Bales

Straw bales shall be used if shown on the plans or when specified by Orders of Condition or other permit requirements.

Bales should be placed in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another. All bales should be either wire-bound or string-tied. Straw bales should be installed so that bindings are oriented around the sides (rather than along the tops and bottoms) of the bales in order to prevent deterioration of the bindings.

The barrier should be entrenched and backfilled. A trench should be excavated the width of a bale and the length of the proposed barrier to a minimum depth of 4 inches. The trench must be deep enough to remove all grass and other material which might allow underflow. After the bales are staked and chinked (filled by wedging), the excavated soil should be backfilled against the barrier. Backfill soil should conform to the ground level on the downhill side and should be built up to 4 inches against the uphill side of the barrier.

Each bale should be securely anchored by at least 2 stakes or re-bars driven through the bale. The first stake in each bale should be driven toward the previously laid bale to force the bales together. Stakes or re-bars should be driven deep enough into the ground to securely anchor the bales. For safety reasons, stakes should not extend above the bales but should be driven in flush with the top of the bale.

The gaps between the bales should be chinked (filled by wedging) with straw to prevent water from escaping between the bales. Loose straw scattered over the area immediately uphill from a straw bale barrier tends to increase barrier efficiency. Wedging must be done carefully in order not to separate the bales.

ITEM 767.121 (Continued)

When used in a swale, the barrier should be extended to such a length that the bottoms of the end bales are higher in elevation than the top of the lowest middle bale to assure that sediment-laden runoff will flow either through or over the barrier but not around it.

Sedimentation Fence

Materials and Installation shall be per Subsection 670.40 and 670.60 of the Standard Specifications and the following:

Sedimentation fence shall only be used if shown on the plans or when specified by Orders of Condition or other permit requirements.

When used with compost filter tubes, the tube shall be placed on a minimum of 8 inches of folded fabric on the upslope side of the fence. Fabric does not need to be trenched.

When used with straw bales, an 8-inch deep and 4-inch wide trench or V-trench shall be dug on the upslope side of the fence line. One foot of fabric shall be placed in the bottom of the trench followed by backfilling with compacted earth or gravel. Stakes shall be on the down slope side of the trench and shall be spaced such that the fence remains vertical and effective.

Width of fabric shall be sufficient to provide a 36-inch high barrier after fabric is folded or trenched. Sagging fabric will require additional staking or other anchoring.

MAINTENANCE

Maintenance of the sediment control barrier shall be per Subsection 670.60 of the Standard Specifications or per the Stormwater Pollution Prevention Plan (SWPPP), whichever is more restrictive.

The contractor shall inspect the sediment barrier in accordance with relevant permits. At a minimum, barriers shall be inspected at least once every 7 calendar days and after a rain event resulting in 0.25 inches or more of rainfall. Contractor shall be responsible for ensuring that an effective barrier is in place and working effectively for all phases of the Contract.

Barriers that decompose such that they no longer provide the function required shall be repaired or replaced as directed. If the resulting berm of compost within the fabric tube is sufficiently intact (despite fabric decay) and continues to provide effective water and sediment control, barrier does not necessarily require replacement.

DISMANTLING & REMOVING

Barriers shall be dismantled and/or removed, as required, when construction work is complete and upslope areas have been permanently stabilized and after receiving permission to do so from the Engineer.

ITEM 767.121 (Continued)

Regardless of site context, nonbiodegradable material and components of the sediment barriers, including photo-biodegradable fabric, plastic netting, nylon twine, and sedimentation fence, shall be removed and disposed off-site by the Contractor.

For naturalized areas, biodegradable, natural fabric and material may be left in place to decompose on-site. In urban, residential, or other locations where aesthetics is a concern, the following shall apply:

- Compost filter tube fabric shall be cut and removed, and compost shall be raked to blend evenly (as would be done with a soil amendment or mulch). No more than a 2-inch depth shall be left on soil substrate.
- Straw bales shall be removed and disposed off-site by the Contractor. Areas of trenching shall be raked smooth and disturbed soils stabilized with a seed mix matching adjacent seeding or existing grasses (i.e., lawn or native grass mix).
- Sedimentation fence, stakes, and other debris shall be removed and disposed off-site. Site shall be restored to a neat and clean condition.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 767.121 will be measured and paid for at the contract unit bid price per foot of sediment control barrier which price shall include all labor, equipment, materials, maintenance, dismantling, removal, restoration of soil, and all incidental costs required to complete the work.

Additional barrier, such as double or triple stacking of compost filter tubes, will be paid for per foot of tube installed.

Barriers that have been driven over or otherwise damaged by construction activities shall be repaired or replaced as directed by the Engineer at the Contractor's expense.

ITEM 769. **PAVEMENT MILLING MULCH UNDER GUARD RAIL** **FOOT**

The work under this item consists of placing a geotextile fabric under guardrail and placing 4 inches of pavement millings on top of the fabric and shall conform to Subsection 769 of the Standard Specifications and the following.

The mulched area will extend from the back of the berm, curb or sloped edging to 6 inches behind the back, unless otherwise shown on the Plans, of the guardrail posts where new guardrail is proposed.

Method of Measurement and Basis of Payment

Measurement for the work under this item will be as stated in Subsection 769.80.

Payment for the work under this item will be as stated in Subsection 769.81.

<u>ITEM 802.510</u>	<u>5 INCH ELECTRICAL CONDUIT</u> <u>– TYPE NM PLASTIC (10 BANK)</u> <u>– CONCRETE ENCASED</u>	<u>FOOT</u>
<u>ITEM 802.52</u>	<u>5 INCH ELECTRICAL CONDUIT</u> <u>– TYPE NM PLASTIC (DOUBLE)</u> <u>– CONCRETE ENCASED</u>	<u>FOOT</u>
<u>ITEM 802.54</u>	<u>5 INCH ELECTRICAL CONDUIT</u> <u>– TYPE NM PLASTIC (4 BANK)</u> <u>– CONCRETE ENCASED</u>	<u>FOOT</u>
<u>ITEM 802.59</u>	<u>5 INCH ELECTRICAL CONDUIT</u> <u>– TYPE NM PLASTIC (9 BANK)</u> <u>– CONCRETE ENCASED</u>	<u>FOOT</u>

The work under these Items shall conform to the relevant provisions of Subsection 801 of the Standard Specifications, National Grid Construction Details provided in Document A00804, the details shown on the Plans, and the following:

5 Inch Electrical Conduit – Type NM Plastic shall be used for buried applications.

MATERIALS

5 Inch Electrical Conduit – Type NM Plastic shall be SCH 40 PVC and meet the requirements specified in the Subsections of M5.07.0.

3/8” 4000 psi concrete shall be used for conduit encasement.

CONSTRUCTION METHODS

5 Inch Electrical Conduit – Type NM Plastic shall be submitted for approval by MassDOT and RMLD.

The conduits shall be installed as shown on plans and with pull ropes through the full duct bank to allow for future installation of cable by RMLD. Sweeps at utility poles shall be installed and paid under Item 806.52.

Conduit connecting into electric manhole structures shall extent 6 inches beyond the interior wall structure. Electric manholes holes shall be cored and patch with non-shrink, non-metallic grout.

5 Inch Electrical Conduit – Type NM Plastic shall be encased in concrete.

ITEMS 802.510, 802.52, 802.54 AND 802.59 (Continued)**METHOD OF MEASUREMENT**

Items 802.51, 802.52, 802.54 and 802.59 will be measured for payment by the foot respectively in accordance with Subsection 801.80.

BASIS OF PAYMENT

Items 802.51, 802.52, 802.54 and 802.59 will be paid for at the respective Contract unit bid price per Foot, which price shall include all labor, materials, equipment, concrete encasement, coring holes into electric manholes, mortar patches, steel plates, required coordination with RMLD, and all incidental costs required to complete the work.

The removal and disposal of old de-energized conduit in the same location as proposed conduits shall be included at no additional cost.

Gravel Borrow required to replace excavated material unsuitable for reuse will be paid for under Item 151.

ITEM 805.510**5 INCH ELECTRICAL CONDUIT**
– TYPE NM (10 BANK)**FOOT**

The work under this Item shall conform to the relevant provisions of Subsection 801 of the Standard Specifications, National Grid Construction Details provided in Document A00804, Reading Municipal Light Department (RMLD) requirements, the details shown on the Plans and the following:

5 Inch Electrical Conduit - Type NM (10 Bank) shall be used for RTRC aboveground runs. The end terminals under this item between the PVC to steel adapters.

MATERIALS

The work under this item consists of providing single and multiple exposed bullet-resistant Reinforced Thermosetting Resin Conduit (RTRC) utility conduits mounted to bridge structures as shown on the plans. The plans are diagrammatic, and the Contractor shall determine the best location and means and methods of installation.

RTRC type conduit shall be used where raceway system is above ground only at multiple bridge locations. Use of this type of conduit system shall be limited to short runs and above ground runs only; locations to be coordinated with field conditions.

The conduit shall be filament wound fiberglass reinforced epoxy as manufactured to comply with specifications outlined in NEMA TC-14. Conduit shall be free from defects including, but not limited to, delamination and foreign inclusions. Conduit should be able to transition from fiberglass reinforced epoxy to Conduit Type NM – Schedule 40 PVC, encased in concrete.

Conduit shall be uniform in color, density, and physical properties. It shall be straight with ends cut square to inside diameter. Conduit shall be pigmented black and be supplied with an ultraviolet inhibitor. Conduit shall have a wall thickness of 0.25", clear inside dimension of 5 inches as specified on the plans and meet or exceed the following properties:

Ultimate Tensile Strength	11,000 PSI Min.
Ultimate Elongation	2%
Modulus of Elasticity	1,475,000 PSI
Thermal Expansion	1.5" Max/150'/100o F. Temp. CHG.
Dielectric Strength	500 Volts/MIL
Water Absorption	Less Than 1%
Specific Gravity	1.9-2.0
Glass Content	68% + 2%
Barcol Hardness	50
Operating Temp. Range	-50°F to 235°F

Fire Resistance

Vertical specimens of the finish conduit shall not flame for longer than 30 seconds following any of three 60-second applications of flame, the period between applications being thirty seconds. The conduit shall not be capable of igniting combustible materials in its vicinity during, between, or after the three applications of the test flame, when tested in accordance with Section 12 of UL 651.

ITEM 805.510 (Continued)**Duct Base Mount**

The base mount shall be constructed of fiberglass plates, square tubing and spacer tubes.

The fiberglass components shall be manufactured using isophthalic polyester resin and contain UV inhibitors. They shall contain a fire retardant and exhibit low smoke generation. The fiberglass components shall be gray in color and shall meet or exceed the following.

A. FIBERGLASS SQUARE TUBE, FLAT BAR AND ROUND SPACER TUBE

Mechanical Properties	ASTM	English Value Units	Metric Value Units
Tensile Strength	D638	30,000 psi	206.8 MPa
Tensile Modulus	D638	2.5 x 10 ⁶ psi	17.2 GPa
Compressive Strength	D695	30,000 psi	206.8 MPa
Compressive Modulus	D695	2.5 x 10 ⁶ psi	17.2 GPa
Flexural Strength	D790	30,000 psi	206.8 MPa
Flexural Modulus	D790	1.8 x 10 ⁶ psi	12.4 GPa
Modulus of Elasticity		2.8 x 10 ⁶ psi	19.3 GPa
Shear Modulus		0.45 x 10 ⁶ psi	3.1 GPa
Short Beam Shear	D2344	4,500 psi	31.0 MPa
Punch Shear	D256	10,000 psi	68.9 MPa
Impact Strength	D256	25 ft-lbs/in	1.33 J/mm

Physical Properties	ASTM	English Value Units	Metric Value Units
Barcol Hardness	D2583	45	
24 Hour Water Absorption	D570	0.45% max	
Density	D792	.062-.070 lbs/in ³	1.72-1.94 g/cc
Coefficient of Thermal Expansion	D696	4.4 10 ⁻⁶ in/in/°F	8 10 ⁻⁶ cm/cm/°C

The support rods, intermediate rods, and all metallic hardware will be manufactured as Hot Dipped Galvanized Steel, 304 Stainless Steel or 316 Stainless Steel.

ITEM 805.510 (Continued)

Complete components of a bridge hanger may include the following:

- 2" x 1/2" (50.8mm x 12.7mm) Fiberglass flat bar, all holes on centerline, holes for support rods, 1" (25mm) from each end of plate. Length as required.
- 2" x 2" x 1/4" (50.8mm x 50.8mm x 6.4mm) Fiberglass square tubing, all holes on centerline, holes for support rods, 1" (25mm) from each end of square tube. Length as required.
- 1" OD x 0.755" ID (25.4mm OD x 19.2mm ID) Fiberglass spacer tube. Length as required.
- 3/4" (19mm) All thread rod with 2 nuts, 2 lock washers and 2 flat washers. Length as required.

HOT DIPPED GALVANIZED STEEL

The support rods, intermediate rods, and all metallic hardware shall meet or exceed the following:

- Threaded Rod ASTM A307 with ASTM 153 Galvanizing Tensile Strength 74,000 psi
- Hex nut ASTM A307 with ASTM 153 Galvanizing
- Flat washer ASTM A307 with ASTM 153 Galvanizing
- Lock washer ASTM A307 with ASTM 153 Galvanizing

Metal components that are custom fabricated shall have a hot dipped galvanizing applied in accordance with ASTM specification A-123/123m2 dated 2002 with a minimum coating thickness of 2.0 oz/sq ft. The zinc used in this process shall be a high grade zinc conforming to ASTM B6-00 with less than .03% lead used in this process.

304 STAINLESS STEEL HARDWARE

The support rods, intermediate rods, and all metallic hardware shall meet or exceed the following:

- Threaded Rod SS304 ASTM A193 grade B8
- Hex nut ASTM SS304 A194 grade 8
- Flat washer SS18-8
- Lock washer SS18-8

Metal components that are custom fabricated shall be stainless steel 304 in accordance with ASTM specification A193/A193M-23 dated 2023.

ITEM 805.510 (Continued)**316 STAINLESS STEEL HARDWARE**

The support rods, intermediate rods, and all metallic hardware shall meet or exceed the following:

- Threaded Rod SS316 ASTM A193 grade B8M
- Hex nut ASTM SS316 A194 grade 8M
- Flat washer SS18-8
- Lock washer SS18-8

Metal components that are custom fabricated shall be stainless steel 316 in accordance with ASTM specification A193/A193M-23 dated 2023.

CONSTRUCTION METHODS**Jointing Method**

Conduit shall be supplied with an integrally wound tapered bell and ground tapered spigot to be used with an adhesive. The joint shall be capable of withstanding a joint pullout force of 1,000 lb.

Fittings and Support Elements

Conduit shall be supplied with all fittings, elbows, expansion fittings (double expansion joints with o-rings), deflection fittings, adapters, and bends (sweeps) manufactured from the same materials as the conduit. Expansion fittings shall be furnished as required by the manufacturer and the National Electrical Code, Article 355.44, to allow for thermal expansion. Expansion fittings will be installed per manufacturer guidelines.. Additional locations shall be coordinated with field conditions. Materials for bridge hanger attachment assemblies and wall mounted supports shall be as listed and detailed on the plans.

Cable being installed in RTRC conduit shall not exceed a maximum pulling force of 2,678 lbs, or maximum sidewall pressure of 1,000 lbs. As part of the shop drawing review, the Contractor shall provide cable pulling calculation for conductors being installed on bridge portion of the project only.

The duct base mount shall be installed in accordance with the manufacturer's requirements.

A minimum of three conduits of the 5 Inch Electrical Conduit Type NM (10 Bank) shall be installed with pull ropes that extend into the electrical manholes and are affixed for future use to run the cables through the conduits.

If unsuitable material is encountered below the bedding grade, a minimum of 6 inches shall be excavated under Item 142 Class B Trench Excavation, or as directed, and backfilled with Item 151.

ITEM 805.510 (Continued)

METHOD OF MEASUREMENT

Item 805.51 will be measured for payment per Foot in accordance with Subsection 801.80.

BASIS OF PAYMENT

Item 805.51 will be paid for at the Contract unit bid price per Foot in accordance with Subsection 801.81.

The Contract unit bid price shall include all labor, materials, equipment and incidental costs for PVC to steel adapters, fittings, elbows, expansion fittings, deflection fittings, duct base mount, supports, conduit installation, and minor repair of the bridge backwalls as needed.

Bedding and backfill material to replace unsuitable material will be paid for under Item 151.

ITEM 806.52**5 INCH ELECTRICAL CONDUIT -
TYPE RM GALVANIZED STEEL DOUBLE)****FOOT**

The work under this Item shall conform to the relevant provisions of Subsection 801 of the Standard Specifications, National Grid Construction Details provided in Document A00804, RMLD Standards, the details shown on the Plans, and the following:

Description

5 Inch Electrical Conduit - Type RM Galvanized Steel (Double) shall be used for the 2-5" electric conduit sweeps installed at utility poles risers, as shown on the plans.

Materials

5 Inch Electrical Conduit - Type RM Galvanized Steel (Double) shall meet the requirements specified in the Subsection M5.07.1 and shall comply with the minimum standards of National Grid with approval of the Power Company, RMLD.

Construction Methods

Sweeps at utility poles shall be installed using 5 Inch Electrical Conduit Type RM – Galvanized Steel, Steel to PVC adapters, and include pull ropes and caps at the utility poles, as shown on the plans. Coordination with RMLD is required to install conduit sweep up at the specific location behind the utility pole.

Method of Measurement

Item 806.52 will be measured for payment by the Foot measured along the center line of the conduit bank, from the steel to PVC adapter to end cap, complete in place and approved.

Basis of Payment

Item 806.52 will be paid for at the Contract unit bid price per Foot, which price shall include all labor, materials, equipment and incidental costs required to complete the work. Installation of the steel to PVC adapter to connect to the concrete encased buried PVC conduit, and galvanized steel end cap shall be included in the work.

If unsuitable material is encountered below the bedding grade, a minimum of 6 inches shall be excavated under Item 142 Class B Trench Excavation, or as required, and backfilled with Item 151.

<u>ITEM 811.15</u>	<u>ELECTRIC MANHOLE – (MUNICIPAL STANDARD 6’x13’)</u>	<u>EACH</u>
<u>ITEM 811.16</u>	<u>ELECTRIC MANHOLE – (MUNICIPAL STANDARD 6’x10’)</u>	<u>EACH</u>

Work under these items shall conform to the relevant provisions of Subsection 801 of the Standard Specifications, National Grid Construction Details provided in Document A00804, Reading Municipal Light Department (RMLD) Standards, the details shown on the Plans, and the following:

MATERIALS

Electric Manhole – (Municipal Standard) shall be precast concrete rated for HS-20 loading, produced by manufacturers on the MassDOT approved list and shop drawings shall be submitted for approval by the Engineer and RMLD.

METHOD OF MEASUREMENT

Items 811.15 and 811.16 will be measured for payment by Each respective Electric Manhole - Municipal Standard installed, complete in place unit and approved.

BASIS OF PAYMENT

Items 811.15 and 811.16 will be paid for at the respective Contract unit bid price per Each, which respective price shall include all labor, materials, equipment and incidental costs required to complete the work. Castings with concrete collar shall be included in the work and grade adjustments to the Frames and Covers shall be incidental to the work until the power lines are installed and active through the underground electrical facilities.

If unsuitable material is encountered below the bedding grade as determined by the Engineer, a minimum of 6 inches of unsuitable material shall be excavated under Item 142 Class B Trench Excavation, or as directed, and backfilled with Item 151.

Reading Municipal Light Department (RMLD) shall be responsible for the electrical manhole adjustments to grade after the power lines are installed and active through the underground electrical facilities.

ITEM 813.80**SERVICE CONNECTION (OVERHEAD)****LUMP SUM**

The work under this Item shall conform to the relevant provisions of Subsection 813 of the Standard Specifications, National Grid Construction Details provided in Document A00804, Reading Municipal Light Department (RMLD) Standards, the details shown on the Plans, and the following:

The work under this item shall consist of the replacement of electric service risers attached to utility poles supplying secondary electrical service through underground conduit and the connection of the CCTV 8-foot Pedestal Meter Post and the installation of a communication conduit for future, as shown on the Plans.

Materials

The Contractor shall supply and install a new rigid galvanized riser pipe and sweep assembly, NEMA 4X stainless steel enclosure containing standard circuit breakers, wiring, a minimum length of 10 feet of new galvanized steel conduit for the sweep at the utility pole, SCH 40 PVC conduit for the electrical service and SCH 80 PVC conduit for future communication service underground, and appurtenances as necessary per the latest edition of the National Electric Code, Massachusetts Electric Code, Utility Company Specifications and Local Codes/Guidelines to complete the work. The riser and wiring shall be installed with slack cable sufficient for connection to the secondary service, in coordination with Reading Municipal Light Department (RMLD).

Construction Methods

Work under this Item shall consist of installation of new secondary electrical service from Meter Post to the relocated utility pole.

The proposed utility pole will be installed by RMLD and the electric service riser replacement will be performed by the Contractor. RMLD will connect the secondary electrical service to the service riser at the top of the utility pole after the riser and underground conduit have been installed.

This work shall be as shown on Plans, and shall include all excavation, sand bedding, backfill, compaction, new conduits, concrete encasement, sweeps, new riser, wires and materials or any other requirements in accordance with the latest edition of the National Electric Code, Massachusetts Electrical Code, respective utility company, MassDOT ITS, and local codes/guidelines. The new electrical conduit and wire shall go from the existing meter in the Pedestal Meter Post to the top of the relocated utility pole, with a disconnect switch and a minimum 10 ft long coil at the top of the riser for RMLD to install the connection to the secondary electrical service. Adjustments to the Meter Post are also included in this work. A spare 3 inch PVC conduit shall be installed with a pull rope for future communications service and stubbed at the utility pole and extending 3 feet past the Meter Post, as shown on the Plans. The Contractor shall install a buried 2"x4" wooden stake above the end cap to be used to identify the termination point for future connection.

ITEM 813.80 (Continued)

The work associated with disconnecting power and reconnecting power to the utility's secondary power line is the responsibility of RMLD and shall be performed at a time coordinated with MassDOT ITS a minimum of 14 days in advance of the replacement work commencing. The actual time of day or evening for the disconnecting and reconnecting will be agreed upon between the Engineer, MassDOT, MassDOT ITS, and RMLD. No additional compensation shall be given for this work outside of normal work hours if required.

All electrical work shall be performed by an electrician licensed in the State of Massachusetts.

The conduit will be inspected by RMLD and the Engineer prior to placing concrete in the duct bank.

BASIS OF PAYMENT

Item 813.80 will be paid for at the Contract Lump Sum bid price, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

ITEM 852.11
ITEM 852.12**TEMPORARY PEDESTRIAN BARRICADE**
TEMPORARY PEDESTRIAN CURB RAMP**FOOT**
EACH

The work under this Item shall conform to the relevant provisions of Subsection 850 of the Standard Specifications and the following:

The work under these items consist of furnishing, deploying, maintaining in proper operating conditions, and removing temporary pedestrian barricades and temporary pedestrian ramps as part of a Temporary Pedestrian Access Route (TPAR) in order to guide pedestrians around a fully- or partially-closed sidewalk. These devices are intended to prevent pedestrians from entering the work area and to prevent pedestrians from inadvertently entering the vehicle travel lane by providing visual and physical separation between each space.

Materials

The Temporary Pedestrian Barricade shall have a continuous bottom rail or edge no more than two (2) inches above the ground and eight (8) inches in height (minimum) to accommodate cane users, have a smooth and continuous hand railing along the top edge no less than 32 inches and no more than 38 inches above the ground, and not obstruct or project into the pedestrian path of travel. Barricade walls shall be nearly vertical and generally within the same plane

If exposed to traffic, Temporary Pedestrian Barricades shall be crashworthy. The Temporary Pedestrian Curb Ramp shall provide a 60-inch minimum width, with a firm, stable, and non-slip surface. Protective edging with a two (2) inch minimum height shall be installed when the curb ramp or landing platform has a vertical drop of six (6) inches or greater. The Temporary Pedestrian Curb Ramp walkway and landing area surface shall be of a solid, continuous, contrasting color abutting up to the existing sidewalk.

If a Temporary Pedestrian Curb Ramp leads to a crosswalk, a detectable warning pad must be used at the base of the ramp; if it leads to a protected path that does not conflict with vehicular traffic then a detectable pad shall not be used.

Construction Methods

The Temporary Pedestrian Barricade shall be placed in an area that will provide pedestrians with a TPAR on a smooth, continuous hard surface for its entirety. The geometry and alignment of the facility shall meet the applicable requirements of the “Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities” and the Massachusetts Architectural Access Board.

The recommended width of the TPAR is 60 inches, but if constraints exist a minimum clear width of 48 inches shall be provided along its entirety. If a 60 inch width cannot be accommodated in full, a 60 inch by 60 inch passing space shall be provided every 200 feet or less along the TPAR.

Turning areas shall be 60 inches by 60 inches minimum.

ITEM 852.11 AND 852.12 (Continued)

Lateral joints between any surfaces shall not exceed 0.5 inches. Lateral edges may be vertical up to 0.25 inches high and shall be beveled at 1V:2H between 0.25 inches and 0.5 inches.

The TPAR shall be kept clear of debris, snow, and ice and the Temporary Pedestrian Barricades and Temporary Pedestrian Curb Ramps shall not obstruct drainage.

Removal and/or resetting of Temporary Pedestrian Barricades and Temporary Pedestrian Curb Ramps shall be considered incidental to the cost of each respective item.

COMPENSATION

Payment for Temporary Pedestrian Barricades will be made at the contract price per Foot installed in place, including all incidental costs. This price shall include the cost of furnishing, installing, resetting, removal, and maintaining in good working condition.

Payment for Temporary Pedestrian Curb Ramps will be made at the contract price per each unit installed in place, including all incidental items. This price shall include the cost of furnishing, installing, resetting, removal, and maintaining in good working condition.

ITEM 853.22 TEMPORARY BARRIER REMOVED AND DISCARDED FOOT

The work under this item shall consist of removing and disposing of the existing concrete barriers located on the north side of SR 129.

The barriers shall be carefully removed to avoid damaging the pavement. The barriers shall be removed from the site and disposed of legally in accordance with all applicable regulations.

METHOD OF MEASUREMENT

Item 853.22 will be measured for payment in place per foot measured along the centerline top barrier of removed barrier.

BASIS OF PAYMENT

Item 853.22 will be paid at the contract unit bid price per foot which price shall include all labor, materials, equipment, and incidental costs required to complete the work.

ITEM 854.6**TEMPORARY PORTABLE RUMBLE STRIP****DAY**

The work under this Item shall conform to the relevant provisions of Subsection 850 of the Standard Specifications and the following:

The work under this Item consist of furnishing, deploying, maintaining in proper operating conditions, and removing temporary portable rumble strips (TPRS) for temporary lane closures of 24 hours or less.

Materials

The TPRS shall be 10' to 11' wide, measured perpendicular to the path of travel, 12" to 16" long, measured parallel to the path of travel, and 0.5" to 0.75" tall. All edges shall be beveled. The surfaces shall be grooved to limit potential hydroplaning.

The TPRS shall lay flat on the road surface without the use of nails, anchors, or adhesives, and shall be flexible so as to conform to the surface profile.

The TPRS shall be able to withstand vehicle weights of up to 80,000 lbs. and operate in temperatures between 0° to 120° F.

The manufacturer shall certify the TPRS to be safe for use on roads with speed limits of at least 70 mph.

TPRS that appear damaged or functioning in an unsafe manner may be order removed by the Engineer and replaced at no additional cost.

Construction Methods

The TPRS shall be installed per the plans or at the discretion of the Engineer.

The Contractor shall conform to the manufacturer's specifications for installation and the following:

- A. The road surface shall be cleared of all gravel, sand, and debris.
- B. If RoadQuake 2F™ model is used, the modular pieces shall be assembled into 11-foot strips per the manufacturer's instructions in advance of deployment. The interconnected segments shall form a smooth and flat, continuous section.
- C. A Truck-Mounted Attenuator, conforming to Subsection 850, shall be used as shadow vehicle protection during the deployment and removal of TPRS on any roadway with speeds of 45 mph or greater.
- D. TPRS shall be deployed in conjunction with all other temporary traffic control devices. MA-W28-1 (Rumble Strips Ahead) sign(s) shall be installed per the Temporary Traffic Control Plan.

ITEM 854.6 (Continued)

E. TPRS deployment:

1. TPRS shall be placed perpendicular to the direction of travel, centered in the lane.
2. Three (3) individual strips are required for a single array.
3. Refer to the Temporary Traffic Control Plan for the location of the array respective to the lane closure.
4. The spacing of the individual strips within the array shall conform to the following table:

Speed Limit	Distance Between Rumble Strips (measured center-to-center)
60 mph and above	20 feet
40 mph to 55 mph	15 feet
<40 mph	10 feet

5. The TPRS shall be placed without the use of nails, adhesives, or other methods of affixing them to the road surface.
- F. TPRS deployment: All TPRS shall be maintained in proper condition, alignment, spacing, and location throughout the duration of the lane closure, at no additional cost.
- G. The TPRS shall be removed prior to the removal of the traffic control devices used to close the travel lane
- H. TPRS shall not be used during snow events.

METHOD OF MEASUREMENT

An array of three (3) temporary portable rumble strips is considered one (1) unit and will be measured by the DAY. Each period of up to 24 hours during which this unit is in use will be measured as one day regardless of the number of times the array is deployed, repositioned, or removed.

BASIS OF PAYMENT

Temporary Portable Rumble Strips will be paid for at the Contract unit price per DAY, which shall include full compensation for furnishing, deploying, repositioning, and removing the array of three (3) individual strips as directed by the Engineer.

ITEM 859.1 **REFLECTORIZED DRUMS WITH SEQUENTIAL** **DAY**
FLASHING WARNING LIGHTS

The work under this Item shall conform to the relevant provisions of Subsection 850 of the Standard Specifications and the following:

The work consist of furnishing, installing, maintaining in proper operating conditions, and removing reflectorized drums, and any necessary ballast, equipped with sequential flashing warning lights.

Materials

Reflectorized drums shall be listed on the MassDOT Qualified Traffic Control Equipment List. Reflective sheeting on drums shall meet or exceed ASTM D4956 Type VIII. All drums shall be maintained in a satisfactory manner including the removal of oils, dirt, and debris that may cause reduced retroreflectivity.

The Contractor shall use one of the following sequential flashing warning light systems unless otherwise approved by the Engineer:

1. Empco-Lite LWCS.
2. pi-Lit® Sequential Barricade-Style Lamp; or
3. Unipart Dorman SynchroGUIDE.

Sequential flashing warning lights shall be secured to reflectorized drums per the light manufacturer's specifications.

CONSTRUCTION METHODS

The first ten (10) drums in any merging or shifting taper as designated in the Temporary Traffic Control Plan shall be equipped with sequential flashing warning lights. These lights shall be operating, at a minimum, between dusk and dawn when the taper is deployed. The successive flashing of the sequential warning lights shall occur from the upstream end of the merging or shifting taper to the downstream end of the taper in order to identify the desired vehicle path. Each warning light in the sequence shall be flashed at a rate of not less than 55, nor more than 75 times per minute. Warning lights shall be powered off when drums are not deployed in a taper.

METHOD OF MEASUREMENT

A group of ten (10) reflectorized drums with sequential flashing warning lights is considered one (1) unit and will be measured by the day. Each period of up to 24 hours during which this unit is in use will be measured as one day regardless of the number of times that the drums are positioned, repositioned, removed, or returned to service.

BASIS OF PAYMENT

Reflectorized Drums with Sequential Flashing Warning Lights will be paid for at the Contract unit bid price per Day, which price shall include full compensation for furnishing, positioning, repositioning, and removing the group of ten (10) drums as directed by the Engineer.

ITEM 864.33**SLOTTED PAVEMENT MARKER**
TWO-WAY WHITE/RED**EACH****Description**

The work under this item shall consist of furnishing and installing two-way white/red reflectorized slotted pavement markers in the pavement surface on I-93 and associated ramps in accordance with the Sign and Pavement Marking Plans, the relevant provisions of Subsection 860 of the Standard Specifications, Traffic Standards TR.6.2 “Raised Pavement Markings for Freeways” in the 1996 Construction and Traffic Standard Details and the following:

White/Red markers shall be installed along the broken white lines (skip lines) at the midway point between successive skip lines at 80-foot intervals on the mainline. White/Red markers shall be installed at 20-foot intervals along the solid lines along the I-93 ramps where the existing striping is to be restored following implementation of temporary striping during work setups on I-93. The choice of white shall match the existing stripe color that the marker is installed along or as designated in the plans.

Materials

Slotted pavement marker material must be listed in the MassDOT Qualified Traffic Control Equipment for Reflectorized Pavement Markings provided on the website below:

<https://www.mass.gov/doc/section-860-reflectorized-pavement-markings/download>

Construction Methods

Reflectorized markers shall be installed along the pavement marking lines as described above. (Typical locations shown per the Traffic Standards TR.6.3 in the 1996 Construction and Traffic Standard Details)

The work shall include cutting the tapered pavement slot, application of the manufacturer’s recommended epoxy adhesive and placing the reflectorized pavement marker in the proper position within the slot so that the white reflectorized face is visible and perpendicular to oncoming traffic and so that the top of the marker is set 1/4 to 1/8 inch below the top of the adjacent pavement. The red reflectorized face shall be visible from the opposite direction as visibility of the white reflectorized face. Surface preparation and installation shall be strictly in accordance with the manufacturer’s instructions.

ITEM 864.33 (Continued)**Method of Measurement**

The number of reflectorized pavement markers (slotted in pavement), completely furnished and installed, will be measured for payment by the unit Each as a complete installation of reflective marker and its respective pavement cutting.

Basis of Payment

“Slotted Pavement Markers Two-Way White/Red” will be paid for at the contract unit bid price per each under Item 864.33 installed. This price so-stated constitutes full and complete compensation for removing existing slotted markers prior to restriping lane shifts on I-93, installing new markers within the existing tapered pavement slots or cutting new tapered pavement slots for new markers, furnishing and installation of the reflectorized markers, and all other necessary materials, labor, and equipment to complete the work.

<u>ITEM 866.206</u>	<u>6 INCH REFLECTORIZED WHITE LINE (POLYUREA)</u>	<u>FOOT</u>
	<u>(RECESSED)</u>	
<u>ITEM 867.206</u>	<u>6 INCH REFLECTORIZED YELLOW LINE (POLYUREA)</u>	<u>FOOT</u>
	<u>(RECESSED)</u>	

The work under these items shall conform to the relevant provisions of Subsection 860 of the Standard Specifications and the following:

The existing pavement markings on I-93 will need to be replaced with shifted lane and taper setups depicted in the plans. Restoration of existing pavement markings on I-93 will need to be replaced with reflectorized white and yellow recessed polyurea markings.

Work shall consist of the following major activities:

- Cutting or grinding recessed grooves or slots in the pavement, and
- Installing white or yellow pavement markings in the recessed grooves, and
- Periodically measuring and reporting the performance of the pavement markings.

Materials

All work shall be done in accordance with the Material Supplier's specifications and the following:

Polyurea shall be one of the following products, or approved equivalent:

1. 3M Series 5000 Liquid Pavement Markings; or
2. Ennis-Flint HPS-5; or
3. Epoplex LS90.

All Liquid Pavement Marking Materials shall have 'no-track times' of 10 minutes or less. Material certification shall be submitted to the resident engineer before all applications.

All Pavement Marking shall conform to ASTM D6628 (*Standard Specification for Color of Pavement Marking Materials*).

Wet Reflective Element products for Liquid Pavement Markings shall be specified by the Material Supplier in order to meet the Pavement Marking Performance subsection of this specification.

All Pavement Marking Materials including reflective elements shall be free of heavy metals.

Construction Methods for Installation of Groove

The Contractor shall not cut the recessed grooves without the approval of the Engineer. Prior to cutting the recessed grooves for any lines, the Contractor shall layout the proposed lines on the pavement surface. The Contractor shall use a chalk line or other suitable method to mark the proposed layout. The Contractor may cut the recessed grooves upon approval of the proposed layout by the Engineer.

ITEMS 864.33, 866.206 AND 867.206 (Continued)

Grooves shall be positioned so that there shall be a minimum of 4 inches from the edge of the pavement marking to any longitudinal pavement joints. Grooves shall not be installed on bridge joints, at drainage structures, or in other areas identified by the Engineer. For intermittent pavement markings (ie: broken or dotted lane lines), grooves shall be cut in the same intermittent pattern. Grooves for such pavement markings shall not be cut as a single continuous groove, but shall be cut only where markings will be applied.

The Contractor shall cut or grind each groove to the correct depth, width, and length as specified and in proper alignment. For use with Liquid Pavement markings, grooves for 6 inch lines shall be 7 inches $\pm \frac{1}{4}$ inch wide, and grooves for 12 inch lines shall be 13 inches $\pm \frac{1}{4}$ inch wide. Grooves may extend no more than 1 inch beyond the length of the marking on either end.

Groove depth and tolerance shall be determined by the pavement marking material supplier. Where no depth or tolerance is specified, the following will apply:

<u>Material</u>	<u>Groove Depth</u>	<u>Tolerance</u>
Polyurea	80 mils	± 5 mils

The Engineer will inspect all recessed grooves prior to installing any marking material. The depth of the groove will be taken at the center line of the proposed marking. The Contractor shall provide depth plates to the Engineer for such inspection.

The Contractor shall use a gang-stacked diamond cutting blade device to cut or grind flat, smooth, and square grooves, to the depth and tolerance specified. Blades and spacers in the cutting head shall be configured such that the bottom of the cut shall be smooth and uniform, with no more than a 10 mil difference between the bottom and top of the cut surface. The acceptability of the surface texture will be determined by the Engineer and/or Material Supplier's Technical Representative.

The diamond grinder shall be equipped with an articulated cutting head so that the recessed grooves are cut correctly on grades and super elevated sections. The diamond grinder shall be equipped with shrouds and a vacuum apparatus to remove the spoil from the grinding operation. The Contractor shall dispose of all spoil material off-site.

The Contractor shall repair any grooves that are deeper or wider than the specified allowable limits, using the Department's approved repair procedure at no additional cost to the Department. The Contractor shall repair any grooves that are out of alignment using the same procedure. Grooves that are too shallow or too narrow shall be reground to the specification limits at no additional cost to the Department.

The Contractor shall clean the recessed grooves prior to the application of pavement markings. Grooves shall be clean, dry and free of any contaminants. The Contractor shall prevent traffic from traversing the grooves, and re-clean grooves where necessary or where directed.

ITEMS 864.33, 866.206 AND 867.206 (Continued)**Construction Methods for Installation of Durable Pavement Markings**

Application of liquid pavement markings and reflective elements shall be per the Material Supplier's specifications in order to meet the minimum initial retroreflectance levels described herein. A Technical Representative from the Material Supplier shall be present for the first liquid pavement marking installation shift to provide quality assurance/quality control.

Prior to the first application of liquid pavement markings, one or more test strips shall be constructed at a location designated by the Engineer. Each test strip shall consist of approximately 500 linear feet each of white and yellow liquid pavement markings. Pavement markings shall be surface applied; no groove is required for the test strip.

The purpose of the test strip(s) is to demonstrate the capability of the proposed liquid pavement marking material, equipment, and installation procedures to comply with the specifications for uniform wet thickness, dry time, reflective element application and retention, marking width, and overall appearance (color uniformity and clean, well-defined edges).

A test strip shall be required for each applicator unit used. Additional test strips may be required when major equipment repairs or adjustments are made or if the application of the liquid pavement markings fails to comply with these specifications.

The cost of applying the test strip(s) shall be considered incidental to the cost of the item.

Upon acceptance of the test strip(s) by the Engineer, the Contractor will be permitted to proceed with the application of the liquid pavement markings.

The Contractor shall install pavement marking material in accordance with the Material Supplier's specifications. Where no minimum uniform wet thickness is specified, the following will apply:

<u>Material</u>	<u>Uniform Wet Thickness</u>	<u>Tolerance</u>
Polyurea	25 mils	± 2 mils

The Line Thickness for all materials shall be met across at least the middle $\frac{2}{3}$ of the pavement marking width. The Contractor shall provide depth plates to the Engineer for such inspection.

The Contractor shall apply/install reflective elements in liquid pavement markings as per the Material Supplier's specifications.

Newly installed markings shall be protected from tracking during the setting period per Subsection 860.63.

ITEMS 864.33, 866.206 AND 867.206 (Continued)

Pavement Marking Performance

Incidental to the cost of these items, the Contractor shall measure the average retroreflectance of the pavement markings, and report the results to the Engineer. The Contractor shall take retroreflectance measurements at the following three times:

1. Initial (between 7 and 14 days from date of application); and
2. 6 Months (182 days, ± 14 days from initial application); and
3. 1 Year (365 days, ± 14 days from initial application).

The Contractor shall provide temporary traffic control setups for the retroreflectance measurements. Traffic control items under Subsection 850 will be measured and paid for normally as part of the Contract. Should the 6-month or 1-year measurement fall beyond the physical completion date, the Department will provide temporary traffic control setups for those measurements at no cost to the Contractor.

The Contractor shall measure and report the retroreflectance of the pavement markings in accordance with the following testing methods and procedures:

1. ASTM D7585 *Standard Practice for Evaluating Retroreflective Pavement Markings Using Portable Hand-Operated Instruments*; and
2. ASTM E2177 *Standard Test Method for Measuring the Coefficient of Retroreflected Luminance of Pavement Markings in a Standard Condition of Wetness*; and
3. ASTM E2832 *Standard Test Method for Measuring the Coefficient of Retroreflected Luminance of Pavement Markings in a Standard Condition of Continuous Wetting*.

The Contractor shall use properly calibrated measuring devices to perform the required measurements and provide evidence of such calibration to the Engineer along with the results of the measurements.

The average Initial retroreflectance readings shall meet or exceed the following minimum values for all pavement marking materials installed under these items:

	White Markings	Yellow Markings
Observation Angle	1.05°	1.05°
Entrance Angle	88.8°	88.8°
ASTM D7585 (Dry)	600 mcd/lux/m ²	400 mcd/lux/m ²
ASTM E2177 (Wet Recovery)	400 mcd/lux/m ²	300 mcd/lux/m ²

During the Initial testing, if the average of the three readings for a line within the one mile segment falls below the specified minimum values, additional readings following the same methodology shall be taken in an adjacent one mile segment. If the average retroreflectance values in the adjacent mile segment also fall below the specified minimum values, the pavement marking shall be removed by an approved method and reapplied at no cost to the Department.

ITEMS 864.33, 866.206 AND 867.206 (Continued)

Readings taken at the 6 Month and 1 Year intervals are for MassDOT Highway informational purposes only. Average readings that fall below the specified minimum values will not require additional testing or pavement marking removal and reinstallation.

Pavement Marking Asset Management

Upon completion of the pavement marking installation, the following data shall be tabulated by the Contractor:

1. Date(s), time(s), and location(s) of test strip installation;
2. Retroreflectance readings from test strip(s), by ASTM test method;
3. Liquid binder type(s) and application rate;
4. Reflective element type and drop rate;
5. Date of groove installation;
6. Depth of groove;
7. Date and time of final pavement marking installation;
8. Highway location (including direction) of installation;
9. Air and pavement temperature during application;
10. Measured material application thickness, depth of groove; and
11. Any other pertinent information that may assist MassDOT with Quality Control.

Results for all readings shall be provided within 10 business days of testing to the Engineer, with a second copy sent to:

State Traffic Engineer
Attention: Pavement Marking Retroreflectivity Testing
10 Park Plaza, Room 7210
Boston, MA 02116

METHOD OF MEASUREMENT

All pavement marking lines will be measured in accordance with Subsection 860.80.

BASIS OF PAYMENT

Items 864.33, 866.206 and 867.206 will be paid for at the respective Contract unit bid price under each item based on the measurements as determined by the Engineer, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

No separate payment will be made for measuring the pavement marking performance, but all costs in connection therewith shall be included in the Contract unit bid price bid for the respective item.

ITEM 874.2**TRAFFIC SIGN REMOVED AND RESET****EACH**

The work under this Item shall conform to the relevant provisions of Subsections 828 and 840 of the Standard Specifications and the following:

The work consists of removing, dismantling, transporting, temporary storage and protection, and resetting the existing street, warning, regulatory and miscellaneous signs and their supports at the current or to new locations as shown on the Plans or as required by the Engineer.

The sign panels shall be satisfactorily stored at an appropriate location and protected until ready to be reset in the proposed work.

The Contractor shall replace at their own expense, all sign panels and supports that are damaged or lost either directly or indirectly as a result of their actions.

If the Engineer determines the existing sign panel is unsuitable for reuse, a new sign panel equal to the existing sign panel, shall be furnished by the Contractor.

Materials

Materials for traffic signs removed and reset shall be the existing signs. If in the opinion of the Engineer, the existing sign panel is unsuitable for reuse, a new sign panel of a size and composition equal to the existing sign panel, shall be furnished, as required by the Engineer.

Construction Method

The sign shall be mounted in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) and the 1990 Standard Drawings for Signs and Supports.

When the visibility of the relocated sign panels is obstructed by trees and other vegetation, the Contractor shall clear the obstruction for proper sight distance. All clearing shall be done within the roadway layout, as approved by the Engineer. This work shall be incidental to this item.

Sign panels to be removed and reset shall be cleaned before being reset. Damage during removal or resetting to any sign panel designated for reuse by the Engineer shall be repaired or replaced by the Contractor at their own expense.

Any excavation made for removal of the existing sign or foundation and any resulting depression shall be backfilled with selected excavated material and the surface restored to match the adjacent materials.

The Contractor shall furnish and install all necessary mounting fixtures (nuts, bolts and other miscellaneous items) required to complete the work.

ITEM 874.2 (Continued)**Method of Measurement**

Item 874.2 will be measured for payment per Each Traffic sign removed and Reset.

Basis of Payment

Item 874.2 will be paid for at the contract unit bid price per Each and shall include full compensation for furnishing all labor, tools, materials, equipment and incidental costs, and for doing all the work including excavation, backfill, removal and disposal of existing post and foundation, disposal of unsuitable sign panel, disposal of existing sign foundations involved in removing and resetting signs, gravel backfill and compaction, and the restoration or replacement in kind of disturbed surfaces. The price shall also include all necessary mounting fixtures (nuts, bolts and other miscellaneous items) required to complete the work.

If required by the Engineer, unsuitable sign panels shall be replaced in kind, installed and paid for under Item 832.

New sign posts will be paid for under Item 847.1.

Materials required, that are lost or damaged due to the Contractor's operations, shall be replace in-kind and all costs shall be borne by the Contractor.

ITEM 874.4**TRAFFIC SIGN REMOVED AND STACKED****EACH**

The work under this item shall conform to the relevant provisions of Subsection 120 of the Standard Specifications and the following:

The work under this item shall consist of dismantling, removing, transporting, and stacking existing warning and regulatory sign panels and guide signs, including their supports and all mounting hardware, designated to be removed and stacked on the plans or as required by the Engineer.

Construction Methods

Signs and attached hardware shall be carefully removed from their supports. The supports and existing foundations shall be completely removed and the holes backfilled with gravel borrow. The surface shall be patched with a material to match the existing ground or as required by the Engineer.

The Contractor shall backfill all holes resulting from removal of existing signs and their foundations with compacted gravel and restore the area to match the existing conditions of adjacent areas.

Signs and posts to be stacked shall be transported to the MassDOT Maintenance facility at 9 Causeway Road, Wilmington and offloaded neatly stacked by the Contractor as required by the Engineer. The Contractor shall contact this maintenance facility a minimum of two weeks prior to beginning delivery to the designated location.

If signs are attached to existing light poles, utility poles or traffic poles, only the sign and attached hardware shall be removed and stacked.

Sign posts that are observed to no longer have mounted signage that are called out to be stacked in the plans shall be removed under this item.

The Contractor shall be responsible for the signs, and shall replace or repair any damage due to their operations with no additional compensation.

The existing signs shall not be removed and stacked without the prior approval of the Engineer.

ITEM 874.4 (Continued)**Method of Measurement**

Item 874.4 will be measured for payment as one unit per Each traffic sign removed and stacked. One unit shall include the sign panel, sign post(s), appurtenances, and foundation(s).

