BEDFORD PUBLIC WORKS

www.bedfordma.gov

314 THE GREAT ROAD
BEDFORD, MA 01730
TEL: 781-275-7605
FAX: 781-275-9010

INVITATION TO BID

The Town of Bedford, Massachusetts solicits sealed bids for furnishing the following materials and/or services for the period July 1, 2025 through June 30, 2026. The Town shall have the option to renew the Contract, at their sole discretion, for an additional two years in one-year increments. Purchases from the successful bidder in future fiscal years are contingent upon the availability of appropriated funds.

BID #	BID NAME
1.	Treatment Chemicals
2.	Fire Hydrants
3.	Water Quality Testing
4.	Ductile Iron Pipe
5.	Plastic Drainage Pipe
6.	Road Castings
7.	Gasoline & Diesel Fuel
8.	Athletic Field Paint
9.	Tree Services
10.	Traffic Signal Maintenance
11.	Catch Basin Repair
12.	Guardrail/Fencing Installation
13.	Equipment Rental & Services
14.	Resurfacing and Reconstruction Paving*
15.	Pavement Preservation
16.	Bituminous Sidewalks

Wage rates for certain services shall be established by the Executive Office of Labor and Workforce Development as per M.G.L., Chapter 149, Section 26 to 27H. Wage rates will be updated annually. Contractors are required to obtain the wage schedules from awarding authorities, and to pay no less than these rates to covered workers.

Contract Documents may be examined and/or obtained beginning April 17, 2025 by registering online to download bid documents at **https://www.bedfordma.gov/bids.aspx.** Click to select the bid that you are interested in.

*MassDOT prequalification of contractors with the class of work as, Pavement-Surfacing, for item #14, Resurfacing and Reconstruction Paving with an estimated total value of $5,556,988.80 will be required.

If, at the time of the scheduled bid opening, Town Hall or public buildings are closed due to uncontrolled events such as fire, ice, wind, or building evacuation, the bid opening will be postponed until 2:00 p.m. on the next normal business day. Bids will be accepted until that date and time.
Nothing shall compel the Town to award any contract pursuant to this Invitation to Bid.

No Bidder may withdraw his Bid for a period of thirty (30) calendar days after the date designated below for the opening.

Submission of a Bid shall be conclusive evidence that the Bidder has examined this Invitation to Bid and is familiar with all the conditions of the Contract. Upon finding any omissions or discrepancy in this Invitation to Bid, each Bidder shall notify the Town immediately so that any necessary addenda may be issued. Failure of a Bidder to investigate completely this Invitation to Bid and/or to be thoroughly familiar with this Invitation to Bid shall in no way relieve any such Bidder from any obligation with respect to the Bid.

By submission of a Bid, the Bidder agrees that if its Bid is accepted, then it shall enter into a Contract with the Town of Bedford which incorporates all of the requirements of this Invitation to Bid. By submission of a Bid, the Bidder further indicates acceptance of all terms and conditions of this Invitation to Bid.

Changes, modifications, or withdrawal of bids shall be submitted in writing prior to the deadline and shall be contained in a sealed envelope clearly marked, as appropriate, "Correction, Modification, or Withdrawal of Sealed Bid for Material/Services Bids. No corrections, modifications, or withdrawal of Bids shall be permitted after Bids have been opened.

The Contract for each bid will be awarded, if at all, pursuant to M.G.L. c. 30, §39M, to the lowest responsible and eligible Bidder. According to M.G.L. c. 30, §39M, the term "lowest responsible and eligible bidder" shall mean the bidder: (1) whose bid is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the work. (2) who shall certify, that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (3) who shall certify that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least ten (10) hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; (4) who, where the provisions of section 8B of chapter 29 apply, shall have been determined to be qualified thereunder.
Questions regarding this project shall be submitted in writing and e-mailed to kkennedy@bedfordma.gov by the close of business (4:00 p.m. prevailing time) at least five working days prior to the deadline for receipt of bids. Questions presented after this time shall not be considered. No question shall be considered which is not submitted in writing. Any questions requiring consideration shall be answered in an addendum delivered to all registered Bidders.

Each Bid must be submitted in a sealed envelope and Marked "Materials and/or Services - Bid Number_____" and addressed to the office of the Department of Public Works, 314 Great Road, Bedford, Massachusetts 01730. If a bid is submitted for more than one contract, the bid for each number shall be in a separate envelope, numbered accordingly.