Basis of Payment

Traffic sign removed and stacked will be paid for at the Contract unit bid price per each which price shall include all labor, materials, equipment and incidental costs required to complete the work for dismantling, loading, transporting and stacking of the signs and supports as designated above, and for the excavating and disposal of the existing foundations if present. Furnishing Gravel Borrow backfill and compaction and removed sign area restoration shall be considered incidental to the cost of this item.

ITEM 909.5**RAPID SET CONCRETE****CUBIC YARD**

The work under this Item shall conform to the relevant provisions of Subsection 901 of Standard Specifications and as follows:

The work consists of temporarily patching deteriorated cement concrete and bituminous concrete overlay that was previously excavated from the bridge deck under items 127.4 and 127.41 with rapid set concrete.

The rapid setting cementitious product shall be qualified rapid set material that shall have completed testing through AASHTO's National Transportation Program (NTPEP) and is included on the MassDOT Qualified Construction Material List.

The rapid setting cementitious material shall be expanded with aggregate for placements that are (2") inches or more in depth and must be formulated to develop a minimum compressive strength of 2500 PSI within two (2) hours. Before it is incorporated into the work, the patching compound shall be approved by the Department.

To expand the patching compound, aggregate of the size and quality recommended by the manufacturer shall be added in the following proportions:

Two (2) parts cement

Two (2) parts fine aggregate conforming to the requirements of Subsection M4.02.02

One (1) part coarse aggregate not to exceed ½" in diameter

Prior to placing the compound, the patch area shall be flushed with clean water to remove all dust and then blasted with compressed air to remove all standing water. When temperatures are at or below the freezing point, the following steps shall be taken to ensure proper setting action:

Use warm mixing water

Use warm aggregate

Use warm gypsum cement

Pre-heat the excavated area to be patched

Protect the mixture from freezing after placement until hydration has taken place

The rapid setting repair material shall be cured and protected until the minimum compressive strength is achieved.

A rubber-blade drum grout mixer, eight (8) cubic foot minimum, can be used for mixing and placing the cement. Two (2) mixers will be required to be on site, of which one mixer can be used as a back-up. Sufficient mixing and placing equipment shall be provided on the construction site by the Contractor to ensure that a breakdown of equipment will not cause significant delays in completing the work in the shift.

Formwork shall be maintained and remain in place a minimum of seventy- two (72) hours after placement or as required by the Engineer.

Contractor shall submit mix design to the Engineer for approval, unless concrete is being used neat and trial batching is required. The Contractor shall adhere to the access and mobilization requirements outlined in the Special Provision for Item No. 748.1 Emergency Response.

ITEM 909.5 (Continued)**Method of Measurement**

Item 909.5 will be measured for payment, complete in placed, by the cubic yard of Rapid Set Concrete placed for bridge deck repairs.

Basis of Payment

Item 909.5 will be paid for at the Contract unit bid price per cubic yard which price shall include full compensation for all labor, materials, tools, forms, surface preparation, equipment , and all incidental costs required to complete the work.

Payment for replacing and installing new reinforcing steel in the bridge deck repairs will be paid under Item 910.

Payment for replacing and installing new mechanical reinforcing bar splicers in the bridge deck repairs shall be paid under Item 910.4.

ITEM 910. **STEEL REINFORCING FOR STRUCTURES** **POUND**

The work under this Item shall conform to the relevant provisions of Subsection 901 of Standard Specifications and as follows:

The work consists of replacing deteriorated reinforcing that was previously excavated from the bridge deck under items 127.4 and 127.41 with new reinforcing.

Reinforcing steel manufacturers shall be from the MassDOT Qualified Construction Materials List.

Method of Measurement

Item 910. will be measured for payment by the pound of actual reinforcing installed.

Basis of Payment

Item 910.1 will be paid for at the Contract unit bid price per Pound, which price shall include all labor, materials, tools, forms, equipment, and all incidental costs required to complete the work. Payment will be determined by the actual number of pounds of steel reinforcing that is measured in place.

Payment of excavation, removal and satisfactory disposal of all reinforced concrete and corresponding bituminous concrete overlay for the bridge deck repairs will be made under Items 127.4 and 127.41.

Payment for placing rapid setting concrete in the bridge deck repairs will be paid under Item 909.5.

Payment for replacing and installing new mechanical reinforcing bar splicers in the bridge deck repairs will be paid under Item 910.4.

ITEM 910.4**MECHANICAL REINFORCING BAR SPLICER****EACH**

The work under this Item shall conform to the relevant provisions of Subsection 901 of the Standard Specifications and as follows:

The work consists of replacing deteriorated reinforcing that was previously excavated from the bridge deck under items 127.4 and 127.41 with new reinforcing.

All materials shall be from the MassDOT Qualified Construction Materials List.

Method of Measurement

Item 910.4 will be measured for payment by each mechanical bar splicer installed complete in place.

Basis of Payment

Item 910.4 will be paid for at the Contract unit bid price per Each, which price shall include all labor, materials, tools, forms, equipment, and all incidental costs required to complete the work.

Payment of excavation, removal and satisfactory disposal of all reinforced concrete and corresponding bituminous concrete overlay for the bridge deck repairs will be made under Items 127.4 and 127.41.

Payment for placing rapid setting concrete in the bridge deck repairs will be paid under Item 909.5.

Payment for replacing and installing new steel reinforcing in the bridge deck repairs will be paid under Item 910.

ITEM 945.1
ITEM 948.60
ITEM 948.61

DRILLED MICROPILE
MICROPILE VERIFICATION LOAD TEST
MICROPILE PROOF LOAD TEST

FOOT
EACH
EACH

GENERAL

The work under these Items shall conform to the relevant provisions of Section 900 of the Standard Specifications and the following:

The work shall consist of constructing micropiles as shown on the plans, approved working drawings, and as specified herein. The Contractor is responsible for furnishing all materials, equipment, labor, services, and supervision; and for selecting means and methods for the installation and testing of micropiles for this project.

Micropiles shall consist of permanent casing sections and fully reinforced grout sections bonded with bedrock. Permanent casings shall be included as part of the micropiles and shall remain in place after grouting is complete. Temporary casings shall be installed if necessary to facilitate micropile construction and shall be removed during or after grouting. The Contractor is responsible for drilling through obstructions encountered during pile installation.

The micropiles load capacities shall be confirmed by verification and proof load testing. Testing must meet the test acceptance criteria specified herein. The bond length of the micropile may be modified by the Engineer, pending results of load testing performed as an initial part of the work.

MATERIALS

The materials for micropiles shall meet the following requirements:

Permanent/Drill Steel Casing used as Reinforcement: Permanent steel casing/pipe used as reinforcement shall be new “Prime” steel meeting the requirements of any API 5L PSL1 pipe with a yield strength of 52 ksi with SR15 supplemental requirements. The grade of the prime steel casing shall conform to the properties shown on the Plans. For steel pipe that is to be welded, the Carbon Equivalency, as defined in AWS D1.1 Section XI.1, shall be less than or equal to 0.45, as demonstrated by mill certificates. The sulfur content shall not exceed 0.05%, as demonstrated by mill certificates.

Permanent steel casing shall consist of ERW (Electric Resistance Welded) and/or seamless steel casing and shall be designed to withstand the design loadings determined by the Engineer or shown on the Plans and the verification/proof test loading described in this specification. Joints shall develop the full vertical capacity, and at least 60% of the moment capacity of the casing. As installed, there shall be no joints within three feet or as shown on the plans from the bottom of the pile cap.

The steel casing shall have certified mill test reports and shall be submitted for record purposes as the materials are delivered. The steel shall be traceable back to the mill certifications, and be free from defects (dents, cracks, tears, etc.).

New “mill secondary” steel pipe/casing will not be accepted regardless if they are accompanied by coupon test results.

ITEMS 945.1, 948.60 AND 948.61 (Continued)

Permanent steel casing shall be installed into intact bedrock as shown on the Contract Drawings.

Reinforcing Bars: Central reinforcing steel shall be full-length, continuously threaded bars. The bars shall conform to AASHTO M 31 Grade 60 as shown on the Contract Documents. The grade and size of the central reinforcement shall conform to any minimum and/or maximum properties shown on the Plans.

Reinforcing Bar Couplings: Reinforcing bar couplers shall be in accordance with Subsection M8.01.9 but are not required to be listed on the Qualified Construction Materials List (QCML). Where reinforcing bars are not specified with corrosion protection, bar couplers shall not be required to be epoxy coated or galvanized.

Independent testing shall be performed by a nationally recognized testing laboratory, approved by the Engineer, which shall provide certified test results showing that the reinforcing bar coupler meets the requirements of Subsection M8.01.9. Acceptance of the couplers shall be approved by the Engineer.

Centralizers and Spacers: Centralizers and spacers shall be fabricated from schedule 40 PVC pipe or tube, or material non-detrimental to the reinforcing steel. Wood shall not be used.

They shall be securely attached to the reinforcement; sized to position the reinforcement to provide the grout cover specified in the table below; sized to allow grout tremie pipe insertion to the bottom of the drill hole; and sized to allow grout to freely flow up the drill hole and casing.

Table 1 - Minimum Grout Cover for Steel Reinforcement

Condition	Minimum Cover on Bar (in.)	Minimum Cover on Coupler (in.)
Micropiles in Soil	1	¼
Micropiles in Rock	½	¼
Coated or Encapsulated Bars	½	¼

Admixtures for Grout: Admixtures shall conform to the requirements of AASHTO M 194 and shall be selected from the QCML where applicable. Expansive admixtures shall only be added to the grout used for filling sealed encapsulations or micropile top connections. Accelerators are not permitted. Admixtures containing intentionally added chlorides are not permitted. Admixtures shall be from the same Manufacturer and shall be compatible with the grout and mixed in accordance with the Manufacturer's recommendations.

Admixtures that control bleed, improve flowability, reduce water content, and retard set may be used in the grout subject to review and acceptance by the Engineer.

Cement: All cement shall conform to AASHTO M 85 Type I, Type II, Type III, or Type V and shall be the product of one Manufacturer.

ITEMS 945.1, 948.60 AND 948.61 (Continued)

Grout: Neat cement mixture with a minimum 3-day compressive strength of 50 percent of the 28- day unconfined compressive strength. The grout shall be proportioned and mixed as to provide a fluid grout capable of maintaining the solids in suspension without appreciable bleed. Preparation and placement of grout shall be in accordance with the recommendations of “Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete,” ACI 304.

A minimum of 60 calendar days prior to the start of micropile construction the grout mix design shall be submitted to the Engineer and a trial batch shall be performed. The trial batch shall take place at a location approved by the Engineer and be performed in the presence of Department personnel. It shall be representative of the production grout placement and shall consist of the same materials, equipment, methods of mixing, and sample preparation and curing methods.

Trial batch samples will be tested to verify that the material meets all grout criteria specified in Table 2. The quantity of material batched shall be sufficient to perform all required tests specified.

Table 2 – Grout Material Acceptance Criteria for Trial Batch Testing

Quality Characteristic	Test Method	Engineering Limit
Minimum Compressive Strength:	AASHTO T 106 Or AASHTO T 22	
3 days		≥ 2,000 psi
7 days		For information only
28 days		≥ 5,000 psi
Consistency	API RP-13B-1	± 10% of the density specified in the mix design

Plates and Shapes: Structural steel plates and shapes for pile top attachments shall conform to M8.05.0, AASHTO M 270, and have minimum yield strength of 50 ksi.

Water: Water for mixing grout shall be potable, clean, and free from substances that may be injurious to cement and steel.

Fillers: Inert fillers such as sand (conforming to AASHTO M 45) may be used in the grout in special situations, such as presence of large voids in the ground or when grout take and travel are to be limited, with prior written approval by the Engineer.

CONSTRUCTION METHODS

QUALIFICATIONS

The Micropile Contractor must be experienced in the construction and load testing of micropiles and have successfully constructed at least 5 projects in the last 5 years involving construction totaling at least 100 micropiles with similar capacity and requirements specified in these plans and specifications. The Micropile Contractor shall have previous micropile drilling and grouting experience in soil/rock similar to project conditions and shall have available and be thoroughly familiar with the specialized type of equipment needed to perform work of this type.

ITEMS 945.1, 948.60 AND 948.61 (Continued)

The on-site foremen and drill rig operators shall also have experience on at least 3 projects over the past 5 years installing micropiles of equal or greater capacity than required in these plans and specifications.

Prior to the Pre-construction Meeting, the Micropile Contractor shall submit the following information to verify the firm's experience and the qualifications of personnel scheduled to perform the micropile design (load test frame) and construction:

1. Submit a list of at least five micropile projects successfully completed in the last five years. Include construction details, structural details, load test reports, and client contact for each project listed.
2. Submit a list of the equipment and resources the Micropile Contractor plans to mobilize and utilize for the performance of the project.
3. Provide the names and detail the experience of the micropile designer, on-site supervisor, foremen, and drill rig operators for this project.
4. A signed statement that the Micropile Contractor has inspected both the project site and all the subsurface information including any soil or rock samples made available in the Contract Documents.

Work on any micropiles shall not be started, nor materials ordered until the qualifications and submittals have been accepted by the Engineer. The Engineer may suspend the micropile construction if the Micropile Contractor substitutes unapproved personnel during construction. Requests for substitution of field personnel shall be submitted to the Engineer for acceptance. Additional costs resulting from the suspension of work will be the Micropile Contractor's responsibility, and no extension in contract completion date resulting from the suspension of work will be allowed.

The Micropile Contractor shall have, on site during all micropile construction activity, a minimum of one Quality Control (QC) inspector. This person shall be responsible for quality control of the micropiles during all phases of construction and will monitor and document all QC inspection and testing activities required by the specifications and outlined in the accepted procedures and Working Drawings. The QC person shall be a certified NETTCP Concrete Technician.

MICROPILE PRE-CONSTRUCTION SUBMITTALS

The Contractor shall prepare and submit to the Engineer: shop drawings, a micropile installation plan, construction procedures, load testing procedures, and equipment calibrations for review and acceptance. The Contractor shall verify the limits of the micropile structure before preparing the detailed working drawings and allow the Engineer four (4) weeks to review the submittal after a complete set has been received. Work shall not begin, nor materials ordered until all submittals have been received, reviewed, and accepted in writing by the Engineer.

ITEMS 945.1, 948.60 AND 948.61 (Continued)

The micropile submittals shall include:

A. Plans

1. A plan view of the micropile layout identifying the locations of micropiles, numbering system for records, and verification test and proof test micropile locations.
2. An elevation view of the test micropile(s) showing:
 - i. A typical detail of test micropiles defining the micropile length, reinforcement, inclination, and load test bonded and unbonded test lengths.
 - ii. Permanent casing length and diameter, casing plunge length, and grout bond zone length.
 - iii. Estimated soil/bedrock strata.
 - iv. Instrumentation to be installed.
 - v. Minimum drill hole diameter.
 - vi. Splice type and locations.
 - vii. Centralizers and spacers.
 - viii. Corrosion protection details.
 - ix. Grout design strength.
3. Details for constructing micropile structures around utilities, as applicable.

B. Construction Procedures

1. Detailed step-by-step description of the proposed micropile construction procedure, including personnel, testing, and equipment to assure quality control. This step-by-step procedure shall be shown in sufficient detail to allow the Engineer to monitor the construction and quality of the micropiles. Include methods of drilling the holes, advancing the casing, drilling through or removing obstructions, flushing drilled holes, installing reinforcement, and grout pressures.
2. If welding of casing is proposed, submit the welding procedure. All welding shall be done in accordance with the current AWS Structural Welding Code.
3. Information on space requirements for installation equipment that verify the proposed equipment can perform at the site.
4. Plan describing how surface water, drill flush, and excess waste grout will be controlled and disposed.
5. Certified mill test reports for the central reinforcing steel. The ultimate strength, yield strength, elongation, and material properties composition shall be included.
6. Certified mill test reports for the permanent casing. Certification that the permanent casing meets the supplemental requirements of SR15 shall be included.

ITEMS 945.1, 948.60 AND 948.61 (Continued)

7. Quality Control Plan. The QC Plan should sufficiently document the QC processes of all Contractor parties (i.e. Prime Contractor and Subcontractors) performing work required under this specification. The QC Plan shall be structured to follow the format and section headings outlined in the MassDOT Model QC Plan. It shall be submitted to the Engineer for review and approval a minimum of 30 days prior to the start of work.

The QC Plan shall include complete descriptions, and details for the following:

- i. Micropile installation including drilling method and grouting procedure.
- ii. Grout mix design and type of materials to be used in the grout including certified test data and trial batch reports. The Micropile Contractor shall also provide specific gravity and density of the wet mix design.
- iii. Methods and equipment for accurately monitoring and recording the grout depth and grout volume as the grout is being placed.
- iv. Estimated curing time for grout to achieve specified strength. Previous test results for the proposed grout mix completed within one year of the start of grouting may be submitted for initial verification and acceptance, and start of production work. During production, grout shall be tested in accordance with the Grout Testing Requirement specified herein.
- v. Procedure and equipment for Micropile Contractor monitoring of grout quality. At a minimum, the Micropile Contractor shall verify the specific gravity of the mixed grout prior to placement of the grout into each drilled micropile.

C. Load Testing Procedures

Detailed plans and procedures for the proposed micropile load testing method. This shall include all drawings, details, and structural design calculations necessary to clearly describe the proposed test method, reaction load system capacity and equipment setup, types and accuracy of apparatus to be used for applying and measuring the test loads and pile top movements in accordance with the Micropile Load Testing section of this specification.

D. Equipment Calibration

Calibration reports and data for each test jack, pressure gauge, master pressure gauge, and electronic load cell to be used. The calibration tests shall have been performed by a certified testing laboratory, and tests shall have been performed within 90 calendar days of the date submitted. Testing shall not commence until the Engineer has reviewed and accepted the jack, pressure gauge, master pressure gauge, and electronic load cell calibration data.

PRE-CONSTRUCTION MEETING

A mandatory pre-construction meeting will be scheduled by the Engineer and held prior to the start of micropile construction. The Design Consultant, MassDOT Resident Engineer, MassDOT District Materials Engineer, Prime Contractor, and Micropile Contractor, including QC personnel, shall attend the meeting. The preconstruction meeting will be conducted to clarify the construction

ITEMS 945.1, 948.60 AND 948.61 (Continued)

and QC requirements for the work, to coordinate the construction schedule and activities, specifically those pertaining to excavation for micropile structures, installation of temporary sheeting, anticipated subsurface conditions, micropile installation and testing, micropile structure survey control, and site drainage control.

SITE DRAINAGE CONTROL

The Contractor shall control and properly dispose of drill flush and construction related waste, including excess grout, in accordance with related specifications within the Contract Documents, and all applicable local codes and regulations. Provide positive control and discharge of all surface water that will affect construction of the micropile installation. Maintain all pipes or conduits used to control surface water during construction. Repair damage caused by surface water at no additional cost. Upon substantial completion of the work, remove surface water control pipes or conduits from the site.

EXCAVATION

Coordinate the work and the excavation so the micropile structures are safely constructed and remain stable at all times. Perform the micropile construction and related excavation in accordance with the plans and accepted submittals. No excavation deeper than those specified herein or shown on the plans will be made above or below the micropile structure locations without written acceptance of the Engineer.

MICROPILE INSTALLATION**A. General**

The Micropile Contractor shall select the drilling method, the grouting procedure, and the grout pressure used for installation of the micropiles. The construction method shall incorporate any special construction requirements specified on the plans. The production micropiles and its construction method shall be identical to the accepted verification test piles.

When the plans require uncased drilling of the micropile into bedrock, the permanent and/or temporary casing shall be drilled the minimum length shown on the Contract Drawings into intact bedrock or to a depth within the bedrock so as to prevent subsidence of over burden into the uncased and/or bond zone portion of the drill hole (i.e. the rock socket).

Piles shall be installed only in the presence of the Engineer's or MassDOT's Representative.

B. Location and Survey

Micropiles shall be located and marked using survey and a template by the Contractor who shall maintain and be responsible for all location and elevation stakes.

ITEMS 945.1, 948.60 AND 948.61 (Continued)**C. Drilling**

The drilling equipment and methods shall be suitable for drilling through the conditions to be encountered, without causing damage to overlying or adjacent structures, buried structures, or utilities.

Temporary casing or other accepted method of pile drill hole support is required, when drilling within 10 feet of an existing foundation, or utility, and/or in caving or unstable ground, to permit the pile shaft to be formed to the minimum design drill hole diameter. The casing shall be of the type and thickness that can be installed without distortion. Casings that fail, fracture, or otherwise distort during drilling or after drilling shall, unless otherwise directed, be withdrawn or replaced at the Contractor's expense. The drill hole must be open along its full length to at least the design minimum drill hole diameter prior to placing grout and reinforcement. The Contractor's proposed method(s) to provide drill hole support and to prevent detrimental ground movements shall be reviewed by the Engineer. Detrimental ground movement is defined as movement which requires remedial repair measures, in order to maintain site conditions as determined by the Engineer. Do not progress a new hole, pressure-grout, or post-grout, within a radius of 5 pile diameters or 5 feet, whichever is greater, of a micropile until the grout for that micropile has set 24 hours or longer. Do not allow vibration or excessive wheel loads to influence piles during installation and construction.

Use of drilling fluid containing bentonite or any other non-reverting drilling fluid is not permitted. Use of polymer slurry to remove cuttings from the cased hole shall be approved by the Engineer.

Piles shall be installed using equipment capable of penetrating boulders, cobbles, bedrock, dense till material, granite blocks, timber, concrete, or other man-placed materials that hinder the advance of the pile.

Use of drop-type impact hammers and blasting are not permitted. Prior to the use of down the hole air drilling methods the Contractor shall provide temporary fencing or barriers as necessary to prevent cuttings from leaving the work area and entering the adjacent traffic lanes.

Micropiles shall not be installed using auger cast methods.

Permanent casing must be installed in a manner which will not loosen the adjacent soils and will result in intimate contact between the casing and the soil. Driving of casing will not be allowed. Drilling shall be performed such that cuttings and/or wash fluid return through the inside of the casing. External flush will not be allowed. The method of drilling used shall prevent the loss of ground due to erosion, jetting, or blow-in at the bottom of the casing. No open-hole drilling will be allowed unless accepted by the Engineer.

ITEMS 945.1, 948.60 AND 948.61 (Continued)**D. Ground Heave or Subsidence**

During construction, the Contractor shall observe the ground conditions in the vicinity of the micropile construction site on a daily basis for signs of ground heave or subsidence. Immediately notify the Engineer if signs of movements are observed. The Contractor shall immediately suspend or modify drilling or grouting operations if ground heave or subsidence is observed, if the micropile structure is adversely affected, or if adjacent structures are damaged from the drilling or grouting. If the Engineer determines that the movements require corrective action, the Contractor shall take corrective actions necessary to stop the movement or perform repairs. When due to the Contractor's methods or operations or failure to follow the specified/accepted construction sequence, as determined by the Engineer, the costs of providing corrective actions will be borne by the Contractor.

E. Pipe Casing and Reinforcing Bars Placement and Splicing

Reinforcement shall be placed prior to grouting the drill hole. Reinforcement surface shall be free of deleterious substances such as soil, mud, grease, or oil that might contaminate the grout or coat the reinforcement and impair bond. Reinforcement in the bond zone [i.e. rock socket] shall extend the minimum required length.

The Contractor shall install all micropiles to the planned elevations.

Centralizers and spacers shall be provided at a maximum spacing of 10 feet on center. The upper- and lower-most centralizers shall be located a maximum of 5 feet from the top and bottom of the micropile, respectively. Centralizers and spacers shall permit the free flow of grout without misalignment of the reinforcing bar(s) and permanent casing. The reinforcing steel shall be inserted into the drill hole to the desired depth without difficulty. Partially inserted reinforcing bars shall not be driven or forced into the hole. The Contractor shall re-drill and reinsert reinforcing steel when necessary to facilitate insertion.

Lengths of casing and reinforcing bars to be spliced shall be secured in proper alignment and in a manner to avoid eccentricity or angle between the axes of the two lengths to be spliced. Splices and threaded joints shall meet the requirements of the Material section. Threaded pipe casing joints shall be located at least two casing outside diameters (O.D.) from a splice in any reinforcing bar. When multiple bars are used, bar splices shall be staggered at least 1 foot.

F. Grouting

Micropiles shall be grouted the same day the load transfer bond length is drilled, or the bond length shall be flushed prior to grouting procedures commence. The grouting equipment shall produce a grout free of lumps and undispersed cement. Admixtures, if used, shall be mixed in accordance with Manufacturer's recommendations. The Contractor shall have means and methods of measuring the grout quantity and pumping pressures during the grouting operations. The grout pump shall be a positive displacement pump equipped with a pressure gauge to monitor grout pressure. A second pressure gauge shall be placed at the point of injection into the pile top. The

ITEMS 945.1, 948.60 AND 948.61 (Continued)

pressure gauge shall be capable of measuring pressures of at least 145 psi or twice the actual grout pressure used, whichever is greater. The grout shall be kept in agitation prior to pumping. Grout shall be placed within one hour of mixing. The grouting equipment shall be sized to enable each pile to be grouted in one continuous operation. The grout volume being pumped shall be measured to an accuracy of 10 percent.

The hole shall be flushed with clean water immediately prior to grouting, to remove all contaminated water and cuttings. The hole shall be flushed through the grout pipe fully extended to the bottom of the hole with the temporary casing (if any) in place. The water shall be pumped at a high velocity until the wash water at the top of the casing is clear. After flushing, the depth of the hole shall be measured to confirm that the hole is clean and no sediment exists at the bottom of the drilled rock-socket/bond length. Installation of the steel reinforcing and grouting shall be done immediately after flushing. In case of delay, the hole shall be re-flushed and rechecked prior to grouting as directed by the Engineer.

The grout shall be injected from the lowest point of the drill hole, and injection shall continue until uncontaminated grout flows from the top of the pile. Temporary casing, if used, shall be extracted in stages ensuring that, after each length of casing is removed, the grout level is brought back up to the proposed level before the next length is removed. The use of compressed air to directly pressurize the fluid grout takes is not permissible. The tremie pipe or casing shall always extend below the level of the existing grout in the drill hole during grouting procedures. The grout takes shall be controlled to prevent excessive heave or fracturing of rock or soil formations. The entire micropile shall be grouted to the design cut-off level. Upon completion of grouting, the grout tube may remain in the hole, but must be filled with grout.

If the Contractor elects to use a post-grouting system, Working Drawings and relevant details including grouting pressure, volume, location and mix design, shall be submitted to the Engineer for review.

G. Construction Tolerance

Unless otherwise stated on the Plans, the following shall be the maximum construction tolerances for micropiles:

1. Centerline of piling shall not be more than 3 inches from indicated plan location.
2. Pile shall be plumb within 2 percent of total-length design plan alignment.
3. Battered piles inclined up to 1:6 shall be within 4 percent of design plan alignment.
4. Battered piles inclined greater than 1:6 shall be within 7 percent of design plan alignment.
5. Top elevation of pile shall be plus 1 inch or minus 2 inch maximum from vertical design elevation indicated.
6. Centerline of reinforcing steel shall not be more than 3/4 inches from indicated center of pile.
7. Minimum volume of grout placed shall be the 110% of the theoretical volume of the whole micropile length from bottom to top at time of grouting.

ITEMS 945.1, 948.60 AND 948.61 (Continued)**H. Micropile Installation Records**

The Contractor shall prepare and submit to the Engineer full-length installation records for each micropile installed. The records shall be submitted within one work shift after that pile installation is completed. The data shall be recorded on a micropile installation log. A separate log shall be provided for each micropile. The log for each micropile shall contain the following minimum information:

1. Project name, structure name, micropile number, and contract number.
2. Date and time of drilling, grouting, and completion.
3. Bottom elevation of the proposed footing and final top elevation of the micropile, to the nearest 0.1 feet.
4. Plumbness and deviation from design location and batter.
5. Micropile as-built information such as pile inclination, casing diameter and wall thickness, reinforcement size and length, casing length below bottom of footing, taped measurement inside casing to check cleanout, plunge length (cased bond length), bond length below casing, total pile length below and above bottom of footing, All dimensions shall be provided to the nearest 0.1 feet.
6. Drilling method, drill bit type and size, and drill operator's name.
7. Table showing the descriptions and approximate top and bottom elevation of each soil or rock layer encountered during pile drilling.
8. Grout mix, density, and quantity used, for initial grout and post-grout (if any) including cement type and admixtures.
9. Maximum and average grout pressure used during installation.
10. Damage (if any) to pile, description of any deviations from the design location and batter or from the approved pile design and installation procedures, and description of any unusual occurrences during drilling (including obstructions), installation, and grouting.

The example micropile installation log in the "Micropile Design and Construction Guidelines Manual," Report No. FHWA-NHI-05-039 or FHWA-SA-97-070 can be used as a reference in developing the micropile installation log.

The Contractor shall also submit within 2 weeks after installation of all piles, an as-built plan, certified by a surveyor, showing the as-installed location of all piles to the nearest ½ inch.

CONSTRUCTION QUALITY ASSURANCE**Contractor Quality Control**

The Contractor's QC personnel will perform Quality Control inspection, sampling, and testing to ensure that the processes are providing work conforming to the contract requirements. Inspection, sampling, and testing shall be documented on appropriate forms and provided to the Engineer. The Engineer will not sample or test for Quality Control or assist in controlling the Contractor's operations.

ITEMS 945.1, 948.60 AND 948.61 (Continued)**A. Testing**

1. Grout consistency: As measured by grout density shall be determined by the Contractor per API RP-13B-1 at a frequency of at least one test per pile, conducted just prior to start of pile grouting. The Baroid Mud Balance used in accordance with API RP-13B-1 is an approved device for determining the grout density of neat cement grout. The measured grout density shall be within $\pm 10\%$ of the density specified in the grout mix design submittal.
2. Compressive Strength: Grout within the micropiles shall be tested by the Contractor's Quality Control Inspector to ensure that it attains the minimum required compressive strength.

Micropile grout shall be sampled and cured in accordance with AASHTO R 64 (for 2 inch by 2 inch cubes) or T 23 (for 3 inch by 6 inch cylinders) and tested for compressive strength in accordance with AASHTO T 106 (for cubes) or T 22 (for cylinders). Grout samples shall be taken directly from the grout plant (on-site mixer and pump).

The QC Technician will take the following sets of grout samples for QC testing:

- i. Verification Test Piles – three (3) sets of three (3) cubes or cylinders for 3-, 7-, and 28-day strength testing.
- ii. Proof Test Piles – three (3) sets of three (3) cubes or cylinders for 3-, 7-, and 28-day strength testing.
- iii. Production Piles – one (1) set of three (3) cubes or cylinders for 28-day strength testing for every two (2) micropiles or one set from each grout plant on each day of operation; whichever occurs more frequently.

The Contractor shall provide grout cube compressive strength, grout density, can grout volume results to the Engineer within 24 hours of testing.

Table 3 – Grout Material Acceptance Criteria

Quality Characteristic	Test Method	Engineering Limit
Minimum Compressive Strength:	AASHTO T 106 or AASHTO T 22	
3 days		$\geq 2,000$ psi
7 days		For information only
28 days		$\geq 5,000$ psi
Consistency	API RP-13B-1	$\pm 10\%$ of the density specified in the mix design
Volume		$\geq$ Theoretical volume of hole

ITEMS 945.1, 948.60 AND 948.61 (Continued)

MassDOT Acceptance

The Engineer is responsible for performing all Acceptance activities and making the final Acceptance determination. The Engineer's Acceptance system will include monitoring the Contractor's QC activity, performing Acceptance inspection, and utilizing available sampling and testing data.

A. Inspection

The Engineer will perform Acceptance inspection of all work items to ensure that all materials and completed work are in conformance with the contract requirements.

B. Testing

MassDOT will determine whether it will test 2-inch cubes or 3-inch by 6-inch cylinders for its Acceptance testing. The Contractor will be required to provide to MassDOT a sufficient amount of approved 2-inch cube molds or 3-inch cylinders. If it is determined that MassDOT will test 3-inch cylinders then a correlation between the 2-inch cube results and the 3-inch cylinders shall be determined by MassDOT.

MassDOT will take the following sets of grout samples for Acceptance testing:

- i. Verification Test Piles – 3 sets of cubes or cylinders for 3-, 7-, and 28-day strength testing.
- ii. Proof Test Piles – three (3) sets of three (3) cubes or cylinders for 3-, 7-, and 28-day strength testing.
- iii. Production Piles – one (1) set of three (3) cubes or cylinders for 28-day strength testing for every two (2) micropiles or one set from each grout plant on each day of operation; whichever occurs more frequently.

Pile verification or proof load testing shall not be performed until MassDOT has confirmed the grout has reached the minimum 3-day design strength specified in Table 4.

Table 4 – Grout Material Acceptance Criteria

Quality Characteristic	Test Method	Engineering Limit
Minimum Compressive Strength:	AASHTO T 106 or AASHTO T 22	
3 days		≥ 2,000 psi
7 days		For information only
28 days		≥ 5,000 psi

ITEMS 945.1, 948.60 AND 948.61 (Continued)**MICROPILE LOAD TESTING****A. General**

The Contractor shall perform pre-production verification pile load testing on one sacrificial pile per bond zone bearing stratum. The number and location of the verification test(s) shall be as specified on the Plans. In general, the location of the verification test(s) shall be within 10 feet of the footprint of a substructure unit, but at least 5 feet from any production pile as selected by the Contractor and accepted by the Engineer.

Pile proof load testing shall be performed on actual production micropiles and shall be performed on one pile per substructure unit (west abutment, pier, and east abutment) or five percent of the total number of piles, whichever is greater, in conformance with the approved working drawings and testing procedures. The production proof test pile(s) shall be at a location selected by the Contractor and accepted by the Engineer.

The load tests shall conform to the requirements of ASTM D1143 (vertical compression load testing) or ASTM D3689 (vertical tension load testing) except as modified herein. The maximum test loads shall be 150% of the Factored Design Load (FDL) for the micropile verification test and 100% of the FDL for Micropile Proof Test. The Factored Design Load is defined as the Factored Axial Design Load (compression and/or tension) as shown on the Plans. The maximum test loads shall be as specified above but not more than 80% of the structural capacity of the micropile elements, to include steel yield in tension, steel yield or buckling in compression, or grout crushing in compression. The structural elements of the verification test micropile may be modified for testing the FDL of the micropile as accepted by the Engineer. The Alignment Load (AL) should not be more than 0.04 FDL.

Before starting the work, the Contractor shall submit to the Engineer for acceptance, a pile load test plan including a written description of the equipment and methods which are intended to be used. The methods must be of an accepted type and shall be altered as necessary to meet the acceptance of the Engineer. The pile load test plan and description shall be prepared and stamped by a professional engineer registered in the Commonwealth of Massachusetts.

Grout within the micropile verification test pile shall attain the minimum required 3-day compressive strength prior to load testing. The top elevation of the test pile shall be determined immediately before the load testing. The head of each micropile shall be cut-off level or capped to produce a level horizontal bearing surface.

The Contractor shall provide all personnel and equipment needed to perform the test, measure loads and movements, and record test data. A representative of the Department or the Engineer may observe and witness the test and record data independently. No testing is to be performed unless all the agreed representatives are present.

Testing equipment shall include dial gauges, dial gauge support, jack and pressure gauge, electronic load cell, and a reaction frame. The Contractor shall provide a description of test setup and jack, pressure gauge and load cell calibration curves in accordance with the submittals Section.

ITEMS 945.1, 948.60 AND 948.61 (Continued)

Design the testing reaction frame to be sufficiently rigid and of adequate dimensions such that excessive deformation of the testing equipment does not occur. Provide a reaction frame capable of safely supporting 125 percent of the maximum test load. Align the jack, bearing plates and stressing anchorage such that unloading and repositioning of the equipment will not be required during the test.

Apply and measure the test load with a hydraulic jack and pressure gauge. The pressure gauge shall be graduated in 100 psi increments or less. The jack pressure gauge shall have a pressure range not exceeding twice the anticipated maximum test pressure. The jack shall be positioned at the beginning of the test such that unloading and repositioning during the test will not be required.

Calibrate the test load jacking system including the hydraulic jack couplings, gas pump, pressure gauge, and hydraulic load cell prior to the test so that the load applied is controlled to within 3 percent of the total applied load. Submit calibration reports prior to the start of the pile load test. Monitor the creep test load hold during verification tests with both the pressure gauge and the electronic load cell. Use the load cell to accurately maintain a constant load hold during the creep test load hold increment of the verification test.

Readings of settlement and rebound shall be referred to a fixed benchmark and shall be made using at least three dial gauges (micrometer dial extensometers) graduated to 0.001 inches and located 120 degree intervals around the micropile. The gauges shall be mounted on a reference beam supported at each end by reliable supports located at least 10 feet from the center of the test pile and independent from the jack, pile, or reaction frame.

The dial gauges shall have a travel sufficient to allow the test to be done without having to reset the gauges. Visually align the gauges to be parallel with the axis of the micropile. Readings shall be taken at intervals specified in the Verification Test and Proof Test section.

The Contractor shall establish a survey reference point on the test pile and another reference point at the center of the reference beam. The reference points shall consist of graduated scales machine-divided into 0.02 inch and attached securely to the pile and reference beam. The reference points shall be monitored using survey equipment during the pile load test.

Protect the settlement measuring system against rain, wind, frost, and any other disturbances that could affect the reliability of the settlement observations. Provide sun shading for the measuring system for the duration of the test and for a minimum of 1 hour prior to the start of the test.

B. Micropile Verification Test

The Contractor shall perform pre-production verification pile load testing on sacrificial piles at a location selected by the Contractor and accepted by the Engineer. The location of the verification tests shall be within 10 feet of footprint of a substructure unit but at least 5 feet away from any production pile. Testing shall be performed in compression or tension in accordance with ASTM D1143 or ASTM D3689, respectively, except as modified herein.

ITEMS 945.1, 948.60 AND 948.61 (Continued)

Verification load tests shall be performed to verify that the Contractor installed micropiles will meet the required FDL and load test acceptance criteria and to verify that the length of the micropile bond zone is adequate. The drilling-and-grouting method and casing outside diameter shall be identical to those specified for the production piles as indicated on the Plans.

Verification test piles shall be installed at the location accepted by the Engineer. The steel core may need to have a higher strength or a larger diameter than for the production piles to accommodate the test load.

Verification test piles shall include at least two, ¾-inch diameter PVC Schedule 40 pipes cast into the test pile to allow telltales to be installed for load testing. The pipes shall be securely fastened in straight alignment to prevent displacement during grouting. The pipes shall be sealed at the bottom with threaded steel caps and at the top with threaded PVC plugs. The pipes shall extend within one foot of the top and bottom of the bearing stratum (i.e. unbonded zone of the pile) at the test pile location. Strain gages may be substituted for telltales.

The micropile verification load test results must verify the micropile design and installation methods, and be reviewed and accepted by the Engineer prior to beginning installation of production micropiles. The verification test pile and reaction piles shall not be used as production piles.

Test verification pile to a maximum Test Load of 150% of the Factored Design Load (FDL) defined above, as indicated on the Plans. The verification pile load test shall be made by incrementally loading the micropile in accordance with the following cyclic load schedule:

Step	Loading	Applied Load	Hold Time (min.)
1	Cycle 1	AL	-
		0.075 FDL	4
		0.15 FDL	4
		0.225 FDL	4
		0.30 FDL	4
		0.375 FDL	4
2	Cycle 2	AL	1
		0.15 FDL	1
		0.30 FDL	1
		0.375 FDL	1
		0.45 FDL	4
		0.525 FDL	4
		0.60 FDL	4
		0.675 FDL	4
		0.75 FDL	4

ITEMS 945.1, 948.60 AND 948.61 (Continued)

3	Cycle 3	AL	1
		0.30 FDL	1
		0.60 FDL	1
		0.675 FDL	1
		0.75 FDL	1
		0.875 FDL	4
		0.90 FDL	4
		0.975 FDL	10 or 60 (Creep Test)
4	Cycle 4	AL	1
		0.30 FDL	1
		0.60 FDL	1
		0.90 FDL	1
		0.975 FDL	1
		1.05 FDL	4
		1.125 FDL	4
		1.20 FDL	4
		1.275 FDL	4
		1.35 FDL	4
		1.425 FDL	4
		1.50 FDL	4
		1.20 FDL	4
		0.90 FDL	4
		0.60 FDL	4
		0.30 FDL	4
		AL	15

Creep Test: Pile top movement shall be measured at each load increment. The load-hold period shall start as soon as each test load increment is applied. The verification test pile shall be monitored for creep at the 0.975 FDL. Depending on performance, either a 10 minute or 60 minute creep test shall be performed at the 0.975 FDL test load where movements shall be recorded at 1, 2, 3, 5, 6, and 10 minutes. When the pile top movement between 1 and 10 minutes exceeds 0.04 inches, the 0.975 FDL test load shall be maintained an additional 50 minutes. Movements shall be recorded at 20, 30, 50, and 60 minutes. Dial gauges shall be reset to zero after the initial AL is applied.

ITEMS 945.1, 948.60 AND 948.61 (Continued)

The Acceptance criteria for micropile verification load tests are:

1. If the pile is tested in compression, acceptance will be based on the Davisson criteria. For this criterion, the ultimate load is defined as the load at which settlement measured relative to the top of the pile prior to the start of testing exceeds the sum of:
 - I. The theoretical elastic compression of the pile assuming the load applied at the top of the pile act over the full length of the pile, and
 - II. 0.15 inches plus 1 percent of the pile tip diameter.
2. If the pile is tested in tension, the ultimate load is defined as the load that produces an upward movement under load of 0.5 inch at the pile tip. The movement at the pile tip is:
 - I. Measured directly by tell-tale, or
 - II. Computed by deducting the theoretical elastic elongation of the pile from the upward movement measured relative to the top of the pile prior to the start of testing.
3. At the end of the 0.975 FDL increment, the test pile shall have a creep rate not exceeding 0.04 inch/log cycle time (1 to 10 minutes) or 0.08 inch/log cycle time (6 to 60 minutes or the last log cycle if held longer). The creep rate shall be linear or decreasing throughout the creep load hold period.
4. Failure does not occur at any load increment up to and including the maximum test load, 1.50 FDL. Failure is defined as load where the slope of the load versus head settlement curve first exceeds 0.025 in/kip.

At the completion of verification testing, test piles shall be removed down to the elevation specified on the plans or by the Engineer.

For the verification load tests, reports must be written and submitted to the Engineer within 3 working days of the load test completion. This report will either confirm the micropiles' resistance and bond lengths specified on the plans or reject the piles based upon the test results. This report shall be reviewed and acceptance by the Engineer prior to beginning installation of production micropiles. The contents of the verification load test report shall include:

1. Brief project description.
2. Description of site and subsurface conditions including information on the ground conditions at the location of the load test and a comparison to actual conditions encountered.
3. Key personnel including the drill rig operator, the superintendent, the grout plant operator, and any other personnel involved in the installation and testing of the micropile.
4. Micropile installation data including information such as length of the micropile (cased and uncased), number of bags of cement used to construct the micropile, size and type of casing and reinforcement, geology encountered (e.g. soil material, rock material, and water levels) during drilling, grouting record and grout testing results.
5. Results of load test including load-movement curves/figures and filled-out data sheets.
6. Statement of load test requirements and acceptance criteria.
7. Comparison of load test requirements and acceptance criteria.
8. Summary statement on the load test results.

ITEMS 945.1, 948.60 AND 948.61 (Continued)

If a tested micropile fails to meet the Acceptance criteria, the Contractor shall modify the design, the construction procedure, or both. These modifications may include but not limited to modifying the installation methods, increasing the bond length, regrouting the pile via preplaced grout tubes or changing the micropile type. Any modification that necessitates changes to the structure design shall be submitted as a revision to the Working Drawings and require the Engineer's review and acceptance. Additional load testing may be required until an acceptable pile load test meets the designated load test requirements.

C. Micropile Proof Test

Proof test piles to a maximum test load of 1.00 FDL as defined above. Proof tests shall be made by incrementally loading the micropile in accordance with the following cyclic load schedule:

Step	Loading	Applied Load	Hold Time (min.)
1	Cycle 1	AL	-
		0.10 FDL	4
		0.20 FDL	4
		0.30 FDL	4
		0.40 FDL	4
		0.50 FDL	4
		0.60 FDL	4
		0.70 FDL	4
		0.80 FDL	4
		0.90 FDL	4
		1.00 FDL	10 or 60 (Creep Test)
		0.75 FDL	4
		0.50 FDL	4
		0.25 FDL	4
		AL	4

Creep Test: Pile top movement shall be measured at each load increment. The load-hold period shall start as soon as each test load increment is applied. The proof test pile shall be monitored for creep at the 1.00 FDL. Depending on performance, either a 10 minute or 60 minute creep test shall be performed at the 1.00 FDL test load where movements shall be recorded at 1, 2, 3, 5, 6, and 10 minutes. When the pile top movement between 1 and 10 minutes exceeds 0.04 inches, the 1.00 FDL test load shall be maintained an additional 50 minutes. Movements shall be recorded at 20, 30, 50, and 60 minutes. Dial gauges shall be reset to zero after the initial AL is applied.

ITEMS 945.1, 948.60 AND 948.61 (Continued)

The Acceptance criteria for Micropile Proof Load Test are the same as those for the Micropile Verification Load Test, except as modified below:

1. The creep test shall be held at the end of the 1.00 FDL increment.
2. Failure does not occur at any load increment up to and including the maximum test load, 1.00 FDL

Within 3 days of the completion of each proof load, the Contractor shall submit a report confirming the micropiles' capacities and bond lengths specified on the plans or reject the piles based upon the test results. The contents of the proof load test report shall be the same as those in the report for the Micropile Verification Load Test.

If a proof-tested micropile fails to meet the Acceptance criteria, the Contractor shall immediately proof test another micropile within that substructure. For failed piles and further construction of other piles, the Contractor shall modify the construction procedure. Failed micropiles shall be replaced at the Contractor's expense. Any modification that necessitates changes to the structure design shall require the Engineer's prior review and acceptance. Verification and proof tests will be re-performed if the micropile type is changed.

NON-CONFORMING PILES

Non-conforming piles include piles that are installed out of tolerance, are damaged, the volume of grout placed is less than the theoretical volume of the hole, or the grout tests do not indicate the specified strength has been achieved. The Contractor shall submit a written remedial action plan to the Engineer for approval. The remedial action plan shall indicate how to correct the problem and prevent its reoccurrence. To mitigate or remediate non-conforming piles, the Contractor may be required to provide additional piles or supplement piles to meet specified requirements at no additional cost to the Owner.

METHOD OF MEASUREMENT

Item 945.1 will be measured for payment by the foot of drilled micropile complete in place and accepted.

Items 948.60 and 948.61 will be measured for payment per Each completed and accepted Micropile Verification Load Test and Micropile Proof Load Test.

ITEMS 945.1, 948.60 AND 948.61 (Continued)**BASIS OF PAYMENT**

Item 945.1 will be paid at the contract unit bid price per Foot, which price shall include all materials, labor, equipment, proper disposal of drilling spoil, and incidental costs to complete the work. There will be no separate measurement for mobilization and demobilization associated with this item. Any difference in the required length of permanent casing and micropile installed and accepted by the Engineer from the estimated lengths shall be measured for payment and/or credit. There will be no payment for differences in required length of temporary casing. The Micropile Contractor is also responsible for estimating the grout take. There will be no extra payment for grout overruns.

The Contractor shall anticipate encountering obstructions as noted herein and shall utilize equipment and methods necessary to advance through or remove the obstructions. The presence of obstructions, any lost production, replacement piles, and the removal of obstructions, if necessary, shall not be measured or paid for separately. Any costs associated with the presence of obstructions shall be considered incidental to the Drilled Micropiles Item.

Drilling tools that are lost during the drilling shall not be considered obstructions and shall be promptly removed by the Contractor without compensation. If removal will degrade the hole, the hole shall be abandoned with a new hole located by the Engineer. All costs due to lost tool removal, drilling a new hole and filling the abandoned hole shall be borne by the Contractor.

Items 948.60 and 948.61 will be paid at the respective contract unit bid price per Each which respective price shall include all design, materials, labor, equipment, load test report, and incidental costs required to complete the work including the installation and materials of the test pile and reaction piles, if used. This payment shall also include full compensation for cutting the pile to the elevation necessary to properly incorporate the pile in the structure. If a pile is not to be incorporated in the structure, this payment item includes cutting the pile to the grade necessary to avoid its interference with the proposed construction.

Payment for Micropile Verification Load Tests shall also include full compensation for installing the test pile. Micropiles installed as test piles for Proof Load Tests, if incorporated in the final structures, the length of pile installed in place shall be paid for at contract unit bid price of Drilled Micropiles.

ITEM 950.1
ITEM 950.51**TEMPORARY SHORING**
TEMPORARY EARTH SUPPORT SYSTEM
BRIDGE NO. W-38-029**LUMP SUM**
LUMP SUM

The work under these items shall conform to the relevant provisions of Subsections 140 and 950 of Standard Specifications and the following:

The Contractor shall furnish, install, maintain, and remove temporary shoring for the existing pier cap as shown in the Plans to accommodate staged construction, and all associated other work to be used in the temporary supporting the existing pier cap. The temporary shoring shall be designed and constructed as required to allow the safe use of the existing structures to be maintained, and construction of proposed structures.

The Contractor shall furnish, install, maintain, relocate if necessary, and remove or cut-off a temporary earth support system and all associated other work to be used in the demolition and construction of the abutments, wingwalls and pier. The temporary earth support system shall be designed and constructed as required to allow the safe removal of existing structures, and construction of proposed structures and shall prevent damage to, or undermining of, the sides of excavations, roadways, driveways, and portions of existing structures to remain and/or be maintained.

The temporary earth support system shall either consist of sheet piling, soldier pile and lagging, or any other system, which is approved by the Engineer. The approximate layout of the temporary earth support system is shown on the Plans. Steel sheeting shall conform to ASTM A328. Foreign source of supply may be submitted for approval if sufficient documentation is provided demonstrating that domestic material is unavailable and that ASTM A328 compatibility is achieved.

The Contractor shall make his/her own evaluation of existing site conditions and facilities, and shall design and construct the proposed temporary earth support system at both abutments and pier, as well as the temporary shoring at the pier, to be compatible with the Contractor's means and methods of construction including Bridge Demolition, Bridge Excavation and Bridge Construction.

The design of the temporary shoring and temporary earth support system shall conform to industry standards and all OSHA requirements. The Contractor shall determine the final location and design of the temporary shoring and temporary earth support system to provide necessary clearance for demolition and construction. The temporary shoring and temporary earth support system at locations on the plans shall be fully designed by the Contractor to carry all applicable AASHTO loads. It shall be designed in accordance with the AASHTO Guide Design Specifications for Bridge Temporary Works, 2nd Edition 2017, and all interims published as of the bid opening date. The support system shall be designed to prevent damage resulting from loss of ground and lateral movement and settlement of the ground and ground surface behind the wall.

ITEMS 950.1 AND 950.51 (Continued)

The Contractor is responsible for determining all geotechnical criteria associated with the temporary shoring and temporary earth support system including, but not limited to, lateral earth pressures, live load surcharge, surcharge due to construction equipment operation, surcharge due to temporary traffic barriers, and/or surcharge due to material storage near the top of excavation. Maximum design stresses in steel members shall not exceed 125% of the allowable basic stresses specified in the current specifications of the American Institute of Steel Construction. The design shall provide for all anticipated load conditions that may occur during the entire construction period. The minimum factor of safety for each of the design conditions shall be 1.50.

The temporary shoring and temporary earth support system must be designed and stamped by a Professional Engineer registered in the Commonwealth of Massachusetts. Complete detailed drawings and calculations shall be submitted to the Engineer for approval. Written approval must be obtained prior to installation of temporary earth support system. Furnishing such plans and calculations shall not relieve the Contractor of sole responsibility for safety of the public, personnel, equipment, and structures, as well as successful completion of the project.

The temporary earth support system to be used at the pier location that protrudes into the soil that supports the bridge structure shall be left in place and cut off at the top of shaft cap elevation as shown on the plans.

BASIS OF PAYMENT

Item 950.1 “Temporary Shoring Bridge No. W-38-029” and Item 950.51 “Temporary Earth Support System Bridge No. W-38-029” will be paid at the respective Contract Lump Sum Bid Price, which price shall include full compensation for all the Contractor’s design and plans, all material, labor, tools, equipment, and all incidental costs required to complete the work.

Partial payment will be made upon the following percentages: 60% upon complete installation and 40% upon complete removal and acceptance of the completed project by the Engineer.

ITEM 960.904**MISCELLANEOUS STEEL REPAIRS****POUND**

The work under this item shall conform to the relevant provisions of Subsections 960 and 961 of the Standard Specifications, and the following:

The work shall consist of performing repairs to steel elements at various locations throughout the bridge, as directed by the Engineer. Locations and limits of the repairs shall be identified by the Engineer, as the work progresses. This item will not apply to areas on the bridge for which bid items have been provided for elsewhere in the Contract. Location of repairs, limits of repairs, and identifying details of repair type will be determined by the Engineer.

This work shall include, but is not limited to, the removal of existing fasteners, surface preparation, fabrication and installation of structural steel shapes and plates, new bolts, grinding, cutting, drilling, bolting, welding, cleaning and painting, and any other work that may be necessary to complete the repairs as directed by the Engineer.

These repairs shall be coordinated with all other repair items to be performed, including emergency concrete deck repairs, and coordinated with Item 748.1 Emergency Response to facilitate access to the repair area.

Submittals

Prior to the commencement of work, the Contractor shall submit a detailed sequence of construction, shop drawings and materials to be used to complete the repair work, for approval by the Engineer. The sequence of construction shall include details for the tightening of bolts. Traffic shall be diverted from the area above the repair location such that no vehicular traffic or other live load shall travel within the designated work area for the duration of the final tightening of the bolts that connect the new structural elements to the existing members.

Materials

All structural steel required to complete the repairs shall be new and shall conform to AASHTO M270 Grade 50.

All bolts shall be high strength bolts meeting the requirements of ASTM F3125, Standard Specification for High Strength Structural Bolts, Steel, and Alloy Steel unless otherwise noted. Bolts shall be 7/8" diameter, unless otherwise noted. Standard holes are 1/16" larger than the diameter of 5/8" to 1" diameter bolts. Connections shall be slip critical (Class B) contact surface connections unless otherwise noted, in accordance with AASHTO 10.32.3. Nuts shall conform to ASTM A563, Standard Specification for Carbon and Alloy Steel Nuts. Washers shall conform to ASTM F436, Standard Specification for Hardened Steel Washers.

Construction Methods

The installation of the new structural steel elements shall be accomplished such that the structural integrity of the existing structure shall be maintained at all times.

ITEM 960.904 (Continued)

The Contractor shall field verify all dimensions necessary to ensure the accurate detailing and fabrication of the new materials to be provided under these items. Where new steel elements must be drilled to match existing holes, the Contractor shall template and/or drill in place as may be required to obtain proper fit.

The Contractor shall note that certain repair locations may have obstacles that are in conflict with the work that is to be performed. Work required to move, remove, or replace any obstacles interfering with the steel repair work, shall be performed with no additional compensation, and shall be deemed incidental to the unit price bid for these items.

Any required welding procedures for these repairs shall be submitted to MassDOT Metals Control for approval prior to performing any repairs and shall include a procedure for testing the weldability of the existing steel at the repair locations, in accordance with AASHTO/AWS D1.5.

The Contractor shall provide the Engineer and Welding Inspector safe access and support to all parts of the structure(s) for interim and final inspections of the repairs during welding operations. This support shall include the necessary traffic controls and lighting as required. The traffic controls shall be paid for under their respective items, and any required lighting shall be considered incidental to this item.

Whenever any demolition or removal work is to be performed, a suitable protective cover and/or shielding shall be provided by the Contractor to prevent any materials, equipment, tools, welding, sparks, debris (liquid or solid) or other material from falling into areas below the work zones in use by the public or the Department. Where necessary to protect the public and/or the Department employees against spattering or blowing debris, paint, grit or dust or other loose material created by the work, the Contractor shall erect vertical shields or screens, as may be required to completely enclose the work area.

Cutting existing steel shall be performed with care to avoid damaging or notching any of the material to remain. In the event the Contractor damages materials to remain during cutting operations, the Contractor shall replace, repair, or reinforce the damaged area as may be required to restore the area to existing conditions prior to damage. The work shall be performed by the Contractor, and as ordered by the Engineer, at no additional cost to The Department.

Cutting may be achieved by the carbon air arc cutting method or by grinding. Flame cutting shall not be allowed. Carbon air arc cutting shall be done in a manner not to create excessive heat in the steel to remain. The Contractor shall use temp-stik or equal temperature indicating crayon for 275°F and 300°F to monitor the temperature on the steel. These crayons shall be marked on the surface of the steel one (1) inch from the area being cut as ordered by the Engineer.

Cutting shall be discontinued temporarily, to allow cooling, when the temperature in the base steel exceeds 275°F. If the temperature exceeds 300°F in the base steel, then carbon air arc cutting at that particular location shall be stopped permanently and other methods such as grinding shall be employed to cut within the same temperature restrictions.

Existing surfaces in the work area shall be cleaned and prepared in accordance with the procedures detailed in SSPC-SP11 prior to performing repairs.

ITEM 960.904 (Continued)

Surface cleaning for repairs shall extend beyond the repair area by a minimum of 1 foot in all directions, as is practical. If it is determined, after cleaning, that the limits of repair need to be increased beyond the limits originally determined, the limits may be extended at the discretion of the Engineer. The work of cleaning for repairs shall be considered incidental to this Item. The Contractor shall coordinate the limits and sequence of cleaning associated with the repair areas with the other repair work to be performed on the project.

METHOD OF MEASUREMENT

Item 960.904 will be measured for payment by the Pound of new steel actually installed, complete in place, and accepted by the Engineer in accordance with the following:

1. Unit weight of steel is 490 pounds per cubic foot.
2. The weight of all structural shapes is calculated using the normal weight per foot multiplied by the detailed overall length.
3. The weight of plates and bars is calculated using the detailed overall rectangular dimensions.
4. When parts are cut from structural steel shapes leaving a nonstandard cross section not usable on this contract, the weight is calculated on the basis of the nominal unit weight per foot of the smallest standard section from which the parts can be cut multiplied by the detailed overall length.
5. No deductions are to be made for material removed by cuts, copes, clips, blocks, drilling, punching, boring, slot milling, planning, or weld joint preparation.
6. The weight of shop and field bolts, nuts and washers is considered incidental to the steel and is not included in the calculated weight for payment purposes.

BASIS OF PAYMENT

Item 960.904 will be paid for at the Contract unit bid price per Pound, which price shall include full compensation for all materials, transportation, tools, equipment, labor, and incidental costs necessary to complete the work.

ITEM 994.01**TEMPORARY PROTECTIVE SHIELDING**
BRIDGE NO. W-38-029**LUMP SUM**

The work under this Item shall consist of designing, furnishing, installing, maintaining, removing and disposing of a temporary protective shielding system. The shielding shall protect the surrounding areas, including all personnel, vehicles and/or pedestrians below the bridge, from falling or flying debris during demolition and construction operations. The shielding shall prevent any debris, tools or incidental items from falling onto areas where vehicular or pedestrian traffic exist. The shielding shall also serve as a work platform for the personnel performing the demolition and construction operations, as well as any equipment required.

The shielding shall conform to the following:

1. Shielding shall be in place prior to the start of any demolition or removal to protect any debris from falling onto areas where vehicular or pedestrian traffic exists, and to aid in the construction procedures on the bridge.
2. Shielding shall extend the full length of the bridge and a sufficient distance above and beyond the deck overhang at the fascia.
3. Shielding shall function as a containment system during construction. All spaces along the perimeter and at the seams shall be sealed to prevent dust and debris from escaping and falling below the bridge. Containment measures shall conform to Subsection 961.67 of the Standard Specifications.
4. Shielding shall be designed to safely withstand all loads that it will be subjected to. The allowable design stresses shall be in accordance with AASHTO Standard Specifications for Highway Bridges. The design of the shielding for deck removal shall also include a complete description of the equipment and construction methods proposed for the superstructure removal and also the maximum superstructure segment being removed in one section. The shielding shall also be designed to withstand impact of the maximum segment or member should it fall inadvertently during demolition or removal.
5. The shielding shall be positively attached to the structure such that it cannot be dislodged or shifted during construction. The attachment methods shall be designed for all intended and errant loads anticipated by the Contractor based on the Contractor's means and methods of construction and shall be included in the design submittal.
6. The shielding shall not reduce the minimum vertical clearance over the active travel lanes of I-93 in Spans 2 and 3 of the structure.
7. Shielding shall be installed and removed only upon approval of the Engineer.

Prior to the start of demolition, the Contractor shall be required to submit the details of the temporary shielding to the Engineer for review and approval. The plans will be reviewed as to the methods of erection and as to whether or not the proposed installation will provide the required level of protection. It is the Contractor's responsibility to design the protective shielding to conform to all Federal, State and Local laws and regulations and the requirements contained in the Contract Documents. The protective shielding shall be designed by a Professional Engineer registered in the Commonwealth of Massachusetts. The drawings and calculations shall bear his/her seal when they are submitted to the Engineer.

ITEM 994.01 (Continued)

The Contractor may utilize the bottom flanges of the existing steel beams and of the proposed steel beams as supports for the temporary protective shielding where feasible. However, the Contractor will not be permitted to weld onto, drill into, or cut any existing or proposed structural members without receiving prior approval of the Engineer.

After completion, the shielding shall be removed and disposed of properly. All materials used in the shielding system shall become the property of the Contractor and shall be completely removed from the site at the completion of the project.

Basis of Payment

Item 994.01 “Temporary Protective Shielding Bridge No. W-38-029” will be paid at the Contract LUMP SUM Bid Price, which price shall include full compensation for the design of the shielding scheme, all equipment, materials, tools and labor necessary for the installation, maintenance, operation, removal and disposal of the protective shielding.

Payment of 50% of the Lump Sum Bid Price for this Item will be paid upon complete installation and removal of Stage 1 limits. The remaining 50% shall be paid upon complete installation and removal of Stage 2 limits. Payment for each stage shall be further broken down as follows: Payment of 75% will be paid upon complete installation and approval by the Engineer, and the remaining 25% will be paid following complete removal and disposal of the shielding.

ITEM 995.01**BRIDGE STRUCTURE, BRIDGE NO. W-38-029****LUMP SUM**

The work under this Item shall conform to the relevant provisions of Subsection 995 of the Standard Specifications and the specific requirements stipulated below for the component parts of this Item. For those component parts where no specific requirement is stipulated, the Standard Specifications shall apply except for payment.

Work under this Item shall include all materials, equipment and labor needed to construct the following:

- Metalized and painted structural steel plate girders
- Galvanized steel cross-frames and utility supports
- Cast-in-place concrete deck slab, sidewalks, CP-MTL3 barriers
- Membrane waterproofing for bridge deck
- Laminated elastomeric bearing pads
- Strip seal bridge joint system
- Type II protective screens and aluminum handrail
- Cast-in-place concrete abutment backwalls, stems and pile cap
- Cast-in-place concrete wingwall stems and pile cap
- Cast-in-place concrete pier cap, columns and pile cap
- Cast-in-place approach slabs
- Steel reinforcement
- Precast concrete highway guardrail transitions and bases

The work does not include any items listed separately in the proposal. Payment for materials shown on the Plans as being part of this bridge structure or which may be incidental to its construction and are not specifically included for payment under another Item shall be considered incidental to the work performed under this Item and shall be included in the unit price of the component for which they are a part.

All concrete shall be placed in the dry.

All concrete shall be 5000 HP CONCRETE.

Included in the work are the furnishing and installing of preformed fillers and other items incidental to the furnishing and placing of concrete. All other work covered in the Schedule of Basis for Partial Payments or for which payment is not provided elsewhere in the contract shall be considered as included in the unit price per cubic yard of concrete, as stated by the Contractor and approved by the Engineer, in the respective "Basis for Partial Payment".

ITEM 995.01 (Continued)**SHEAR CONNECTORS**

The work under this heading shall conform to the applicable provisions of Subsections 901 and 960 of the Standard Specifications and the material requirements outlined in the following sections: Stud Shear Connectors shall meet the requirements in Section M8.04.1, and as shown on the Contract Plans.

THERMAL SPRAYED COATING (METALIZING) SHOP APPLIED**PURPOSE**

This heading provides the requirements for shop performed surface preparation; the application of a thermal spray coating (TSC/metalizing); the application of a coating system; and includes field application of coatings and repairs and touch up of all coatings after site erection of the coated structure.

GENERAL INFORMATION

1. All fabrication shall be completed prior to the application of a thermal sprayed coating. (TSC)
2. All surfaces to be coated shall be cleaned in accordance with SSPC SP-5.
3. All TSC shall be sealed with an approved sealer, except for faying surfaces.
4. After site erection of the structure, perform field touch-up of any damaged coating.
5. All fasteners shall be galvanized and coated with the intermediate and topcoat if applicable.
6. The products of only one thermal spray wire manufacturer and one coating manufacturer shall be used on the entire project.
7. All field painting shall be in accordance with applicable sections of Item 961 of the MassDOT Standards and Specifications.

MATERIALS**Abrasives**

Provide abrasives that are clean, dry, and sized properly to provide the specified surface profile. The profile shall be dense, uniform and of sufficient angularity to be acceptable for the application of TSC.

Abrasives shall conform to the following as applicable:

- SSPC-AB 1 for mineral slag abrasives
- SSPC-AB 2 for recycled ferrous metal abrasives
- SSPC-AB 3 for new steel abrasives

Thermal Spray Feedstock

The contractor shall provide material certificates from the supplier that includes the chemical composition and lot number of the wire. MassDOT will perform random sampling of wire from lots provided. Wire shall conform to ASTM A833. See table below for application and selection of wire type, thickness, and coating system.

ITEM 995.01 (Continued)

Environmental Zone **3** shall be used for this project.

ENVIRONMENTAL ZONE*	WIRE TYPE	THICKNESS (mils)**	COATING SYSTEM***
1	Zinc-Aluminum	6-9	Three Coat
	Zinc-Aluminum	6-9	Sealer Only
2	Zinc- Aluminum	8-12	Three Coat
	Zinc-Aluminum	8-12	Sealer Only
3	Zinc Aluminum	10-14	Three Coat
	Zinc Aluminum	10-14	Sealer Only

***Zone 1** – Bridges in rural environments, not over waterways, and not over high speed state or interstate highways with potential for salt spray and heavy salt use and de-icing chemical use.

***Zone 2** – Bridges in urban environments, near industrial and manufacturing plants, power plants, or warehouses, over heavy road traffic, or over waterways.

***Zone 3** – Bridges in marine environments, over or close to saltwater waterways, or over high speed state or interstate highways with potential for salt spray and heavy salt use and de-icing chemical use.

** Mil thickness on faying surfaces shall meet the requirements of the slip certificate.

*** Coating systems shall consist of a three coat paint system applied over the metalized surface or a clear sealer applied over the metalized surface.

SUBMITTALS

Submit the following information to the MassDOT - Highway for approval a minimum of thirty days prior to beginning any coating operations:

- A. Manufacturer's recommendation and field history for the coating system proposed. Include data sheets for all selected coatings to be applied.
- B. Procedures for shop surface preparation, the application of the TSC and application of coatings.
- C. Procedures for coating of field connections.
- D. Procedures for field touch-up surface preparation, application of TSC and application of coating.
- E. Proposed abrasive for use in the shop.
- F. Proposed thermal spray wire to be used and product data sheets. Provide certification of Class B slip coefficient.
- G. A copy of SSPC-QP3/AISC (SPE) certification. This certification must be in effect at the time of bid and must remain in effect throughout the duration of the project.
- H. Quality Systems Manual
- I. Work schedule. Contractor must notify the Engineer a minimum of seven days prior to starting work.

ITEM 995.01 (Continued)**QUALITY CONTROL**

- A. The shop performing the application of TSC and coating shall be certified by the American Institute of Steel Construction (AISC) Sophisticated Paint Endorsement (SPE) quality program, or under the Society for Protective Coatings (SSPC) QP3 program, “Standard Procedure for Evaluating Qualification of Shop Painting Applicators” and shall maintain certification throughout the project.
 1. The coating applicator shall have completed a minimum of three structural steel TSC projects that utilized the same coating system as that being specified on this project. Provide project locations, TSC/painting; name, e-mail address, and the telephone number of the owner or owner’s representative.
- B. Provide an on-site Quality Control Specialist (QCS) who shall function as a TSC inspector with a minimum of five years of each TSC and coating application experience; and possess SSPC BCI Level 1 or NACE Certified Level 3 or other related certification as accepted by the MassDOT - Highway. The QCS shall not be a foreman or a member of the Contractor’s production staff. The QCS’s sole purpose shall be quality control testing, inspection and reporting.

PRE-APPLICATION MEETING

A pre-application meeting will be held prior to any steel fabrication that includes the application of thermal spray applied coatings. This meeting is separate from the pre-construction meeting for the entire project.

The following parties are required to attend this meeting: TSC/applicator, QCS, and MassDOT – Highway Representatives. Other project personnel should attend as may be needed.

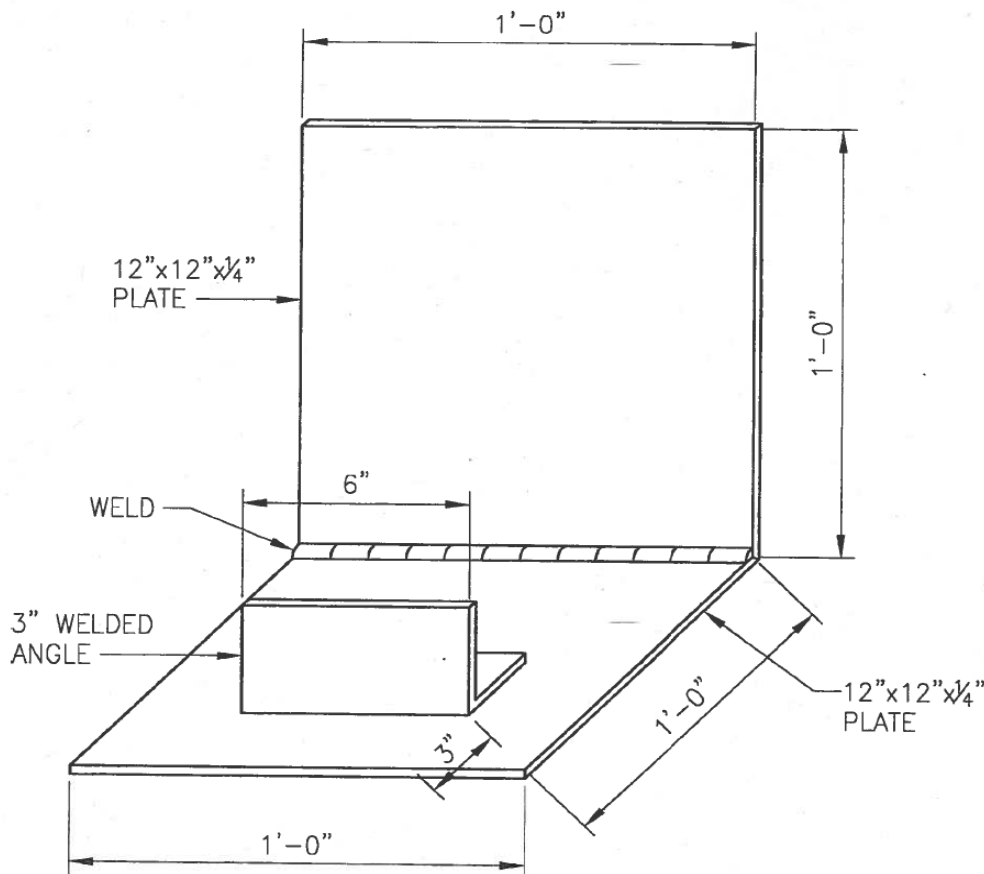
PERSONNEL QUALIFICATION

The applicators of the thermally applied material shall be individually qualified to apply the TSC as follows:

1. Each applicator must complete a practical test designed to demonstrate the ability to set up and operate the equipment to apply the material to the specified thicknesses to a minimum of 10 square feet of representative steel surfaces, and to successfully pass the surface preparation, bend, and cut tests specified herein. Administer the qualification testing, document the results in writing, and retain the bend test coupons for the duration of the project.
2. At the discretion of MassDOT - Highway, requalify the applicators at any time during the project to reconfirm the proficiency and the quality of the workmanship being provided. This may be required at any time due to unacceptable or failing results of the bend test, cut test, or poor workmanship.

ITEM 995.01 (Continued)**SHOP QUALIFICATIONS**

Prior to proceeding with the production blast cleaning operations prepare a minimum of five Job Reference Standards (JRS) test plates. Blast clean all surfaces of each test plate using the same equipment and abrasive that will be used for the production work. After acceptance of the surface cleanliness and profile, apply the TSC to all surfaces of each test plate. After acceptance of the TSC apply the sealer to be used with the three coat system to three test plates excluding the bottom surface of all test plates. After curing apply a coat of epoxy to two of the three test plates excluding the bottom surface. After curing apply a coat of the polyurethane topcoat to one test plates on all surfaces excluding the bottom surface. Apply the clear sealer to the last remaining TSC plate. Bottom surfaces of the prepared plates shall be used for cut testing as specified. Surface preparation and application shall be witnessed by a MassDOT representative. *See drawing below for dimensions and construction.*

**Configuration of JRS Test Plates**

ITEM 995.01 (Continued)**SURFACE PREPARATION**

For cleaning that utilizes compressed air, utilize only clean, dry air. Conduct blotter test(s) in accordance with ASTM D4285 a minimum of one time each shift for each compressor system in use to verify that the air supply is free of moisture and oil contamination. Conduct the tests in the presence of the MassDOT – Highway Representative.

Weld Spatter, Sharp Edges, Flame-Cut Steel, Holes, Fins, and Silvers

Remove slag, flux deposits, fins, slivers, burrs, and weld spatter from the steel. Grind any sharp edges around holes. Break all flame-cut and sheared edges. If blast profile is degraded by grinding restore profile by abrasive blasting.

Solvent Cleaning

Where oil and grease are present on the bare steel, remove by solvent cleaning to SSPC-SP 1 prior to blast cleaning. If contamination remains after blast cleaning, reclean with solvent prior to application of the TSC.

Cleaning of galvanized bolts prior to the application of paint to bolted connections in the shop or in the field all galvanized fasteners shall be cleaned of all lubricating wax. Cleaning shall be in accordance with SSPC-SP-1, Solvent Cleaning, method 4.1.1. The contractor is responsible to identify the solvent and method needed to remove all lubricant. Cleanliness will be determined by the use of a white cloth wipe test. The test will be performed by the engineer using a clean white cloth and the same solvent used by the Contractor for cleaning. The cloth shall be wetted and rung to a damp condition, placed on selected fasteners and rubbed with a twisting motion around the entire exposed surface of the previously waxed surfaces of the fastener. A minimum of 3 alternating rotations shall be done. Acceptance of cleanliness is with no color transfer to the cloth. A minimum of 10% of the bolts at each bolted connection shall be tested for cleanliness.

Abrasive Blasting

Blast clean all steel to, SSPC-SP5 “White Metal Surface Cleanliness.” Determine the SP5 condition by use of SSPC-Vis 1. In the event of a conflict between the pictorial standard and the written definition the written definition shall prevail. Abrasive blast cleaned surfaces shall have a dense, uniform pattern of sharp, angular depressions and ridges, between 3.5-5.0 mils.

Surface preparation is defined as complete when all remedial repairs have been performed and the piece is accepted by both QC and MassDOT QA.

Verification of the profile height will be performed in accordance with ASTM D 4417 Method C.

Manual Blasting shall have a minimum of one profile depth measurement every 10 to 20 ft², of blasted surface.

ITEM 995.01 (Continued)

Automated Blasting shall have a minimum of two profile depth measurements every 100 ft². When acceptable results are obtained on three consecutive days in which testing is conducted, the test frequency may be reduced to two spot readings for every 1,000 ft² providing the preparation method remains unchanged. If unacceptable results are encountered during testing or the preparation method has changed in any way, testing will revert back to a frequency of two tests per every 100 ft², until acceptable results are once again achieved over a three day period.

Profile replica tape shall be filed with the project inspection records. The Engineer with the use of a surface profile comparator will randomly inspect angularity of the profile.

The use of steel shot is not permitted.

TSC AND COATING APPLICATION**Storage, Testing and Sampling**

The Contractor shall provide protection from the elements and insure that the paint is not subjected to temperatures outside the manufacturer's recommended extremes.

Before the Contractor will be permitted to use any paint, the material provided for application shall have been sampled, tested and approved in accordance with Section M7. MassDOT's Research and Materials Laboratory needs a minimum of fourteen days after the receipt of samples to test and approve.

Mixing and Thinning

Before the paint is applied, each component shall be mechanically mixed to ensure the pigment is completely dispersed. Mixing of components shall be accomplished by mechanical mixing, boxing or hand mixing of components will not be allowed. Any special precautions or requirements for mixing by the manufacturer shall be followed. Paint shall be kept thoroughly mixed in spray pots or containers during application. The pot life shall not be exceeded or attempts made to extend pot life with the addition of solvent.

If it is necessary for any reason to thin paint it will be done in the presence of the Engineer, in accordance with the manufacturer's recommendations. Thinning must be performed using a measuring cup marked in ounces or milliliters. Other methods, such as eyeballing, are not acceptable. Thinner shall be supplied from and recommended by the same manufacturer as the paint system.

For multi component paints, the mixing of half or partial kits is not allowed. If the need for small quantities of paint is anticipated, the contractor should order materials accordingly.

Application

Prior to the application of any coating material, the Engineer's approval must be obtained. All surfaces painted prior to the Engineer's approval, shall require the complete removal of the coating applied.

ITEM 995.01 (Continued)**Thermal Sprayed Coating**

Apply the TSC within six hours after the final abrasive blast cleaning is performed. If the steel is blast cleaned and remains unmetalized for longer than six hours, or if cleaned steel exhibits evidence of rustback, blast clean it again prior to metalizing. Remove abrasive residue and dust from the surface. Apply the metalizing only after the MassDOT – Highway Representative has accepted the prepared surface.

Bend Testing for Evaluation of the TSC

Conduct bend tests of applied TSC each day prior to production application. Unless otherwise directed by the MassDOT - Highway, each day that TSC will be applied, conduct bend testing before beginning the production work. For each TSC applicator, blast clean five carbon steel coupons measuring 0.05 inches in thickness, 2 inches width, and between 5 and 8 inches in length. Use the same equipment and abrasive used for the production work. Have each applicator apply the TSC to five coupons in accordance with the requirements of this Section to dry film thickness between 8 and 15 mils. Conduct 180° bend testing on all five coupons using the appropriate mandrel in accordance with the requirements and acceptance criteria of SSPC-CS 23. Minor cracks that cannot be lifted from the substrate with a knife blade are acceptable. If lifting on any of the coupons is possible, modify the surface preparation/TSC process until acceptable results are achieved before proceeding with the production work.

Apply the TSC in accordance with the requirements of the material supplier, this specification, approved procedures and SSPC-CS 23.

The completion of TSC is defined as after the spraying of TSC is complete and all remedial repairs have been performed and the piece is accepted by both QC and MassDOT QA.

Touch-up of bare steel and/or TSC damage shall be done with organic zinc rich primer. The total area subject to repair shall be no more than .50 % of the total square foot of the piece requiring repair. The dry film thickness of the applied coating shall be a minimum of 5 mils. Surface preparation for all repair areas shall be as specified in, “Surface Preparation and Abrasives” paragraph 3. The maximum individual repair shall be limited to 1 square foot. Areas larger than 1 square foot shall be re-blasted and the TSC applied in accordance with this document.

Sealer Coat

Apply the seal coat to the TSC after the MassDOT – Highway Representative has accepted the TSC. The seal coat shall be thin enough when applied to penetrate into the body of the TSC and seal the porosity. Added thickness to porous TSC should not be measurable. Typically the seal coat is applied at a spreading rate resulting in a theoretical 1.5 mils dry film thickness. Apply the seal coat in accordance with the manufacturer’s instructions as soon as possible after the application of the TSC but in no case greater than 6 hours. Verify that the TSC surface is clean and dry prior to the application of the sealer. If grease, oil, or similar contaminants become deposited on the TSC, remove them in accordance with SSPC-SP 1 prior to the application of the seal coat.

ITEM 995.01 (Continued)**Paint**

Applied coatings shall not exhibit, runs, sags, holidays, wrinkling, pinholes, nap hair, topcoat gloss or color variations, or other film discontinuities.

Repair of unacceptable areas that involve removal of the coating system or part of it, shall require surface preparation and coating equal to that specified. Repair procedures used for any unacceptable coating shall be those supplied by the contractor and approved by the Engineer.

Application of full coats of paint shall be accomplished by spray equipment. Spray equipment shall meet the requirements of the coating manufacturer and be in proper working order.

Application by brush and roller will be allowed for limited access areas. Brushes and roller covers recommended by the coating manufacturer shall be used. Areas brushed and rolled will have a uniform thickness and be free of defects and excessive coating thickness.

All coating shall be applied according to the latest manufacturer's data sheet or approved recommendations. The maximum recoat times of the primer, intermediate and finish coats shall not be exceeded.

Application of coatings shall not be done when the relative humidity is above 85% or when the surface temperature of the steel is less than 5°F above the Dew Point. Paint shall not be applied when the surface temperature is below 50°F or when the surface temperature is above 110°F.

If requested by the Engineer the Contractor shall provide written instructions from the coating manufacturer indicating the length of time that each coat must be protected from cold or inclement weather (e.g., exposure to rain) during its curing or drying period.

Paint shall not be applied when, in the Engineer's judgment, conditions are or will become unsatisfactory for application and proper cure. All changes as to the application parameters other than specified must be the manufacturer's and presented in writing and approved by the Engineer. Ambient conditions should be closely monitored so that proper cure/drying is achieved prior to recoat. In no case shall a succeeding coat of paint be applied before the previous coat has cured/dried sufficiently for recoat as per manufactured data sheet.

If required, contaminated surfaces shall be cleaned in accordance with SSPC- SP 1 Solvent Cleaning method 4.1.1.

Measurement of the ambient conditions shall be done in accordance with ASTM, E 337 Test Method for "Measuring Humidity with a Psychrometer" (the Measurement of Wet and Dry bulb Temperatures).

When the primer has cured sufficiently for recoat, all bridge components to be painted shall receive a full intermediate coat.

When the intermediate coat has cured sufficiently for recoat, all bridge components to be painted shall receive the finish coat.

ITEM 995.01 (Continued)**Coating Thickness**

Apply the shop and field coats to the dry film thicknesses as specified.

1. Determine the cumulative dry film thickness of each coat using a magnetic dry film thickness gage in accordance with SSPC-CS 23 and SSPC-PA 2 with the following exceptions:
 - a. Take readings on each 100 square-foot increment of the surface.
 - b. The minimum specified thickness of the TSC must be achieved at each individual spot measurement location (i.e., the 20 percent under run allowed by SSPC-PA 2 is not permitted for the metalizing).
2. If the thickness of any coat (TSC, seal coat, intermediate coat or top coat) is less than specified, apply additional material in accordance with the manufacturer's instructions and this Section before applying the next coat. Before applying additional TSC, visually confirm that there is no evidence of oxidation or contamination on the surface.
3. Thickness of applied TSC greater than the contract specified shall be reported to the MassDOT-Highway QA inspector in writing prior to the end of the shift. The thickness of the applied TSC shall not be more than 120% of the specified range for the zone specified.
4. Application of TSC to faying surfaces that require a slip rating shall not be more than the maximum thickness specified in the environmental zone chart for each zone included in the materials section of this specification.
5. The minimum adhesion value of the unsealed TSC shall be the average of 3 spot reading resulting in an average of 700psi for each 500 sq/ft.

Access for MassDOT - Highway Inspection

Provide safe access and sufficient time for MassDOT - Highway inspections for any and all phases of the work, including but not limited to surface preparation, the application of each coat (including field coat), and for an inspection of the completed system.

Quality Control Documentation

Copies of Quality Control daily inspection and testing documents will be provided to the MassDOT – Highway Representative within 24 hours.

HOT DIP GALVANIZED COATING FOR NEW STRUCTURAL STEEL**A. GENERAL**

Fabricated steel shall be galvanized as indicated on the plans. All fabrication shall be completed prior to surface preparation and the application of any coating.

The faying surfaces of all field bolted connections shall be coated based on the design of the connection. Class B connections shall be masked prior to galvanizing to allow for application of an approved class B slip coefficient primer. After galvanizing the masked surface will be cleaned in accordance with SSPC-SP11 and coated with the approved zinc rich primer. A galvanized connection will result in a faying surface meeting a class C slip coefficient.

ITEM 995.01 (Continued)

When grinding, drilling or any other operation produces steel turnings, filings, shavings, etc. the contractor shall completely clean all areas of all accumulation prior to the end of the work shift.

Locations of field applied studs shall require masking or removal of galvanizing and paint prior to welding.

The Engineer shall provisionally accept the shop coated items before shipment to the jobsite but final acceptance of the coating system will occur after erection of the coated items, and after all required repairs and coating application has been completed.

The contractor shall be responsible for failure and damage of all applied coating. Failures include but are not limited to, visible corrosion, blistering, checking, cracking, or delamination (peeling) and loss of gloss and color of the coating system. Damage includes but is not limited to damage from installation or from external agents, such as scraping, vandalism, debris impacts, and collisions. The extent and method of repair must be approved by the Engineer.

B. GALVANIZING

The following shall be hot dipped galvanized in accordance with Section M7 of these Specifications:

1. Members identified on the contract documents.
2. Cross frames and utility supports that are composed of non-weathering steels.
3. All sole plates.

Galvanized members requiring shop fabrication and assembly shall be cut, welded, and/or drilled prior to galvanizing. Bearing members to be milled shall be galvanized prior to milling. A thin layer of a rust inhibitor shall be applied to the milled surface. Material to be painted shall not be quenched after galvanizing.

Where material is required to be welded after galvanizing, the steel shall be masked 3 inches on each side of the weld center line. Prior to field welding the masked surface shall be cleaned in accordance with SSPC-SP11. After welding the area shall be repaired in accordance with ASTM A780 "Repair of Hot Dip Galvanizing" section 4.2.2, "Paints Containing Zinc Dust" and Annex 2. Repair paint shall meet M7.04.11 and application shall be in accordance with the manufacturer's recommendations.

Damaged galvanized surfaces shall be repaired in accordance with ASTM A780 "Repair of Hot Dip Galvanizing" section 4.2.2 Paints Containing Zinc Dust "High Zinc Dust Content". The paint shall be applied to achieve a minimum dry film thickness of 3 mils and not more than 5 mils. Repair paint shall meet M7.04.11 and application shall be in accordance with the manufacturer's recommendations.

The contractor shall provide protection of the adjacent coating in areas that will be field welded. After welding, the weld areas shall be prepared in accordance with SSPC-SP-11.

ITEM 995.01 (Continued)**MECHANICAL REINFORCING BAR SPLICER**

The work under this heading shall conform to the applicable provisions of Subsection 901 and M8.01.9 of the Standard Specifications and shall be selected from the Qualified Construction Materials List.

Work shall include furnishing and installing Mechanical Reinforcing Bar Splicers at construction joints as shown on the Plans, and at the Contractor's option in lieu of lapped splices. Mechanical Reinforcing Bar Splicers shall be sleeve or coupler type with non-threaded coupler, sized to develop a minimum of 125% of the bar yield strength.

PRECAST HIGHWAY GUARDRAIL TRANSITIONS**A. General.**

The work under this Heading consists of fabricating, transporting and installing precast highway guardrail transitions and includes all necessary labor, materials, and equipment to complete the work as shown on the Plans. The Precast Concrete Bridge Elements shall meet the requirements of Section M4: Cement Concrete and Related Materials.

MATERIALS**A. Materials.**

Materials shall conform to M4.09.1 and the following:

Non-Shrink Grout Products	M4.04.5
Controlled Low-Strength Material – Structural Non-Excavatable	M4.08.0
Welded Steel Wire Fabric	M8.01.2
Mechanical Reinforcing Bar Splicer	M8.01.9
Lifting Devices	PCI MNL-116
Corrugated Metal Pipe	AASHTO M 36

1. Vertical Adjustment Assembly.

Vertical Adjustment Assembly details and material requirements shall be as shown on the plans. Alternate devices may be used provided that they are adjustable and can support the anticipated loads. The design of the leveling devices, with necessary calculations, shall be submitted to the Engineer of Record for approval.

2. Threaded Inserts.

Threaded inserts are permissible to facilitate forming the keyway pours. Threaded inserts shall be hot dip galvanized or made of stainless steel. The number of threaded inserts shall be minimized, and the inserts shall not come in contact with the reinforcing steel.

3. Corrugated Metal Pipe.

Corrugated Metal Pipe to be used for forming voids as specified on the plans shall be fabricated from steel and shall have a protective metallic coating of zinc (galvanizing).

ITEM 995.01 (Continued)**CONSTRUCTION METHODS – PLANT FABRICATION****A. Pre-Production Meeting.**

The Contractor shall notify the MassDOT Research and Materials Section to determine if a pre-production meeting will be required to review the specification, shop drawings, curing plan, schedule, and discuss any specific requirements. The meeting shall be held prior to scheduling a MassDOT Inspector (refer to M4.09.4 Department Acceptance), and at least seven (7) days prior to the scheduled casting of any Precast Concrete Bridge Element or control section. The Contractor shall schedule the meeting, which shall include representatives of the Fabricator and MassDOT.

B. Reinforcement.

The reinforcing bars shall be installed in accordance with Subsection 901.35, including tolerances for cover and horizontal spacing of bars. Components of mechanical reinforcing bar splicers shall be set with the tolerances shown on the plans. The reinforcing bars and mechanical reinforcing bar splicers shall be assembled into a rigid cage that will maintain its shape in the form and which will not allow individual reinforcing bars to move during the placement of concrete. This cage shall be secured in the form so that the clearances to all faces of the concrete, as shown on the plans, shall be maintained.

Where reinforcing bars are to protrude from one Precast Concrete Bridge Element in order to mate with reinforcing bar splicers in a second precast concrete element, the fabricator shall set the reinforcing bars and the reinforcing bar splicers with a template in order to ensure proper fit up within the tolerances specified on the plans.

C. Tolerances.

Fabrication shall comply with tolerances specified on the plans. Tolerances for steel reinforcement placement shall be in accordance with Subsection 901.35. In the absence of specifications on the plans, tolerances shall comply with the latest version of the PCI MNL 135, Precast Tolerance Manual.

D. Forms.

Concrete shall be cast in rigidly constructed forms, which will maintain the Precast Concrete Bridge Elements within specified tolerances to the shapes, lines and dimensions shown on the approved fabrication drawings. Forms shall be constructed from flat, smooth, non-absorbent material and shall be sufficiently tight to prevent the leakage of the plastic concrete. When wood forms are used, all faces in contact with the concrete shall be laminated or coated with a non-absorbent material. All worn or damaged forms, which cause irregularities on the concrete surface or damage to the concrete during form removal, shall be repaired or replaced before being reused. If threaded inserts are cast into the elements for support of formwork, the inserts shall be recessed a minimum of 1 inch and shall be plugged after use with a grout of the same color as that of the precast cement concrete.

ITEM 995.01 (Continued)**CONSTRUCTION METHODS – FIELD CONSTRUCTION****A. General.**

All of the Contractor's field personnel involved in the erection and assembly of the Precast Concrete Bridge Elements shall have knowledge of and follow the approved Erection Procedure.

Prior to installation, the following documentation shall be reviewed and confirmed by the MassDOT Resident Engineer or designee:

- (a) QC Compressive Strength Test Report Forms attaining Design Strength, f'_c for the Precast Concrete Bridge Element's representative subplot.
- (b) Certificate of Compliance generated by the Fabricator as described under the Fabricator Quality Control section.
- (c) QC Inspection Reports signed by the Quality Control Manager.

Field construction staff shall verify that the Resident Engineer has accepted all Precast Concrete Bridge Elements prior to installation.

B. Erection Procedure.

Prior to the erection, the Contractor shall submit an Erection Procedure and a Quality Control Plan for Precast Concrete Bridge Element Assembly for approval by the Engineer. This submittal shall include computations and drawings for the transport, hoisting, erection and handling of the Precast Concrete Bridge Elements. The Erection Procedure and Quality Control Plan for Precast Concrete Bridge Element Assembly shall be prepared and stamped by a Professional Engineer registered in the Commonwealth of Massachusetts with working knowledge of the Contractor's equipment, approved shop drawings, and materials to build the bridge. The Erection Procedure and Quality Control Plan for Precast Concrete Bridge Element Assembly shall, at a minimum, include the following:

1. Erection Procedure

The Erection Procedure shall be prepared to conform to the requirements of 960.61, Design, Fabrication and Erection and the applicable sections in Chapter 8 of the PCI Design Handbook (eighth edition) for handling, erection, and bracing requirements. At a minimum, the Erection Procedure shall provide:

- (a) Minimum concrete compressive strength for handling the Precast Concrete Bridge Elements.
- (b) Concrete stresses during handling, transport, and erection.
- (c) Crane capacities, pick radii, sling geometry, and lifting hardware.
- (d) Verification that the equipment can handle all pick loads and weights with the required factor of safety.
- (e) Evaluation of construction sequence and evaluation of any geometric conflicts in the lifting of the Precast Concrete Bridge Elements and setting them as shown on the plans.
- (f) Design of crane supports including verification of subgrade for support.
- (g) Location and design of all temporary bracing that will be required during erection.

ITEM 995.01 (Continued)

Non-shrink grout and concrete materials, approved by the Engineer, shall be placed as shown on the plans. Fill joints, keyways, and voids, in strict accordance with the specifications and manufacturer's recommendations and instructions.

For footings, approach slabs and highway guardrail transitions, once these Precast Concrete Bridge Elements have been set to the correct horizontal and vertical alignment, the void between them and the supporting soil shall be filled with Controlled Low-Strength Material – Structural Non-Excavatable to the limits as shown on the plans. Add additional grout ports in the footings to facilitate the bedding process if required.

Except in approach slabs, joints shall be filled flush to the top with non-shrink grout, and any vertical misalignment between adjacent elements shall be feathered out on a slope of 1 to 12.

Curing of grout or concrete shall be performed in strict accordance with the specifications and manufacturer's recommendations. Filling shall not be completed in cold weather when either the ambient temperature or the precast member's temperature is below the manufacturer's recommendation. No localized heating of either the precast members or of the air surrounding the element will be permitted in an attempt to reach application temperatures.

If the joints or voids are not filled within five days after the Precast Bridge Elements are erected, the Contractor shall cover and protect the openings from weather and debris until they are filled.

C. Survey and Layout.

Working points, working lines, and benchmark elevations shall be established prior to placement of all elements. The Contractor is responsible for field survey as necessary to complete the work. MassDOT reserves the right to perform additional independent survey. If discrepancies are found, the Contractor may be required to verify previous survey data.

D. Preparation of Closure Pours and Grouted Keyways.

Immediately prior to erecting the Precast Concrete Bridge Elements, the closure pours and grouted keyways shall be cleaned at the job site of all dust, dirt, carbonation, laitance, and other potentially detrimental materials which may interfere with the bonding of the closure pour concrete or grout and precast concrete using a high-pressure water blast. Any exposed reinforcing steel in the precast concrete shall be protected from damage during the cleaning of the keyways. Damaged epoxy coating of steel reinforcement shall be repaired, and the reinforcing steel shall be cleaned as directed by the Engineer. The surfaces of the closure pours and grouted keyways shall be wetted so that the surfaces shall have a Saturated Surface Dry (SSD) condition for at least 24 hours prior to the placement of the closure pour concrete.

E. Erection.

The elements shall be placed in the sequence and according to the methods outlined in the Erection Procedure. As the erection proceeds, the Contractor shall constantly monitor the assembly to ensure that the precast concrete bridge element is within proper horizontal and vertical location and tolerances prior to releasing it from the crane and setting the next unit. The Contractor may use shims to maintain proper setting tolerances.

ITEM 995.01 (Continued)

The concrete elements shall be lifted only by the lifting devices, and the utmost care shall be taken to prevent distortion of the elements during handling, transportation or storage.