Bids shall include the following documents:

- ***Signed Bid Form***
- ***Two (2) signed Agreements***
- ***Affidavit of Non-Collusion***
- ***Certification of Tax Compliance***

A bid deposit is NOT required with this bid.

Bids numbered 1-12 will be received at the Office of the Department of Public Works, 314 Great Road, Bedford, Massachusetts until *9:00 A.M.* (prevailing time) on *Thursday, May 8, 2025*, at which time and place they will be opened and read aloud.

Bids numbered 13-16 will be received at the Office of the Department of Public Works, 314 Great Road, Bedford, Massachusetts until *10:00 A.M.* (prevailing time) on *Thursday, May 8, 2025*, at which time and place they will be opened and read aloud.

If any changes are made to this IFB, an addendum will be issued. Addenda will be mailed, emailed, or faxed to all bidders on record as having picked up the IFB. Please note that it is the Bidder's responsibility to make certain they have received any/all addenda relating to their bid prior to the bid deadline.

The clock in the conference room of the Department of Public Works shall be considered official and no late bids shall be accepted.

All qualified bids will be awarded within 30 days of the specified bid opening date and in accordance with Chapter 30B of the Massachusetts General Laws.

The Town of Bedford, providing equal opportunity, encourages bids from minority and women owned businesses.

The Town of Bedford reserves the right to reject any or all Bids or to accept any Bid deemed by them to be in the best interest of the Town of Bedford.

The award of any contract pursuant to this Invitation for Bids is subject to appropriation by Bedford Town Meeting.

SELECT BOARD
BEDFORD, MASSACHUSETTS

 # 14 Resurfacing and Reconstruction Paving Bid

All materials, equipment, and labor shall be furnished by the Contractor to complete the job as specified. The Town shall be responsible for obtaining and compensating a uniformed traffic officer if required by the Bedford Police Department. The Contractor is required to notify "Dig Safe" and the Bedford Water and Sewer Division so that all underground utilities will be clearly marked and protected prior to any excavation.

DESCRIPTION OF WORK

The work for this project includes, but is not limited to, reclamation, grading, and/or relocating sections of the existing roadway, earth excavation, installation of drains, adjusting/ rebuilding drainage, sewer, and water structures, installation of bituminous concrete pavement, bituminous concrete berm, granite curbing and edging, handicap ramps, sidewalk installation and replacement, landscaping and other miscellaneous work.

SCOPE OF WORK

The work under this contract consists of furnishing all necessary labor, materials, equipment and services to complete roadway improvements as described herein under the STREET RESURFACING CONTRACT. The work includes but is not limited to, bituminous concrete leveling, patching and paving of roadways, driveway aprons and sidewalks, adjusting and/or building sewer and drainage structures, adjusting water and gas valve boxes, street sweeping, roadway reclamation, excavation, backfilling, grading bituminous concrete berm, placing new drainage structures, landscaping, and other related miscellaneous work in the Town of Bedford, and all incidental work necessary to complete the work as shown on the plans or described herein.

All work done under this contract shall be in conformance with the Commonwealth of Massachusetts Department of Public Works **STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 2025 (Blue Book),** 1992 AASHTO SPECIFICATIONS FOR HIGHWAYS AND BRIDGES WITH INTERIMS THROUGH 1994, MHD BRIDGE MANUAL PART I AND PART II, BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318-89) OR LATER, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES 2009 EDITION, THE DECEMBER 2016 MASSDOT CONSTRUCTION STANDARD DETAILS, , THE AMERICAN WATER WORKS ASSOCIATION STANDARD FOR THE INSTALLATION OF DUCTILE-IRON WATER MAINS AND THEIR APPURTENANCES, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE LATEST PUBLIC RIGHTS OF WAY GUIDELINES FOR PEDESTRIAN FACILITIES (PROWAG), the **PLANS** and these **SPECIAL PROVISIONS** and attached **CONSTRUCTION DETAILS**.