This approval will be contingent on the Contractor demonstrating by calculations, prepared by a Professional Engineer registered in Massachusetts, that the elements will not be damaged by the non-vertical lifting force and by documentation that the capacity of the lifting devices is adequate for the non-vertical lifting force.

After all Precast Concrete Bridge Elements have been placed, the actual overall dimensions of the structure both horizontal and vertical, as laid out shall not deviate from the nominal dimensions shown on the plans beyond a tolerance of +0 inches and -1 inches. Once the layout of Precast Concrete Bridge Elements has been accepted by the Engineer, the Contractor shall cut all lifting devices off below the surfaces of the elements.

F. Filling of Blockouts for Lifting Devices and Threaded Inserts.

If the blockouts in the Precast Concrete Bridge Elements where the lifting devices were located will be exposed and visible after assembly is complete, the Contractor shall fill these blockouts with Mortar (M4.04.5).

After the formwork has been removed, all threaded inserts that have been cast into the precast concrete bridge deck for support of the formwork shall be filled with a grout of the same color as that of the precast concrete.

SCHEDULE OF BASIS FOR PARTIAL PAYMENT

10 days after notice to proceed, the Contractor shall submit on his/her proposal form a schedule of unit prices for the major component Sub-Items that make up Item 995.01 as well as his/her total bridge structure Lump Sum cost for Bridge Structure No. W-38-029. The bridge structure Lump Sum breakdown quantities provided in the proposal form are estimated and not guaranteed. The total of all partial payments to the Contractor shall equal the Lump Sum contract price regardless of the accuracy of the quantities furnished by the Engineer for the individual bridge components. The cost of labor and materials for any Item not listed but required to complete the work shall be considered incidental to Item 995.01 and no further compensation will be allowed.

The schedule on the proposal form applies only to the Bridge Structure No. W-38-029. Payment for similar materials and construction at locations other than at this bridge structure shall be not included under this Item. Sub-Item numbering is presented for information only in coordination with MassDOT Standard Nomenclature.

ITEM 995.01 (Continued)**BRIDGE STRUCTURE NO. W-38-029**

<u>Sub-Item</u>	<u>Description</u>	<u>Qty.</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Total</u>
904.3	5000 PSI, 3/4 INCH, 685 HP CEMENT CONCRETE	1,280	CY		
904.31	PRECAST HIGHWAY GUARDRAIL TRANSITIONS	4	EA		
910.1	STEEL REINFORCEMENT FOR STRUCTURES – EPOXY COATED	277,200	LB		
910.4	MECHANICAL REINFORCING BAR SPLICER	1,320	EA		
911.1	SHEAR CONNECTORS	7,900	EA		
922.	LAMINATED ELASTOMERIC BEARING PAD WITHOUT ANCHOR BOLTS	21	EA		
960.1	STRUCTURAL STEEL – COATED STEEL	509,420	LB		
960.12	STRUCTURAL STEEL – M270 GRADE 70 HPS AND 50 HPS	154,000	LB		
965.	MEMBRANE WATERPROOFING FOR BRIDGE DECKS	10,200	SF		
970.	DAMP-PROOFING	1,950	SF		
972.	STRIP SEAL BRIDGE JOINT SYSTEM	110	FT		
975.4	PROTECTIVE SCREEN TYPE II	415	FT		
975.5	ALUMINUM HANDRAIL	200	FT		
TOTAL LUMP SUM FOR ITEM 995.01 =					

END OF DOCUMENT

DOCUMENT A00802

DETAIL SHEETS

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SHEET 1 OF 10 SHEETSPROJECT NO. 608703

THE COMMONWEALTH OF MASSACHUSETTS
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA

-ESTIMATE OF QUANTITIES - DETAIL SHEET-

CITY/TOWN:	<u>Wilmington</u>	YEAR:	<u>2025</u>
STATION:	<u>14+60 to 22+58</u>	ROAD:	<u>ST 129 (Lowell Street)</u>
	<u>43+58 to 45+64</u>		<u>I-93 South 3 South</u>
Type of Project:	<u>Bridge Replacement</u>	CLASS:	<u>Principal Arterial</u>
		DATE:	<u>March 3, 2025</u>

Earth Excavation:	<u>635</u>	<u>CY</u>	Gravel Borrow:	<u>520</u>	<u>CY</u>
Class B Trench Excavation:	<u>10</u>	<u>CY</u>	Crushed Stone for Sub-base:	<u>135</u>	<u>CY</u>
Class A Rock Excavation:	<u>62</u>	<u>CY</u>	Gravel borrow for backfilling		
Class A Trench Excavation:	<u>260</u>	<u>CY</u>	structures and pipes	<u>600</u>	<u>CY</u>
Class B Rock Excavation:	<u>65</u>	<u>CY</u>	Ordinary Borrow:	<u>300</u>	<u>CY</u>
Bridge Excavation	<u>1,240</u>	<u>CY</u>	Crushed Stone	<u>120</u>	<u>TON</u>

PAVEMENT NOTES**PROPOSED FULL DEPTH PAVEMENT AND BOX WIDENING 4 FEET OR GREATER** **AREA=1142 SY**

SURFACE: 1.5" Superpave Bridge Surface Course - 9.5 Polymer (SSC-B - 9.5 - P) Over
Asphalt Emulsion for Tack Coat Over
INTERMEDIATE: 2.5" Superpave Intermediate Course - 12.5 (SIC-12.5) Over
Asphalt Emulsion for Tack Coat Over
BASE: 4.5" Superpave Base Course - 37.5 (SBC-37.5) Over
SUBBASE:: 4" Dense Graded Crushed Stone Over
8" Gravel Borrow (Type B)

PROPOSED BOX WIDENING LESS THAN 4 FEET WIDE**AREA=41 SY**

SURFACE: 1.5" Superpave Bridge Surface Course - 9.5 Polymer (SSC-B - 9.5 - P) Over
Asphalt Emulsion for Tack Coat Over
INTERMEDIATE: 2.5" Superpave Intermediate Course - 12.5 (SIC-12.5) Over
Asphalt Emulsion for Tack Coat Over
BASE : 6" High Early Strength Cement Concrete Base Course Over
SUB-BASE: 8" GRAVEL BORROW (TYPE B)

PROPOSED MICROMILLING AND RESURFACING**AREA=1198 SY**

SURFACE: 1.5" Superpave Bridge Surface Course - 9.5 Polymer (SSC-B - 9.5 - P) Over
Asphalt Emulsion for Tack Coat Over
MICROMILLING: 1.5" Pavement Micromilling

PROPOSED CEMENT CONCRETE SIDEWALK/PEDESTRIAN CURB RAMPS**AREA=431 SY**

SURFACE : 4" Cement Concrete
Air Entrained 4000 psi, 3/4", 610 Cement Concrete
FOUNDATION: 8" Gravel Borrow (Type B)

ITEM 101. CLEARING AND GRUBBING

ST 129 (Lowell Street)

STA. 14+60 LT to STA. 16+94 LT

STA. 14+60 RT to STA. 17+26 RT

STA. 19+66 LT to STA. 22+58 LT

STA. 19+98 RT to STA. 22+58 RT

ITEM 102.1 TREE TRIMMING

ST 129 (Lowell Street)

STA. 14+60 LT to STA. 15+71 LT

STA. 21+46 LT to STA. 22+58 LT

ITEM 102.521 TREE AND PLANT PROTECTION FENCE

ST 129 (Lowell Street)

STA. 15+55 RT to STA. 17+26 RT

STA. 19+98 RT to STA. 21+50 RT

ITEM 141. CLASS A TRENCH EXCAVATION

For removal of Electrical Conduit

ST 129 (Lowell Street)

STA. 15+31 LT to STA. 17+38 LT

STA. 19+29 LT to STA. 21+50 LT

ITEM 146. DRAINAGE STRUCTURE REMOVED

ST 129 (Lowell Street)

STA. 16+77 LT (CB)

STA. 16+93 RT (CB)

STA. 19+97 LT (CB)

STA. 20+13 RT (CB)

ITEM 201. CATCH BASIN

ST 129 (Lowell Street)

STA. 21+12 RT STA. 21+38 LT

STA. 21+36 RT STA. 16+62 RT

STA. 21+12 LT STA. 16+80 LT

ITEM 202. MANHOLE

ST 129 (Lowell Street)

STA. 21+25 LT

STA. 21+21 RT

ITEM 202.2 MANHOLE (9 TO 14 FOOT DEPTH)

ST 129 (Lowell Street)
STA. 16+82 RT

ITEM 220.5 DRAINAGE STRUCTURE REMODELED

I-93 NB
STA. 43+57 RT

ITEM 221. FRAME AND COVER

ST 129 (Lowell Street)
STA. 21+25 LT
STA. 21+21 RT
STA. 16+82 RT

ITEM 222.1 FRAME AND GRATE - MASSDOT CASCADE TYPE

ST 129 (Lowell Street)
STA. 21+12 RT
STA. 21+36 RT
STA. 21+12 LT
STA. 21+38 LT
STA. 16+62 RT
STA. 16+80 LT

ITEM 223.2 FRAME AND GRATE (OR COVER) REMOVED AND DISCARDED

ST 129 (Lowell Street)
STA. 16+77 LT STA. 16+77 RT
STA. 16+93 RT STA. 20+13 RT
STA. 19+97 LT
EMH

ITEM 234.12 12 INCH DRAINAGE PIPE - OPTION

ST 129 (Lowell Street)
STA. 21+12 RT to STA. 21+21 RT
STA. 21+36 RT to STA. 21+21 RT
STA. 21+12 LT to STA. 21+25 LT
STA. 21+38 LT to STA. 21+25 LT
STA. 21+25 LT to STA. 21+21 RT
STA. 21+21 RT to STA. 21+21 RT
STA. 16+62 RT to STA. 16+82 RT
STA. 16+80 LT to STA. 16+82 RT
STA. 16+82 RT to STA. 16+82 RT

ITEM 235.12 12 INCH DRAINAGE PIPE FLARED END - OPTION
ITEM 258. STONE FOR PIPE ENDS

ST 129 (Lowell Street)
STA. 16+82 RT
STA. 21+21 RT

ITEM 272.12 12 INCH AND UNDER PIPE REMOVED AND DISCARDED

ST 129 (Lowell Street)
STA. 16+77 LT to STA. 16+93 RT
STA. 16+93 RT to STA. 16+99 RT
STA. 19+97 LT to STA. 20+14 RT
STA. 20+14 RT to STA. 20+27 RT

ITEM 470. HOT MIX ASPHALT BERM

ST 129 (Lowell Street)
STA. 20+18 RT to STA. 22+58 RT

ITEM 477. MILLED RUMBLE STRIP (TYPE A)

I-93 Northbound
I-93 Southbound

ITEM 504. GRANITE CURB TYPE VA4 - STRAIGHT

ST 129 (Lowell Street)
STA. 16+85 LT to STA. 17+01 LT
STA. 16+90 RT to STA. 17+16 RT
STA. 19+84 LT to STA. 19+99 LT
STA. 20+00 RT to STA. 20+20 RT
STA. 21+15 LT to STA. 21+34 LT

ITEM 504.2 GRANITE CURB TYPE VA4 - SPLAYED END

ST 129 (Lowell Street)
STA. 16+52 RT to STA. 16+59 RT
STA. 21+02 LT to STA. 21+09 LT
STA. 21+40 LT to STA. 21+47 LT

ITEM 509. GRANITE TRANSITION CURB FOR PEDESTRIAN CURB RAMPS
- STRAIGHT

ST 129 (Lowell Street)
STA. 16+64 RT to STA. 16+72 RT
STA. 16+76 LT to STA. 16+85 LT
STA. 16+81 RT to STA. 16+90 RT
STA. 19+99 LT to STA. 20+06 LT
STA. 20+20 RT to STA. 20+27 RT

ITEM 510. GRANITE EDGING TYPE SA

ST 129 (Lowell Street)
STA. 14+60 LT to STA. 16+67 LT
STA. 14+60 RT to STA. 16+52 RT
STA. 20+16 LT to STA. 21+02 LT
STA. 21+47 LT to STA. 22+58 LT

ITEM 514. GRANITE CURB INLET - STRAIGHT

ST 129 (Lowell Street)
STA. 16+61 RT
STA. 21+12 LT
STA. 21+38 LT

ITEM 594. CURB REMOVED AND DISCARDED

ST 129 (Lowell Street)
STA. 16+75 LT to STA. 17+06 LT
STA. 16+93 RT to STA. 17+26 RT
STA. 19+63 LT to STA. 19+97 LT
STA. 19+92 RT to STA. 20+14 RT

ITEM 597. EDGING REMOVED AND DISCARDED

ST 129 (Lowell Street)
STA. 14+60 RT to STA. 16+93 RT
STA. 19+97 LT to STA. 22+58 LT

ITEM 628.5 TEMPORARY IMPACT ATTENUATOR REMOVED AND DISCARDED

ST 129 (Lowell Street)
STA. 15+45 LT
STA. 22+37 LT
I93 NB & SB

**ITEM 644.172 72 INCH CHAIN LINK FENCE (SPRING TENSION WIRE)
VINYL COATED (LINE POST OPTION)**

ST 129 (Lowell Street)
STA. 16+74 RT to STA. 17+04 RT
STA. 16+89 LT to STA. 16+89 LT
STA. 20+19 RT to STA. 20+32 RT

ITEM 665.2 CHAIN LINK FENCE REMOVED AND DISCARDED

ST 129 (Lowell Street)
STA. 16+73 RT to STA. 17+12 RT
STA. 20+01 RT to STA. 20+31 RT

ITEM 698.3 **GEOTEXTILE FABRIC FOR SEPARATION**

For Special Slope Paving under the bridge
And as required by the Engineer

ITEM 698.3 **GEOTEXTILE FABRIC FOR SEPARATION**

For Stone for Pipe Ends Sections

ST 129 (Lowell Street)

Sta. 16+63 RT to Sta. 16+68 RT

Sta. 21+12 RT to Sta. 21+17 RT

ITEM 698.4 **GEOTEXTILE FABRIC FOR PERMANENT EROSION CONTROL**

For Rip Rap Side Slopes

ST 129 (Lowell Street)

STA. 16+50 RT to STA. 17+23 RT

STA. 19+97 RT to STA. 21+00 RT

ITEM 765.472 **STEEP SLOPE MID-HEIGHT MIX**

ST 129 (Lowell Street)

STA. 16+25 RT to STA. 16+55 RT

STA. 16+80 RT to STA. 16+98 RT

STA. 20+25 RT to STA. 21+16 RT

ITEM 767.121 **SEDIMENT CONTROL BARRIER**

ST 129 (Lowell Street)

STA. 14+60 LT to STA. 17+08 LT

STA. 14+60 RT to STA. 17+27 RT

STA. 19+65 LT to STA. 22+58 LT

STA. 20+00 RT to STA. 22+58 RT

ITEM 802.510 5 INCH ELECTRICAL CONDUIT - TYPE NM PLASTIC
(10 BANK) - CONCRETE ENCASED

ST 129 (Lowell Street)
STA. 16+55 RT to STA. 17+11 RT
STA. 19+99 RT to STA. 20+19 RT

ITEM 802.52 5 INCH ELECTRICAL CONDUIT - TYPE NM PLASTIC
(DOUBLE) - CONCRETE ENCASED

ST 129 (Lowell Street)
STA. 15+35 LT to STA. 15+56 LT
STA. 15+69 LT to STA. 15+88 LT
STA. 20+65 LT to STA. 20+84 LT
STA. 20+97 LT to STA. 21+18 LT

ITEM 802.54 5 INCH ELECTRICAL CONDUIT - TYPE NM PLASTIC
(4 BANK) - CONCRETE ENCASED

ST 129 (Lowell Street)
STA. 20+97 LT to STA. 21+50 LT

ITEM 802.59 5 INCH ELECTRICAL CONDUIT - TYPE NM PLASTIC
(9 BANK) - CONCRETE ENCASED

ST 129 (Lowell Street)
STA. 15+64 LT to STA. 16+46 RT
STA. 20+28 RT to STA. 20+86 LT

ITEM 805.510 5 INCH ELECTRICAL CONDUIT - TYPE NM (10 BANK)

ST 129 (Lowell Street)
STA. 17+11 RT to STA. 19+99 RT

ITEM 806.52 5 INCH ELECTRICAL CONDUIT TYPE RM - GALVANIZED STEEL (DOUBLE)

ST 129 (Lowell Street)
STA. 15+35 LT
STA. 15+88 LT
STA. 20+65 LT
STA. 21+18 LT

ITEM 811.15 ELECTRIC MANHOLE - (MUNICIPAL STANDARD 6'x13') '

ST 129 (Lowell Street)
STA. 15+62 LT
STA. 20+92 LT

ITEM 811.16 ELECTRIC MANHOLE - (MUNICIPAL STANDARD 6'x10')

ST 129 (Lowell Street)
STA. 16+52 RT
STA. 20+29 RT

**ITEM 832. WARNING - REGULATORY AND ROUTE MARKER -
ALUMINUM PANEL (TYPE A)**

ST 129 (Lowell Street)

STA. 15+13	STA.	20+03
STA. 16+18	STA.	20+11
STA. 16+18	STA.	20+11
STA. 16+18	STA.	20+11
STA. 16+18	STA.	20+11

And as required by the Engineer

ITEM 874.2 TRAFFIC SIGN REMOVED AND RESET

ST 129 (Lowell Street)

STA. 17+15	STA. 18+12
STA. 17+20	STA. 18+18
STA. 17+20	STA. 19+12
	STA. 19+17

ITEM 874.4 TRAFFIC SIGN REMOVED AND STACKED

ST 129 (Lowell Street)

STA. 16+15	STA. 20+07
STA. 16+21	STA. 20+12

ITEM 986. MODIFIED ROCKFILL

ST 129 (Lowell Street)

STA. 16+25 RT	to	STA. 16+76 RT
STA. 16+80 RT	to	STA. 16+98 RT
STA. 20+20 RT	to	STA. 21+16 RT

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DOCUMENT A00803

READING MUNICIPAL LIGHT DEPARTMENT ELECTRIC SERVICE REQUIREMENTS HANDBOOK

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Reading Municipal Light Department



Electric Service Requirements Handbook

**230 ASH STREET, P.O. BOX 150,
READING, MASSACHUSETTS 01867
Telephone: (781) 942-6598**

Rev. 01/20/2021

FOREWORD

Reading Municipal Light Department (RMLD) is one of the 41 Massachusetts Municipal Light Plants and is a Public Power Utility serving the electrical needs of the Town of Reading, North Reading, Wilmington and Lynnfield Center. It is governed by the General Manager with an elected Municipal Light Board consisting of 5 Commissioners.

General Manager

Coleen O'Brien

Reading Municipal Light Board

Robert Coulter

Philip B. Pacino

David Talbot

John Stempeck

David Hennessy

Reading Municipal Citizens' Advisory Board (CAB)

George Hooper (Wilmington)

Dennis Kelley (Wilmington)

Jason Small (North Reading)

Vivek Soni (Reading)

Joseph Markey (Lynnfield)

The Reading Municipal Light Board generally meets on the third Thursday of the month at 7:30 pm. Meeting schedule with agendas are available on RMLD website (www.rml.com)

The CAB was a direct result of a 20-year agreement between RMLD and the Town of Wilmington in 1990. The Town of Wilmington researched its options to withdraw from RMLD to create its own municipal light department. Negotiations between RMLD, the Town of Wilmington and the other three communities concluded in an agreement, which was approved by all concerned. The result was a 20-year agreement providing CAB representation of all four-member communities.

INTRODUCTION

This booklet is published for the benefit of our Customers, architects, engineers, municipal inspectors, employees and contractors to provide a convenient reference as an informational guide. This handbook sets forth the types of services that the Reading Municipal Light Department RMLD currently offers – residential, commercial, temporary services, service upgrades and the relocation of an existing service. **Design or construction should not be undertaken until complete information is obtained from RMLD personnel.** RMLD should be contacted a minimum of 15 days before starting work, noting certain equipment could take up to a 6-month lead time.

RMLD supplies electricity subject to our Terms and Conditions, policies and procedures, rate schedules, and industry standards; and applicable laws and regulations; all of which form RMLD's requirements for service. This handbook reflects RMLD's standard practices and procedures and does not necessarily address every requirement, limitation or particular situation.

RMLD reserves the right to revise, amend or change the information set forth in this handbook without prior notice. Readers should inquire as to whether any revisions, amendments or changes to contents have been made since publication. Please contact RMLD at (781) 942-6598 if you have any questions about the contents of this handbook, your rights or responsibilities, or terms of service. We endeavor to supply electricity adequately and reliably. We do not guarantee a continuous supply and do not assume liability for direct or consequential loss or damage to persons or property due to the supply delivered, or as a result of any interruption or variation in the supply. Momentary interruptions can occur due to the normal operation of our system's protective devices.

Failure to comply with our requirements, applicable codes, or orders of an enforcement authority can result in our refusal to energize an electric service or suspension of existing service.

RMLD REQUIREMENTS

RMLD's requirements for electric service are designed to ensure reliable and appropriate service to our Customers. RMLD has published this Electric Service Requirements Handbook in an effort to provide guidance on the respective responsibilities regarding electric service to residential, commercial and industrial locations. This handbook is intended to improve communications and coordination between our Customers, electricians, inspectors, contractors, architects, engineers, Town Boards, and RMLD. This manual covers the most common situations and sets guidelines and policies to apply its service requirements uniformly and in a non-discriminatory manner. RMLD reserves the right to waive or modify any requirement on a case by case basis.

The electrician of the Customer or its representative must contact RMLD to obtain a Utility Authorization Number (UAN). The electrician needs the Utility Authorization Number in order to obtain a wiring permit from any of the four Town Wiring Inspector Departments located at the respective four Town Halls. Please note that electric distribution equipment such as pad-mount transformers have long lead times, often 6 months or more. For this reason, it is imperative that RMLD be contacted early in the planning process.

Useful Contact information:**Contact****Hours of Operation**

**Reading Municipal Light Department
230 Ash Street
Reading, MA 01867
781-942-6598**

**Monday - Friday
8:00 a.m. to 4:30 p.m.**

**Reading Town Hall
16 Lowell Street
Reading, MA 01867
781-942-9001**

**Monday, Wednesday, Thursday
7:30 a.m. to 5:30 p.m.
Tuesday 7:30 a.m. to 7:00 p.m.
Friday Closed**

**North Reading Town Hall
235 North Street
North Reading, MA 01864
978-664-6010
978-664-6053 Fax**

**Monday - Thursday
8:00 a.m. to 4:00p.m.
Friday 8:00 a.m. to 1:00 p.m.**

**Wilmington Town Hall
121 Glen Road
Wilmington, MA 01887
978-658-3311
978-658-3334 Fax**

**Monday - Friday
8:30 a.m. to 4:30 p.m.**

**Lynnfield Town Hall
55 Summer Street
Lynnfield, MA 01940
781-334-9400**

**Monday - Thursday
8:00 a.m. to 4:30 p.m.
Friday 8:00 a.m. to 1:00 p.m.**

CONTENTS

1.0	GENERAL INFORMATION	10
1.1.	PURPOSE.....	10
1.2.	APPLICABILITY AND REVISIONS	10
1.3.	ADVISORY SERVICE.....	10
1.4.	DIGGING / EXCAVATIONS / DIGSAFE.....	11
1.5.	CONSTRUCTION IN THE PROXIMITY OF OVERHEAD CONDUCTORS	11
1.6.	STREET AND PRIVATE AREA LIGHTING	12
1.7.	VEGETATION MANAGEMENT.....	12
1.8.	USE OF ELECTRICITY	13
1.9.	SAFETY	13
1.10.	ENERGY EFFICIENCY, CONSERVATION, AND ELECTRIFICATION PROGRAMS	14
1.11.	RMLD SYSTEM VOLTAGE CONVERSION AND UPGRADES	15
1.12.	REQUIREMENTS AND COMPLIANCE WITH ELECTRIC CODES	15
1.13.	SERVICE INTERRUPTION.....	15
2.0	PLANNING YOUR ELECTRIC SERVICE.....	17
2.1.	AVAILABLE SERVICE VOLTAGES & CHARACTERISTICS.....	17
2.2.	PERMANENT SERVICES AVAILABLE FROM RMLD	18
2.3.	CONTRIBUTION IN AID OF CONSTRUCTION (REQUIREMENT APPLICABLE TO ALL CUSTOMERS)	20
3.0	APPLYING FOR ELECTRIC SERVICE	21
4.0	METERING, BILLING, PAYMENTS, AND NON-PAYMENTS	21
4.1.	METERING.....	21
4.2.	BILLING AND PAYMENTS.....	22
4.3.	SERVICE DISCONNECTION DUE TO NON-PAYMENT	23
4.4.	SERVICE RECONNECTION	23
4.5.	BUDGET BILLING PLANS	24
5.0	EXISTING RESIDENCE OR COMMERCIAL SERVICE	24
5.1.	OWNER OCCUPANT – EXISTING RESIDENCE OR COMMERCIAL PROPERTY	24
5.2.	RENTER/TENANT – EXISTING RESIDENCE OR COMMERCIAL PROPERTY	24
5.3.	RESIDENTIAL CUSTOMER DEPOSITS	24
5.4.	COMMERCIAL CUSTOMER DEPOSITS.....	25
6.0	TEMPORARY ELECTRIC SERVICE.....	27

RMLD Electric Service Requirements Handbook

6.1.	GENERAL	27
6.2.	APPLYING FOR TEMPORARY SERVICE (AVAILABLE AT SECONDARY VOLTAGES ONLY)	27
6.3.	COSTS FOR TEMPORARY SERVICE	28
6.4.	RESPONSIBILITIES ASSOCIATED WITH TEMPORARY SERVICE	28
6.5.	TEMPORARY CONNECTION METHODS	29
7.0	RESIDENTIAL ELECTRIC SERVICE – NEW, UPGRADE OR RELOCATION	29
7.1.	GENERAL	29
7.2.	COSTS FOR PERMANENT SERVICE	29
7.3.	APPLYING FOR PERMANENT RESIDENTIAL SERVICE	30
7.4.	RESPONSIBILITIES AND EASEMENTS ASSOCIATED WITH RESIDENTIAL PERMANENT SERVICE	32
8.0	COMMERICAL/INDUSTRIAL ELECTRIC SERVICE	33
8.1.	GENERAL	33
8.2.	APPLYING FOR PERMANENT COMMERCIAL/INDUSTRIAL/RESIDNETIAL DEVELOPMENT SERVICE	34
8.3.	COST FOR COMMERCIAL AND INDUSTRIAL SERVICE	34
8.4.	DEPOSITS AND PAYMENTS	34
8.5.	PRIMARY METERING	35
8.6.	RESPONSIBILITIES AND EASEMENTS ASSOCIATED WITH COMMERCIAL / INDUSTRIAL PERMANENT SERVICE 35	
9.0	CUSTOMER SERVICE CONNECTION CLEARANCES AND RESPONSIBILITES	36
9.1.	LOCATION OF METER AND SERVICE ENTRANCE	36
9.2.	POINT OF ATTACHMENT	37
9.3.	SERVICE MASTS	37
9.4.	CONCEALMENT OF SERVICE ENTRANCE	37
9.5.	SERVICE CLEARANCES TO BUILDING STRUCTURES	37
9.6.	OVERHEAD SERVICE DROP CLEARANCES	38
10.0	LINE EXTENSIONS	39
11.0	METER TAMPERING / THEFT OF SERVICE	40
11.1.	DEFINITION	40
11.2.	METER TAMPERING WARNING	40
11.3.	NOTICE OF VIOLATION	41
11.4.	BILL ADJUSTMENTS FOR THEFT	41
11.5.	RESTORATION OF SERVICE	41
11.6.	CUSTOMER PAYMENT LIABILITY	42
11.7.	CUT-OFFS AND LIABILITY	42
11.8.	CUSTOMER RESPONSIBILITY	42

RMLD Electric Service Requirements Handbook

11.9. COURT AND ATTORNEY’S FEES	42
12.0 CUSTOMER SYSTEM PROTECTION GUIDELINES	42
12.1. SECONDARY SURGE ARRESTERS	42
12.2. SHORT-CIRCUIT CURRENTS	43
12.3. GROUNDING	43
13.0 GENERATION INTERCONNECTION	43
13.1. CUSTOMER-OWNED GENERATION REQUIREMENTS.....	44
13.2. GENERATOR ISOLATION REQUIREMENTS	45
13.3. STANDBY/BACK-UP GENERATION (NON-PARALLEL OPERATION)	45
13.4. FUEL STORAGE REQUIREMENTS.....	45
13.5. CUSTOMER COGENERATION	46
13.6. SYSTEM OPERATION GUIDELINES.....	46
14.0 SERVICE ENTRANCE GUIDELINES	46
14.1. SIZE OF CONDUCTORS	46
14.2. SERVICE EQUIPMENT	46
14.3. LOCATION OF SERVICE DISCONNECT	47
14.4. MAIN SWITCHES AND DISCONNECTING MEANS.....	47
14.5. ASSIGNING LOCATION OF SERVICE AND METERING EQUIPMENT	47
14.6. UNMETERED CONDUCTORS	47
14.7. OVERHEAD	48
14.8. UNDERGROUND	49
15.0 METER INSTALLATION AND MAINTENANCE GUIDELINES.....	50
15.1. GENERAL	50
15.2. DEFINITIONS	50
15.3. STANDARD METER INSTALLATIONS.....	50
15.4. OUTDOOR METER LOCATIONS.....	51
15.5. INDOOR METER LOCATIONS	52
15.6. METER HEIGHT	52
15.7. IDENTIFICATION OF METER SOCKETS AND CUSTOMER DISCONNECTING MEANS	53
15.8. UNMETERED CONDUCTORS	53
15.9. DEMAND AND KVA METER WIRING	53
15.10. SECURITY	54
15.11. MOVING OR REMOVING METERING EQUIPMENT	54
15.12. METER SOCKETS	54
15.13. METER PEDESTALS	56

RMLD Electric Service Requirements Handbook

15.14.	INSTRUMENT TRANSFORMERS.....	56
15.15.	CUSTOMER REQUEST FOR METERING PULSES.....	57
15.16.	APPROVED METERING EQUIPMENT	58
16.0	POWER QUALITY	59
16.1.	VOLTAGE SENSITIVE EQUIPMENT.....	59
16.2.	FLUCTUATING LOADS.....	59
16.3.	SECONDARY LIGHTNING ARRESTERS.....	59
16.4.	SHORT CIRCUIT CURENTS.....	60
16.5.	LOAD BALANCING	60
16.6.	HARMONIC DISTORTION.....	60
16.7.	GROUNDING	60
16.8.	POWER FACTOR.....	61
17.0	ELECTRIC UTILIZATION EQUIPMENT.....	61
17.1.	GENERAL.....	61
17.2.	SYSTEM DISTURBANCES.....	61
17.3.	SINGLE-PHASE MOTORS.....	61
17.4.	THREE-PHASE MOTORS.....	63
17.5.	ELECTRIC UTILIZATION EQUIPMENT PROTECTION.....	64
17.6.	PROTECTION AGAINST SINGLE-PHASE OPERATION.....	64
17.7.	UNDERVOLTAGE PROTECTION.....	64
17.8.	OVERLOAD PROTECTION.....	65
17.9.	PROTECTION AGAINST PHASE REVERSAL.....	65
18.0	LIST OF APPENDICES.....	65
	APPENDIX A – TEMPORARY SERVICE METHODS	65
	APPENDIX B – UTILITY AUTHORIZATION NUMBER (UAN)	65
	APPENDIX C – RATES & TARIFFS AND GENERAL TERMS AND CONDITIONS	65
	APPENDIX D – MASSACHUSETTS GENERAL LAWS REGARDING THEFT OF SERVICE	65
	APPENDIX E – CUSTOMER-OWNED GENERATION REQUIREMENTS AND GUIDELINES	65
	APPENDIX F – CUSTOMER-OWNED GENERATION INTERCONNECTION SCHEMATIC.....	65
	APPENDIX G – ENERGY EFFICIENCY, CONSERVATION, AND ELECTRIFICATION PROGRAMS.....	66
	APPENDIX H – FIGURES AND ILLUSTRATIONS	66
	APPENDIX I – STREET LIGHTING REQUEST FORM	66
	APPENDIX J – UNSAFE ELECTRICAL EQUIPMENT NOTIFICATION FORM	66
	APPENDIX K – ADDITIONAL FEES AND CHARGES.....	66
	APPENDIX L – CUSTOMER ACTION NOTICES.....	67

APPENDIX M – LOAD DATA SHEET	67
19.0 SUMMARY OF CHANGES	67

1.0 GENERAL INFORMATION

1.1. PURPOSE

The "Electric Service Requirements Handbook," is issued to provide information to all RMLD Customers, electrical contractors, architects and engineers regarding electric service, installations, billing, metering, system efficiency, safety and reliability, and other information pertaining to service from RMLD. Certain sections have been prepared as a guide and are supplementary to the applicable National, State and Local Electrical Codes, Safety Code, OSHA requirements, etc. The issuance of this booklet by RMLD shall not be construed as relieving the Customer and/or Contractor from the responsibility of installing wiring in accordance with the aforementioned codes, nor shall RMLD be deemed thereby to have accepted any responsibility for the condition of the Customer's wiring and equipment.

1.2. APPLICABILITY AND REVISIONS

This issue of the Electric Service Requirements Handbook reflects RMLD's current requirements and practices. Exceptions may apply for the completion of work in progress or already under contract. Revisions of this information will be made when necessary and RMLD reserves the right to make such revisions. RMLD cannot guarantee to give notice of revisions to persons who may have received this book. The most current edition of the handbook can be found on RMLD's website, www.rml.com. The most current electric rates and tariffs filed with the Department of Public Utilities (DPU) can be found on RMLD's website, www.rml.com.

ENFORCEMENT OF RULES

RMLD requires that all wiring intended for connection to its electric system shall be installed in accordance with the rules of the applicable National, State and Local Electrical Codes as well as the Rules and Regulation set forth in this handbook. All connections to RMLD's system shall be designed, installed and operated in a manner that will not adversely impact other Customer's electric service or the ability for RMLD to maintain proper system conditions.

RMLD reserves the right to refuse to connect and/or the right to disconnect a service where the Customer's installation does not comply with the provisions and requirements outlined in this handbook.

1.3. ADVISORY SERVICE

RMLD offers an engineering advisory service to all customers, architects, contractors and engineers, to assist them in obtaining installations, which conform to the requirements of RMLD. All persons are encouraged to avail themselves of the advisory services of the RMLD with respect to applications of power, electric heating, lighting, water heating, etc. Such advice may avoid delays and result in greater satisfaction and more efficient use of electrical service.

Although RMLD endeavors to keep informed of conditions under which Customers use electricity, it is expected Customers will check their use against available rates, or request RMLD to do so, as RMLD does not guarantee any particular rate to be the most favorable.

However, neither by inspection, nor by the rendering for an advisory service, nor in any other way, does RMLD give any warranty, expressed or implied, as to the adequacy, safety, or other characteristics of any equipment, wires, appliances, or devices owned, used or maintained by Customers. It is the Customer's responsibility to ensure that its equipment complies with all applicable codes. RMLD reserves the right to suspend service if it has any reason to believe there is a safety risk. RMLD does not assume responsibility for detecting any unsafe conditions with the Customer's equipment.

1.4.DIGGING / EXCAVATIONS / DIGSAFE

RMLD is a participant in the "DIG SAFE" Program. Prior to any excavation work, the "DIG SAFE" call-center must be contacted by calling **811**.

All contractors, municipal divisions and Customers who may have the necessity to excavate in roads or highways and anywhere there may be underground electric cables in the area should provide a minimum of three working days' notice to RMLD of their intent to excavate and **must contact DIG SAFE**.

Upon request, drawings will be made available that show the approximate location of underground ducts and cables, if present. The customer or its agent may be required to complete and sign a Non-Disclosure Agreement (NDA).

1.5.CONSTRUCTION IN THE PROXIMITY OF OVERHEAD CONDUCTORS

Equipment, such as ladders, scaffolding, etc., regardless of material, can become electrified if brought in contact with wires. Use extra caution when installing siding, painting, cleaning gutters or other reasons to work near RMLD facilities. Any person whether qualified or unqualified to work on or near medium voltage power lines (1kV – 50kV) must give advance notice and make satisfactory arrangements with RMLD before performing **any** type of work within ten (10) feet of overhead high voltage lines. This is in adherence with all applicable OSHA rules and regulations.

In every case in which work needs to be performed near electrical lines, RMLD must be contacted 48 hours prior to the beginning of the work. Contacting RMLD does not guarantee a line will be de-energized unless specified by RMLD – treat all overhead lines as if they are energized. At the request of the Customer, RMLD will furnish overhead rubber insulator sleeving for work done near RMLD overhead lines – a one-week notice is required to reserve the rubber sleeving. RMLD will install overhead rubber insulator sleeving at no cost to the customer for up to a 60-day use. The customer must contact RMLD for removal; a per-diem rate applies to any usage days beyond 60 days, refer to Appendix K for prevailing fee and charges schedule.

General contractors, electrical contractors, electricians, their employees, and other persons performing construction and/or maintenance work in proximity to RMLD's overhead lines, must take the precautions and observe the prohibitions prescribed by Federal, state and local law when working or using any tools, machinery, or construction equipment near these lines.

1.6. STREET AND PRIVATE AREA LIGHTING

REPORTING NON-WORKING STREET LIGHTS

Customers can report non-working or otherwise non-functioning street lighting using one of the following methods: 1) Click on "Contact Us" on our website at <http://www.rml.com> and then click "A Street Light is Out"; or 2) Call 781-942-6598; or

REQUESTING ADDITIONAL PUBLIC AREA LIGHTING

Residents may request lighting be installed on public ways. In order to do so, residents shall make the request through their local town authorities. Once the local town authority approves the installation of a public light, the request shall be passed onto the RMLD for installation.

REQUESTING PRIVATE AREA LIGHTING

Customers may request new or additional private area (dusk to dawn) lighting. See Appendix C for the private area lighting rates and conditions.

REQUESTING INSTALLATION OF LIGHT ONLY POLE

Local town authorities or customers may require a light only pole for the installation of street or contract light. Requests shall be made through customer service. The RMLD shall approve the installation and any applicable billing for the installation of the pole.

1.7. VEGETATION MANAGEMENT

PRIVATE PROPERTY

- a. RMLD will provide tree trimming services for all RMLD equipment on all accepted public right of ways.
- b. RMLD from time to time may be required to access private properties to perform RMLD required vegetation trimming
- c. Vegetation trimming for conventional overhead secondary services on private property is the sole responsibility of the property owner at their sole expense.

WORKING CLEARANCES AROUND PAD MOUNTED EQUIPMENT

Clearances around pad mounted equipment shall be maintained in accordance with Appendix H - Figure 1 by the Customer. These clearances are required in order to operate and maintain the equipment in a safe manner. Obstructions can cause delays when restoring electric service.

METER CLEARANCES

At and directly in front of each meter location, a clear, safe workspace shall be maintained by the Customer. Such workspace shall be at least four (4) feet wide, shall extend out from the meter at least three (3) feet, and up to a height of at least six (6) feet. Appendix H - See Figure 8.

1.8. USE OF ELECTRICITY

RMLD shall not be liable for damage to the person or property of the Customer or any other persons resulting from the use of electricity or the presence of RMLD equipment on the Customer's premises. The provision of electricity is for the Customer's own use and that electricity shall not be resold.

1.9. SAFETY

RMLD is dedicated to making safety its top priority. While the items listed below require particular attention, Public safety, property and the safety of RMLD employees, will always be our first concern.

- a. Any contact with RMLD facilities may cause serious injury or death. Treat all downed, hanging or burning wires as though they are "LIVE", energized, and stay away from them. Do not regard the covering, which may be observed on our wires, as insulation.
- b. Report any downed, hanging or burning wires to RMLD at (781-942-6598) or the Reading Police at (781-944-1212) or Reading Fire Department at (781-944-3132). The North Reading Police at (978-664-3131) or North Reading Fire Department at (978-664-3112). The Lynnfield Police at (781-334-3131) or the Lynnfield Fire Department at (781-334-5152). The Wilmington Police at (978-658-5071) or Wilmington Fire Department at (978-658-3346).
- c. Massachusetts State Law requires contacting "**DIG SAFE**" three (3) full working days prior to doing any excavation, digging holes, or driving posts regardless of whether it is within the street or on private property. Obtain information by calling **811**. The RMLD shall not mark out privately owned underground facilities and it shall be the sole responsibility of the owner of said facilities to have them marked out.
- d. Swimming pools and spas must not be installed beneath our overhead facilities or above our underground facilities.
- e. Proper installation of generators by a qualified person is essential to avoid electrical source feeding back into our lines and endangering unsuspecting utility workers.

UNSAFE EQUIPMENT

It is the Customer's responsibility to ensure that all service equipment on the Customer's premises complies with all applicable National Electric Code (NEC), National Electric Safety Code (NESC), federal, state, and local safety codes. RMLD reserves the right to suspend service if it has any reason to believe the Customer's equipment poses a safety risk.

RMLD does not assume responsibility for detecting any unsafe conditions with the Customer's service equipment. However, if upon inspection RMLD determines that any part of a Customer's service is in violation of applicable electric codes or otherwise poses an electrical safety risk, RMLD has the right to declare a service 'unsafe'.

Upon determination that a Customer's service is 'unsafe', RMLD will post notice at the service address or otherwise notify the Customer. Whenever RMLD or the Town Wire Inspector determines that any electrical system, or portion thereof, has become hazardous to life, health or property, RMLD will issue in writing that such electrical systems either be removed or restored to a safe condition. A time limit for compliance with such order shall be specified in the written notice. When such electrical system is to be disconnected, written notice as prescribed in this section shall be given. In cases of immediate danger to life or property, such disconnection shall be made immediately without such notice.

RMLD may refuse or discontinue service to a Customer if:

- a. Any part of the Customer's wiring or other equipment or the use thereof is determined by the Town Wiring Inspector or RMLD Personnel to be unsafe or
- b. In violation of applicable laws, rules, or regulations, or
- c. If any condition existing upon the Customer's Premises is determined to endanger the well-being of the Customer or any electrical worker.

RMLD will not connect or restore service until the Customer has contracted a licensed electrician to remedy the unsafe equipment issue and gets wiring approval from the Town Wiring Inspector. No person shall use or maintain a defective electrical system after receiving a disconnection notice.

RMLD does not assume any responsibility of repairing the Customer's wiring or other equipment and assumes no liability. (i.e. inadequate grounding, surge protection, overcurrent protection, etc). Refer to Section 12 for further information.

1.10. ENERGY EFFICIENCY, CONSERVATION, AND ELECTRIFICATION PROGRAMS

RMLD offers energy efficiency, conservation, and electrification programs which provide incentives and rebates for all Customer classes. The Programs are intended to increase awareness and accelerate adoption of practices, products, and technologies that provide a multitude of benefits, including:

- Helping customers use energy more efficiently in their home or business
- Reducing RMLD's electricity usage during expensive peak demand times

- Helping the environment by reducing carbon emissions
- Increasing electrification within RMLD's service territory

The Programs are a combination of education, services, and financial incentives including rebates.

The Programs are funded by the Energy Conservation Charge (ECC) included on each customer's electric bill. Residential programs are provided in accordance with the Massachusetts Residential Conservation Services (RCS) Program.

See Appendix G for programs and program requirements. RMLD retains the right to make final determination of Customer eligibility. Qualifying measures are subject to rebate availability. RMLD may suspend or discontinue any programs at its discretion at any time.

1.11. RMLD SYSTEM VOLTAGE CONVERSION AND UPGRADES

RMLD reserves the right to convert from one distribution voltage to a higher distribution voltage during system upgrades. Primary metered Customers (Customers who own private pole lines, underground cable, transformers, and any other equipment) in areas undergoing voltage upgrade are required to upgrade their facilities at their expense to support the new system voltage.

1.12. REQUIREMENTS AND COMPLIANCE WITH ELECTRIC CODES

RMLD requirements stated in this manual are not intended to supersede or conflict with the pertinent standards of the NEC, NESC, or with any state or municipal rule now in effect or which may later be enacted. The latest revision of the NEC is a minimum requirement. Some requirements in addition to those in the latest edition of the NEC are contained herein because RMLD deems them advisable for the public safety and the safety of RMLD representatives. Service Connection will not be made until approval is received from the respective Town Wire Inspector.

RMLD has no obligation or legal authority to determine whether or not the Customer's wiring and installations are proper and safe or comply with the NEC, NESC, or other codes or regulations in effect at the Customer's location. However, if it comes to the attention of RMLD that the Customer's wiring and electrical installations are not proper and safe, or do not comply with such codes, RMLD reserves the right to refuse or discontinue service until such time as the issues are resolved.

1.13. SERVICE INTERRUPTION

RMLD shall not be liable for any interruption, abnormal voltage, or discontinuance of its service if such interruption, abnormal voltage, or discontinuance is without willful misconduct on its part, or is due to causes beyond its immediate control, such as;

- Fire
- Explosion
- Flood

- Weather conditions
- Accident
- Labor difficulties
- Gross negligence
- Conditions of fuel supply
- Reduction in voltage
- Rotating of the use of feeders
- Selected blackouts
- Failure by RMLD Power or Transmission Service Provider to provide electricity for which in any manner it has contracted
- Emergency voltage and / or load reduction program issued by ISO-NE Standard Operational Procedures
- Inability for any other reason to maintain uninterrupted service.

Note: Refer to Section 12 for Customer System Protection Guidelines against electrical anomalies.

CRITICAL CARE CUSTOMERS

RMLD does not maintain a list of medically disabled or otherwise electric dependent Customers. RMLD does not guarantee power or assign priority for power restoration. In the event of a power outage, electric dependent Customers are advised to seek professional medical attention or secure a small house generator to ensure that any critical care equipment can operate.

ISO-NE LOAD SHEDDING OPERATIONAL PROCEDURES

When instructed by ISO-NE, electric power may be cut off to large blocks of Customers to protect the electric system - this is known as 'load shedding'. In extreme situations— such as during a severe generating shortage or the loss of a major transmission line— load shedding may be implemented and usually only after ISO New England and RMLD have pursued all other available actions such as voluntary load curtailment or other emergency actions. Depending on the situation, load shedding could be immediate, with no prior actions taken and RMLD may temporarily not be able to keep power flowing to essential facilities.

ISO New England and RMLD continually take steps to maximize the availability of electricity supplies. Still, power shortages are possible if the region experiences an extended heat wave, there is an extremely heavy demand for electricity, or an extraordinarily high amount of unplanned power outages occur.

2.0 PLANNING YOUR ELECTRIC SERVICE

2.1. AVAILABLE SERVICE VOLTAGES & CHARACTERISTICS

- Single Phase – 3 Wire 120/240V
- Single Phase – 3 Wire 120/208V (from 4 wire system) – Network meter
- Three Phase – 4 Wire 120/208V
- Three Phase – 4 Wire 277/480V
- Three Phase – 13.8kV Primary Service (at RMLD's discretion)

SERVICE TYPE INDEX

When planning electric service work in RMLD territory please identify the bulleted item that best describes your circumstances. Then refer to the recommended section for requirement details that pertain to your project.

- Applying for a new service at an existing location that you own and occupy:

SECTION 5.1

- Apply for service at an existing location that you do not own (rental property):

SECTION 5.2

- Temporary Service to supply power during construction:

SECTION 6.1

- Basic new residential service up to 200 amperes:

SECTION 7.1

- Large residential services, with a main breaker 400 amperes or larger:

SECTION 7.1

- Very large residences, multifamily, apartment complexes, and condominium complexes:

SECTION 7.4

- Commercial and industrial installations three-phase 120/208V or 277/480V:

SECTION 8.1

- Electric Services using back-up generator(s):

SECTION 13.3

- Demolition of Service:

SECTION 2.3

2.2. PERMENANT SERVICES AVAILABLE FROM RMLD

RESIDENTIAL

Residential service is defined as service to a single-family residence or service to multi-family residence such as a duplex or condominium. Single-phase service (120/240 Volts) is available for all residential services up to 400 amps. Multi-family dwellings, such as apartment buildings, with multiple meters may require 120 / 208 three phase feed to the property.

RESIDENTIAL UNDERGROUND RESIDENTIAL SUB-DIVISIONS (URD)

RMLD will supply (at the expense of the contractor / developer) any required transformers, transformer pads, secondary handholes, riser poles, fiberglass light poles, street lighting and any other materials required by RMLD and make the final connection for utility service for URD's. (with the exception of the town of Lynnfield where public area sub-division lighting shall be specified by the town of Lynnfield and provided and installed by the contractor / developer and fed through a separate town billed meter) Each residence in the URD will be supplied 120/240 Volt service rated up to and including 400 amps. For URD's that extend beyond one pole length, 125 feet, from the existing RMLD distribution system, contractors / developers shall be responsible for all RMLD added costs to extend the RMLD electrical distribution system as required.

The contractor will supply materials and associated provisions per RMLD specification for primary cables, primary terminations, secondary cables, grounding, manholes and conduits, The subdivision contractor / developer will be responsible for trenching, installing conduit, primary cable, secondary cable, transformer pads, hand holes, transformer ground grids, terminators, and anything else not provided by RMLD. The contractor/developer is also responsible for providing a spare underground conduit per RMLD design, free of obstruction, with a 2,000 lbs. pulling line through each spare conduit installed.

COMMERCIAL/INDUSTRIAL SERVICE

The Customer shall be required to supply a plot plan showing the placement of buildings, an electrical design of the site. The customer/electrician must request a Utility Authorization Number (UAN) by calling RMLD at (781) 942-6598. The customer's electrical contractor

shall furnish the RMLD with a completed and signed Load Data Sheet form provided in Appendix M.

NUMBER OF ELECTRIC UTILITY FEEDS PER BUILDING

Generally, one feed will be installed to a building. Two or more feeds may be installed at the option of RMLD if approved by the Town Wiring Inspector.

OUTBUILDING SERVICE

RMLD shall not be required to install a service or meter for a garage, stable, or other outbuilding, if it is so located that it may *reasonably* be supplied with electricity through a service and meter located at the property's main building.

SERVICE TO MOBILE HOMES AND TRAILERS

Service is available to mobile homes and trailer parks under the same arrangements as provided for other individual residences with the following considerations:

- a. The meter facilities and service equipment shall be grouped and installed on a permanent support not physically attached to the mobile home or trailer.
- b. An approved rain-tight disconnecting means having a capacity of not less than 100 amps shall be provided at the meter location.
- c. Access to existing poles and lines must not be restricted by Trailer or Mobile Home location.
- d. Proper clearances to metering equipment must be maintained by the Customer at all times. See Section 15.4 and Figure 8 in Appendix H.
- e. Grounding and bonding at mobile home parks needs to be approved by the Wire Inspector per NEC.

DEMOLITION OF SERVICE

Customers seeking to demolish an existing electrical service must obtain the proper permits from the Town Wire Inspector.

- Reading Wire Inspector 16 Lowell Street, Reading, MA 01867
- North Reading Wire Inspector 235 North Street, North Reading, MA 01864
- Wilmington Wire Inspector 121 Glen Road, Wilmington, MA 01887
- Lynnfield Wire Inspector 55 Summer Street, Lynnfield, MA 01940

Refer to applicable town website for contact information

A 72-hour notice (3 days) must be given to RMLD prior to demolition for scheduling removal of RMLD property.

2.3.CONTRIBUTION IN AID OF CONSTRUCTION (REQUIREMENT APPLICABLE TO ALL CUSTOMERS)

INFRASTRUCTURE IMPROVEMENT FOR THE SYSTEM (NO AID TO CONSTRUCTION FROM CUSTOMER)

When RMLD installs, replaces, or makes major repairs to electric infrastructure that will increase the reliability and/or safety of the system all costs will be assessed to the electric rate payers of RMLD.

CONTRIBUTION AID TO CONSTRUCTION POLICIES (AID REQUIRED FROM CUSTOMER)

- If RMLD must add to, expand, or upgrade its facilities due to the increased load of an existing Customer or the projected load of a new Customer, RMLD may require the Customer to pay a Contribution in Aid of Construction reasonably related to the incremental cost of the additional facilities needed to provide the Customer with service.
- RMLD may require a Customer who requests relocation, conversion (undergrounding), modification, or other alteration of RMLD facilities to pay a contribution in aid of construction.
- RMLD may require a contribution in aid of construction payment for any enhanced distribution system or enhanced distribution facilities installed at the request of, or to benefit, a Customer or potential Customer.
- RMLD may require a contribution in aid of construction payment for any design, construction and related costs performed at the Customer's request and that is not specifically covered in the Handbook. Work will begin only after RMLD determines the proper contribution in aid of construction amount and documents in the written agreement, any necessary additional terms and conditions.
- RMLD may require a contribution in aid to construction for the facilities required to serve any load that, based on RMLD estimates will not provide RMLD an adequate return of investment.
- RMLD may, at its option, compute its charges on the basis of standard unit costs as determined from periodic studies made by RMLD of similar construction or removal.
- Any distribution line or service extension or reconstruction of facilities will be individually evaluated. Such line or service extension or reconstruction may require payment of a contribution in aid of construction. See Section 10.
- RMLD requires a full value Working Capital Down Payment for all RMLD supplied equipment.

For non-URD applications, a full value Working Capital Down Payment is necessary from Customers that require transformation equipment which totals 1000 kVA and higher. Charges for transformation, poles, and associated labor and equipment may apply where transformation is required due to voltage drop issues created by proximity of the service to

RMLD's distribution facilities, in which case customers shall be charged for transformation regardless of size.

(i.e. this would apply to buildings with one service, properties with multiple services such as campus style, apartment buildings, etc)

3.0 APPLYING FOR ELECTRIC SERVICE

In all cases new/modified electric service to an existing or new building is a joint effort between the Customer and RMLD. The Customer or their qualified electrical contractor is responsible for obtaining a Utility Authorization Number (UAN) by calling RMLD Customer Service at (781) 942-6598, a wiring permit from the Town where service is located, paying the metering account deposit (if applicable), paying for any applicable Contribution Aid to Construction, and ultimately having the Town Wire Inspector approval on all work performed before RMLD will energize the new or modified service. The Town Wire Inspector must call in approval of the work to RMLD Control Center recorded phone line.

At the site, the Customer must provide an unobstructed overhead path for RMLD overhead service cable or a completed underground system (conduit and cable) ready for connection to RMLD infrastructure. After the necessary paperwork has been completed and the site is readied, RMLD will complete the connection to its electrical infrastructure and install a revenue meter in the Customer's meter socket.

4.0 METERING, BILLING, PAYMENTS, AND NON-PAYMENTS

4.1. METERING

For the purpose of determining the amount of electricity delivered, meters shall be installed by RMLD at locations to be designated by RMLD, and upon the readings of such meters, all bills shall be computed. Bills for electric service will be calculated separately for each location served. A rate available for a certain class of service such as Residential or Commercial shall apply to all such service taken at an individual meter location.

METERING ACCOUNT DEPOSITS

See Section 5.3 and 5.4

CUSTOMER-OWNED GENERATION METERING

This section incorporates the technical specifications related to interconnection requirements and safety standards for customer owned generation systems. This section is applicable to all customer owned generation systems interconnected to the RMLD system,

and applies to every person, firm, company, and corporation engaged in the leasing, construction or operation of any customer owned generation system.

See Appendix C for Customer Owned Generation Rates and Tariffs. See Appendix E for Customer-Owned Generation Requirements and Guidelines.

PRIMARY METERING

See Section 8.5.

4.2.BILLING AND PAYMENTS

The Massachusetts Department of Utilities' (MDPU) billing and terminations regulations and procedures shall apply to matters regarding billing and payments to the extent applicable. To the event of any conflict, the MDPU's rules and regulations will govern.

- a. Where electricity is delivered through more than one meter, the cost of electricity delivered through each meter will be computed separately.
- b. Wherever reference is made to electricity delivered or a payment to be made for electricity "each month" or "per month" it shall mean the electricity delivered in the period between two successive regular monthly meter readings.
- c. RMLD shall have the right to discontinue its service on due notice and to remove its property from the Customer's premises in case the Customer fails to pay any bill due to RMLD for electric service, or fails to perform any of its obligations to RMLD. For any restoration of service after such credit discontinuance, there will be a disconnect/reconnect fee charged by RMLD. Please see Appendix K for applicable fees and charges.
- d. All bills shall be due and payable upon presentation. RMLD offers a prompt payment discount for all customers (except municipal streetlight formula rate).
- e. All Customers are allowed to pay their energy usage bills at www.rmld.com by clicking on "Pay My Bill" link. RMLD offers a one-time payment choice in addition to a monthly autopay option. RMLD also offers paperless billing. Customers may call Customer Service (781-942-6598) to pay over the phone with a debit, credit card or checking information.
- f. Customer payments returned to RMLD due to either insufficient funds or insufficient credit will be charged a service fee. Please see Appendix K for applicable fees and charges. Additionally, if the Customer receives a credit on their monthly bill for a payment, which is later returned, the Customer Service Department will reverse said credit on the Customer's account.
- g. No officer or agent of RMLD shall charge, demand, collect, or receive a greater, lesser or different compensation for supplying electricity than the rates and charges

applicable thereto, as specified in RMLD Rates and Tariffs in effect at the time – see Appendix C.

- h. Sub-metering of retail electric service for third party resale is not permitted.
- i. See Appendix C for the current RMLD Rates and Tariffs.

4.3.SERVICE DISCONNECTION DUE TO NON-PAYMENT

Except at the request of the Customer, RMLD shall not disconnect electric service unless payment of a valid bill or charge is delinquent and notices of disconnection have been furnished to the Customer, as provided by Customer Service. This shall not apply to any disconnection or interruption of service made necessary for reasons of health or safety of the Customer or the general public. The MDPU's billing and terminations regulations and procedures shall apply to matters regarding service disconnection to the extent applicable. In the event of any conflict, the MDPU's rules and regulations will govern.

Any service that is discontinued will be in strict accordance with applicable billing and termination procedures of the MDPU. RMLD may remove its equipment from the Customer's premises for violation of any federal, state, or local laws or government regulations.

4.4.SERVICE RECONNECTION

- a. Any service reconnection will be in strict accordance with applicable billing and termination procedures of the MDPU.
- b. RMLD will restore service if the disconnected Customer pays the applicable fee and pays the delinquent bill. Please see Appendix K for applicable fees and charges. If Residential Customer has proven financial hardship, 25% of the past due must be paid then a payment plan may be arranged. Under this plan a past due balance may be paid in equal installments over a specific period. Current charges will be due in addition to the payments on the past due balance. The length of time that a payment plan extends will vary from a minimum of four months depending on the past due balance and the ability to pay.
- c. Service reconnects where the service has been shutoff for a period exceeding 14 calendar days shall require Town Wiring Inspector approval prior to reenergization.

ESTABLISHMENT OF A PAYMENT PLAN

When establishing a reasonable payment plan, Customer Service will consider the Customer's payment history, the size of the arrearage, the amount of the current bill, the amount of time the bill has been outstanding, and the reason for the outstanding bill. Payments shall be applied toward the delinquent portion of the account before being applied to the current bill.

4.5. BUDGET BILLING PLANS

RMLD offers budget billing to residential Customers.

- a. The plan shall be designed to reduce fluctuations in Customer bills due to seasonal patterns of consumption. A Customer must elect to participate in the budget billing plan in January.
- b. RMLD has a budget bill program that runs from January to November with the month of December being the true up month. Equalized monthly payments are offered to Customers electing to be billed under this program. Customers must sign up for this option. Customers must sign up for auto pay on these payments.
- c. A budget payment plan shall be based on the Customer's recent twelve-month consumption. If twelve months of billing data are not available for the Customer, then the number of months of billing data available shall be used.
- d. Each plan shall provide that bills clearly identify actual consumption and state the amounts that would be due without budget billing.

5.0 EXISTING RESIDENCE OR COMMERCIAL SERVICE

5.1. OWNER OCCUPANT – EXISTING RESIDENCE OR COMMERCIAL PROPERTY

To apply for electric service at an existing residential or commercial property which is already metered and connected to RMLD distribution system, please contact the Customer Service (781-942-6598) during regular business hours posted on the RMLD website. Please remember that it is the Customer's responsibility to inform RMLD prior to change in ownership or when moving.

5.2. RENTER/TENANT – EXISTING RESIDENCE OR COMMERCIAL PROPERTY

To apply for electric service at an existing residential rental property which is already metered and connected to RMLD distribution system, please contact the Customer Service (781-942-6598) during regular business hours posted on the RMLD website. RMLD requires a security deposit for all renter and that all prior RMLD electric service account balances be paid in full before establishing a new account. A meter reading will be taken, and the billing department will change the account to the new name. Please remember that it is the Customer's responsibility to inform Customer Service (781-942-6598) of a change in ownership or when moving. See the following section for a complete explanation of Customer deposits.

5.3. RESIDENTIAL CUSTOMER DEPOSITS

RMLD Residential Rental Customers are required to pay a security deposit equal to an estimated bill for up to three months' service or such other amount permitted by applicable law or regulation. This requirement shall apply to all Residential Rental Customers of RMLD. It is a condition of obtaining service. For more information, please refer to RMLD's prevailing General Terms and Conditions for Electric Service.

Interest is earned on Customer deposits at a rate equal to yields on the U.S. Treasury securities at a constant, fixed one-year maturity. Earned interest shall be paid to the customer or shall be credited to the Customer account in accordance with applicable laws or regulations. Federal govt. data on interest rates can be found at <http://www.federalreserve.gov/releases/h15>.

ACCOUNT TERMINATION AND RECONNECTION

Upon the Customer's request for termination of service all deposits and accumulated interest will be applied to any outstanding balance; any remaining credit will be returned to the Customer in the form of a refund check mailed from the Town of Reading.

At such time a Customer requests a reconnection of service, any changes in service requirements shall be reviewed by RMLD in regard to the security deposit which shall then be adjusted to satisfy the changes in deposit requirements.

Any account which has been terminated shall not be reconnected until the following conditions of service have been satisfied:

- a. All bills due to RMLD for service previously provided have been paid in full or.
- b. A satisfactory payment plan has been established with RMLD.
- c. A deposit as determined in this section of the handbook has been paid.
- d. A service disconnection notification fee has been paid in full.
- e. Town Wiring Inspector has given their approval for reconnection as needed.

Note: It is the Customer's responsibility to notify RMLD when vacating the premises. The Customer will be held responsible for all bills incurred until official notice of account termination has been received by RMLD.

5.4. COMMERCIAL CUSTOMER DEPOSITS

RMLD Commercial Customers may be required to pay a security deposit equal to an estimated bill for up to three months' service or such other amount permitted by applicable law or regulation. The type of business, the size of the space and the estimated usage may also be taken into consideration in the security deposit calculation. For more information, please refer to RMLD's prevailing General Terms and Conditions for Electric Service.

APPLICABILITY

This requirement shall apply to all Commercial Customers of RMLD. Any account receiving service prior to the effective date of this requirement and having met the deposit requirements of the requirement in effect at the time such original service was installed shall not be required to meet the deposit requirements of this requirement except as otherwise provided herein.

TERMS

All Commercial Customers of RMLD shall be required to pay a security deposit to RMLD prior to the connection of service with exception for Customers who own the land and building(s) at the service address. Such deposits shall be in an amount equal to three months of electrical service billings as estimated by RMLD. No other waivers of such security deposit shall be granted to any new account except those meeting the criteria as cited above.

The security deposits may be maintained for the full term of service. Interest on security deposits held longer than six months shall be paid to the Customer or shall be credited to the Customer's account in accordance with applicable laws or regulations. RMLD may waive the security deposit, in its sole discretion, when payment of the charges may be secured through other means. All bills must be kept current. For more information, please refer to RMLD's prevailing General Terms and Conditions for Electric Service.

INTEREST ON DEPOSITS

Any account in existence shall accrue interest on security deposits. Interest is earned on Customer deposits at a rate equal to yields on the U.S. Treasury securities at a constant, fixed one-year maturity. Earned interest shall be paid to the customer or shall be credited to the Customer account in accordance with applicable laws or regulations. Federal government data on interest rates can be found at data at <http://www.federalreserve.gov/releases/h15>

ACCOUNT TERMINATION AND RECONNECTION

If a Customer requests a reconnection of service, any transfer of accounts or changes in business location shall also be considered as new accounts except if the Customer has previously paid a deposit in full and made all bill payments within the 30-day time frame. Each additional business location shall be considered as a separate account and will be required to individually satisfy the security deposit requirement. Any changes in service requirements shall be reviewed by Customer Service in regard to the security deposit which shall then be adjusted to satisfy the changes in deposit requirements.

Upon the Customer's request for termination of service all deposits and accumulated interest will be applied to any outstanding balance; any remaining credit will be returned to the Customer.

Any account which has been terminated shall not be reconnected until the following conditions of service have been satisfied:

- a. All bills due to RMLD for service previously provided have been paid in full or.
- b. A satisfactory payment plan has been established with Customer Service at RMLD.
- c. For Rental Customers, a security deposit as determined in this section of the handbook has been paid.
- d. A service connection fee has been paid in full if disconnected for credit.

- e. Town Wiring Inspector has given their approval for reconnection as needed.

Note: It is the Customer's responsibility to notify RMLD when vacating the premises. The Customer will be held responsible for all bills incurred until official notice of account termination has been received by RMLD.

6.0 TEMPORARY ELECTRIC SERVICE

6.1. GENERAL

- Temporary service will be provided to the Customer in accordance with RMLD's specifications and requirements and at the Customer's expense. For more information, please refer to RMLD's prevailing General Terms and Conditions for Electric Service.
- Temporary services will be provided at construction sites for connection to RMLD distribution system. The intent of these services is to provide temporary power during new construction or renovation. RMLD reserves the right to determine the justification for temporary service at the time of request and thereafter until removal. Remember that Temporary electrical service is not in lieu of or a substitute for a fully inspected permanent service in any residence or building.
- RMLD must make all connections (or removals) from RMLD distribution facilities. Violation will result in immediate termination of service by RMLD.
- Temporary services indicate to RMLD that a new load will soon be permanently connected to our infrastructure. For this reason, the owner or owner's representative should be prepared to discuss and document planned electrical loads that will result from the new construction by applying for a Utility Authorization Number. Later in this process a RMLD representative will meet with the owner's electrical contractor to determine the exact meter location. If the new building foundation is in place, the final metering location will be marked. If the foundation is not in place, the building plans and plot map will be used to finalize the metering location. RMLD reserves the right to have the final say on service and meter location.
- Temporary services cannot cross adjoining property lines and they must meet all NEC Requirements including clearance requirements.
- No generator is to be connected in parallel with RMLD distribution facilities at any time.

6.2. APPLYING FOR TEMPORARY SERVICE (AVAILABLE AT SECONDARY VOLTAGES ONLY)

A Utility Authorization Number must be obtained by the electrician by calling Customer Service at (781-942-6598). Once Customer Service has issued a Utility Authorization Number (UAN), a permit to perform electric work must be obtained from the Town Hall of the Town where the work is being performed. A UAN number (see Appendix B) is required

to obtain a wiring permit in any of the four Towns that RMLD services. When the work is completed, the Wire Inspector must inspect the work and call in the approval to RMLD.

6.3.COSTS FOR TEMPORARY SERVICE

See Appendix A for a description of RMLD temporary service methods. For more information, please see Appendix K (for applicable fees and rates) and, RMLD's prevailing General Terms and Conditions for Electric Service. There will be an additional charge for all RMLD costs associated with temporary services extending beyond a standard overhead one pole span installation. This charge will be based on the total labor and other costs plus the total costs of any non-reusable materials. Labor costs include the hourly cost of RMLD labor and equipment. Any materials used solely for the temporary service and deemed non-reusable by RMLD will be billed to the Customer. Rates and material costs are subject to periodic change without notice.

Upon completing the application for service and a field visit by a RMLD representative, the temporary service fee and any additional charges will be estimated for the Customer. This estimate will be based on information supplied by the Customer, as well as information gathered during our site visit. The Customer will be required to pay the final temporary service fee and additional charges prior to the connection and installation of the electric revenue meter.

Please note that if RMLD representatives travel to a site at an agreed upon time but cannot make the final connections due to blocked physical access, clearance deficiencies, installation deficiencies, or other conditions beyond our control an additional charge will be assessed for the return trip.

6.4.RESPONSIBILITIES ASSOCIATED WITH TEMPORARY SERVICE

The following lists the general division of work between the contractor/Customer and RMLD. This is subject to change without notice and the contractor may be required to perform additional tasks under unusual situations.

CUSTOMER/CONTRACTOR RESPONSIBILITIES:

- Obtain a Utility Authorization Number (UAN) from Customer Service 781-942-6598.
- Meet on-site with a RMLD representative to determine the location of the temporary service.
- Apply for and obtain a wiring permit as required with the respective Town Wiring Department.
- Call Dig Safe (**811**) for the underground utilities to be marked prior to any digging.
- Install the required temporary service equipment for either overhead or underground connection to RMLD system.
- Pay the applicable non-refundable temporary service fee and applicable charges to RMLD for the temporary service.
- Notify the Town Wiring Inspector that an inspection is required and gain the Inspector's approval of the temporary service equipment.

- Notify RMLD that the temporary service is approved for connection.

RMLD RESPONSIBILITIES:

- Meet with the Customer to determine an acceptable location of the temporary service.
- Provide an estimated temporary service fee and applicable charges to the Customer in a timely fashion.
- Check prior to installing power to the temporary that all NESC for clearances to buildings and roadways will be met.
- Install the overhead service lines to the temporary structure to supply power.
- Connect the Customer's cables to RMLD distribution facilities.
- Install a meter in the socket.
- De-energize the temporary service after notification by the Customer that it is no longer needed.

6.5.TEMPORARY CONNECTION METHODS

See Appendix A for a list of possible methods for connecting temporary service to RMLD grid. The Customer may request a particular method; however, RMLD personnel will make the final decision as to the method of interconnection.

7.0 RESIDENTIAL ELECTRIC SERVICE – NEW, UPGRADE OR RELOCATION

7.1.GENERAL

RMLD residential services to single and multiple family housing units are generally provided at 120/240V single-phase (up to and including 400 amp service).

Very large homes and multi-family dwellings that require a 400-amp service will be generally supplied using a single 120/240 volt pad mount or pole mount transformer. For residential dwellings with a service above 400 amps RMLD will work with the Customer or contractor in an effort to achieve the required power in the most economical, sensible and safe manner. Generally, this will involve one or more 120/208 volt three-phase pad mount transformer(s) located on the Customer's premises. These transformers will require a primary voltage feed from RMLD distribution facilities. An appropriate legal easement as defined by RMLD and furnished by the customer shall be required for any RMLD owned facilities on the customer's premises. The signed and registered easement shall be provided with an approved plot plan by the applicable town and RMLD.

7.2.COSTS FOR PERMANENT SERVICE

GENERAL

A single or three-phase transformer will be supplied by RMLD to residential Customers and RMLD will make necessary connections to the distribution facilities up to and including 750 kVA of transformation at no charge. This includes the connections to the transformer and at

the riser pole. RMLD will also provide the secondary service handholes. All other charges such as trenching, conduit, primary and secondary cable, terminators, transformer base and ground grid, riser, etc. are the Customer's responsibility. Contact RMLD's Engineering dept. for further information.

OVERHEAD SERVICE

RMLD will connect a Customer to RMLD overhead distribution facilities at no additional charge if they are located within approximately 150 feet of the our overhead distribution facilities (terrain and angle dependent) with RMLD supplying and installing *up to* one pole and one section of wire and a service drop. Please see RMLD requirement in Section 10 of this handbook for residential Customers that require longer connecting facilities. All construction from RMLD primary distribution system leading up to the Customer's point of attachment will be owned and operated by RMLD.

UNDERGROUND SERVICE

Customers connecting to RMLD 120/240V overhead distribution facilities via underground conductors, will be connected, as specified by RMLD, and supplied with 150 feet of overhead cable, riser pole (if the home can't be reached with a standard overhead service which is approximately 120') along with a handhole if and as needed; however, the trenching, conduit, wire, terminators, pole riser and other costs associated with the UG service are the Customers' responsibility. All construction from the point of connection at the riser up to the Customer meter will be owned and operated by the customer.

7.3.APPLYING FOR PERMANENT RESIDENTIAL SERVICE

A Utility Authorization Number must be obtained for all residential services. Once RMLD has issued a Utility Authorization Number, a permit to perform electric work must be obtained from the respective Town Hall. Refer to the following link for further information:

<https://www.rml.com/service/faq/i-am-electrician-how-do-i-apply-utility-authorization-number-uan-and-what-information-do>

OPTIONAL CONNECTIONS TO RMLD DISTRIBUTION FACILITIES

With the approval of the RMLD, the Customer may choose how they wish their residence to be connected to RMLD system if the facilities are available and they agree to the additional charges necessary to accomplish the desired task.

RESIDENTIAL OVERHEAD SERVICE

The most basic service connection is a service drop from an existing or a new pole to the point of attachment on a dwelling. Typically, RMLD can reach the Customer within the maximum (no charge) allotment of one pole and 150' on private property, one section of wire, and a service drop. The meter location and service attachment point are identified early in the project by RMLD. Upon final inspection by the Town Wiring Inspector, RMLD will route service cable to the homeowner's service point of attachment and install the meter in the Customer's socket then energize the service upon approval of the wire inspector.

The Customer is required to provide an easily accessible, clear path (both aerial & on the ground), devoid of trees, wetlands, and other obstacles, where our crews can route the service cable. RMLD will provide a maximum of one utility pole with associated infrastructure at no cost to the Customer. The Customer will be financially responsible for all poles and other infrastructure beyond this 1 Pole Limit. See Section 10 for details. Please note that tall growing vegetation planted under power lines could encroach on your power line – see Section 1.8. The Customer is responsible to provide a clear path to RMLD meters at all times.

RESIDENTIAL UNDERGROUND SERVICE

Customer may be in an area that requires the service to the residence to be underground with no new aerial wires. RMLD requires all new developments to be supplied with underground residential design guidelines. This may also include underground requirements in areas of the Town designated as only allowing underground service entrances. The Building Inspector, the Town Wiring Inspector, as well as RMLD may assist in determining the requirements and options available to you.

UNDERGROUND SERVICE TO HOMES FED FROM OVERHEAD INFRASTRUCTURE

In existing overhead service areas, the Customer shall tap (120/240 Volt secondary) to RMLD distribution facilities via underground conduit. The Customer will be responsible for any required trenching, conduit, wire, concrete to protect the conduit, the service riser (including the weather seal) on the pole as well a meter socket and the service conductors. RMLD will not be liable for the weather seal or any leakage that occurs on the service riser. Steel conduit shall be used for all secondary risers. The customer's electrician shall drive a ground rod at the pole and bond it to the steel riser in accordance with NEC guidelines – see Appendix H, Figure 13. If the Customer chooses to use gray PVC electrical grade conduit (40 or 80), from the riser pole to the meter socket, they must use a steel sweep (36", 90 degree) at the pole with up to 10' of steel conduit in the ground and transition to PVC and connect to an RMLD supplied handhole. Customer shall be responsible to provide RMLD with an adequate length of service cable at the riser pole for interconnection to RMLD's infrastructure. RMLD will make the final connections at the pole including attaching all riser poles above 10 feet (safety issue) and the installation of a suitable meter.

UNDERGROUND SERVICE TO HOMES FED FROM EXISTING UNDERGROUND INFRASTRUCTURE

In existing underground service areas (UG) the Customer will be required to meet RMLD system via underground conduit and wires to the existing hand hole or transformer using electrical grade gray PVC schedule 40. The service entrance shall be connected to the underground conduit via an expansion coupling at the meter socket to allow for settling of the construction site without damage to the service. The Customer will be responsible for any required trenching, conduit, wire, concrete to protect the conduit, as well a meter socket. RMLD will make the final connections at the hand hole or transformer.

UNDERGROUND SERVICE TO METER PEDESTAL

With prior approval of the RMLD, Customers building new residences may elect to have the meter and service at their location connected using a pedestal meter, typically located some distance away from the house. Conduit to the Customer's service panel as well as other utilities is then run underground from the pedestal into the basement area of the house. Refer to sections above for interconnection requirements when connecting to overhead or underground RMLD infrastructure.

7.4. RESPONSIBILITIES AND EASEMENTS ASSOCIATED WITH RESIDENTIAL PERMANENT SERVICE

A Customer's premises may be connected to RMLD's overhead distribution facilities via an underground connection where the Customer installs and maintains the entire underground service exclusive of the riser pole. Ownership of all service equipment located on the Customer's property shall remain the property of the Customer. The service connection when located in the public way shall become the property of RMLD. An easement may be required as determined by the RMLD.

- a. If for any reason it becomes necessary for RMLD to relocate any of its pole, wire, or cable facilities by which a Customer is served, the Customer shall change the location of its point of delivery to a point readily accessible from the new location. The cost of this work is the responsibility of the Customer. In addition, the customer shall grant the RMLD an easement for any RMLD owned and operated equipment.
- b. Electric service must not be used in such manner as to cause unusual fluctuation or disturbance in RMLD's supply system and in the case of violation of this rule, RMLD may discontinue service, or require the Customer to modify the installation and/or equipment using approved controlling devices that will eliminate such disturbance.
- c. The Customer will be required to pay the cost of any special installation necessary for service at other than standard voltages or for service with closer voltage regulation than required by standard practice. The excess cost will represent the difference in costs between the special installation and a normal installation.
- d. Applications involving extension requiring abnormal construction which would result in extraordinary costs, such as crossing rivers, railroads, ponds, extending to an island, use of submarine cable, and other special conditions, are considered as special cases. Customers or other parties requesting such extensions shall be responsible for all costs incurred including maintenance and repair costs in the future.
- e. If, at any time, RMLD is required to remove a Customer's meter and determines that it is unsafe to do so, the Customer is required to upgrade any equipment necessary to ensure the safe removal/installation of the meter at their own expense.

ELECTRIC FACILITY EASEMENTS AND PLANS

The Customer, owner, developer, and contractor shall be monetarily responsible for providing, granting and furnishing an easement for all electric facilities. Typical electric utility easement requirements are stated below:

- A fifteen (15) feet wide strip or cable easement along all front and or street property lines.
- A five (5) feet wide street crossing easement from front property line to front property line wherever cable crossings are required.
- A twenty-two feet wide by twelve feet deep (22'W X 12'D) equipment easement for sectionalizing cabinet and or a pad mount transformer installation.
- A twelve feet wide by twelve feet deep (12'W X 12'D) equipment easement for pad mount transformer and / or secondary handhole installation at the front lot corner(s) and located equally on each lot.
- Note that such easement requirements are project dependent. Project easement requirements will vary both upward and downward from the above stated requirements. All project easement requirements should be filed with definitive subdivision plans.
- RMLD Residential service easements should be determined during the planning stage; however, late stage design changes may be required after open trench inspection.
- Two recordable copies of easement plans — Underground “As Built” drawings showing all underground conduits, sweeps, distance between sweeps, property lines, structures, and utility easements, must be provided to RMLD Engineering and Operations Division prior to energizing of any underground circuits. The total cost for the primary underground installation must also be submitted.
- Deeded private primary underground line easements are required by RMLD. A copy of this deed must be provided to RMLD prior to energization. The size and scope of these easements will be established by RMLD after a site visit.

8.0 COMMERICAL/INDUSTRIAL ELECTRIC SERVICE

8.1. GENERAL

- RMLD can often provide adequate power to commercial enterprises requiring no larger than a 400 amp 120/240 Single Phase service via existing overhead facilities.
- Check with RMLD Engineering department at 781-942-6459 to determine if RMLD can deliver Three Phase 120/208 or 277/480 Volt power to any specific location.
- Customers must provide RMLD with site electrical one-line drawing(s), a Load Data Sheet, and a Utility Authorization Number so that RMLD can plan the utility infrastructure needed to accommodate the service request.
- RMLD will supply the facility meter(s) as well as all complex metering accessories such as PT's and CT's that supply load information to the Customer. These metering installations may also provide electric demand and power factor information. All

meters are owned and maintained by RMLD, therefore RMLD has rights to all of the generated information.

- The Customer will be responsible for all trenching, installing and maintaining all conduit, transformer Pads, necessary ground grid(s), and transformer protective bollards if necessary. In addition, the customer will be responsible for installing, testing, and maintaining all customer owned primary and secondary cables.
- The Customer will be responsible for the installation of all the necessary equipment in accordance with the latest NEC and / or NESC standards.
- For overhead services, the Customer is responsible for all electrical infrastructure past the weather head with the exception of the meter.
- For primary metered customers, the Customer will be responsible and will own the transformer(s) and all primary as well as all secondary electrical infrastructure beyond primary metering. Refer to section 8.5 for primary metering qualification.
- The customer is responsible for providing and maintaining an easement for RMLD owned and operated equipment.

8.2. APPLYING FOR PERMANENT COMMERCIAL/INDUSTRIAL/RESIDENTIAL DEVELOPMENT SERVICE

A Utility Authorization Number (UAN) must be obtained from Customer Service for all electrical work being done. Once RMLD Customer Service has issued a Utility Authorization Number, a permit to perform electric work must be obtained from the Town Hall in the Town where the work is being performed.

8.3. COST FOR COMMERCIAL AND INDUSTRIAL SERVICE

RMLD will provide 1 pole span from existing primary (150' – overhead) onto private property at no cost to the Customer. An underground service may be provided at additional cost paid for by the customer. Please contact RMLD's Engineering dept. for further details. See Section 2.4 for Customer Contribution in Aid of Construction information.

A. All overhead equipment and wiring leading to the RMLD transformer(s) will be owned and operated by RMLD exclusive of Customer cost contribution. All additional wiring and equipment beyond the first 150' will be paid for by the Customer. B. All lateral underground equipment and wiring leading to the transformer (s) will be installed, owned and maintained by the customer.

C. RMLD shall furnish and install transformer(s) up to and including 750 kVA. For transformers sized at 1000 kVA and above, shall be paid for by customer per section 8.4.

Note: Commercial/Industrial Customers requesting a service may be required to pay for all equipment (including transformer) and wiring beyond RMLD's complimentary 150-foot span. Please contact RMLD's Engineering dept. for further details. RMLD requires standardized Load data sheets.

8.4. DEPOSITS AND PAYMENTS

Customers that require transformation equipment sized at 1000 kVA and above shall be required to pay a Working Capital Down Payment to cover the total new value cost of the transformer(s) before an order will be placed.

RMLD requires new value Working Capital Down Payment for the transformers on underground residential developments (URD's) to insure recovery of capital investment.

Customers requiring non-stock or otherwise special-order transformer(s) can expect up to a 6 month or longer lead time upon making the Working Capital Down Payment **in full**.

8.5.PRIMARY METERING

Requests for primary metering, totalized metering, or any other proposed departures from standard metering shall be made in writing to RMLD Engineering staff (781-942-6459) The request will document the need and circumstances for the proposed metering. Customers requiring total transformation of 1500kVA and greater may qualify for primary metering installation.

Rate structure allowances for primary metering are not intended to provide any additional economic benefit to Customers. A primary meter measures both the load and the no load losses across the transformer(s). The primary metering rates take into account for the total the losses across the transformer(s). See Appendix C for primary metering rates.

Primary metering allowances are distinctly separate from any allowances for Customer ownership of facilities. RMLD will, in all cases, make the final determination of the metering scheme and will be based on cost to RMLD and the reliability and accuracy of the overall metering installation.

RMLD personnel determines when primary metering is necessary. For example, primary metering is necessary for a campus style configuration that requires 15 kV switchgear.

8.6.RESPONSIBILITIES AND EASEMENTS ASSOCIATED WITH COMMERCIAL / INDUSTRIAL PERMANENT SERVICE

- A Customer's premise may be connected to RMLD's overhead distribution facilities via an underground connection where the Customer installs and maintains the entire secondary underground service inclusive of the electrical riser installed on RMLD owned pole. Ownership of all secondary service equipment located on Customer's property shall be owned and maintained by the Customer (with the exclusion of RMLD's meter and metering CT's/PT's). The service connection at the riser pole is owned and maintained by the RMLD.
- If for any reason it becomes necessary for RMLD to relocate any of its poles, wire, or cable facilities by which a Customer is served, the Customer shall change the location of its point of delivery to a point readily accessible from the new location. The cost of this work is the responsibility of the Customer.
- Electric service must not be used in such manner to cause unusual fluctuation or disturbance in RMLD's supply system and in the case of violation of this rule, RMLD

may discontinue service, or require the Customer to modify his installation and/or equipment using approved controlling devices that will eliminate such disturbance.

- Projects involving extensions requiring abnormal construction which would result in extraordinary costs, such as crossing rivers, railroads, ponds, extending to an island, use of submarine cable, and other special conditions, are considered as special cases. Customers or other parties requesting such extensions shall be responsible for all costs incurred including maintenance costs.

ELECTRIC FACILITY EASEMENTS AND PLANS

The developer and/or contractor shall be monetarily responsible for providing, granting and furnishing an easement for all electric facilities, as specified by RMLD. Typical electric utility easement requirements are stated below:

- A fifteen (15) foot wide strip or cable easement along all front and or street property lines.
- A five (5) foot wide street crossing easement from front property line to front property line wherever cable crossings are required.
- A twenty feet wide by twenty feet deep (20'W X 20'D) equipment easement for sectionalizing cabinet and / or a pad mount transformer installation.
- A twelve feet wide by twelve feet deep (12'W X 12'D) equipment easement for pad mount transformer installation at the front lot corner(s) and located equally on each lot.
- Note that such easement requirements are project dependent. Project easement requirements will vary both upward and downward from the above stated requirements. All project easement requirements should be filed with definitive subdivision plans.
- Two recordable copies of easement plans — Underground as Built drawings showing all underground conduits, sweeps, distance between sweeps, property lines, structures, and utility easements, must be provided to the RMLD's engineering office prior to energizing of any underground circuits. The total cost for the primary underground installation must also be submitted.
- Deeded private primary underground line easements are required by RMLD. A copy of this registered deed must be provided to RMLD prior to energization. The size and scope of these easements will be established by RMLD after a site visit.

9.0 CUSTOMER SERVICE CONNECTION CLEARANCES AND RESPONSIBILITIES

The Customer shall furnish and install the service entrance conductors, meter socket and equipment. These items shall at a minimum meet the current requirements of the NEC, NESC, the Massachusetts Electric Code and any additional requirements of RMLD. The Customer must grant RMLD any utility easement(s) needed as dictated throughout this document. RMLD requires that these easements be recorded (in perpetuity) on the property deed in all cases. RMLD must be provided with a copy of these registered deeds prior to utility connection.

9.1. LOCATION OF METER AND SERVICE ENTRANCE

RMLD will identify suitable locations for pad mount transformers, meters, and the appropriate riser pole for underground services or point of attachment for overhead

services. Under no circumstances shall construction begin prior to these assignments. See section 14 and 15 of this handbook for more information.

Notes:

- Pedestal meters are allowed in underground areas.
- Although RMLD retains the right of final say, Customer requests will be considered during this process.
- Customers must notify RMLD of intent to start work at least 72 hours in advance to allow time for a service location to be assigned. RMLD Utility Authorization Number (UAN) must be obtained prior to this notification.

9.2.POINT OF ATTACHMENT

Overhead service entrance conductors must be securely fastened to the building, with a weather head height in accordance with the current NEC requirements and any additional requirements of RMLD. An attachment eye bolted and securely fastened to the structure of the building must be installed at a point 6 inches below the weather head or at a suitable point determined by RMLD. RMLD will provide a D-Eye and galvanized bolt, washers and nut for this purpose upon request at no charge to the Customer. Attachments must be made to a structurally sound and well secured surface, suitable for the purpose as approved by RMLD. Attachment to siding, soffits and the like are not acceptable. Customer's service cable shall be extended beyond the weather head by 30 inches for connection allowing for a cable drip loop.

9.3.SERVICE MASTS

Service masts are a suitable alternative to gain the required height when installed in accordance with current NEC requirements and any additional requirements of RMLD and/or Code Administration. The mast shall be adequately attached. Refer to Figure 7 in Appendix H for RMLD requirements.

9.4.CONCEALMENT OF SERVICE ENTRANCE

Service entrance cables or conduit containing service entrance cables shall not be placed within a building wall or concealed in any way, except where they pass horizontally through the building wall to the service panel or inside service mast conduit passing thru a roof. Refer to current NEC requirements.

9.5.SERVICE CLEARANCES TO BUILDING STRUCTURES**CLEARANCES TO PADMOUNT TRANSFORMERS**

The following clearances must be maintained to structural features of the building and other potential hazardous situations. In all cases the closest edge of the pad mount to the building

feature or hazard is used in the measurement. If the structure has an overhang (i.e. deck, staircase, eave) clearance distance is measured from the outside edge of the overhang. In no case shall a pad mounted transformer be located under any type of overhang. Refer to Figure 1 in Appendix H.

CLEARANCES TO ELECTRICAL SERVICE ENTRANCES

Clearances from the Service Entrance Must Be Maintained to Structural Features of the Building and or other Potential Hazards. Refer to Figures 4 through 7 in Appendix H.

9.6.OVERHEAD SERVICE DROP CLEARANCES

SERVICE CABLE REQUIRED MINIMUM VERTICAL CLEARANCES NOT EXCEEDING 300 VOLTS TO GROUND

CABLE WITH A BARE NEUTRAL CONDUCTOR	REQUIRED MINIMUM VERTICAL CLEARANCE
RESIDENTIAL PROPERTY ACCESSIBLE ONLY TO PEDESTRIANS	12 FEET VERTICAL
RESIDENTIAL PRIVATE DRIVEWAYS AND COMMERCIAL AREAS NOT SUBJECT TO TRUCK TRAFFIC	16 FEET VERTICAL
PUBLIC STREETS, ALLEYS, ROADS, PARKING AREAS, SUBJECT TO TRUCK TRAFFIC, AND ALL NON-RESIDENTIAL DRIVEWAYS	18 FEET VERTICAL

MINIMUM VERTICAL CLEARANCES TO STRUCTURES

Minimum allowed Vertical Clearances over Structures for Service Cable with a Bare Neutral conductor (Not exceeding 300 Volts to Ground)

LOCATION	REQUIRED MINIMUM VERTICAL CLEARANCE
DECKS ATTACHED TO RESIDENTIAL PROPERTY	10 FEET VERTICAL CLEARANCE
SHED METALLIC ROOF NOT ACCESSIBLE TO PEDESTRIANS	8 FEET VERTICAL CLEARANCE

SHED NON-METALLIC ROOF NOT ACCESSIBLE TO PEDESTRIANS	3.5 FEET VERTICAL CLEARANCE
SHED NON-METALLIC ROOF FLAT WALKABLE	10 FEET VERTICAL CLEARANCE
STAIRS TO BUILDING, INCLUDING LANDING	10 FEET VERTICAL CLEARANCE
SWIMMING POOLS INCLUDING DIVING BOARDS FOR A DISTANCE OF 10 FEET HORIZONTALLY IN ANY DIRECTION, WADING POOLS, AND HOT TUBS	CANNOT BE PLACED UNDER RMLD SERVICE OR PRIMARY CONDUCTORS

10.0 **LINE EXTENSIONS**

When a Customer requests an electric line extension, RMLD will inform the Customer in writing of Customer rights, responsibilities and options for line extensions, including but not limited to: payment terms; easement and right-of-way information; contribution-in-aid-of-construction; basic information about design, siting and location, such as overhead or underground placement, and road-side or off-road siting.

OVERHEAD EXTENSION OVER PRIVATE PROPERTY/PUBLIC HIGHWAY

RMLD will at no charge to the Customer extend an overhead line up to one pole section per lot (except URD's) over private property providing an acceptable right-of-way or easement.

When an extension of an overhead line is necessary to provide service to a permanent residence and the length of the extension over private property exceeds 150 feet or one pole span, a contractual agreement will have to be negotiated with RMLD to compensate for the cost of all construction in excess of these limits.

- a. The length of the extension shall be measured from the last pole carrying the circuit with the required voltage from which a Customer can be served. If the extension involves both public streets and private property, the negotiated contract will cover the entire extension and any deposits required will be the sum of the deposits required to cover the total cost of the extension.
- b. Transformer installations and one permanent service drop per Customer shall be furnished at no charge.
- c. All construction will be owned and maintained by RMLD up to the Customer point of demarcation.
- d. RMLD will schedule construction of a line under this requirement when the Customer to be supplied has signed the necessary contract. If no contract is required, construction under this requirement will be scheduled when the

Customer to be supplied has completed most of the wiring of the premises to be supplied.

- e. Construction will not commence or continue during periods of inclement weather or other system emergencies.

ABNORMAL CONDITIONS

For extensions in areas with abnormal conditions such as unpaved roadways or undefined roadways requiring excessive tree clearing, surveying, etc., the excess cost will be treated the same as cost of an extension in excess of 150 feet.

11.0 METER TAMPERING / THEFT OF SERVICE

11.1. DEFINITION

Theft of service is diversion of electrical energy by any method or device used by any person that prevents the electric meter from properly registering the quantity of electricity supplied by RMLD and/or any taking of any electric energy without RMLD's consent. Making an unauthorized connection to obtain unmetered electric service is theft of services and punishable as a crime in Massachusetts. Where there is evidence of meter tampering or theft of electricity with intent to avoid a lawful charge for electricity by themselves or another person, such person or persons responsible shall be liable for prosecution under penalty of law.

Under Massachusetts General Laws, the applicable sections dealing with theft of electrical energy are Chapter 164, Sections 127 and 127A; Chapter 266, Section 30; and Chapter 266, Section 127 (See Appendix D).

11.2. METER TAMPERING WARNING

- a. Meter seals and other locking devices installed by RMLD on metering equipment shall not be cut or removed by anyone except by authorized RMLD personnel or by a licensed contractor who has been issued a permit by the Town Wiring Inspector.
- b. All meters and metering equipment enclosures are sealed by RMLD with various types of locking devices. Seals and locking devices shall not be broken or removed by electrical contractors or other unauthorized personnel before obtaining the appropriate electrical permit from the Town Wiring Inspector and/or written approval from RMLD. Electric contractors may request removal of meter seals and locking devices to perform work on service equipment. A 48-hour advance notice to RMLD is required from the contractor to allow RMLD to schedule a personnel visit to the work site. The contractor is required to notify RMLD within 48 hours of completing work so RMLD personnel may reseal the meter.

- c. **In no case shall any person who is not authorized by RMLD jumper the service or otherwise tamper with any RMLD metering equipment.**
- d. Protection of RMLD owned meters and metering equipment is the responsibility of the Customer. Relocation of meters and equipment damaged due to tampering, vandalism, environmental damage, negligence, or other avoidable damage will be at the Customer's expense.

11.3. NOTICE OF VIOLATION

- a. A "Notice of Violation" **may** be mailed or otherwise delivered at the discretion of RMLD General Manager if:
 - I. Evidence suggests the possibility of theft of utility service at the Customer's premises, including evidence of meter tampering, or
 - II. The violation does not constitute an immediate threat of safety or equipment integrity to the system.
- b. A "Notice of Violation" **will** be mailed or delivered and the Customer's service is subject to immediate cut-off in any of the following situations:
 - I. In the opinion of RMLD General Manager, theft of service is clearly evident on the Customer's premises; or
 - II. When in the opinion of RMLD General Manager a situation exists that may endanger public health.

11.4. BILL ADJUSTMENTS FOR THEFT

If RMLD determines that a theft of service has occurred, it reserves the right to adjust the Customer's current bill and the bills for the past twelve (12) months usage. If the approximate amount of service that was stolen cannot be reasonably determined, the Customer's usage will be set at two to four times the minimum bill from the previous twelve (12) months as set on a case by case basis by the General Manager, according to the facts of each case.

11.5. RESTORATION OF SERVICE

Service will not be restored until all payments for the following are received by RMLD:

- a. Adjusted payment for utility service;
- b. All service call charges;
- c. Labor;

- d. Replacement parts;
- e. Disconnection Notification Fee.

Service will be reinstated only during regular working hours, Monday through Friday, except in the case of an emergency.

11.6. CUSTOMER PAYMENT LIABILITY

Discontinuance of service from RMLD shall not release the Customer from liability for payment for service already received or from liability from payments that thereafter become due under the minimum bill provisions or other provisions of the Customer's contract.

11.7. CUT-OFFS AND LIABILITY

RMLD shall not be liable for any loss or damage resulting from the discontinuance of service.

11.8. CUSTOMER RESPONSIBILITY

The Customer(s) whose name(s) appear(s) on the account is responsible for payment of all charges. That Customer is also responsible for any rules or requirements violations that occur regarding electric service to that property. Personal participation by the Customer in any such violation shall not be necessary to impose personal responsibility on the Customer.

11.9. COURT AND ATTORNEY'S FEES

In the event any Customer fails to pay RMLD any service fee or charge, the Customer shall pay all costs of collection including court costs and reasonable attorney's fees incurred by RMLD in collection such sums.

12.0 CUSTOMER SYSTEM PROTECTION GUIDELINES

12.1. SECONDARY SURGE ARRESTERS

- a. Secondary surge protective devices may be installed by and at the expense of the Customer. Refer to NEC for installation requirements to protect your equipment.
- b. The Customer shall be responsible for providing and installing any secondary surge protective devices and for operating, maintaining, and inspecting any such installations.

- c. RMLD will not be responsible for the operation, maintenance or inspection of a Customer's installation or for damage to a Customer's equipment resulting from voltage surges, which may occur on the Customer's wiring.

12.2. SHORT-CIRCUIT CURRENTS

Available fault currents will vary with each installation. Inquiries for a particular location should be directed to RMLD Engineering & Operations department at 781-942-6459.

12.3. GROUNDING

All grounding shall be done in accordance with the NEC or any other applicable Code enforced by the Town Wiring Inspector. RMLD shall not be liable for damage to the property of the Customer resulting from unbalanced voltage conditions due to the opening of a grounded neutral service conductor.

GROUNDING SECONDARY AC SERVICE

- a. Where the secondary system is grounded at any point, the grounded conductor shall be run to each individual service.
- b. Services having a grounded conductor shall have that conductor and the service equipment grounded on the Customer's premises by connecting the grounding electrode conductor to the grounded service conductor of the distribution system on the supply side of the service disconnecting means. This connection should be made within the service-entrance-equipment enclosure.
- c. An underground metallic water pipe, either local or supplying a community, shall always be used as a part of the grounding electrode system where such pipes are available. It shall be supplemented by one or more acceptable grounding electrodes as required by the NEC or any other applicable Code for other grounding electrodes and equipment grounding.
- d. To minimize the hazard of electrical shock, all metallic water-piping systems inside a building shall be bonded to the grounding electrode per the NEC.
- e. Where extensive metal in or on buildings may become energized, adequate bonding to the grounding electrode shall be provided per the NEC.
- f. Three-phase, 3-wire, 240-volts or greater, delta service conductors shall be insulated from the service equipment and shall not be grounded. The service equipment shall be grounded by an equipment grounding conductor connected to the grounding electrode as per NEC.

13.0 GENERATION INTERCONNECTION

The following general requirements apply to Customer generating facilities designed to operate directly connected to RMLD system (parallel operation) and those which are designed to operate isolated from the system (non-parallel operation). Requirements and specifications for various types and sizes of Customer facilities shall be obtained from RMLD prior to installation.

All installations must be in accordance with the NEC (as well as all applicable codes in effect at the location of the Customer's electric service) and the town wire inspector's approval.

All Customers that want to interconnect a generator within RMLD service territory must first obtain all proper zoning and building permits from the appropriate authorities. During the design stages and prior to installation of a generator, the Customer must obtain approval from the town building department and RMLD.

13.1. CUSTOMER-OWNED GENERATION REQUIREMENTS

All interconnected distributed generation systems must follow all applicable local, state, and national rules, regulations and codes. Customers shall reference Appendix "E" for all RMLD requirements.

PV SYSTEMS UNDER 20 kW

A manual external AC disconnect is required for PV systems under 10 kW.

PV SYSTEMS 20 kW – 150 kW

- a. The PV system shall have an external, lockable, and visible disconnect switch between the inverter and the utility delivery point (AC Disconnect).
- b. The AC disconnect switch must be rated for max system voltage and current and be accessible at all times to RMLD personnel.
- c. The AC disconnect switch must be clearly labeled as RMLD PV System Master Disconnect Switch. If more than one system is installed on a single parcel, a directory map indicating the locations of all Distributed Generation (DG) Master disconnects are located. This directory map must be installed at each of the DG disconnect locations.
- d. RMLD PV System Master Disconnect Switch may be required to be installed at the primary voltage level delivery point at the Customer's expense.

PV SYSTEMS GREATER THAN 150kW

- a. For PV systems greater than 150kW, all requirements for PV systems 20kW-150kW reference above shall apply.
- b. For PV systems greater than 150kW, the customer shall be required to furnish a system impact study per RMLD requirements.

13.2. GENERATOR ISOLATION REQUIREMENTS

All potential generators must have an isolation scheme that adheres to NEC guidelines and the Customer must gather design approval from the Town Wiring Inspector.

13.3. STANDBY/BACK-UP GENERATION (NON-PARALLEL OPERATION)

The Customer may install a standby generator to supply all or part of the load in the event of a service interruption. The Customer must secure a permit from the Town Wiring Inspector and notify RMLD in advance of installing stand-by generating equipment and obtain approval for the method of connection.

- a. Where the Customer installs a stand-by generator for the purpose of supplying all or part of the load in the event of an interruption in the supply of service, the Customer's wiring shall be arranged so that no electrical connection can occur between RMLD service and the Customer's other source of supply. This will require the installation of a double-throw switch that has a visual opening. This transfer scheme must meet the non-parallel requirements established by RMLD. See Figure 2 in Appendix H.
- b. Where automatic throw-over switching is installed, the Customer shall provide a load-break isolation switch in combination with each automatic transfer switch. The isolation switch shall provide a visible, lockable means for manually isolating the emergency generator, in accordance with NEC.
- c. RMLD personnel may tag the isolation switch (as required) in a locked open position during maintenance or repair of RMLD supply lines. **Arrangements utilizing interlocking of single-throw devices are not acceptable.**

13.4. FUEL STORAGE REQUIREMENTS

- a. Customer's on-site generator and fuel storage are often located adjacent to RMLD pad mounted transformers for ease in using the same trench to the electrical room.
- b. RMLD requires protection between the transformer and the generator fuel storage unit, by either a twenty (20) foot separation or a masonry wall. This wall should be erected parallel to and located three (3) feet from one side of the pad-mounted transformer foundation. The wall should be six (6) feet high and extend approximately three (3) feet beyond each end of the transformer foundation. See Figure 3 in Appendix H. Exact details for such application shall be supplied to RMLD for approval.

- c. Customer's shall check with local fire department for other requirements as needed.

13.5. CUSTOMER COGENERATION

A cogeneration facility is defined as a facility that produces electric energy and steam or forms of useful energy (such as heat), which are used for industrial, commercial, heating or cooling purposes. Prior to the design and installation of any equipment, a Customer considering a cogeneration installation shall consult with RMLD engineering division.

13.6. SYSTEM OPERATION GUIDELINES

Precautions must be taken where alternate means of generation are employed, whether emergency or otherwise, to eliminate the possibility of electrical connection between the distribution system and the Customer's alternate source of supply.

The Customer must notify RMLD and provide electrical details of generator installation and isolation from RMLD's system for **ALL generation interconnections**.

If it appears to RMLD, at any time, that operation of the Customer's generator is adversely affecting or may adversely affect RMLD system, RMLD may immediately take any and all steps it reasonably believes necessary to mitigate or cure the conditions including, without limitation, disconnecting the Customer's source of generation from RMLD system.

The Customer shall at all times permit RMLD operational personnel access to inspect, test, or examine the system or metering equipment.

The Customer is liable for the costs and expenses incurred by RMLD related to disconnection and reconnection of the generation system to RMLD system.

Note: All Cogeneration require an automatic voltage regulator (AVR) before connecting to RMLD infrastructure.

14.0 SERVICE ENTRANCE GUIDELINES

14.1. SIZE OF CONDUCTORS

The minimum size of service entrance conductors shall be appropriately rated for 100 amps for overhead services and 200 amps for underground services.

14.2. SERVICE EQUIPMENT

One or more service switches or circuit breakers shall be installed as part of the permanent wiring for each service entrance. These devices shall conform to the following:

- a. All service switches or circuit breakers shall meet the requirements of all applicable Electrical Codes and be of a type listed by the Underwriters' Laboratories, Inc. or

approved by both RMLD and the Town Wiring Inspector. All equipment shall be installed in accordance with all applicable Electrical Codes.

- b. Any service equipment located between the meter and the customer's service coupling point must be of the enclosed type, with facilities for sealing by RMLD. Fuse replacement or breaker reset must be possible without disturbing the enclosure seal.
- c. Where multiple service equipment is provided for either commercial or dwelling occupancy, each disconnecting means shall be marked in a conspicuous, legible and permanent manner to indicate which portion of the installation it controls.

14.3. LOCATION OF SERVICE DISCONNECT

- a. In general, the service disconnect shall be located on the load side of the meter (hot sequence metering). The service disconnecting means may be installed either inside or outside the building wall and must be accessible to RMLD operational personnel 24/7.
- b. At any location where more than six-meter sockets are required, the service disconnects shall be installed on the line side of the metering equipment (cold sequence metering), in accordance with NEC.

14.4. MAIN SWITCHES AND DISCONNECTING MEANS

It is required that services be equipped with a main disconnect in order to be able to completely disconnect all of the conductors in the building from the service-entrance conductors. On all services supplied from RMLD, main disconnects are required. They shall be located in a readily accessible place as near as possible to the point of entrance of the service conductors into the building and be of a type approved by Underwriters' Laboratories, the Town Wiring Inspector, and RMLD.

14.5. ASSIGNING LOCATION OF SERVICE AND METERING EQUIPMENT

The locations of the service and metering equipment shall be assigned by RMLD. No wiring dependent upon service-entrance and meter locations shall be started until these locations have been assigned and approved. The Customer or his agent shall notify RMLD.

14.6. UNMETERED CONDUCTORS

- a. Unmetered conductors on Customer's premises shall not be installed in the same raceway or conduit with metered conductors.
- b. When unmetered conductors are run through private basements or other private areas not containing RMLD equipment, they shall be enclosed in a continuous length of exposed, rigid metal raceway.
- c. The installation of pull boxes or other similar devices is not permitted in such raceways, except where bends exceed those permitted by the applicable Electrical

Codes. Where approved, pull boxes shall be sealable and approved by the RMLD engineering division.

- d. In a multi-tenant commercial / industrial property, the unmetered conductors shall be enclosed in a rigid metal raceway, with provisions for the installation an RMLD seal.

14.7. OVERHEAD

POINT OF ATTACHMENT FOR SERVICE-DROPS

Point of Attachment for service-drop conductors will be provided by RMLD as follows:

- a. A service bolt or other suitable support is required on all buildings constructed of tile, brick veneer, stucco, concrete, concrete block, cinder block, asbestos shingle, sheet iron, plywood, insulating board or other materials which make it difficult to obtain a suitable anchorage for the service-drop conductors. The Customer shall install such bolts or other suitable support. Where a service bolt is adequate, it may be obtained from RMLD at no cost to the Customer.
- b. The service bolt shall be located below the service head or weather cap or as otherwise instructed by RMLD.

A typical service-entrance-mast installation is shown in Appendix H - Figures 6 and 7.

TEMPORARY SERVICE ENTRANCES

- a. The Customer shall provide a service entrance, which meets the requirements of a permanent installation with respect to service-drop clearances, metering, grounding and safety.
- b. The service entrance may be installed on a guyed or braced 4 inches x 6 inches timber structure that meets the specifications and installation requirements of RMLD. Where a laminated 4 inches x 6 inches structure is to be assembled using (two) 2 inch x 6 inch planks, these planks should be bolted together at intervals not exceeding (4) four feet.
- c. The temporary service drop span shall not be more than 100 feet. See Appendix H - Figure 12.

RESIDENTIAL SERVICE REQUIREMENTS

- a. **Single-Family Residence** – Meters shall be mounted on the outside of the building in an approved 100 amp or larger meter socket supplied by 100 amp or larger service-entrance conductors.
- b. **Multi-Family Residences** – Meters shall be mounted on the outside of the building except as otherwise approved by RMLD.

BUILDING ALTERATIONS AFFECTING ELECTRIC SERVICE

- a. To ensure continuity of service, the Customer should notify RMLD before starting alterations to a building which might affect the electrical service. This will give RMLD time to inspect the service-drop attachment and advise the Customer of any metering or service problems that could result from the alterations.
- b. It will be the responsibility of RMLD, at no cost to the Customer, to **temporarily** remove from the building the service-drop attachment to permit the alterations. Customer must supply an approved and inspected temporary mast or other approved structure for this purpose. See Appendix A.
- c. When notified, RMLD will reattach this equipment to the building.
- d. It will be the responsibility of the Customer to have the service entrance equipment detached from the building and reattached when the work has been completed. It will also be the responsibility of the Customer to install a permanent service bolt for the service drop.

SIDING TO BE INSTALLED ON EXISTING BUILDINGS

To ensure continuity of service, the Customer should notify RMLD **ten days** before installation is started. This will give RMLD time to inspect the service-drop attachments and advise the Customer of any metering or service problems that could result from the installation of the siding. The Customer should check with the Town Wiring Inspector over service requirements for siding.

CONNECTION TO OVERHEAD CONDUCTORS

A minimum length of six (6) feet for each conductor shall be left at the upper end of the service entrance to provide for connection to RMLD service-drop conductors. Connections to RMLD lines will be made by RMLD.

WIRING METHODS

Service-entrance cables and conduit shall normally be exposed for their entire length, except when they pass through building walls or are encased in two inches of concrete. The service disconnecting means shall be installed either inside or outside of a building or structure at a readily accessible location nearest the point of entrance of the service entrance conductors.

14.8. UNDERGROUND

UNDERGROUND CONDUCTOR CONNECTIONS

- a. A minimum length of five (5) feet for each service entrance conductor shall be left at the junction box, hand hole, or above riser (see Figure 9) to provide for the connection to RMLD service conductors.

- b. RMLD will provide and install the terminal block connectors in the Customer's hand hole.
- c. If the Customer's entrance conductors are other than RMLD standard, a suitable adapter must be provided for the connectors.

HAND HOLES, JUNCTION BOXES, AND SECONDARY PEDESTALS

On underground services, hand holes and/or junction boxes will be furnished by RMLD and installed by a licensed electrician. Only approved RMLD hand holes and/or junction boxes may be used.

15.0 METER INSTALLATION AND MAINTENANCE GUIDELINES

15.1. GENERAL

All energy supplied by RMLD shall, in general, be measured by appropriate meters for billing purposes. The installation of meters and metering equipment shall comply with the requirements set forth in this Section. RMLD shall furnish and install all meters required for billing purposes.

RMLD has the right to disconnect a Customer's meter / service at discretion of RMLD; it is the Customer's responsibility to update and maintain secondary service connection (i.e. service panel, meter socket) to the NEC standards. If a Customer's secondary connection is found to be unsafe or otherwise non-compliant after RMLD personnel have disconnected the meter the Customer must upgrade the service at their expense before RMLD will energize.

15.2. DEFINITIONS

Only definitions of terms pertinent to this Section are included:

- a. Delivery-point (service-point) is the point of connection to the facilities of the Customer and the terminus of RMLD's ownership of lines or equipment.
- b. Metering-point is the location of the meter or metering equipment such as instrument transformers.

15.3. STANDARD METER INSTALLATIONS

The following are standard meter installations normally specified for the various types of service installations:

- a. Metering equipment shall normally be installed on the line side of the service disconnecting means (hot sequence).
- b. The meter socket shall have an approved single handle operated manual bypass for all services 400 Amps or greater.

- c. Meters will be installed on buildings, not on pedestals, except for service to mobile homes, temporary services or by approval from RMLD.
- d. For all services, where the load-side capacity is 400 amps or less, self-contained socket-type meters shall be installed. Where the capacity is in excess of 400 amperes, socket-type meters with current transformers will be installed. All sockets shall be furnished by the Customer and have U.L. listing.

For Three-Phase Services, the Customer or their contractor shall always consult with RMLD to obtain meter socket specifications.

- e. A disconnecting means shall be required on the load side of the meter in all services.
- f. On services with more than one metering installation, the disconnecting means must be arranged so that each Customer may be disconnected without affecting the other. (except where six (6) or more services require a main disconnect)

15.4. OUTDOOR METER LOCATIONS

GENERAL

- a. Outdoor meter locations are required for all installations or as otherwise approved by RMLD.

ACCESSIBILITY

- a. Each location shall be readily accessible to RMLD representatives for meter reading, testing, and maintenance.
- b. Service will not be provided if reaching the meter requires RMLD employees to use adjacent property, climb fences or other obstructions, or cause damage to the Customer's shrubbery or flower beds in gaining access to the meter.

CLEARANCES

- a. The meter socket shall not protrude over the sidewalk or driveway.
- b. Meters on garages shall be so located that they will not be damaged by motor vehicles.
- c. At and directly in front of each meter location, a clear, safe workspace shall be maintained. Such workspace shall be at least four (4) feet wide, shall extend out from the meter at least three (3) feet, and up to a height of at least six (6) feet. See Appendix H - Figure 8.

- d. In addition, the meter socket must be located at least three (3) feet, measured horizontally, from a gas meter, regulator, or propane cylinder. Appendix H - See Figure 4.

POLE MOUNTED METERS

Metering equipment shall not be installed on RMLD owned poles, except for metered power supplies for communication companies.

15.5. INDOOR METER LOCATIONS

GENERAL

- a. In areas subject to vandalism or damage, permission may be granted for indoor meters in single occupancy buildings for commercial and industrial accounts.
- b. In multiple occupancy buildings, for residential or commercial use, meters may be installed indoors in one common location accessible to all occupants and authorized employees of the RMLD.
- c. Permission for additional meter rooms may be granted where requirements are in excess of six meters per location or the service capacity is in excess of 600 amperes per location.

ACCESSIBILITY

- a. All indoor meters shall be in a readily accessible location next to the service-entrance equipment.
- b. RMLD will be supplied a key or code to access any enclosed meter location.
- c. Any time the lock is changed for any reason, the Customer is required to provide RMLD with a new key or access code to the meter enclosure.

15.6. METER HEIGHT

OUTDOOR METERS

In no instance will any Outdoor meter be installed with the top of the meter more than six (6) feet nor the bottom of the meter less than three (3) feet above the final grade. A clear area of three (3) feet is required in front of each meter.

EXCEPTION: Meters for power supplies for communication companies must be installed above the normal height. Appendix H - See Figure 19.

INDOOR METERS

Multiple meter centers installed indoors shall be mounted so that the face of the meter is 60 inches maximum and 30 inches minimum above the floor level. A clear area of three feet is required in front of each meter.

VOLTAGE DROP

Meter locations and feeder sizes should be so chosen that the voltage drop between the point of service entrance and the meter will not exceed one percent at full load of the feeder.

MOUNTING

Meter sockets and meter/breaker centers shall be mounted plumb and firmly secured to supports. Where supports are attached to masonry or concrete walls, expansion bolts or anchors shall be used. Wood plugs driven into holes in masonry, concrete, plaster or similar materials are not acceptable.

15.7. IDENTIFICATION OF METER SOCKETS AND CUSTOMER DISCONNECTING MEANS

All meter sockets and Customer disconnecting means shall be plainly and permanently marked for proper suite, floor, office, etc. by the electrical contractor or owner. Permanent labels must be used – marker is not acceptable. Service will not be provided to a building that has unidentified meter sockets.

Suites, offices, apartments or other areas must be assigned space designations by the building owner or the electrical contractor which shall clearly designate the location of each tenant's premises.

15.8. UNMETERED CONDUCTORS

- a. Unmetered conductors shall not be installed in the same raceway with metered conductors.
- b. Where unmetered conductors are run through Customer's premises, they shall be enclosed in a continuous run of rigid metal conduit or service bus way.
- c. The installation of pull boxes or other similar devices is not permitted in such raceways, except where bends exceed those permitted by the applicable Electrical Codes. Where approved, pull boxes shall be sealable and approved by the RMLD engineering division.
- d. Where unmetered plug-in type armor-clad bus way is used to serve Customers in the same building, all plug-in access openings shall be provided with a steel hasp assembly for padlocking the hinged hood in the closed position.
- e. The sealing of unmetered raceways shall be performed by RMLD authorized employees.

15.9. DEMAND AND KVA METER WIRING

Commercial and industrial installations may require kW and kVA demand metering. Contractors should obtain specific information from RMLD for each such installation.

15.10. SECURITY

- a. All cabinets, switches, circuit breakers and other enclosures giving access to unmetered wiring shall be equipped with approved locking provisions.
- b. The service switch or circuit breaker, when installed on the line side of the meter, shall be so designed that the unmetered wiring is inaccessible without removing the locking device, even during the renewal of fuses.

15.11. MOVING OR REMOVING METERING EQUIPMENT

Meters, instrument transformers, and other metering devices are the property of RMLD and must not be moved, removed or altered in regard to wiring or connections by other than authorized employees of RMLD, except when written specific permission is obtained from Code Administration and/or RMLD. Violators will be prosecuted.

ELECTRIC WORKER RESPONSIBILITY -METERS

Any qualified person who has been given permission to remove RMLD metering equipment is required to label each meter socket and its associated meter *before* removing the meter. It is the sole responsibility of the person that removes a meter to re-install it in the same meter socket location it was pulled from. All such work shall be approved by the RMLD ahead of time and may incur a charge.

MIXED/CROSSED METERING (METER NUMBER DOESN'T MATCH SERVICE ADDRESS)

Plugging or disconnecting a meter shall not be used as a means to determine mixed or crossed metering at a location where multiple meters are present. The owner or tenant is required to contact RMLD and arrange an appointment with meter services and the Town Wiring Inspector to determine if mixed/crossed wiring has occurred.

If mixed/crossed wiring is found all electric bills shall be forwarded to the owner until repairs are made, all meter sockets are proven to be properly labeled, and a re-inspection is made by meter services and the Town Wiring Inspector. Any over charge for crossed or mixed wiring shall be paid by the owner of the service address to affected tenants; RMLD is not responsible for providing compensation.

15.12. METER SOCKETS

SELF-CONTAINED METERS

For each service with self-contained metering, the Customer shall furnish and install an approved meter socket that shall have the U.L. listing and conform to RMLD requirements as follows:

- a. Automatic by-passes are never permitted.
- b. All meter sockets installed on commercial and industrial services, shall be equipped with a safety arc shield and an approved visual, single-handle operated manual by-pass. Appendix H - See Figures 14 and 15.
- c. The non-by-passed, in-service position of the operating mechanism must be visible when the meter is installed.
- d. It must not be possible to replace the meter socket cover when the operating mechanism handle is in the by-passed position.
- e. All by-pass style meter sockets shall have a mechanism which locks the meter blades in the socket jaws.
- f. After the meter socket has been installed, it is the contractor's responsibility to protect the interior of the socket by installing an optically clear cover obtained from RMLD.

Warning: Do not use a manual by-pass as a disconnect to open or close a circuit carrying load.

COVER PLATES

After the wiring has been completed, the interior of the socket shall be protected. Socket covers will be furnished by RMLD for unused socket meter positions. Sealing rings will also be furnished by RMLD.

INSTALLATION OF SOCKETS

- a. Meter sockets must be mounted plumb and level, using wood screws of sufficient length and size to hold the socket securely, independent of conduit or cable connections.
- b. Rust-resisting screws shall be used outdoors and in damp locations.
- c. Standard expansion bolts or anchors shall be used for masonry walls.
- d. The threads on conduit, fittings or sealing plugs screwed into the hubs of meter sockets located outdoors shall have joint compound applied to prevent the entrance of water.

METER CONNECTIONS

The service or line-side conductors are always connected to the top terminals of meter sockets or troughs and the load-side conductors to the bottom terminals. A number of typical connections for socket meter installations are shown in Appendix H - Figures 14 and 15.

GROUNDING

- a. For grounding requirements, refer to the NEC and the Town Wiring Inspector.

15.13. METER PEDESTALS

In general, these devices are only used for mobile homes and temporary services. However, at the discretion of RMLD, they may be approved for certain other appropriate applications and follow the guidelines put forth in this section.

- a. Meter pedestals are free-standing units intended to be mounted outdoors on a concrete pad in conjunction with underground wiring.
- b. If a free-standing meter pedestal is used, it must extend a minimum of 34 inches above the finished grade or ground line. The pedestal shall have a stabilizing means extending below the frost line to ensure that the meter mounting stays in a plumb position and is able to handle the pressure required for installing and removing the meter.
- c. Meter pedestals for self-contained metering must be listed devices and shall incorporate circuit breakers, but these are not intended to replace the service disconnecting means required at the building.
- d. The neutral strap in a meter pedestal is bonded to the enclosure and must be provided with a terminal for a grounding conductor.

15.14. INSTRUMENT TRANSFORMERS

INSTRUMENT TRANSFORMERS AND ENCLOSURES

For all installations requiring instrument transformers, the transformers (current and voltage transformers) shall be supplied by RMLD. Transformer cabinets shall be supplied by the Customer. The Customer shall install the transformer cabinet, Current Transformers and Voltage Transformers and provide and install the raceway (as required). Appendix H - Figure 18 shows typical primary connections.

METER ENCLOSURE AND TEST SWITCHES

Meter enclosures and test switches for use with instrument transformers may be furnished by RMLD. Meter socket enclosures shall be installed by the Customer and wired by RMLD.

INSTRUMENT TRANSFORMER SECONDARIES

A metal raceway shall be provided between the transformer cabinet and the meter test switch cabinet for instrument transformer secondaries as follows:

- a. Provide 1-1/2 inch raceway for secondary conductor runs that are up to 50 feet in length. The maximum distance between meter and instrument transformer shall be 50 feet unless otherwise approved by the RMLD
- b. Secondary wiring will be furnished and installed by RMLD.

USE OF INSTRUMENT TRANSFORMER CABINETS

- a. Instrument transformer cabinets shall not be used as junction boxes or for branch circuit wire-ways.
- b. Service conductors shall enter and leave the cabinet as one circuit with no branches regardless of number of conductors per phase.
- c. Line-side connections to other meters shall not be made in the transformer cabinet or enclosure except for where approved by the RMLD.

15.15. CUSTOMER REQUEST FOR METERING PULSES

Upon written request from a Customer, RMLD will install at the Customer's expense, as part of its metering facilities at the metering point, a source of kWh pulses to the Customer so that the Customer may monitor load/demand for the purpose of load control. The following conditions apply:

- a. The Customer's load is presently being measured with a watt-hour meter with pulse initiation equipment; or
- b. If there is no pulse initiating equipment or if the output does not meet the Customer's requirements, the Customer will reimburse the RMLD for the installation of the necessary additional equipment to furnish the pulses, including isolation relays where necessary.
- c. The installation, operation, and maintenance of any equipment, other than that provided by RMLD, shall be the responsibility of the Customer.
- d. The point of connection of RMLD and Customer equipment shall be designated by RMLD and the connection made by RMLD.
- e. The Customer will be required to reimburse the RMLD for subsequent installation and maintenance charges and any alterations necessitated by a change to the existing meter installation.

Please contact RMLD to request load data and/or installation of pulse metering equipment.

15.16. APPROVED METERING EQUIPMENT

General Requirements:

- a. Safety will be the number one consideration when approving any metering equipment.
- b. All meter sockets must have a UL listing.
- c. Any modification of a meter socket will void the UL listing and the manufacturer's warranty, making it non-compliant with RMLD's approved standards.
- d. All self-contained meter sockets must be rated for 600 volts or less.
- e. All self-contained meter sockets may require a lever operated manual bypass, with a receiver bracket and a ring-less cover with a 7/16" knockout to accept a barrel lock. Please check with RMLD before furnishing this requirement.
- f. The lever operated manual bypass is required to be single-handle operated and must be supplied with jaw release.
- g. The non-bypassed, in-service position of the operating mechanism must be visible when the meter is installed.
- h. Auxiliary straps or jumpers are not acceptable as bypass devices.
- i. It must not be possible to override the bypass by replacing the cover when the operating mechanism handle is in the bypassed position.
- j. A safety flash shield is required on all self-contained meter positions.
- k. Horn-type bypasses are not permitted.
- l. Sliding-type bypasses are not permitted.
- m. Automatic bypasses are not permitted.
- n. Meter sockets for use on three-wire 120/208-volt network must have a fifth terminal located at left in the 9 o'clock position, connected to neutral.
- o. Custom-made meter channels and modular metering panels may be used for groups of meters such as in apartment houses. Prints of these panel arrangements must be submitted to RMLD for approval prior to installation. Line-side panels must be sealable.
- p. All underground, residential, single-position sockets must be a minimum 16"W x 22"H x 5"D, 200 amp, ring-less with line side lugs capable of accepting 350 KCMIL

conductors. Sockets will also have a minimum 3-inch knockout to accept a 3-inch slip joint. If a service run is greater than 200 feet, contact RMLD.

- q. All OH/UG 320-amp meter sockets must have 4-inch knockouts, jaw release lever operated manual bypass, with a receiver bracket and a ring-less cover with a 7/16" knockout to accept a barrel lock.
- r. All underground hubs or knockouts must be a minimum of three (3) inches diameter.
- s. Hot sequence metering is required for six (6) socket positions or less.

16.0 POWER QUALITY

RMLD delivers high quality power. The increased use of Customer-owned equipment that can adversely affect the quality of electric service to other Customers is of great concern. In order to maintain delivery of high quality power to all of our Customers, the installation of Customer-owned equipment, which may affect RMLD's system, shall be required to meet the necessary specifications outlined in this section. RMLD reserves the right to withhold or disconnect service where installation of such loads or equipment is detrimental to other Customers.

16.1. VOLTAGE SENSITIVE EQUIPMENT

Customers owning, or planning to own computers, reproduction, X-ray, data processing, emergency equipment, or other voltage sensitive equipment, are advised that auxiliary devices and relays must be employed to filter out voltage spikes and to adjust for voltage variations. Customers should consult the manufacturer of their equipment for suitable devices to protect against these conditions. RMLD shall not assume responsibility for voltage variations that may be caused by switching, lightning surges, motor vehicle accidents or any other conditions either normal or emergency in nature.

16.2. FLUCTUATING LOADS

Electric welders, furnaces, boilers, x-ray equipment, compressors, pumps, molding machines or similar equipment with load fluctuations at a frequency greater than four times per hour should not be installed except under conditions specified by RMLD. Voltage dips caused by load fluctuations, regardless of their frequency, shall not cause undue disturbance to other Customers nor hinder RMLD in maintaining proper voltage conditions. RMLD reserves the right to withhold and/or remove connection to loads that are considered detrimental to the service of other Customers.

16.3. SECONDARY LIGHTNING ARRESTERS

The Customer may install secondary lightning protective devices. The Customer will be solely responsible for the expense, installation, operation, maintenance, and inspection of such devices. Lightning arresters shall not be mounted on meter sockets or metering equipment. Installation of lightning protective devices shall be done in accordance with the NEC.

16.4. SHORT CIRCUIT CURRENTS

RMLD shall provide the available fault current and transformer impedance data, it shall be the customers responsibility in the selection of the proper service equipment to meet the code requirements. Available fault currents will vary with each residential, commercial, and industrial installation. Provided fault current is under current system conditions and is subject to change.

16.5. LOAD BALANCING

The Customer shall at all times take and use energy in such a manner that the load will normally be balanced to within +/-10% between phases on three-phase services and between live conductors on single-phase services. RMLD reserves the right to require the Customer to make necessary changes at the Customer's expense to correct the unbalanced load conditions.

16.6. HARMONIC DISTORTION

Customers with loads that inject harmonic current/voltage distortion into RMLD grid shall follow **all practices and requirements for harmonic control in electric power systems** as established by the IEEE-519 standard. Any Customer found in violation of the guidelines set forth in table 17.7 will be subject to financial penalties as deemed by RMLD personnel. It will be the Customer's responsibility to furnish all power quality correction equipment to bring their load within the specified tolerances outlined in Table 17.7. Protection against any damages caused by harmonics is the responsibility of the customer.

Table 17.7

Maximum Harmonic Current Distortion in % of I_L						
Individual Harmonic Order (Odd Harmonics)						
I_{sc}/I_L	< 11	$11 \leq h < 17$	$17 \leq h < 23$	$23 \leq h < 35$	$35 \leq h$	TDD
<20*	4.0	2.0	1.5	0.6	0.3	5.0
20<50	7.0	3.5	2.5	1.0	0.5	8.0
50<100	10.0	4.5	4.0	1.5	0.7	12.0
100<1000	12.0	5.5	5.0	2.0	1.0	15.0
>1000	15.0	7.0	6.0	2.5	1.4	20.0
Even harmonics are limited to 25% of the odd harmonic limits. TDD refers to Total Demand Distortion and is based on the average maximum demand current at the fundamental frequency, taken at the PCC.						
* All power generation equipment is limited to these values of current distortion regardless of I_{sc} I_L .						
I_{sc} = Maximum short circuit current at the PCC I_L = Maximum demand load current (fundamental) at the PCC h = Harmonic number						

16.7. GROUNDING

All secondary services having a grounded neutral shall have that neutral adequately grounded in accordance with NEC on the Customer's premises at the service equipment. The

system-grounding conductor shall be connected to the neutral conductor at the service equipment and not in the meter trough, thereby allowing inspection to be made without removing the meter. On premises where a metallic underground water piping system is not available to provide an effective ground, other approved grounding electrodes, as specified by the NEC and Massachusetts Electrical Code, shall be provided.

16.8. POWER FACTOR

Maintenance of a high-power factor is of the utmost importance to both the Customer and RMLD in the operation of the distribution systems. Power factors of 90% or higher are advantageous for both the Customer and RMLD. RMLD should be consulted in advance regarding any installation likely to create power factors of less than 90%. RMLD reserves the right to require Customer to make the necessary modifications at the Customer's expense to correct power factors below 90%. **RMLD reserves the right to de-energize any service that creates voltage distortion or inadvertent current flow to its system.**

POWER FACTOR CORRECTION CAPACITORS

When a Customer desires to install capacitors for the purpose of power factor correction, RMLD should be consulted prior to the ordering of such equipment. Approval by RMLD for all capacitor installations is required so service to other Customers will not be adversely affected by the manner in which such equipment is installed and operated.

17.0 ELECTRIC UTILIZATION EQUIPMENT

17.1. GENERAL

RMLD should be consulted regarding the voltage and capacity available at each location. All installations must conform to the requirements of local or state authorities and to pertinent sections of the applicable Electrical Codes.

17.2. SYSTEM DISTURBANCES

Certain electronic equipment, such as computers and microprocessors, and some manufacturing processes are extremely sensitive to and can be damaged by disturbances, which are inherent in all supply systems. Therefore, it is the Customer's responsibility to furnish, install, own and maintain equipment needed to protect their operations.

17.3. SINGLE-PHASE MOTORS

Single-phase motors will be supplied at one of the nominal voltages indicated below. If the use of equipment with locked rotor currents listed below causes flicker in illumination or dips in voltage, which would be objectionable to other Customers, the locked-rotor current must be reduced. *Refer to Table No. 17.3.*

- a. 120 Volt Supply Motors with ratings of 1/2 horsepower or less and window-type air conditioning units whose full-load running current does not exceed 7-1/2 amperes,

with not more than four starts per hour and with a locked rotor current not exceeding 50 amperes, may be connected to a 120 volt supply.

- b. Motors having a full-load running current of more than 7-1/2 amperes but less than 12 amperes, and conforming to the above locked-rotor current limitations, may be connected to a 120 volt branch circuit only if such branch circuit supplies the one unit and does not supply lighting units or other appliances. It is strongly recommended that units drawing more than 7-1/2 amperes full-load running current be connected to 240 or 208 volt circuits.
- c. 208 or 240-Volt Supply Motors with ratings larger than 2-1/2 but less than 6-1/2 horsepower will normally be supplied at 208 or 240 volts, provided the locked rotor current does not exceed the values given in Table No. 17.3.
- d. In predominantly residential areas, and for small commercial installations, RMLD should be consulted before installing motors with ratings over five horsepower.

MAXIMUM LOCKED-ROTOR CURRENTS FOR SINGLE-PHASE MOTORS

- a. Single-phase motors supplied from combined light and power secondary systems shall not have locked-rotor current in excess of those shown in Table No. 17.3. Motors having locked-rotor current in excess of those shown in the Table shall be equipped with starters which will limit the current to the values specified.
- b. Motors that start more than four times per hour are an exception to the above and may cause interference to other Customers. Automatically (frequently) started motors for general use, such as motors for refrigerators, oil burners, and similar devices shall not have a locked-rotor current exceeding 23 amperes at 120 volts or 29 amperes at 240 volts.
- c. For multi-motored devices arranged for starting of motors one at a time, the locked-rotor current limits shall apply to each individual motor.

SINGLE-PHASE MOTORS ON THREE-PHASE SERVICE

Where single-phase motors are supplied from a three-phase service, they shall be properly balanced across the three phases.

TABLE NO. 17.3: SINGLE-PHASE MOTORS

This table is based on not more than four starts per hour with long periods of continuous operation under maximum load conditions. Consult RMLD where these conditions cannot be met, or where equipment rating and/or starting characteristics exceed the following:

Rated At	Maximum Locked-Rotor Current

120 volts	50 amp
<u>240 or 208 volts, single phase</u>	
2 hp or less	60 amp
2.5 to 6.5 hp Residential Use	Consult RMLD
2.5 - 6.5 hp Commercial Use	60 amp plus 20 amp per hp in excess of 2 hp
<u>Air Conditioning or Heat Pump Equipment Rated in Btu per Hour - 240 or 208 volts, single phase</u>	
20,000 Btu/hr. or less	60 amp
21,000-30,000 Btu/hr.	60 amp plus 3 amp per 1000 Btu/hr. in excess of 20,000 Btu/hr.
Over 30,000 Btu/hr.	Consult RMLD

17.4. THREE-PHASE MOTORS

- a. Three-phase motors shall not have locked-rotor currents in excess of those shown in Table No. 17.4.
- b. Starting compensators are ordinarily required for three-phase motors 10 horsepower and larger. Exception to this practice will be allowed to the extent local distribution facilities will permit.
- c. Motors having locked-rotor current in excess of that shown in the Table shall be equipped with starters that will limit the currents to the values specified.
- d. Increment-start motors must have not less than a one-half second interval between steps.
- e. RMLD should be consulted in regard to the installation of three-phase motors larger than 10 horsepower.

TABLE NO. 17.4: THREE-PHASE MOTORS

Maximum Locked-Rotor Current Values in Amperes

This table is based on not more than four starts per hour with long periods of continuous operation under maximum load conditions. Consult RMLD where these conditions cannot be met, or where equipment rating and/or starting characteristics exceed the following:

Rated At	Maximum Locked-Rotor Current
<u>230 volts, three-phase</u>	
2 hp or less	50 amp
2.5 to 10 hp	50 amps plus 14 amp per hp in excess of 2 hp
Over 10 hp	Consult RMLD
<u>Air Conditioning or Heat Pump Equipment Rated in Btu Per Hour - 230 volts, three-phase</u>	
20,000 Btu/hr. or less	50 amp
21,000-50,000 Btu/hr.	50 amp plus 2.5 amp per 1000 Btu/hr. in excess of 20,000 Btu/hr.
Over 50,000 Btu/hr.	Consult RMLD

17.5. ELECTRIC UTILIZATION EQUIPMENT PROTECTION

The Customer's equipment shall be equipped with devices that protect against over-current, short-circuit and ground faults. Such devices shall conform to the requirements of the applicable Electrical Codes. RMLD strongly recommends that all motor installations be adequately protected to prevent improper operation, equipment damage and personal injury which might result from abnormal conditions occurring in RMLD's facilities or the Customer's wiring system. Providing proper and adequate protection of the customer's equipment is the responsibility of the customer. Customers shall consult manufacturer for proper equipment installation and protection.

17.6. PROTECTION AGAINST SINGLE-PHASE OPERATION

As required by the Massachusetts Electric Code, three-phase motors shall be protected against the possibility of the failure of any one phase of the supply circuit. Three over-current (overload) units shall be used on all motors unless the motor is protected against single-phase operation by other approved means.

17.7. UNDERVOLTAGE PROTECTION

Motors that cannot be safely subjected to full voltage at starting or motors the starting of which on return of normal voltage after an interruption would endanger life or property, should be provided with automatic under-voltage protection. Such protective device should insure that with either no voltage or under-voltage, the motor will be disconnected from the line or the starter will be returned to the "off" position. RMLD recommends the use of time delay under-voltage protection because instantaneous under-voltage protection will operate on momentary fluctuations of voltage.

17.8. OVERLOAD PROTECTION

All motors should be protected against overload by the installation of adequate over-current thermal protective devices or their equivalent, which will operate so as to prevent excessive motor winding temperatures.

17.9. PROTECTION AGAINST PHASE REVERSAL

On motors for passenger and freight elevators, cranes, hoists, and other equipment, where reversal of direction of rotation might cause property damage or injury, a reverse-phase relay should be installed so the motor circuit will be opened in the event of a phase reversal or the loss of any phase. The operation of this relay and associated circuit breaker should be instantaneous and should be such that the circuit cannot be re-energized until the normal phase relations are restored.

18.0 LIST OF APPENDICES

APPENDIX A – TEMPORARY SERVICE METHODS

APPENDIX B – UTILITY AUTHORIZATION NUMBER (UAN)

APPENDIX C – RATES & TARIFFS AND GENERAL TERMS AND CONDITIONS

APPENDIX D – MASSACHUSETTS GENERAL LAWS REGARDING THEFT OF SERVICE

APPENDIX E – CUSTOMER-OWNED GENERATION REQUIREMENTS AND GUIDELINES

APPENDIX F – CUSTOMER-OWNED GENERATION INTERCONNECTION SCHEMATIC

APPENDIX G – ENERGY EFFICIENCY, CONSERVATION, AND ELECTRIFICATION PROGRAMS

APPENDIX H – FIGURES AND ILLUSTRATIONS

- FIGURE 1 – PADMOUNT CLEARANCES
- FIGURE 2 – TYPICAL SWITCHING OF CUSTOMER'S EMERGENCY SUPPLY
- FIGURE 3 – TYPICAL TRANSFORMER ENCLOSURE
- FIGURE 4 – OVERHEAD SERVICE ENTRANCE GUIDELINES
- FIGURE 5 – SERVICE DROP REQUIREMENTS
- FIGURE 6 – TYPICAL SERVICE MAST CONSTRUCTION
- FIGURE 7 – SERVICE MAST INSTALLATION
- FIGURE 8 – UTILITY METER SOCKET WARNING AND CLEARANCE DIAGRAM
- FIGURE 9 – CUSTOMER SECONDARY RISER AND SERVICE LATERAL
- FIGURE 10 – LOCATION OF PADMOUNTED EQUIPMENT
- FIGURE 11 – TEMPORARY SERVICE - UNDERGROUND
- FIGURE 12 – TEMPORARY SERVICE - OVERHEAD
- FIGURE 13 – CUSTOMER SECONDARY RISER 600 VOLTS AND BELOW
- FIGURE 14 – 7 TERMINAL METER SOCKET 400 AMP MAX
- FIGURE 15 – 5 TERMINAL METER SOCKET 400 AMP MAX
- FIGURE 16 – MULTIPLE METERS – VERTICAL MOUNTED TROUGH
- FIGURE 17 – MULTIPLE METERS – HORIZONTALLY MOUNTED TROUGH
- FIGURE 18 – CURRENT TRANSFORMATION INSTALLATION
- FIGURE 19 – DETAIL OF METERED POWER SUPPLY FOR COMMS ON WOOD POLE
- FIGURE 20 – DETAIL OF METERED POWER SUPPLY FOR PAD MOUNTED COMMUNICATION CABINET
- FIGURE 21 – DETAIL OF METER SOCKET BRACKET ON WOOD POLE
- FIGURE 22 – TYPICAL TRENCH SPECIFICATIONS
- FIGURE 23 – SPECIFICATIONS FOR FIBERGLASS TRANSFORMER PAD
- FIGURE 24 – SECONDARY PEDESTAL SPECIFICATIONS
- FIGURE 25 – LIGHT POLE INSTALLATION
- FIGURE 26 – RISER POLE – SPECIFICATION FOR PAD MOUNT INSTALLATION
- FIGURE 27 – CONCRETE PAD (84 X 84) UP TO 500KVA

APPENDIX I – STREET LIGHTING REQUEST FORM

APPENDIX J – UNSAFE ELECTRICAL EQUIPMENT NOTIFICATION FORM

APPENDIX K – ADDITIONAL FEES AND CHARGES

APPENDIX L – CUSTOMER ACTION NOTICES

APPENDIX M – LOAD DATA SHEET

19.0 Summary of Changes

1.20.2021 – Clarified rebate incentive programs to help accelerate rebate processing and capture load changes, with an emphasis on Heat Pump and EV Charger programs.

1.20.2021 – Clarified contractor requirements for residential sub-divisions, URDs, and commercial / industrial electrical service to promote additional electrification and maintain network reliability.

1.20.2021 – Defined 1,500 kVa as the threshold for primary metering qualification. Clarified equipment ownership between customer and RMLD.

1.20.2021 – Updated all figures contained within the handbook.

1.20.2021 – Updated distributed generation resources requirements to require impact study for all systems above 150 kW; clarified requirements for systems below 20 kW; clarified disconnect switch requirements for systems between 20 kW and 150 kW.

1.20.2021 – Increased size of RMLD provided transformer to 750 kW for specific installations.

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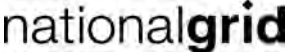
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NATIONALGRID CONSTRUCTION STANDARDS

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Supersedes 7/21 Issue- Revised Sections 32.9 and 32.12

SECTION	PAGE
• 32.0 GENERAL	32-1
• 32.1 APPLICATION	32-1
• 32.2 TYPE	32-1
• 32.3 BENDING	32-1
o 32.3.10 Bends Within a Ductbank Section	32-1
o 32.3.20 Sweeps at Equipment	32-1
• 32.4 SPACING	32-2
o 32.4.10 Ductbanks	32-2 THRU 32-3
o 32.4.20 Ductbank Face (In Manholes)	32-3
• 32.5 FITTINGS	32-4
• 32.6 PITCH	32-4
• 32.7 BURIAL DEPTHS	32-5
o 32.7.10 For Duct Applications	32-5
o 32.7.20 For Direct Buried Applications	32-5
• 32.8 CLEARANCES	32-5
• 32.9 EXCAVATION	32-6
• 32.10 INSPECTION	32-6
• 32.11 CONCRETE	32-6
• 32.12 BACKFILL	32-6
o 32.12.10 Direct Buried Duct Systems	32-6
o 32.12.20 Concrete Encased Duct Systems	32-6
• 32.13 WARNING TAPE	32-7
• 32.14 MANDREL	32-7
• 32.15 REPAIR	32-7
• 32.16 DUCT SIZING FOR 3 SOLID DIELECTRIC PARALLEL CABLES	32-7 THRU 32-8
• 32.17 BRIDGE AND OVERPASS CONDUIT SUPPORT SYSTEM GUIDELINES	32-9 THRU 32-10
o 32.17.10 Process	32-9
o 32.17.20 Type – Conduit Specification	32-9
o 32.17.30 Expansion/Deflection Fitting	32-9
o 32.17.40 Hanger Supports	32-10
• 32.18 CONDUIT VENTILATION OF SPARE RISER	32-11

CONDUIT INDEX			
	UNDERGROUND CONSTRUCTION STANDARD	PAGE NUMBER	ISSUE
		32-i	7/22

CONDUIT INDEX

ISSUE	PAGE NUMBER	UNDERGROUND CONSTRUCTION STANDARD	nationalgrid
7/21	32-ii		

32.0 GENERAL

The following Standard is to be followed when designing and installing direct buried (DB) conduit systems. This Standard shall apply to primary and secondary systems installed by both the Company and/or customers.

32.1 APPLICATION

Direct Burial (DB) conduit is to be used where ducts are to be direct buried or encased in concrete. The amount of ducts should provide for present and future planned installations by the Company and need to include spare ducts (unoccupied and designated as a spare for emergency replacements). The minimum number of ducts shall be two. If inner duct is needed, Standards Engineering shall be contacted.

Routes through unstable materials such as mud, shifting soils, etc., or through highly corrosive soils, shall be avoided. If construction in these soils can not be avoided, the conduit system shall be constructed in such a manner as to minimize movement and/or corrosion.

32.2 TYPE

Ducts are to be purchased in 20 foot lengths. They are to have a bell end or coupling on one end. See Table 1.

Type	Size	Std. Item
Direct Buried (DB)	2"	UK6A2
	3"	UK6A3
	4"	UK6A4
	5"	UK6A5
	6"	UK6A6

Table 1 - Std Item Numbers for DB Conduit

32.3 BENDING**32.3.10 Bends within a Duct Bank Section:**

PVC conduit has the ability to be bent without any heating of the material. Therefore hot bending will not be used for the installation of conduits. The degree of cold bending will be a function of temperature. Bends that exceed the cold bending availability will be made with 5 degree couplings. The minimum length of duct segments between single 5 degree couplings is 40 inches. This construction yields a 40 foot radius of curvature, which is the minimum requirement for any size conduit. If a tighter radius is required, consult Standards Engineering.

32.3.20 Sweeps at Equipment:

Sweeps needed at equipment locations, e.g. pad-mount transformers, shall be made using manufactured sweeps. Acceptable sweeps are listed in Table 5. The radius of the sweep shall be a minimum of 24 inches for 2 inch conduit, 36 inches for 3 – 5 inch conduit and 48 inches for 6 inch conduit. 90 degree conduit "elbows" shall not be used; the radius of these bends are not adequate and will cause damage to cable insulation.

CONDUIT			
nationalgrid	UNDERGROUND CONSTRUCTION STANDARD	PAGE NUMBER	ISSUE
		32-1	2/06

32.4 SPACING

32.4.10 Ductbanks

Spacers must provide a 1½ inch minimum separation between ducts (except 6 inch ducts which require 2 inches of separation) and 3 inches between the ducts and the surface of the ductbank. Spacers lock vertically and horizontally. Intermediate spacers shall be used as a cap on the top tier of a duct bank to prevent floating during encased burial installations. Spacers shall be placed at 5 – 8 foot intervals and shall be placed at each coupling. See Table 2 for duct bank dimensions and Table 3 for spacer information. See Figures 1 thru 6 and 2A thru 5A for typical ductbank configurations. If special circuit loading conditions are required by Distribution Design, consult Standards Engineering for assistance with ductbank configuration.

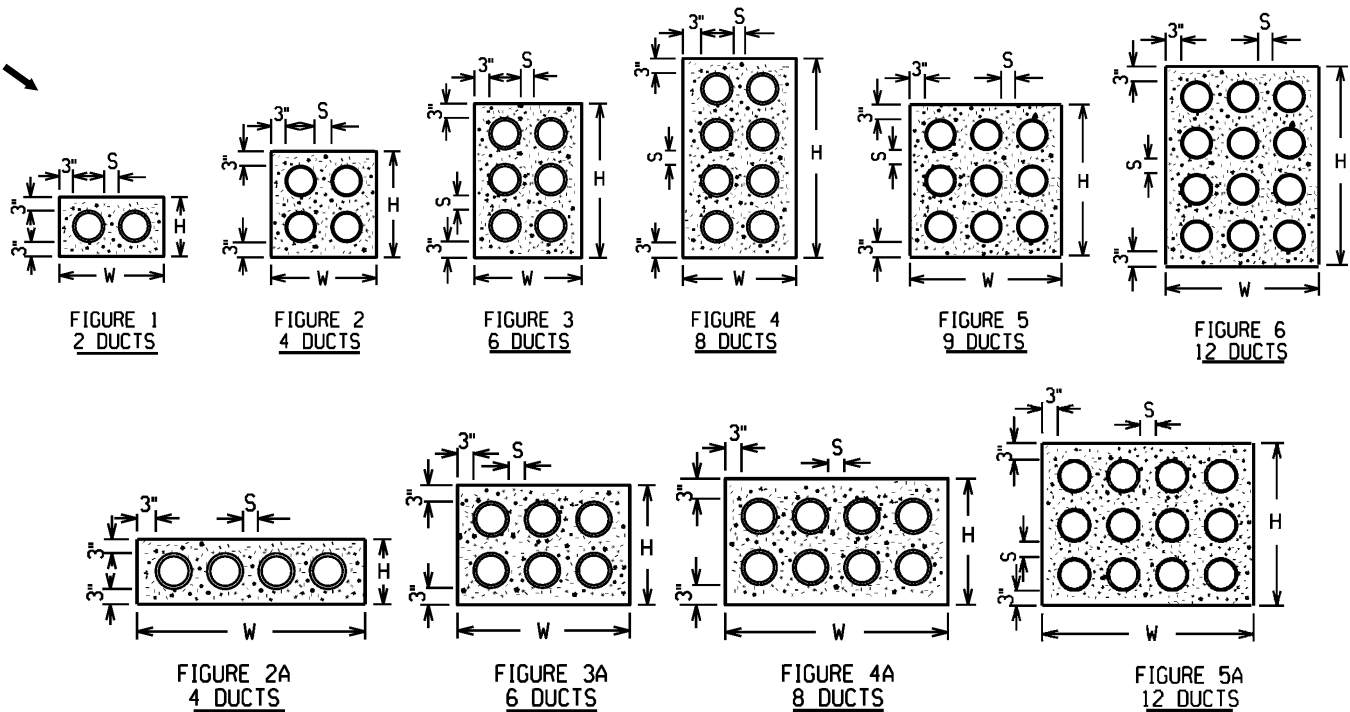


Figure	Dimensions in Inches								
	4" Duct			5" Duct			6" Duct		
	W	H	S	W	H	S	W	H	S
1	16 ½	10 ½	1½	18 ¾	11 ¾	1½	21 ¼	12 ¾	2
2	16 ½	16 ½	1½	18 ¾	18 ¾	1½	21 ¼	21 ¼	2
2A	28½	10 ½	1½	32 ¾	11 ¾	1½	38 ½	12 ¾	2
3	16 ½	22 ½	1½	18 ¾	25 ¾	1½	21 ¼	30	2
3A	22 ½	16 ½	1½	25 ¾	18 ¾	1½	30	21 ¼	2
4	16 ½	28 ½	1½	18 ¾	32 ¾	1½	21 ¼	38 ½	2
4A	28 ½	16 ½	1½	32 ¾	18 ¾	1½	38 ½	21 ¼	2
5	22 ½	22 ½	1½	25 ¾	25 ¾	1½	30	30	2
5A	28 ½	22 ½	1½	32 ¾	25 ¾	1½	38 ½	30	2
6	22 ½	28½	1½	25¾	32 ¾	1½	30	38 ½	2

Table 2 - Duct Bank Spacing

Supersedes 2/06 Issue - Added Figure 5, updated dimensions in Table 2.

CONDUIT			
ISSUE	PAGE NUMBER	UNDERGROUND CONSTRUCTION STANDARD	nationalgrid
7/08	32-2		

Size	Intermediate	Base
3"	UK5E	UK4E
4"	UK5F	UK4F
5"	UK5G	UK4G
6"	UK5H	UK5H

Table 3 - Conduit Spacer Std Item Numbers

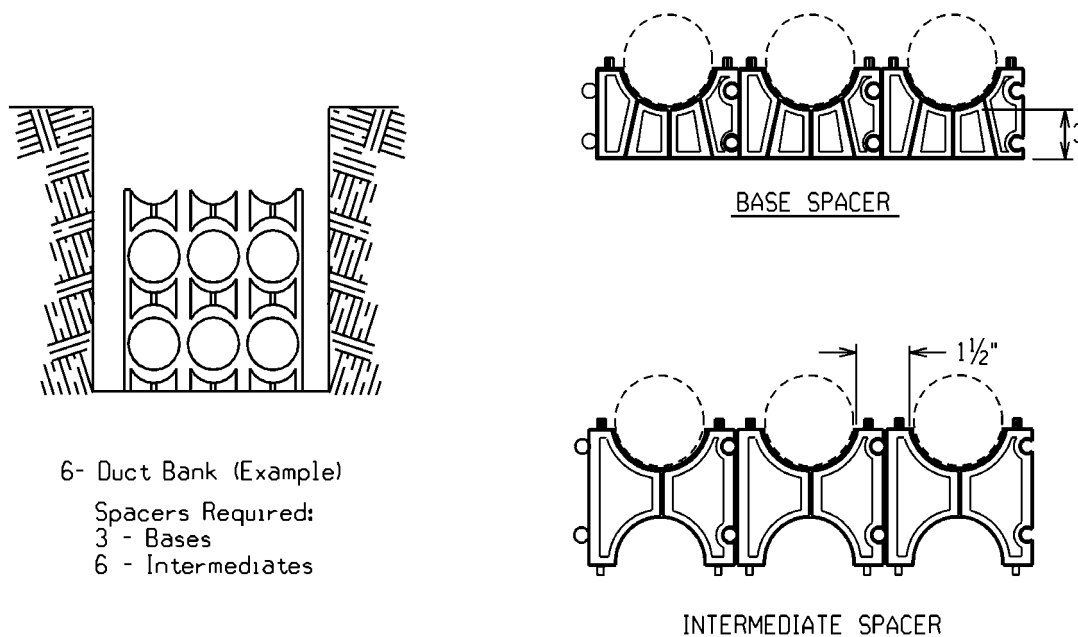


Figure 6

32.4.20 Ductbank Face (In Manholes)

The spacing is increased at the manhole face to allow the cables within the ducts to enter the manhole freely without being too close to the cables from the adjacent ducts and to allow for the use of bell end conduit.

Use the following table and Figure 7 as a guideline for installing ducts at the manhole face:

	6" Conduit	5" Conduit	4" Conduit
Spacing between conduits (S)	9"	9"	8"
Spacing between conduit and edge of ductbank (E)	6"	6"	6"

Table 4 - Spacing at Ductbank Face (in Manholes)

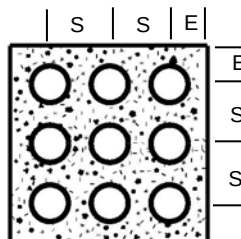


Figure 7

CONDUIT			
nationalgrid	UNDERGROUND CONSTRUCTION STANDARD	PAGE NUMBER	ISSUE
		32-3	4/19

32.5 FITTINGS

Fittings and accessories will be joined with PVC cement (Std. Item UK6S). Additional fittings can be found in the Section 50—Materials Catalog.

Description	2"	3"	4"	5"	6"
Adapter (PVC-Square Tile)	-	-	UK7SA	-	-
Adapter - Female (Threaded)	UK6F2	UK6F3	UK6F4	UK6F5	UK6F6
Adapter – Male (Threaded)	-	UK7M3	-	-	-
Adapter Coupling - Flexible (4"-5")	-	-	UK7F	UK7F	-
Bend - 90° ^(a)	UK6B2A	UK6B3	UK6B4	UK6B5	UK6B6
Bend - 90°, 48"R	-	UK6B3A	UK6B4	UK6B5	UK6B6A
Bell End	UK6E2	UK6E3	UK6E4	UK6E5	UK6E6
Coupling – Straight	UK6C2	UK6C3	UK6C4	UK6C5	UK6C6
Coupling – Split	-	UK7CC3	UK7CC4	-	-
Coupling - 5° Female x Male	UK6D2	UK6D3S	UK6D4S	UK6D5S	UK6D6S
Coupling - 5° Female x Female	-	UK6D3	UK6D4	UK6D5	UK6D6
Duct - Split ^{(b)(c)}	-	-	UK7S4	-	-
Plug	UK6G2	UK6G3	UK6G4	UK6G5	UK6G6
Reducer - 4" to 3" male x male	-	UK7E	-	-	-
Reducer - 4" to 3" male x female	-	UK7D	-	-	-

(a) Minimum radius for 2 inch is 24 inches; for 3 inch, 4 inch and 5 inch is 36 inches; and for 6 inch is 48 inches.

(b) Type DB.

(c) Use cable tie (Std. Item UK7ST) where needed. Cable ties included with split duct furnished by Carlon.

Table 5 - Conduit Fittings

32.6 PITCH

Ducts are to pitch toward manholes and have a minimum slope of no less than 3 inches per 100 feet.

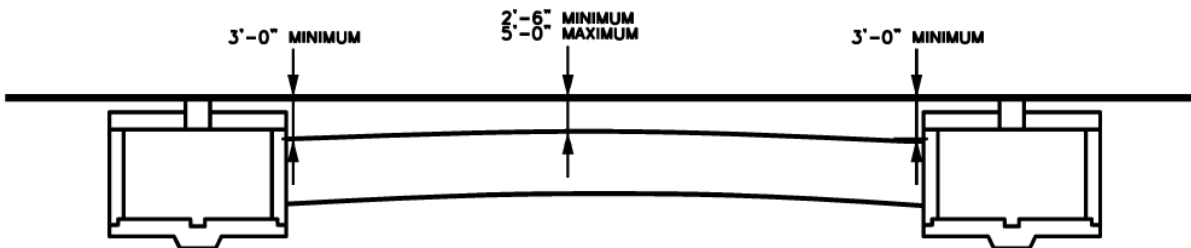


Figure 8

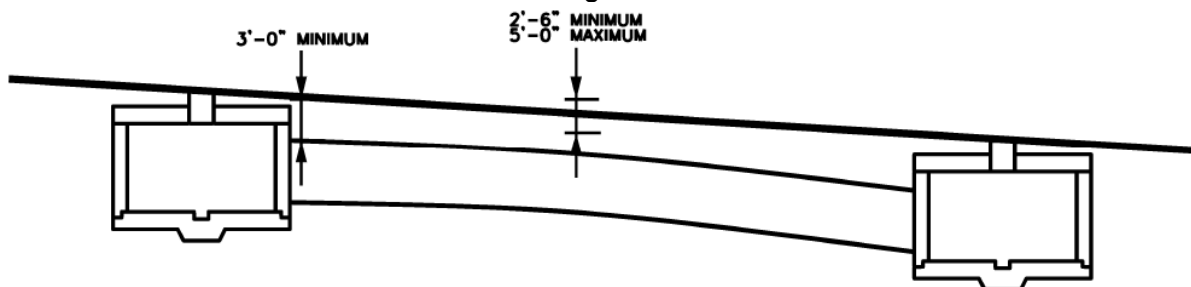


Figure 9

CONDUIT			
ISSUE	PAGE NUMBER	UNDERGROUND CONSTRUCTION STANDARD	nationalgrid
7/18	32-4		

32.7 **BURIAL DEPTHS**

Burial depth is defined as “The distance between the top of the cable or conduit and the surface under which is installed”. The following burial depths apply to all primary voltage cables and conduits.

The **maximum burial depth** at the center of the conduit or cable span shall be 60 inches. Please consult with Standards Engineering for exceptions to maximum burial depths.

The **minimal burial depth** at the center of the conduit span between the top of the completed conduit, conduit bank or direct buried cable and grade shall be 30 inches. If these minimum burial depths **cannot** be achieved due to ledge, solid rock or other considerable conditions, the following exceptions will apply for all installations both in public ways and private property:

32.7.10 **For Duct Applications:**

The minimum burial depth can be reduced to 21 inches. Supplemental protection is required to prevent potential damage. The conduit shall be encased in concrete. The concrete envelope is to be a minimum of 3 inches thick in all directions around the conduit. Minimum cover over the concrete encasement shall not be less than 18 inches.

32.7.20 **For Direct Buried Applications:**

The minimum burial depth can be reduced to 21 inches. Supplemental protection is required to prevent potential damage. The cable must be placed in a properly sized PVC-DB conduit encased in concrete. The concrete envelope is to be a minimum of 3 inches thick in all directions around the conduit. Minimum cover over the concrete encasement shall not be less than 18 inches.

32.8 **CLEARANCES**

Clearances between the conduit concrete envelope and major subsurface pipes or structures shall be a minimum of 6 inches; clearances to services and laterals shall be a minimum of 2 inches. Electric conduit crossing above other utilities must have suitable support under the electric conduit, on each side of the other utility line, to maintain the minimum clearance if the other utility's facilities ever have to be dug out.

Type	Clearance Min (in.)
Communication Systems	12 ¹
Natural Gas Lines	12
Sewers, Sanitary and Storm	12
Water Lines	12
Fuel Lines	Opposite side of Street ²
Steam Lines	Opposite side of Street or 8 feet with insulation
Rail Road Crossings	50 ³

Notes:

1. 3 inches of concrete or 4 inches of masonry is also acceptable.
2. Where this is not practical, clearance shall be sufficient to allow the use of pipe maintenance equipment.
3. Maybe reduced by agreement of concerned parties, but in no case shall it be less than 6 inches from ballast.

Table 6 - Clearances Required From Other Utilities

CONDUIT			
nationalgrid	UNDERGROUND CONSTRUCTION STANDARD	PAGE NUMBER	ISSUE
		32-5	4/19

32.9 EXCAVATION

Excavation for an entire run shall be completed prior to conduit installation to preclude encountering unexpected obstructions. The trench shall be excavated and trimmed in such a way that backfill is not required to establish the proper line of grade. The trench bottom shall be solid, undisturbed earth. Earth showing extensive signs of peat, cinders, rubble, frozen material, or any conditions not suitable for a stable foundation, shall be reported to Standards Engineering for recommendation. Small pockets (up to 1 cubic yard) of unsuitable soil shall be excavated and replaced with compacted gravel (maximum 2 inches of stone). Where the earth walls of the trench are firm enough to sustain themselves, and all OSHA requirements are met, they may be used as the forms for concrete encasement. The walls of these trenches shall be carefully trimmed to allow the proper thickness (minimum 3 inches) of concrete around the outside conduits. The walls shall not be so wide as to require an excessive amount of concrete to fill the trench. If shoring and/or sheeting are necessary, they shall be placed as required to maintain the excavation and shall be removed prior to concrete encasement and/or as the backfilling progresses so that all shoring is removed as the job is completed. This can only be applied to a 2-conduit (side by side) formation.

Excess excavation material shall be removed from the job site as soon as possible.

32.10 INSPECTION

Company inspectors shall perform on-site inspection of the installation after the duct sections are complete and prior to pouring concrete or backfilling any portion of the installation.

32.11 CONCRETE

Shall be in accordance with Section 31 – General; mix M3 without air entrainment agents. Concrete mix shall be a minimum of 2000 psi. When the interval between pours is greater than 2 hours, #4 reinforcing bars 6 feet long shall be installed in the corners and between ducts on the top and bottom rows.

32.12 BACKFILL

Concrete will be cured for a minimum of 12 hours before backfilling over it. Before any backfill is installed, a Company employee or representative shall inspect and approve the duct construction and backfill material. Flowable fill is a viable backfill if available and when deemed necessary.

32.12.10 Direct Buried Duct Systems

Backfill material shall consist of sand or earth, or a mixture which may contain rocks, provided the rocks do not exceed 2 inches in any dimension and have no sharp edges. Additionally, the rocks shall not comprise more than 50% of the backfill material by volume. Backfill material shall be adequately compacted in 6-inch lifts. Peat, cinders, rubble and frozen material are not suitable backfill material.

32.12.20 Concrete Encased Duct Systems

Backfill within 6 inches of the top of the concrete shall be free of solid material greater than 4 inches maximum dimension, or, with sharp edges likely to cause damage. The balance of backfill shall be free of solid material greater than 8 inches, maximum dimension. Backfill material shall be adequately compacted in 6-inch lifts. Peat, cinders, rubble and frozen material are not suitable backfill material.

Supersedes 7/15 Issue – Revised 32.9 and 32.12.

CONDUIT			
ISSUE	PAGE NUMBER	UNDERGROUND CONSTRUCTION STANDARD	nationalgrid
7/22	32-6		

32.13 WARNING TAPE

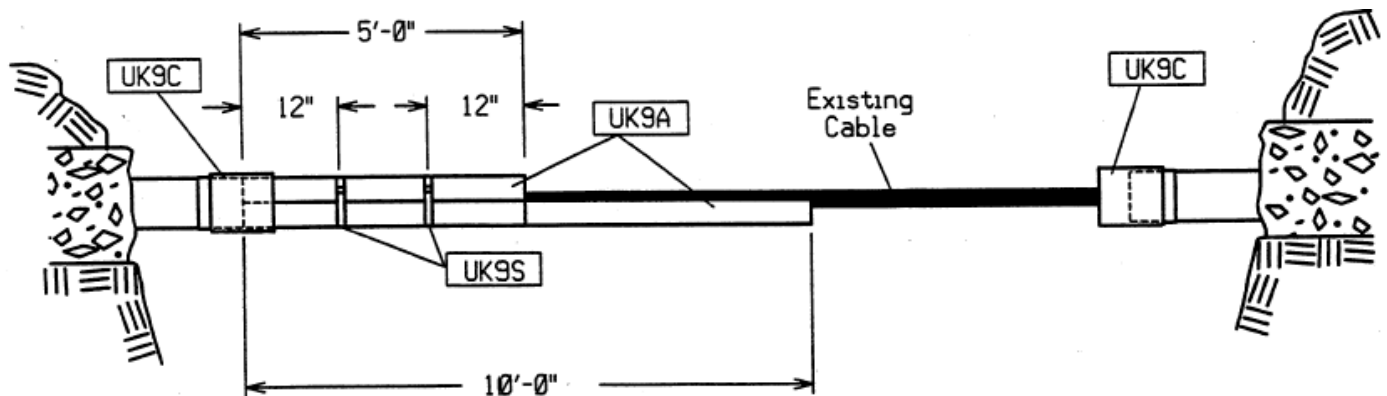
Warning tape (Std. Item UT8) shall be installed 12–18 inches below finished grade and directly above electric conduit.

32.14 MANDREL

An approved flexible mandrel, no less than ¼ inch smaller in diameter than the duct nominal inside diameter, shall be pulled through all completed ducts. 2,500 pound rated pulling tape, often referred to by the trade name “Muletape” (Std. Item T4A), shall be left in all conduits. One such tape manufacturer would be Arnco Corporation, manufacturer number DLWP25.

32.15 REPAIR

Repairs of occupied conduits shall be made from PVC loc-duct (Std. Item UK9A), of the same outside diameter, wall thickness and approximate length as the damaged section. Split couplings (Std. Item UK9C) shall also be the same dimensions as the damaged section and used along with PVC loc-duct (Std. Item UK9A). Place plastic strap (Std. Item UK9S) around the loc-duct, 12 inches from the end of the coupling and another strap 12 inches from the end of the top half section of loc-duct. Apply duct seal (Std. Item S3) and/or vinyl tape (Std. Item 1WBP) to seal all slots and openings.

**Figure 10****32.16 DUCT SIZING FOR 3 SOLID DIELECTRIC PARALLEL CABLES**

Cables are required to have ¾ inch clearance through the conduit. Also multiple cables might have a possibility of jamming. Table 7 will aid in the selection of the proper conduit size for 3 parallel conductors. “NO” means the conduit is not suitable for the conductors, “YES” means the conduit is suitable for the conductors.

Acceptable conduit size was selected by determining jamming possibility and a ¾ inch clearance. Jamming was calculated using the formula D/d . Where D = inside diameter of duct and d = single cable nominal OD. If D/d ratio is greater than 2.8 and less than 3.2 there is a possibility that the cables may jam. Actual clearance (c) is calculated using the following formula:

$$c = \frac{D}{2} - 1.366 * d + \frac{D-d}{2} * \sqrt{1 - \left(\frac{d}{D-d}\right)^2}$$

CONDUIT			
nationalgrid	UNDERGROUND CONSTRUCTION STANDARD	PAGE NUMBER	ISSUE
		32-7	7/08

Voltage	Conductor Size	Conductor OD	4-Inch Conduit			5-Inch Conduit			6-Inch Conduit		
			PVC DB, ID=4.258"	PVC Sch 40, ID=4.026"	Steel, ID=4.026"	PVC DB, ID=5.26"	PVC Sch 40, ID=5.047"	Steel, ID=5.047"	PVC DB, ID=6.20"	PVC Sch 40, ID=6.065"	Steel, ID=6.065"
5 kV	4/0 CU	1.12	YES	YES	YES	YES	YES	YES	YES	YES	YES
	500 CU	1.43	NO	NO	NO	YES	YES	YES	YES	YES	YES
15 kV	2 AL	1.015	YES	YES	YES	YES	YES	YES	YES	YES	YES
	2 CU	1.015	YES	YES	YES	YES	YES	YES	YES	YES	YES
	4/0 CU	1.24	YES	YES	YES	YES	YES	YES	YES	YES	YES
	350 CU	1.42	NO	YES	YES	YES	YES	YES	YES	YES	YES
	500 CU *Rd	1.426	NO	YES	YES	YES	YES	YES	YES	YES	YES
	500 CU	1.55	YES	YES	YES	YES	YES	YES	YES	YES	YES
	750 AL	1.74	NO	NO	NO	YES	YES	YES	YES	YES	YES
	1000 AL	1.98	NO	NO	NO	YES	YES	YES	NO	NO	NO
	1000 CU	1.98	NO	NO	NO	YES	YES	YES	NO	NO	NO
25 kV	1/0 CU	1.5	YES	YES	YES	YES	YES	YES	YES	YES	YES
	3/0 CU *Rd	1.28	YES	NO	NO	YES	YES	YES	YES	YES	YES
	4/0 CU	1.43	NO	NO	NO	YES	YES	YES	YES	YES	YES
	350 AL	1.6	YES	NO	NO	YES	NO	NO	YES	YES	YES
	350 CU	1.58	YES	YES	YES	YES	NO	NO	YES	YES	YES
	350 CU *Rd	1.41	NO	NO	NO	YES	YES	YES	YES	YES	YES
	400 CU	1.47	NO	YES	YES	YES	YES	YES	YES	YES	YES
	500 AL	1.795	NO	NO	NO	YES	YES	YES	YES	YES	YES
	500 CU	1.795	NO	NO	NO	YES	YES	YES	YES	YES	YES
	500 CU *Rd	1.58	YES	YES	YES	YES	YES	YES	YES	YES	YES
	750 AL	1.93	NO	NO	NO	YES	YES	YES	YES	NO	NO
	1000 AL	2.16	NO	NO	NO	YES	NO	NO	YES	YES	YES
	1000 CU	2.16	NO	NO	NO	YES	NO	NO	YES	YES	YES
35 kV	1/0 AL	1.45	NO	YES	YES	YES	YES	YES	YES	YES	YES
	2/0 CU	1.53	YES	YES	YES	YES	YES	YES	YES	YES	YES
	500 CU	1.96	NO	NO	NO	YES	YES	YES	NO	NO	NO
	500 CU *Rd	1.7	YES	NO	NO	NO	NO	NO	YES	YES	YES
	750 CU	2.09	NO	NO	NO	YES	NO	NO	NO	NO	NO
	1000 AL	2.31	NO	NO	NO	NO	NO	NO	YES	YES	YES
	1000 CU	2.31	NO	NO	NO	NO	NO	NO	YES	YES	YES

Supersedes 7/21 issue - Revised Table 7

Table 7 - Appropriate Conduit Size for use with Standard Cables

Rd* = reduced diameter. These cables shall only be used when standard sized cables do not fit in conduit.

Note:

Table 7 is based on the jamb ratio and clearance formulas from section 32.16 using common conductor OD's and common inner diameters of PVC DB, PVC Schedule 40 and steel conduit. Be aware that these values could differ by manufacturers. Always verify dimensions.

CONDUIT			
ISSUE	PAGE NUMBER	UNDERGROUND CONSTRUCTION STANDARD	nationalgrid
7/22	32-8		



32.17 **BRIDGE AND OVERPASS CONDUIT SUPPORT SYSTEM GUIDELINES**

This standard is intended as a guideline for the installation of National Grid conduits in or on bridges and overpasses. The final conduit support system design will be the responsibility of the Project Engineer.

32.17.10 **Process**

1. National Grid personnel need to coordinate with the regulating body of the bridge or overpass to secure occupancy rights on the structure, to assure that the proper load limits are designed for, and to meet the project construction timetable.
2. National Grid's Engineering Planning Department shall specify system requirements, e.g. size and number of conduits. Spare conduits shall be included in the design.
3. Design should have no sharp bend of conduits. Design should minimize cable pulling tension.
4. Final design shall be stamped by a professional engineer registered in the state where the construction is taking place.
5. National Grid design acceptance should include review by but not limited to Underground, Distribution Design, Construction Standards, Engineering Planning and Project Management Departments.

32.17.20 **Type – Conduit Specification**

1. Conduit material shall be type Heavy Wall (HW) Reinforced Thermosetting Resin Conduit (RTRC) in conformance with NEMA TC-14. The conduit and fittings shall have fire resistance properties in accordance with test procedures of Underwriters Laboratories UL 2515.
2. Conduits shall be joined by bell and spigots manufactured integrally as part of the conduit. Adhesive shall be recommended by the conduit manufacturer.
3. Field bending of the conduit shall be accomplished by use of fittings made of the same material as the conduit.
4. Conduit and fittings shall have an ultraviolet inhibitor.

32.17.30 **Expansion/Deflection Fitting**

1. Expansion/deflection fittings shall be installed in/at all structural expansion joints or at 200 feet maximum spacing, whichever is the lesser distance and on the bridge side of the abutments.
2. Expansion/deflection joints shall be located no closer than 12" from any support.
3. The expansion and deflection setting shall be determined by the Project Engineer.
4. Expansion/deflection fittings shall only be installed on straight portions of conduit runs.
5. Double bell (B-B) stop couplings shall be installed at bridge abutments.

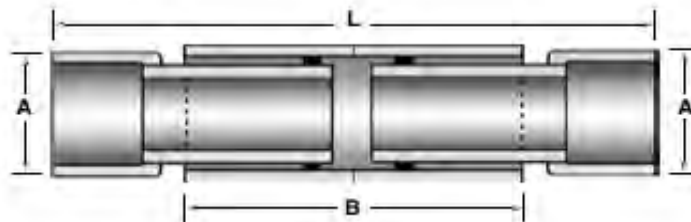
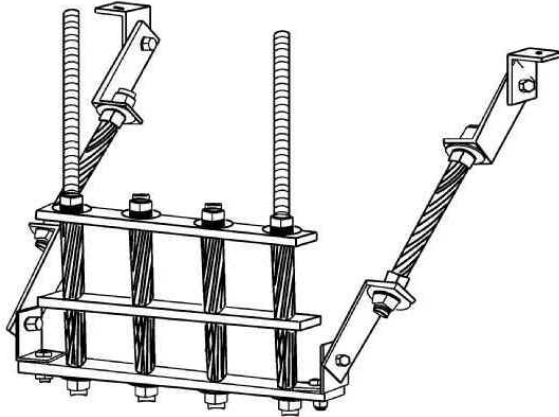
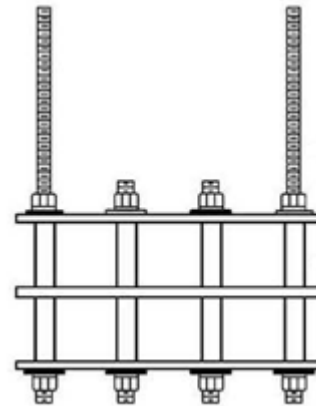
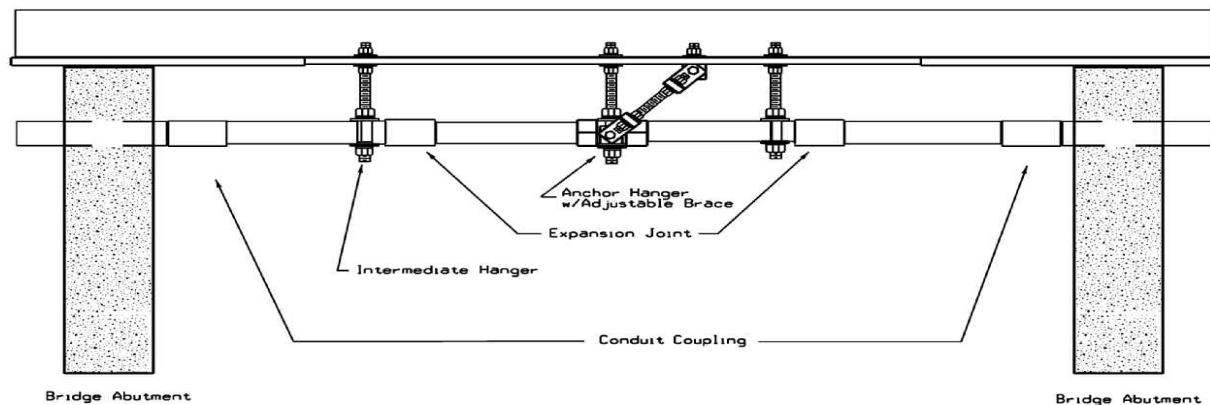


Figure 11 – Expansion / Deflection Joint

CONDUIT			
nationalgrid	UNDERGROUND CONSTRUCTION STANDARD	PAGE NUMBER	ISSUE
		32-9	7/13

32.17.40 Hanger Supports

1. The conduit support system may be made up of anchor hangers and intermediate hangers. All conduit support hardware shall be fiberglass with the exception of bolts. All bolts shall be hot dipped galvanized in accordance with ASTM A153. Attachment of supports to bridge needs to be determined and designed by the Project Engineer.
2. Anchor hangers are required where more than one expansion joint is installed. Anchor hangers have adjustable braces and shall be installed at the midway point between expansion/deflection joints. Split stop rings restrict conduit movement and shall be installed at all anchor hangers.
3. Intermediate conduit hanger supports shall be at 10-12 foot maximum spacing.
4. Squares that enclose conduit in supports should be approximately $\frac{1}{2}$ " larger than the OD of the conduit.
5. Support shall permit conduit to expand and contract with temperature and bridge.
6. When needed, windows, sleeves and casings should be designed to permit the conduit to pass through bridge abutments in the same alignment as the hanger support. Such design will make rolling or bending the conduit unnecessary.

**Figure 12 - Anchor Hanger****Figure 13 - Intermediate Hanger****Figure 14 – Typical Bridge and Overpass Conduit Support System**

CONDUIT			
ISSUE	PAGE NUMBER	UNDERGROUND CONSTRUCTION STANDARD	nationalgrid
7/18	32-10		

CONDUIT VENTILATION OF SPARE RISER

7/18 - New Standard

A00804-15

Version	Date	Modification	Author(s)	Approval by (Name/Title)
9	7/22	- Revised Section 32.9 and 32.12 - Fixed Table 7	Hernan Yepez	Director, T&D Line Engineering & Standards
8	7/21	Revised Table 7 – 1000 kcmil 25 kV	Hernan Yepez	Director, T&D Line Engineering & Standards
7	4/19	- Revised Section 32.7 - Burial Depth - Revised Section 32.8 - Clearances	Hernan Yepez	J.P. Knauss Director Electric Engineering
6	7/18	- Update to 32.7 added max burial depth. - Updates to figures 8 and 9. - New Standard Section 32.18.	John Vartanian	Jonathan Gonynor, Director T&D O&M
5	7/17	Revised Table 7.	B. Reynolds	Jonathan Gonynor, Director T&D O&M
4	7/15	Added std. item for mule tape in 32.14	B. Reynolds	Jonathan Gonynor, Director T&D O&M
3	7/13	- Added 500 kcm cable, 35kV to Table 7. - Added bridge and overpass support system guidelines.	B. Reynolds	Cheryl Warren, VP, Asset Management
2	7/10	Updated Table 7 to reflect actual conduit inner diameter sizes.	Katie Croteau	Allen Chieco, Director of Distribution Standards and Work Methods
1	07/08	- Changed 32.4 from "Spacers" to "Spacing." - Added Figure 5, updated dimensions in Table 2 - Added section 32.4.2, re-numbered Tables - Re-numbered Figures and Table, text shift due to formatting	Katie Croteau	Allen Chieco, Director of Distribution Standards and Work Methods

SUMMARY OF RECENT CHANGES

ISSUE	PAGE NUMBER	UNDERGROUND CONSTRUCTION STANDARD	nationalgrid
7/22	32-NOTES		

DOCUMENT A00808

PROJECT UTILITY COORDINATION FORM

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Project Utilities Coordination (PUC) Form

CONTACTS AND GENERAL UTILITY INFORMATION

9/11/2025
Revision
Date:

City/Town: Wilmington	Project File #: 608703	PUC Completed by: Gina.Bickelmaier@dot.state.ma.us	Utility Pole Set: Reading Mun. Light															
Route/Street: Rte. 129 (Lowell St) Br. W-38-029(2KV) over I-93 Bridge Replacement	Resident Engineer: Michael Winnick@dot.state.ma.us 857-300-3671 Amanda.Klemm@dot.state.ma.us 781-570-1154	Mass DOT PM: Eamon Kernan	Scheduled Ad Date: 8/30/2025															
Consultant: MassDOT Consultant - Green International Affiliates, Incorporated	Contact: Michael Cruz - Lead Walter G. Gaudin - Structural Dennis Vertue Alexander Russell Andrew Feingold Sophie Barre	Office # x (978) 843-5221 (978) 843-5192 (978) 843-5198 (978) 843-5210	Cell # x (978) 843-5221 x x x x															
Utility Company	Contact	Office #	Cell #	Email	Scope, Budget, Duration Submitted	Yes	No	Reimbursement Non-Reimb	Notes	Potential for District Initiated Early Relocation *	YES	NO	YES	NO	Utilities On Bridge/Structure	YES	NO	Utilities Underground (UG) /Aerial (OH)
Reading Mun Light	Peter Price Jonny Duong	781) 942-6429 781) 942-6427	*	pprice@rmlid.com jduong@rmlid.com		x			UG conduit on Bridge - OHW on NB side. Camera on I-93 NB north of Bridge with Service connection on Meter post on East Approach.		x		x		x		x	
massDOT CCTV	Abraham E. Hagoss Louis Lamoureux	(617) 708-4254 (714) 286-6486		Abraham E. Hagoss@dot.state.ma.us Louis Lamoureux@dot.state.ma.us				x		x					x		x	
massDOT HOC	Michael F. Fitzpatrick	(617) 995-3048		Michael F. Fitzpatrick@dot.state.ma.us				x	Contact for any disruption to CCTV	x								
ITS Backbone I-93 Project	Tony Wade	(781) 431-5168		tony.wade@dot.state.ma.us				x	Coordinate with Tony Wade for new ITS backbone up I-93 Median		x				x			
For Information Only																		
Wilmington Engineer	Paul Alunni	(978) 658-4499		Palunni@wilmingtonma.gov					Keep in the loop for all impacts, debours and Cobra R&R in FA if necessary									
Street Lights	Paul Alunni	(978) 658-4499		Palunni@wilmingtonma.gov														
Verizon	Paul Diamantopoulos Stacey Manseau	(978) 382-2855 (978) 339-5812		Paul E. Diamantopoulos@verizon.com stmanseau@verizon.com					Verizon has an UG conduit under I-93 north of Bridge in old Lowell Street INOT shown on PLANS - Review for ug conflicts - VZ has No OHW and facilities on Ugs.									
Wilmington Water	Michael Woods Jamie Magaldi	(978) 658-4711 (978) 658-4481		mwoods@wilmingtonma.gov jmagaldi@wilmingtonma.gov					Request Bridge Blockout and Utility Bay for future water main on Bridge to cross connect with Reading.									

Utility Relocation Notes for MassDOT Contractor
Unless otherwise noted by Contract, the MassDOT Contractor is to provide the District Construction Office with 7 Calendar Days advance notification in order to validate the current progress and provide the required 30 Days advance notice-to-proceed for the first Utility - and each subsequent Utility. These advance notifications are to be identified in the Contractor's Schedules (Pre-Con preparation, Baseline, Subnets, and Updated/Monthly Schedules) as specified in Subsection 8.02 (for DBB Contracts) and/or Section 9 (of DB Contracts). Note: The durations included below do not include these lead-times. See Additional 'Important Basis notes for Contractor' - on last PUC Form page.

Additional notes:
Wilmington Detectable Warning Panel Std Color is Yellow, Do NOT impact MBTA Haverhill Line is East of project limits

Suggested Sequence of Relocation / Based on Consultant proposed construction staging)
The sequence as detailed on the following pages is based on the consultants proposed staging plan. This information was compiled through meetings that included all of the utilities listed below along with the designer and Wilmington. The information provided is the best available information prior to project advertisement.

PUC FORM - CONTINUED

Is 'enabling' (prep) work, by the Contractor, necessary prior to the start of the first series of utility relocations:		Yes	No
		X	
Has any of the Utility work been identified to work concurrently		Yes	No
		X	

608703- Wilmington Rte. 129 (Lowell St) Br.
W-38-029(2KV) over I-93 Bridge Replacement

9/11/2025
PRINTED



RESPONSIBLE PARTY		DESCRIPTION - Utility Relocation Phases, Tasks and Activities	Estimated Duration (Work Days) by Utilities (Lead time not included)	Concurrent / Exclusive Utility Work				Access Restraint & Limitations of Operations Notes		
C = Contractor	U = Utility Co.			Contractor note: In planning and executing the work, the Access Restraints listed in the Special Provisions, takes precedence over the checklist in these 4 columns.				Should an AR be considered for the Contractor ?		
				Exclusive Utility on site	Concurrent Utilities	Contractor Off-Site	Contractor Concurrent		Potential Access Restraint (Yes/No)	Reason/Note (optional)
				Utility working with no other utilities in vicinity	Utility working with other utilities on site	No Contractor physical construction operations on-site while Utility is Contractor and Contractor are working on-site - but NOT in the same vicinity				
Pre Stage : 1. Stage 1		Enabling' work by the Contractor install the conduits on bridge and all conduits with risers to the pole and remove the existing left side of walk the road and shift the traffic into the right lane								
	C	UTILITY OPERATIONS - Utility Pole Relocation								
	U	Contractor to coordinate with RMLD to cut back and remove ug cables - RMLD has option to recover copper cables	0	X			X			
	C	Contractor provide Design of Conduit and EMH and Bridge Hanger system for RMLD to approve install RTSC	0	X						
	C	Contractor install conduit and EMH(1-2, 1-3) and Duct on Bridge to Centerline - Contractor to notify RMLD for concrete encasement pour	0							
	U	RMLD to inspect as necessary	1				X			
		Sub-Total	1							
Stage : 2 Phase : 1		Enabling' work by the Contractor - Contractor build the Bridge Beams and conduit and EMH on the Approaches on S side of Bridge Contractor to provide Rolling road block for removal of OHW								
		UTILITY OPERATIONS - Install and Splice in new UG cable								
	U	Utility Co. Reading Municipal Light Department								
	U	Set /Relocate UP #9 - Frame, Anchor & Guy	2	X			X			
	U	Set new UP #9.5 - Frame, Anchor & Guy	2	X			X			
	U	Set new UP #11.5 - Frame, Anchor & Guy	2	X			X			
	U	Set /Relocate UP #12 - Frame, Anchor & Guy	2	X			X			
	U	Install new OH conductors to P/9 & P/9.5 from P/8 & to P/12 from P/13	6	X			X			
	C	Make Ready Conduit and manholes(1-1, 1-4) -(Installed by Contractor), 2-5"/9-5"/10-5"/4-5"	0							
	U	Pull in 2 sets(3) of 750 Copper UG Cable into new duct bank (installed by MassDOT) and terminate at each of the poles mentioned	6	X			X			
	U	Switch & Cutover to newly installed electrical feed via UG Cables	2	X			X			
		Sub-Total	22							
	Task : 2		UTILITY Co. ITS Service							
C	Contractor to Coordinate a Disconnect Reconnect power to CCTV with ITS Boston and RMLD	2	X				X		* DUCE EST	
C	Contractor to provide new ug conduit Service 1-3" and 1-3" For future us to Meter post from UP# 9.5 in order to remove Pole #11	0								
U	RMLD to provide Disconnect Reconnect	1		X			X		* DUCE EST	
		Sub-Total	3							
		UTILITY Co. RMLD								
	C	Contractor to Coordinate with RMLD to set up a rolling roadblock on I-93 and NB and SB	0				X		X	
	U	Disconnect and remove all overhead conductors from existing P/11.5 to 9.5 and crossing over I-93	2				X		X	
	U	Remove UP 10 & 11	1				X		* DUCE Est	
Task : 3		Sub-Total	3							

RESPONSIBLE PARTY	DESCRIPTION - Utility Relocation Phases, Tasks and Activities	Estimated Duration (Work Days) by Utilities (Lead time not included)	Concurrent / Exclusive Utility Work				Access Restraint & Limitations of Operations Notes	
			Exclusive Utility on site	Concurrent Utilities	Contractor Off-Site	Contractor Concurrent	Potential Access Restraint (Yes/No)	Reason/Note (optional)
Post Stage 2	Enabling' work by the Contractor - After all Crane work is completed RMLD will want to reinstall Large Span Poles over the Highway - Contractor to plan Rolling roadblock and access to poles 10 & 11							
Task 4	UTILITY OPERATIONS - Utility Co. RMLD							
	u Install Pole #10 and #11 - Frame Anchor & Guy	8		x				
	c Contractor to set up schedule rolling roadblocks to install new OHW and R&R Guard rail to provide access for RMLD	0						
	u Install new OH conductors aerially over I-93 - 2 Circuits	3		x				
	u Remove all old/unused electrical facilities	3	x					
	Sub-Total	14						
	Enabling' work by the Contractor - As soon as RMLD has energized cable they will be responsible to adjust their Frame and Covers Before that the Contractor will adjust all Castings							
	UTILITY OPERATIONS - EMH Adjustment Utility Co. RMLD							
Task 5	u Adjust 4 EMH cover as required for SW and Mill and Overlay	4		x				
	c Drainage	0						
	Sub-Total	4						
IMPORTANT BASIS NOTES - FOR CONTRACTOR								
1	Unless otherwise specified in the MassDOT Construction Contract, or unless specifically noted within this PUC Form, these durations (herein) are based upon the Contractor providing <i>unimpeded access</i> to the Utility company to perform Utility relocations (see Note 5 - Access).							
2	"Concurrent Utilities" operations noted herein, are to signify those Utility Company operations that can be worked concurrently (e.g. Utility A and Utility B work on-site together) - MassDOT and the Contractor are to prepare NTPs to Utilities accordingly.							
3	"Potential Access Restraints" noted within this PUC Form are for planning purposes. See MassDOT Contract for Contractual Access Restraints (refer to Subsections 8.02, 8.03, and/or 8.06 for Design Bid Build Contracts and Volume II Section 9 for Design Build Contracts).							
4	Utility non-work periods - For planning purposes, the durations above contain some non work days (contingency) for New England conditions (precipitation, high temperatures, snow, ice). Gas line work however, typically has a seasonal restriction and can NOT be installed from 15-November to 15-March. Municipally Owned Electric and Gas Utilities are also restricted from proceeding from 15-November to 15-March. The Contractor shall (and the CTD plan) reflect this calendar restriction within the schedule (unless otherwise note).							
5	Access - Unless otherwise noted in the Contract, and in addition to the 'enabling' notes above, the Contractor must provide safe and unimpeded access (for trucks, lifts, cranes, etc.) to the Utilities, to allow for the proposed relocation(s) - including but not limited to snow removal, clearing and grubbing, guard rail removal, barrier removal, tree removal, and grading. Any costs associated with these tasks are deemed to be incidental to the project.							
6	For all MassDOT construction contracts issued after January 2014, the new Utility Coordination/documentation specification is required. This is Section 8.14 in Design-Bid-Build Contracts (see Design-Build Index reference for applicable section #).							
7	Prior to starting any and all enabling work for Utilities, the Contractor is to plan in advance with submittals and approved durations.							
8	* Potential District Initiated Early Utility Relocation - If noted herein, the District reserves the right to initiate early utility relocation in advance of the Contract NTP. In submitting a bid price and in the development/basis of the Baseline Schedule, the Contractor shall not plan the Work with the potential benefit of any form of 'early utility relocation.' As a requirement of the Baseline submission, unless otherwise noted in this Specification, the earliest that the first Utility company is to receive the 30 days advance notification to mobilize to the site, will be 7 calendar days after the pre-construction meeting and never sooner than 7 days after the Contract NTP.							
9								

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DOCUMENT A00811

WATERING LOG for MassDOT Plantings

Watering Log for MassDOT Plantings

Project Description:

Contract No:

Project No:

Notes:

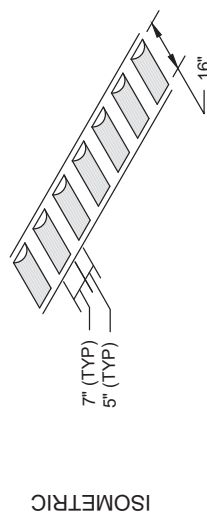
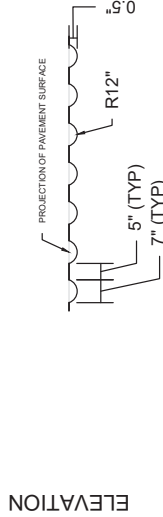
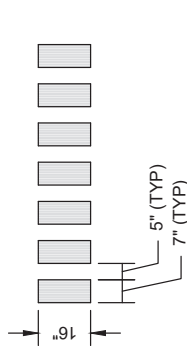
Plant Locations/s:
(Attach planting
plan/s as
necessary)

	Separate logs shall be kept to track areas or plants with different watering schedules. Trees shall receive a minimum of 10 gallons with each watering and shrubs a minimum of 5 gallons. Provide note that if watering is not performed as scheduled due to rain. Record date of rainfall and amount.											
Date Watered												
Landscape Contractor Initial												
Prime Contractor Initial												
Date Watered												
Landscape Contractor Initial												
Prime Contractor Initial												

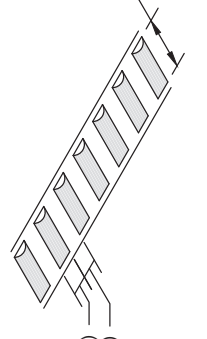
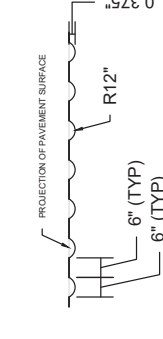
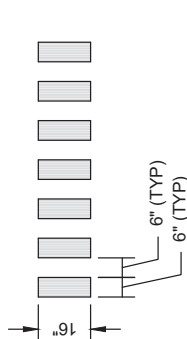
Each week, following watering, Log shall be submitted to the MassDOT Engineer.
6/15/2018

RUMBLE STRIP DETAILS

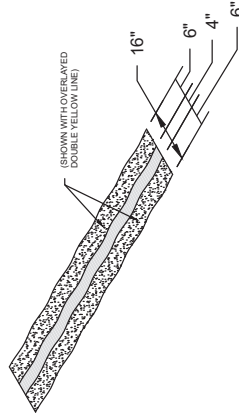
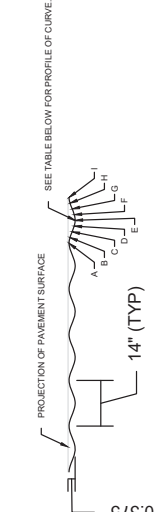
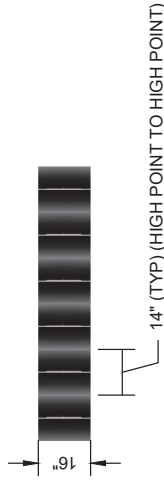
TYPE A
CYLINDER RUMBLE STRIP
(BICYCLE TRAVEL PROHIBITED)



TYPE B
CYLINDER RUMBLE STRIP
(BICYCLE TRAVEL PERMITTED)



TYPE C
CONTINUOUS SINUSOIDAL
RUMBLE STRIP



NOTES:

1. NOT TO SCALE. SOME LINE WORK EXAGGERATED FOR CLARITY.
2. SEE PLANS FOR LOCATION(S) AND START AND END STATIONS FOR ALL RUMBLE STRIP INSTALLATIONS.
3. HIGH POINT OF SINUSOIDAL RUMBLE STRIP LOCATED $\frac{1}{16}$ " BELOW PAVEMENT SURFACE.

DESIGN OF CURVE PROFILE FOR SINUSOIDAL RUMBLE STRIP

POINT	A	B	C	D	E	F	G	H	I
DEPTH FROM PAVEMENT SURFACE (IN.)	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{7}{32}$	$\frac{11}{32}$	$\frac{3}{8}$	$\frac{11}{32}$	$\frac{7}{32}$	$\frac{1}{8}$	$\frac{1}{16}$
DISTANCE FROM HIGH POINT "A" (IN.)	0	1.75	3.5	5.25	7	8.75	10.5	12.25	14



TRAFFIC & SAFETY STANDARDS
SECTION 860

RUMBLE STRIP DETAILS

D-TE OF ISSUE
2020

DR- ING NUMBER
XXX.X.X

DOCUMENT A00820

**Massachusetts Department of Transportation
Conditions of Custody****REQUEST FOR RELEASE OF MASSDOT AUTOCAD FILES FORM**

(Only to be used following award of contract)

City/Town: WILMINGTONProject File Number: 608703Contract Number: 132187Project Description: Bridge Replacement, W-38-029 (2KV), ST 129 Lowell Street over I-93

All AutoCAD files are provided solely as a courtesy to facilitate public access to information. MassDOT attempts to provide current and accurate information but cannot guarantee so. MassDOT provides such documents, files or other data "as is" without any warranty of any kind, either expressed or implied, including but not limited to, accuracy, reliability, omissions, completeness and currentness. The Commonwealth of Massachusetts and its Consultants shall not be liable for any claim for damages, including lost profits or other consequential, exemplary, incidental, indirect or special damages, relating in any way to the documents, files or other data accessible from this file, including, but not limited to, claims arising out of or related to electronic access or transmission of data or viruses. Because data stored on electronic media can deteriorate undetected or be modified without our knowledge, MassDOT cannot be held liable for its completeness or correctness. MassDOT makes no representation as to the compatibility of these files beyond the version of the stated CAD software.

By signing this form, I agree that it shall be my responsibility to reconcile this electronic data with the conformed contract documents, and that only the conformed contract documents shall be regarded as legal documents for this Project. I understand that this authorization does not give me the right to distribute the files. I agree to the terms above and wish to receive the AutoCAD files.

This signed form shall be emailed to the Highway Design Engineer at the MassDOT -Highway Division at the following email address:

DOTHighwayDesign@dot.state.ma.us

Attn: AutoCAD Files

Name of person requesting AutoCAD files: _____

Affiliation/Company: _____

Address: _____

Telephone number: _____

Email address: _____

Signature/Date: _____

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DOCUMENT A00870

**MASSACHUSETTS
DIVISION OF FISHERIES AND WILDLIFE**

**NATURAL HERITAGE AND
ENDANGERED SPECIES
PROGRAM**

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104



In Reply Refer To:

02/18/2025 22:06:10 UTC

Project code: 2025-0057994

Project Name: 608073 WILMINGTON- BRIDGE REPLACEMENT, W-38-029 (2KV), ST 129
LOWELL STREET OVER I-93

Federal Nexus: yes

Federal Action Agency (if applicable): Federal Highway Administration

Subject: Federal agency coordination under the Endangered Species Act, Section 7 for
'608073 WILMINGTON- BRIDGE REPLACEMENT, W-38-029 (2KV), ST 129
LOWELL STREET OVER I-93'

Dear Trevor Burns:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on February 18, 2025, for '608073 WILMINGTON- BRIDGE REPLACEMENT, W-38-029 (2KV), ST 129 LOWELL STREET OVER I-93' (here forward, Project). This project has been assigned Project Code 2025-0057994 and all future correspondence should clearly reference this number. **Please carefully review this letter. Your Endangered Species Act (Act) requirements may not be complete.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key (DKey), invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid. Note that conservation measures for northern long-eared bat and tricolored bat may differ. If both bat species are present in the action area and the key suggests more conservative measures for one of the species for your Project, the Project may need to apply***

the most conservative measures in order to avoid adverse effects. If unsure which conservation measures should be applied, please contact the appropriate Ecological Services Field Office.

Determination for the Northern Long-Eared Bat and Tricolored Bat

Based on your IPaC submission and a standing analysis completed by the Service, you determined the proposed Project will have the following effect determinations:

Species	Listing Status	Determination
Northern Long-eared Bat (<i>Myotis septentrionalis</i>)	Endangered	NLAA
Tricolored Bat (<i>Perimyotis subflavus</i>)	Proposed Endangered	NLAA

Federal agencies must consult with U.S. Fish and Wildlife Service under section 7(a)(2) of the Endangered Species Act (ESA) when an action *may affect* a listed species. Tricolored bat is proposed for listing as endangered under the ESA, but not yet listed. For actions that may affect a proposed species, agencies cannot consult, but they can *confer* under the authority of section 7(a)(4) of the ESA. Such conferences can follow the procedures for a consultation and be adopted as such if and when the proposed species is listed. Should the tricolored bat be listed, agencies must review projects that are not yet complete, or projects with ongoing effects within the tricolored bat range that previously received a NE or NLAA determination from the key to confirm that the determination is still accurate.

Unless the Service advises you within 15 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that consultation on the Action is complete for northern long-eared bat and/or tricolored bat and no further action is necessary unless either of the following occurs:

- new information reveals effects of the action that may affect the northern long-eared bat or tricolored bat in a manner or to an extent not previously considered; or,
- the identified action is subsequently modified in a manner that causes an effect to the northern long-eared bat or tricolored bat that was not considered when completing the determination key.

15-Day Review Period

As indicated above, the Service will notify you within 15 calendar days if we determine that this proposed Action does not meet the criteria for a “may affect, not likely to adversely affect” (NLAA) determination for the northern long-eared bat and/or tricolored bat. If we do not notify you within that timeframe, you may proceed with the Action under the terms of the NLAA concurrence provided here. This verification period allows the identified Ecological Services Field Office to apply local knowledge to evaluation of the Action, as we may identify a small subset of actions having impacts that we did not anticipate when developing the key. In such cases, the identified Ecological Services Field Office may request additional information to verify the effects determination reached through the Northern Long-eared Bat and Tricolored Bat DKey.

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination key for the northern long-eared bat and tricolored bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Monarch Butterfly *Danaus plexippus* Proposed Threatened

You may coordinate with our Office to determine whether the Action may affect the species and/or critical habitat listed above. Note that reinitiation of consultation would be necessary if a new species is listed or critical habitat designated that may be affected by the identified action before it is complete.

If you have any questions regarding this letter or need further assistance, please contact the New England Ecological Services Field Office and reference Project Code 2025-0057994 associated with this Project.

Action Description

You provided to IPaC the following name and description for the subject Action.

1. Name

608073 WILMINGTON- BRIDGE REPLACEMENT, W-38-029 (2KV), ST 129 LOWELL STREET OVER I-93

2. Description

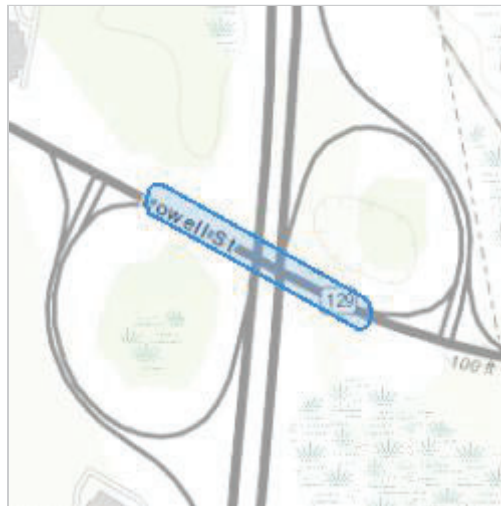
The following description was provided for the project '608073 WILMINGTON- BRIDGE REPLACEMENT, W-38-029 (2KV), ST 129 LOWELL STREET OVER I-93':

608073 WILMINGTON- BRIDGE REPLACEMENT, W-38-029 (2KV), ST 129 LOWELL STREET OVER I-93

The scope of work will include a total bridge replacement. The deck is structurally deficient. The superstructure has a low clearance of 14'-3" over I-93. A bridge replacement will allow adequate clearance over the interstate highway.

Tricolored Bat & Monarch: The project action will not jeopardize the continued existence of a proposed species.

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@42.537357799999995,-71.13522684999998,14z>



DETERMINATION KEY RESULT

Based on the answers provided, the proposed Action is consistent with a determination of “may affect, but not likely to adversely affect” for a least one species covered by this determination key.

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed bats or any other listed species?

Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

No

2. Is the action area wholly within Zone 2 of the year-round active area for northern long-eared bat and/or tricolored bat?

Automatically answered

No

3. Does the action area intersect Zone 1 of the year-round active area for northern long-eared bat and/or tricolored bat?

Automatically answered

No

4. Does any component of the action involve leasing, construction or operation of wind turbines? Answer 'yes' if the activities considered are conducted with the intention of gathering survey information to inform the leasing, construction, or operation of wind turbines.

Note: For federal actions, answer ‘yes’ if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

No

5. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

Yes

6. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) funding or authorizing the proposed action, in whole or in part?

Yes

7. FHWA, FRA, and FTA have completed a range-wide programmatic consultation for transportation- related actions within the range of the Indiana bat, northern long-eared bat and tricolored bat.

Does your proposed action fall within the scope of this programmatic consultation?

Note: If you are unsure, but your action is transportation related, please select "Yes" and use the FHWA, FRA, FTA Assisted Determination Key (FHWA DKey) in IPaC to determine if the programmatic consultation is applicable to your action. Return to this key and answer 'no' to this question if it is not.

No

8. Are you an employee of the federal action agency or have you been officially designated in writing by the agency as its designated non-federal representative for the purposes of Endangered Species Act Section 7 informal consultation per 50 CFR § 402.08?

Note: This key may be used for federal actions and for non-federal actions to facilitate section 7 consultation and to help determine whether an incidental take permit may be needed, respectively. This question is for information purposes only.

Yes

9. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)? Is the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC) funding or authorizing the proposed action, in whole or in part?

No

10. Is the lead federal action agency the Federal Energy Regulatory Commission (FERC)?

No

11. [Semantic] Is the action area located within 0.5 miles of a known bat hibernaculum?

Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

Automatically answered

No

12. Does the action area contain any winter roosts or caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating bats?

No

13. Does the action area contain (1) talus or (2) anthropogenic or naturally formed rock shelters or crevices in rocky outcrops, rock faces or cliffs?

No

14. Will the action cause effects to a bridge?

Note: Covered bridges should be considered as bridges in this question.

Yes

15. Has a site-specific bridge assessment following [USFWS guidelines](#) been completed?

Note: For information on conducting a bridge/structure assessment, please see Appendix K in the USFWS' Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines> Additional resources can be found at: <https://www.fws.gov/media/bats-and-transportation-structures-references-and-additional-resources> and a training video is located at: <https://www.youtube.com/watch?v=iuFwkT7q8Ws>.

Yes

16. Was evidence of bat use found during the bridge assessment?

No

SUBMITTED DOCUMENTS

- 608703_Wilmington-bat_acoustic_report_2023.pdf <https://ipac.ecosphere.fws.gov/project/3Y7773CUVNAVVBTKUYHIL7IEA/projectDocuments/157485164>
- Wilmington guano assessment.docx <https://ipac.ecosphere.fws.gov/project/3Y7773CUVNAVVBTKUYHIL7IEA/projectDocuments/157485110>

17. Did you coordinate with your local Ecological Services Field Office (ESFO) and receive approval of the bridge assessment results? If NO, please contact the appropriate local ESFO before completing this determination key.

Yes

18. Will the action result in effects to a culvert or tunnel at any time of year?

No

19. Are trees present within 1000 feet of the action area?

Note: If there are trees within the action area that are of a sufficient size to be potential roosts for bats answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

Yes

20. Does the action include the intentional exclusion of bats from a building or structure?

Note: Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats or tricolored bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local Ecological Services Field Office to help assess whether northern long-eared bats or tricolored bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures.

No

21. Does the action involve removal, modification, or maintenance of a human-made structure (barn, house, or other building) **known or suspected to contain roosting bats**?

No

22. Will the action cause construction of one or more new roads open to the public?

For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

No

23. Will the action include or cause any construction or other activity that is reasonably certain to increase average daily traffic permanently or temporarily on one or more existing roads?

Note: For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.). .

No

24. Will the action include or cause any construction or other activity that is reasonably certain to increase the number of travel lanes on an existing thoroughfare?

For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

No

25. Will the proposed Action involve the creation of a new water-borne contaminant source (e.g., leachate pond, pits containing chemicals that are not NSF/ANSI 60 compliant)?

Note: For information regarding NSF/ANSI 60 please visit <https://www.nsf.org/knowledge-library/nsf-ansi-standard-60-drinking-water-treatment-chemicals-health-effects>

No

26. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

No

27. Will the action include drilling or blasting?

No

28. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use)?

No

29. Will the proposed action involve the use of herbicides or other pesticides other than herbicides (e.g., fungicides, insecticides, or rodenticides)?

No

30. Will the action include or cause activities that are reasonably certain to cause chronic or intense nighttime noise (above current levels of ambient noise in the area) in suitable summer habitat for the northern long-eared bat or tricolored bat during the active season?

Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time. Sources of chronic or intense noise that could cause adverse effects to bats may include, but are not limited to: road traffic; trains; aircraft; industrial activities; gas compressor stations; loud music; crowds; oil and gas extraction; construction; and mining.

Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

No

31. Does the action include, or is it reasonably certain to cause, the use of permanent or temporary artificial lighting within 1000 feet of suitable northern long-eared bat or tricolored bat roosting habitat?

Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

Yes

32. Will the action cause an increase in the extent of suitable forested habitat exposed to artificial lighting?

No

33. Will the action include tree cutting or other means of knocking down or bringing down trees, tree topping, or tree trimming?

Yes

34. Will the proposed action occur exclusively in an already established and currently maintained utility right-of-way?

No

35. Does the action include emergency cutting or trimming of hazard trees in order to remove an imminent threat to human safety or property? See hazard tree note at the bottom of the key for text that will be added to response letters

Note: A "hazard tree" is a tree that is an immediate threat to lives, public health and safety, or improved property.

No

36. Does the project intersect with the 0- 9.9% forest density category?

Automatically answered

No

37. Does the project intersect with the 10.0- 19.9% forest density category map?

Automatically answered

No

38. Does the project intersect with the 20.0- 29.9% forest density category map?

Automatically answered

Yes

39. Does the project intersect with the 30.0- 100% forest density category map?

Automatically answered

No

40. Will the action cause trees to be cut, knocked down, or otherwise brought down across an area greater than 40 acres in total extent?

No

41. Will the proposed action result in the use of prescribed fire?

Note: If the prescribed fire action includes other activities than application of fire (e.g., tree cutting, fire line preparation) please consider impacts from those activities within the previous representative questions in the key. This set of questions only considers impacts from flame and smoke.

No

42. Does the action area intersect the northern long-eared bat species list area?

Automatically answered

Yes

43. [Semantic] Is the action area located within 0.25 miles of a culvert that is known to be occupied by northern long-eared or tricolored bats?

Automatically answered

No

44. [Semantic] Is the action area located within 150 feet of a documented northern long-eared bat roost site?

Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

Automatically answered

No

45. Is suitable summer habitat for the northern long-eared bat present within 1000 feet of project activities?

If unsure, answer "Yes."

Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

Yes

46. Are any of the trees proposed for cutting or other means of knocking down, bringing down, topping, or trimming suitable for northern long-eared bat roosting (i.e., live trees and/or snags ≥ 3 inches dbh that have exfoliating bark, cracks, crevices, and/or cavities)?

Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

Yes

47. Will any tree cutting/trimming or other knocking or bringing down of trees occur during the **Fall Swarming season** for northern long-eared bats in the action area?

Note: Bat activity periods for your state can be found in Appendix L of the Service's Range-wide Indiana Bat and Northern long-eared Bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>

No

48. Will any tree cutting/trimming or other knocking or bringing down of trees occur during the **Spring Staging** season for northern long-eared bats in the action area?

Note: Bat activity periods for your state can be found in Appendix L of the Service's Range-wide Indiana Bat and Northern long-eared Bat Survey [Guidelines](#).

No

49. Will any tree cutting/trimming or other knocking or bringing down of trees occur during the **Summer Occupancy season** for northern long-eared bats in the action area?

Note: Bat activity periods for your state can be found in Appendix L of the Service's Range-wide Indiana Bat and Northern long-eared Bat Survey [Guidelines](#).

No

50. Does the action area intersect the tricolored bat species list area?

Automatically answered

Yes

51. [Semantic] Is the action area located within 0.25 miles of a culvert that is known to be occupied by northern long-eared or tricolored bats?

Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

Automatically answered

No

52. Is suitable summer habitat for the tricolored bat present within 1000 feet of project activities?
(If unsure, answer ""Yes."")

Note: If there are trees within the action area that may provide potential roosts for tricolored bats (e.g., clusters of leaves in live and dead deciduous trees, Spanish moss (*Tillandsia usneoides*), clusters of dead pine needles of large live pines) answer ""Yes."" For a complete definition of suitable summer habitat for the tricolored bat, please see Appendix A in the [Service's Range-wide Indiana Bat and Northern long-eared Bat Survey Guidelines](#).

Yes

53. Do any of the trees proposed for cutting or other means of knocking down, bringing down, topping, or trimming provide potential roosts for tricolored bats (e.g., clusters of leaves in live and dead deciduous trees, Spanish moss (*Tillandsia usneoides*), clusters of dead pine needles of large live pine trees)?

Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

Yes

54. Will any tree cutting/trimming or other knocking or bringing down of trees be conducted during the Pup Season for tricolored bat?

Note: Bat activity periods for your state can be found in Appendix L of the [Service's Range-wide Indiana Bat and Northern long-eared Bat Survey Guidelines](#).

No

55. Do you have any documents that you want to include with this submission?

No

PROJECT QUESTIONNAIRE

Enter the extent of the action area (in acres) from which trees will be removed - round up to the nearest tenth of an acre. For this question, include the entire area where tree removal will take place, even if some live or dead trees will be left standing.

0.1

IPAC USER CONTACT INFORMATION

Agency: Massachusetts Department of Transportation

Name: Trevor Burns

Address: 10 Park Plaza

City: Boston

State: MA

Zip: 02116

Email: trevor.b.burns@dot.state.ma.us

Phone: 8573010759

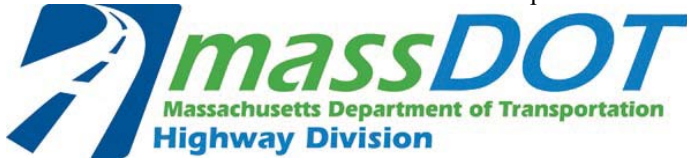
LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Highway Administration

DOCUMENT A00875

**POLICY DIRECTIVE P-22-001
AND
POLICY DIRECTIVE P-22-002**

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Number: P-22-001
Date: 9/23/22

POLICY DIRECTIVE

Jonathan Gulliver (signature on original)

HIGHWAY ADMINISTRATOR

Off-Site Stockpiling of Soil from MassDOT Construction Projects

Purpose

The purpose of this Policy Directive is to formally establish a policy and procedures for managing and stockpiling soil generated and transported from MassDOT construction projects. This Policy Directive does not supersede any Federal, State, or Local regulations.

Date of Effect

This Policy Directive is effective immediately for all projects, including active construction projects.

For active construction projects and for other projects advertised prior to October 15, 2022, changes to the contract documents needed to implement the requirements of this Policy Directive will be considered on a case-by-case basis and shall be approved by the District Highway Director, as necessary.

For projects advertised on or after October 15, 2022, MassDOT will include the requirements and implementation procedures of this Policy Directive in the construction contract documents.

Policy Requirements

This policy is intended to prevent the off-site relocation of excavated soil generated from MassDOT projects to areas near residential receptors and to control potential fugitive dusts and/or contaminants. To that end, excavated soil may not be moved from the project site without knowledge of the content of the material. Knowledge may include visual field observations for presence of staining, odor, and/or debris, screening with a photoionization detector (PID), laboratory analysis, and/or site history. Pavement millings and other non-soil materials are not subject to the requirements of this Policy Directive.

Moving soil from a MassDOT project site to a temporary off-site storage location must be approved in writing by the District Highway Director.

The Contractor must select a storage location that is at least 500 feet away from residential receptors, as defined herein to include, but not be limited to, residential dwellings, residentially

zoned property, schools, daycare facilities, playgrounds, parks, recreational areas, hospitals, elderly housing and convalescent facilities.

Temporary off-site storage of excavated soil from a MassDOT project is only permissible at a location approved and permitted by MassDOT. The temporary storage location should be located within the same municipality where the soil was excavated, where possible. Stockpiled soil must be securely covered, and appropriate measures must be taken to minimize fugitive dust and erosion.

Signs indicating the source of the soil, the date the soil was generated, and contact information must be erected and maintained until the stockpiled soils are transported to a disposal facility or reused on the project site.

Implementation Procedures

To ensure that off-site storage of excavated soils is managed properly on MassDOT projects, this policy requires the following:

1. Off-Site Stockpile Storage Locations

- a. The Contractor shall provide proposed off-site storage locations to the Engineer for approval at least 30 days prior to transporting soil off site. Off-site storage locations should be in the same municipality as the work site.
- b. The Contractor shall keep excavated soil on site until adequately characterized to the satisfaction of the Engineer.
- c. The Contractor shall provide notification of the approved off-site storage location to the local Board of Health and the Town Manager's/Mayor's Office at least 7-days prior to transporting soil off site.
- d. The Contractor shall provide the Engineer with at least 3-days' notice prior to transporting soil off site.
- e. For off-site storage locations on MassDOT property, the Contractor is required to obtain an Access Permit through the District Permits Office prior to storage of soil or other materials. MassDOT will issue these permits at no cost to the Contractor. Information to be submitted by the Contractor as part of the permit application shall include:
 - i. A description of material to be stored off-site, including available analytical data;
 - ii. A figure of the location with distances to residences and residential receptors; and
 - iii. Anticipated duration of temporary storage.
- f. Stockpile locations should not be within 500 feet of residential receptors (e.g., residential dwellings, residentially zoned property, schools, daycare facilities, playgrounds, parks, recreational areas, hospitals, elderly housing and convalescent facilities).
 - i. If the stockpile location must be within 500 feet of residential receptors, then soil must be less than RCS-1 (per 310 CMR 40.1600) and free of potentially hazardous or regulated items.

- g. For off-site storage locations on non-MassDOT property, the Contractor must notify the property owner(s) at least 7 days prior to transporting material.
- h. Exceptions to these rules will be reviewed by MassDOT and may be approved by the District Highway Director on a case-by-case basis.

2. Off-Site Stockpile Management

- a. The Contractor shall keep soil stockpiles on impermeable surfaces (e.g., asphalt or concrete) or on 10-mil polyethylene sheeting.
- b. The Contractor shall cover soil stockpiles with 10-mil polyethylene sheeting and surround with a berm made of hay bales, straw wattles, or similar.
 - i. Piles that are actively being worked on must be covered and re-secured at the end of the work shift.
- c. The Contractor shall label stockpiles with signs, including:
 - i. Location of origin (including any Release Tracking Numbers)
 - ii. Stockpile ID number (including MassDOT District office-assigned tracking ID, if different)
 - iii. Date of initial accumulation
 - iv. Applicable telephone numbers for the Contractor and MassDOT.
- d. The Contractor shall mitigate fugitive dust at storage locations under the direction of an appropriately trained/certified environmental professional.
- e. The Contractor shall remedy noncompliance with this policy within 48 hours.
- f. The Contractor shall remedy noncompliance with this policy on the SAME DAY for potentially hazardous material, as determined by the Engineer.
- g. The Contractor shall handle excavated soil according to federal, state, and local regulations.
- h. The Contractor shall use appropriate shipping documents for all movements of excavated soil on public roadways (e.g., Bill of Lading, Material Shipping Record, Manifest, Asbestos Waste Shipment Record, etc.).

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Number: P-22-002Date: 9/23/22

POLICY DIRECTIVE

Jonathan Gulliver (signature on original)

HIGHWAY ADMINISTRATOR

Use of MassDOT Property for Staging and other Construction-Related Operations

Purpose

This Policy Directive is intended to address the use of MassDOT property by MassDOT Contractors for construction staging and other construction-related operations that are not specifically defined in the construction contract. Such use of MassDOT property will only be allowed if permitted by the District Office in accordance with 700 CMR 13.00, Approval of Access to MassDOT Highways and Other Property. This includes the use of MassDOT property for staging, laydown, and storage of equipment and materials, including soil excavated from a project site.

This Policy Directive requires the Contractor/applicant to obtain a Non-Vehicular Access Permit from MassDOT to use MassDOT property for these purposes.

This Policy Directive is effective immediately and applies to all MassDOT construction projects.

General Permit Considerations and Conditions

In addition to other normal MassDOT Access Permit procedures, MassDOT shall consider the following during the application, review, implementation and monitoring processes of Access Permits required by this Policy Directive:

- Storage and placement of the Contractor's equipment and materials should not be allowed within the clear zone of the roadway.
- Stockpiled soils should not be located within 500 feet of residential receptors, as defined herein to include, but not be limited to, residential dwellings, residentially zoned property, schools, daycare facilities, playgrounds, parks, recreational areas, hospitals, elderly housing and convalescent facilities.
- The Contractor/applicant shall identify the access/egress locations of the proposed storage areas. MassDOT will only approve locations determined to be safe for roadway users, construction workers and the general public.
- The Contractor may be required to submit a Traffic Management Plan and/or Lighting Plan for MassDOT review and approval as part of the permit application, depending on the proposed use of the area.

- The Contractor shall submit the permit application through MassDOT's online State Highway Access Permit System (SHAPS).
- MassDOT will waive the permit application fee for any application received from a MassDOT Contractor for any permit required by this Policy Directive and will waive any subsequent amendment and extension fees that may otherwise be required.
- MassDOT will review the permit application in accordance with applicable standard procedures and will apply standard permit terms and conditions, as necessary.
- The Resident Engineer will verify that the permit is approved before allowing the Contractor to use the affected area for the requested purpose.
- Areas permitted are for use by the approved applicant only and are not to be shared with or used by other vendors. Subcontractors specifically engaged with the applicant working on the specific MassDOT project will be allowed to use the area in accordance with the terms of the permit.
- Permits are issued on an annual basis and will require the Contractor to file for an extension each year to continue use.

Exemptions from Permit Requirements

Equipment and materials being used for active construction operations and located within the work zone of the construction contract are exempt from this permit requirement, provided they do not interfere with the safety or operation of the roadway or the work zone. Examples of these types of exempt uses are:

- Equipment and materials parked or stored within a protected (barriered) work zone.
- Materials placed in the work zone prior to same-day installation or use.
- Soils excavated temporarily and scheduled to be replaced, such as for trenching operations or for installation of drainage structures.

DOCUMENT B00420

PROPOSAL

WILMINGTONFor: **Bridge Replacement, W-38-029 (2KV), ST 129 Lowell Street over I-93**

COMMONWEALTH OF MASSACHUSETTS

LOCATION

The work referred to herein is in the Town of WILMINGTON in Middlesex County, in the Commonwealth of Massachusetts, and is shown by the locus map (Document 00331) in the Proposal Pamphlet, the work locations extend as follows:

State Route 129 (Lowell Street)**Beginning – Station 14+60.00 +/-****Bridge No. W-38-029 (2KV)****Ending –Station 22+58.00 +/-**

The contract prices shall include the furnishing of all materials (except as otherwise herein specified), the performing of all the labor requisite or proper, the providing of all necessary machinery, tools, apparatus and other means of construction, the doing of all the abovementioned work in the manner set forth, described and shown in the specifications and on the drawings for the work, and in the form of contract, and the completion thereof within **1070 CALENDAR DAYS** upon receipt of a Notice to Proceed, except that if the completion date falls between December 1 and March 15 then the same number of days beyond December 1st will be extended after March 15th.

The Work of this project is described by the following Items and quantities.

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Project # 608703		Contract # 132187		
Location : WILMINGTON				
Description : Bridge Replacement, W-38-029 (2KV), ST 129 Lowell Street over I-93				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
101.	0.45	CLEARING AND GRUBBING AT _____ PER ACRE		
102.1	230	TREE TRIMMING AT _____ PER FOOT		
102.521	525	TREE AND PLANT PROTECTION FENCE AT _____ PER FOOT		
114.1	1	DEMOLITION OF SUPERSTRUCTURE OF BRIDGE NO. W-38-029 AT _____ LUMP SUM		
120.	635	EARTH EXCAVATION AT _____ PER CUBIC YARD		
121.	62	CLASS A ROCK EXCAVATION AT _____ PER CUBIC YARD		
127.1	495	REINFORCED CONCRETE EXCAVATION AT _____ PER CUBIC YARD		
127.4	26	REINFORCED CONCRETE DECK EXCAVATION (FULL DEPTH) AT _____ PER SQUARE YARD		
127.41	10	REINFORCED CONCRETE DECK EXCAVATION (PARTIAL DEPTH) AT _____ PER CUBIC YARD		

Project # 608703		Contract # 132187		
Location : WILMINGTON				
Description : Bridge Replacement, W-38-029 (2KV), ST 129 Lowell Street over I-93				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
140.	1,240	BRIDGE EXCAVATION AT _____ PER CUBIC YARD		
141.	260	CLASS A TRENCH EXCAVATION AT _____ PER CUBIC YARD		
141.1	25	TEST PIT FOR EXPLORATION AT _____ PER CUBIC YARD		
142.	10	CLASS B TRENCH EXCAVATION AT _____ PER CUBIC YARD		
144.	65	CLASS B ROCK EXCAVATION AT _____ PER CUBIC YARD		
146.	4	DRAINAGE STRUCTURE REMOVED AT _____ EACH		
150.	300	ORDINARY BORROW AT _____ PER CUBIC YARD		
151.	520	GRAVEL BORROW AT _____ PER CUBIC YARD		
151.2	600	GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES AT _____ PER CUBIC YARD		

Project # 608703		Contract # 132187		
Location : WILMINGTON				
Description : Bridge Replacement, W-38-029 (2KV), ST 129 Lowell Street over I-93				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
156.	120	CRUSHED STONE AT _____ PER TON		
160.3	5	CONTROLLED LOW-STRENGTH MATERIAL (> 300 PSI) AT _____ PER CUBIC YARD		
170.	1,750	FINE GRADING AND COMPACTING - SUBGRADE AREA AT _____ PER SQUARE YARD		
180.01	1	ENVIRONMENTAL HEALTH AND SAFETY PROGRAM AT _____ LUMP SUM		
180.02	100	PERSONAL PROTECTION LEVEL C UPGRADE AT _____ PER HOUR		
180.03	100	LICENSED SITE PROFESSIONAL SERVICES AT _____ PER HOUR		
181.11	1,325	DISPOSAL OF UNREGULATED SOIL AT _____ PER TON		
181.12	530	DISPOSAL OF REGULATED SOIL - IN-STATE FACILITY AT _____ PER TON		
181.13	530	DISPOSAL OF REGULATED SOIL - OUT-OF-STATE FACILITY AT _____ PER TON		

Project # 608703		Contract # 132187		
Location : WILMINGTON				
Description : Bridge Replacement, W-38-029 (2KV), ST 129 Lowell Street over I-93				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
181.14	265	DISPOSAL OF HAZARDOUS WASTE AT _____ PER TON		
201.	8	CATCH BASIN AT _____ EACH		
202.	2	MANHOLE AT _____ EACH		
202.2	1.5	MANHOLE (9 TO 14 FOOT DEPTH) AT _____ EACH		
220.	9	DRAINAGE STRUCTURE ADJUSTED AT _____ EACH		
220.5	1	DRAINAGE STRUCTURE REMODELED AT _____ EACH		
221.	3	FRAME AND COVER AT _____ EACH		
222.1	6	FRAME AND GRATE - MASSDOT CASCADE TYPE AT _____ EACH		
223.2	5	FRAME AND GRATE (OR COVER) REMOVED AND DISCARDED AT _____ EACH		

Project # 608703		Contract # 132187		
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ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
227.3	5	REMOVAL OF DRAINAGE STRUCTURE SEDIMENT AT _____ PER CUBIC YARD		
227.31	360	REMOVAL OF DRAINAGE PIPE SEDIMENT AT _____ PER FOOT		
227.4	3	MASONRY PLUG AT _____ PER SQUARE FOOT		
234.12	160	12 INCH DRAINAGE PIPE - OPTION AT _____ PER FOOT		
235.12	2	12 INCH DRAINAGE PIPE FLARED END - OPTION AT _____ EACH		
258.	45	STONE FOR PIPE ENDS AT _____ PER SQUARE YARD		
272.12	140	12 INCH AND UNDER PIPE REMOVED AND DISCARDED AT _____ PER FOOT		
402.	135	DENSE GRADED CRUSHED STONE FOR SUB-BASE AT _____ PER CUBIC YARD		
415.3	1,250	PAVEMENT MICRO MILLING AT _____ PER SQUARE YARD		

Project # 608703		Contract # 132187		
Location : WILMINGTON				
Description : Bridge Replacement, W-38-029 (2KV), ST 129 Lowell Street over I-93				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
431.	45	HIGH EARLY STRENGTH CEMENT CONCRETE BASE COURSE AT _____ PER SQUARE YARD		
440.	5,500	CALCIUM CHLORIDE FOR ROADWAY DUST CONTROL AT _____ PER POUND		
443.	6	WATER FOR ROADWAY DUST CONTROL AT _____ PER 1000 GALLONS		
450.31	175	SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC -12.5) AT _____ PER TON		
450.42	300	SUPERPAVE BASE COURSE - 37.5 (SBC - 37.5) AT _____ PER TON		
450.601	320	SUPERPAVE BRIDGE SURFACE COURSE - 9.5 POLYMER (SSC-B - 9.5 - P) AT _____ PER TON		
450.701	105	SUPERPAVE BRIDGE PROTECTIVE COURSE - 9.5 POLYMER (SPC-B - 9.5 - P) AT _____ PER TON		
451.	52	HMA FOR PATCHING AT _____ PER TON		
452.	310	ASPHALT EMULSION FOR TACK COAT AT _____ PER GALLON		

Project # 608703		Contract # 132187		
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ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
453.	1,550	HMA JOINT ADHESIVE AT _____ PER FOOT		
470.	7	HOT MIX ASPHALT BERM AT _____ PER TON		
472.	200	TEMPORARY ASPHALT PATCHING AT _____ PER TON		
477.	5,600	MILLED RUMBLE STRIP (TYPE A) AT _____ PER FOOT		
477.01	5,420	MILLING AND FILLING RUMBLE STRIP AT _____ PER FOOT		
482.5	400	SAWCUTTING ASPHALT PAVEMENT FOR BOX WIDENING AT _____ PER FOOT		
504.	100	GRANITE CURB TYPE VA4 - STRAIGHT AT _____ PER FOOT		
504.2	3	GRANITE CURB TYPE VA4 - SPLAYED END AT _____ EACH		
509.	45	GRANITE TRANSITION CURB FOR PEDESTRIAN CURB RAMPS - STRAIGHT AT _____ PER FOOT		

Project # 608703		Contract # 132187		
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ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
510.	640	GRANITE EDGING TYPE SA AT _____ PER FOOT		
514.	3	GRANITE CURB INLET - STRAIGHT AT _____ EACH		
594.	125	CURB REMOVED AND DISCARDED AT _____ PER FOOT		
597.	520	EDGING REMOVED AND DISCARDED AT _____ PER FOOT		
620.13	640	GUARDRAIL, TL-3 (SINGLE FACED) AT _____ PER FOOT		
620.131	375	GUARDRAIL, DEEP POST (SINGLE FACED) AT _____ PER FOOT		
628.21	6	TRANSITION TO NCHRP 350 GUARDRAIL AT _____ EACH		
628.211	2	TRANSITION TO NCHRP 350 GUARDRAIL, DEEP POST AT _____ EACH		
628.24	4	TRANSITION TO BRIDGE RAIL AT _____ EACH		

Project # 608703		Contract # 132187		
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ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
628.305	4	TEMPORARY IMPACT ATTENUATOR, NON-REDIRECTIVE, TL-3 AT _____ EACH		
628.4	2	TEMPORARY IMPACT ATTENUATOR, REMOVED AND RESET AT _____ EACH		
628.5	4	TEMPORARY IMPACT ATTENUATOR REMOVED AND DISCARDED AT _____ EACH		
630.2	1,450	HIGHWAY GUARD REMOVED AND DISCARDED AT _____ PER FOOT		
644.172	135	72 INCH CHAIN LINK FENCE (SPRING TENSION WIRE) VINYL COATED (LINE POST OPTION) AT _____ PER FOOT		
665.2	170	CHAIN LINK FENCE REMOVED AND DISCARDED AT _____ PER FOOT		
697.1	10	SILT SACK AT _____ EACH		
698.1	650	GEOTEXTILE FABRIC FOR STABILIZATION AT _____ PER SQUARE YARD		
698.3	100	GEOTEXTILE FABRIC FOR SEPARATION AT _____ PER SQUARE YARD		

Project # 608703		Contract # 132187		
Location : WILMINGTON				
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ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
698.4	300	GEOTEXTILE FABRIC FOR PERMANENT EROSION CONTROL AT _____ PER SQUARE YARD		
701.	440	CEMENT CONCRETE SIDEWALK AT _____ PER SQUARE YARD		
701.2	22	CEMENT CONCRETE PEDESTRIAN CURB RAMP AT _____ PER SQUARE YARD		
722.2	1	SCHEDULE OF OPERATIONS (TYPE B) - FIXED PRICE \$107500 AT One Hundred Seven Thousand Five Hundred Dollars LUMP SUM	\$107,500.00	\$107,500.00
740.	35	ENGINEER'S FIELD OFFICE AND EQUIPMENT (TYPE A) AT _____ PER MONTH		
748.	1	MOBILIZATION AT _____ LUMP SUM		
748.1	4	EMERGENCY RESPONSE AT _____ EACH		
751.	135	LOAM FOR ROADSIDES AT _____ PER CUBIC YARD		
751.765	35	COMPOST AND SEED OVER MODIFIED ROCK AT _____ PER FOOT		

Project # 608703		Contract # 132187		
Location : WILMINGTON				
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ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
765.	1,125	SEEDING AT _____ PER SQUARE YARD		
765.472	75	STEEP SLOPE MID-HEIGHT MIX AT _____ PER POUND		
767.121	1,400	SEDIMENT CONTROL BARRIER AT _____ PER FOOT		
769.	1,020	PAVEMENT MILLING MULCH UNDER GUARD RAIL AT _____ PER FOOT		
802.510	84	5 INCH ELECTRICAL CONDUIT - TYPE NM PLASTIC (10 BANK) - CONCRETE ENCASED AT _____ PER FOOT		
802.52	50	5 INCH ELECTRICAL CONDUIT - TYPE NM PLASTIC (DOUBLE) - CONCRETE ENCASED AT _____ PER FOOT		
802.54	57	5 INCH ELECTRICAL CONDUIT - TYPE NM PLASTIC (4 BANK) - CONCRETE ENCASED AT _____ PER FOOT		
802.59	180	5 INCH ELECTRICAL CONDUIT - TYPE NM PLASTIC (9 BANK) - CONCRETE ENCASED AT _____ PER FOOT		
805.510	300	5 INCH ELECTRICAL CONDUIT - TYPE NM (10 BANK) - RTRC AT _____ PER FOOT		

Project # 608703		Contract # 132187		
Location : WILMINGTON				
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ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
806.52	60	5 INCH ELECTRICAL CONDUIT - TYPE RM GALVANIZED STEEL (DOUBLE) AT _____ PER FOOT		
811.15	2	ELECTRIC MANHOLE - (MUNICIPAL STANDARD 6'X13') AT _____ EACH		
811.16	2	ELECTRIC MANHOLE - (MUNICIPAL STANDARD 6'X10') AT _____ EACH		
813.80	1	SERVICE CONNECTION (OVERHEAD) AT _____ LUMP SUM		
832.	37	WARNING-REGULATORY AND ROUTE MARKER - ALUMINUM PANEL (TYPE A) AT _____ PER SQUARE FOOT		
847.1	11	SIGN SUP (N/GUIDE)+RTE MKR W/1 BRKWAY POST ASSEMBLY - STEEL AT _____ EACH		
852.	2,500	SAFETY SIGNING FOR TRAFFIC MANAGEMENT AT _____ PER SQUARE FOOT		
852.11	840	TEMPORARY PEDESTRIAN BARRICADE AT _____ PER FOOT		
852.12	4	TEMPORARY PEDESTRIAN CURB RAMP AT _____ EACH		

Project # 608703		Contract # 132187		
Location : WILMINGTON				
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ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
853.1	8	PORTABLE BREAKAWAY BARRICADE TYPE III AT _____ EACH		
853.21	5,000	TEMPORARY BARRIER REMOVED AND RESET AT _____ PER FOOT		
853.22	520	TEMPORARY BARRIER REMOVED AND DISCARDED AT _____ PER FOOT		
853.23	80	TEMPORARY BARRIER (TL-3) AT _____ PER FOOT		
853.33	1,900	TEMPORARY BARRIER - LIMITED DEFLECTION (TL-3) AT _____ PER FOOT		
853.403	280	TRUCK MOUNTED ATTENUATOR AT _____ PER DAY		
853.8	975	TEMPORARY ILLUMINATION FOR WORK ZONE AT _____ PER DAY		
854.016	16,000	TEMPORARY PAVING MARKINGS - 6 INCH (PAINTED) AT _____ PER FOOT		
854.036	88,000	TEMPORARY PAVING MARKINGS - 6 INCH (TAPE) AT _____ PER FOOT		

Project # 608703		Contract # 132187		
Location : WILMINGTON				
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ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
854.1	26,000	PAVEMENT MARKING REMOVAL AT _____ PER SQUARE FOOT		
854.6	75	TEMPORARY PORTABLE RUMBLE STRIP AT _____ PER DAY		
856.	50	ARROW BOARD AT _____ PER DAY		
856.12	5,400	PORTABLE CHANGEABLE MESSAGE SIGN AT _____ PER DAY		
859.	112,500	REFLECTORIZED DRUM AT _____ PER DAY		
859.1	2,500	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS AT _____ PER DAY		
864.02	30	PAVEMENT ARROW AND LEGENDS - TAPE AT _____ PER SQUARE FOOT		
864.33	250	SLOTTED PAVEMENT MARKER TWO-WAY WHITE/RED AT _____ EACH		
866.106	5,460	6 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC) AT _____ PER FOOT		

Project # 608703		Contract # 132187		
Location : WILMINGTON				
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ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
866.206	5,850	6 INCH REFLECTORIZED WHITE LINE (POLYUREA) (RECESSED) AT _____ PER FOOT		
867.106	1,650	6 INCH REFLECTORIZED YELLOW LINE (THERMOPLASTIC) AT _____ PER FOOT		
867.206	3,250	6 INCH REFLECTORIZED YELLOW LINE (POLYUREA) (RECESSED) AT _____ PER FOOT		
874.2	7	TRAFFIC SIGN REMOVED AND RESET AT _____ EACH		
874.4	4	TRAFFIC SIGN REMOVED AND STACKED AT _____ EACH		
909.5	15	RAPID SET CONCRETE AT _____ PER CUBIC YARD		
910.	2,400	STEEL REINFORCEMENT FOR STRUCTURES AT _____ PER POUND		
910.4	20	MECHANICAL REINFORCING BAR SPLICER AT _____ EACH		
945.1	6,780	DRILLED MICROPILE AT _____ PER FOOT		

Project # 608703		Contract # 132187		
Location : WILMINGTON				
Description : Bridge Replacement, W-38-029 (2KV), ST 129 Lowell Street over I-93				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
948.60	1	MICROPILE VERIFICATION LOAD TEST AT _____ EACH		
948.61	3	MICROPILE PROOF LOAD TEST AT _____ EACH		
950.1	1	TEMPORARY SHORING AT _____ LUMP SUM		
950.51	1	TEMPORARY EARTH SUPPORT SYSTEM BRIDGE NO. W-38-029 AT _____ LUMP SUM		
960.904	2,700	MISCELLANEOUS STEEL REPAIRS AT _____ PER POUND		
986.	225	MODIFIED ROCKFILL AT _____ PER TON		
987.3	620	SPECIAL SLOPE PAVING UNDER BRIDGE - CEMENT CONCRETE AT _____ PER SQUARE YARD		
994.01	1	TEMPORARY PROTECTIVE SHIELDING BRIDGE NO. W-38-029 AT _____ LUMP SUM		
995.01	1	BRIDGE STRUCTURE, BRIDGE NO. W-38-029 AT _____ LUMP SUM		
Total Qty:		334,125.95		