The following is the anticipated scope of work based on the construction shown on the plans. The engineer has the authority to adjust these as they see fit;

- In overlay areas up to 2 inches of leveling course may be installed prior to placement of 2 inches of top.
- In mill and overlay areas, up to 4.5 inches of existing Hot Mix Asphalt will be removed by cold planing. Up to 2 inches of leveling course will be installed prior to placement of 2 inches of top.
- In reclaimed areas, 2.5 inches of binder and 2 inches of top will be placed. The depth of reclamation be up to 15" from the existing pavement surface. It is anticipated that material removal will be necessary to accommodate existing grades and future overlay work.
- Tack coat will be used between all HMA layers.
- The limit of work may extend at least 20 feet into all side roads. The actual limits of work extending into side roads will be marked out prior to beginning work.
- Patching may be necessary prior to paving roadways and will be determined and marked out by the engineer
- The contractor will be responsible for removing all material from sewer and drainage structures at the project closeout at no expense to the town. The contractor will be paid to clean all structures at the beginning of work at unit pricing included in this contract.
- Street sweeping shall be by mechanical street sweeper vehicle to clear the paved surface of all debris, to the extent as determined by the engineer.
- The hours of operation will be Monday through Friday 7:00a.m. - 5:00p.m... Modifications to this schedule will be discussed on a case by case basis.
- **The contractor will provide all required work zone and detour signs and barricades.**

Pavement and driveway joints shall be neatly saw cut - no ripping or tearing of the asphalt will be allowed.

The Contractor will be responsible for providing his own levels during the reclamation and fine grading operation. Unless directed otherwise, the roadway cross-section shall be laterally graded to one-quarter inch per foot.

All work performed under this contract shall be guaranteed for a period of one year from the date of installation. The Contractor shall be responsible for promptly repairing/replacing any area which is deemed unacceptable by the Town. Any damaged public or private properties shall be promptly repaired or replaced to the satisfaction of the Operations Manager. The Contractor shall reimburse all damages or losses to the Town due to deficient materials or workmanship.

The Town will be hiring an independent testing company to monitor compaction and temperature of the new mix using a density gauge and infrared camera. The Contractor shall adjust and/or make corrections as directed by either the Town or one of its inspectors.

Price adjustments for hot mix asphalt (all asphalt items under section 460) will be made in accordance with Document 00811 published by MassDOT revised July 8, 2016. Asphalt adjustment shall be documented on each invoice with no adjustment shown on invoice one. Invoice two will include the adjusted asphalt cost from the invoice one tonnage and so on. The contractor shall provide documentation and calculations demonstrating the proper adjustment. The

base bid for liquid asphalt on this contract shall be the period price at the date of the bid opening as published by MassDOT on its website.

In the event of inclement weather, the Bedford Operations Manager may cancel or suspend a scheduled job without penalty.

This is a multi-specification bid; the type and quantity of each work Item will be as determined by the Bedford Operations Manager and is contingent upon the availability of appropriated funds.

MassDOT prequalification of contractors with the class of work as, Paving - Surfacing for the project with an estimated value of $1,850,000 will be required.

Awarding Authority reserves the right to extend the contract for two (2) additional 12-month options. Valuation for purposes of MassDOT Prequalification is based on first year times three (3) to arrive at an estimated total value of all bid items. The estimated value provided in this Invitation to Bid is for one year. Vendors are expected to be able to provide their services over three (3) years at three (3) times the initial estimated value.

INSURANCE

The Contractor shall indemnify and hold harmless the Town of Bedford for any damages or claims related to work or activity by the Contractor. Prior to award of this contract, the Contractor shall submit insurance certificates naming the Town of Bedford as the Additional Insured for the following minimum amounts:

Comprehensive General Liability	$ 1,000,000/$ 3,000,000
Auto Liability: Property Damage	$ 1,000,000/$ 1,000,000
Personal Injury	$ 1,000,000/$ 3,000,000
Workmen's Compensation	as required by the Commonwealth of Massachusetts

The contract period for the initial term shall commence on July 1, 2025 and terminate on June 30, 2026. The Town shall have the option to renew the Contract, at their sole discretion, for an additional two years in one-year increments. Purchases from the successful bidder in future fiscal years are contingent upon the availability of appropriated funds.

This contract will be awarded based on the lowest Total Bid.

BID FORM

ITEM	QUANTITY	ITEMS AND UNIT PRICES	UNIT PRICES ($)	AMOUNT ($)
101	0.2	CLEARING AND GRUBBING AT PER ACRE		
120.1	50	UNCLASSIFIED EXCAVATION AT PER CUBIC YARD		
120.11	50	EXCAVATION FOR PATCHING AT PER CUBIC YARD		
120.13	4000	UNCLASSIFIED EXCAVATION OF EXCESS RECLAIMED MATERIAL AT PER CUBIC YARD		
121	10	CLASS A ROCK EXCAVATION AT PER CUBIC YARD (MINIMUM BID PRICE OF $30.00/CY)		
130	12	STREET SWEEPING (4 HOURS MINIMUM) AT PER HOUR		
141.1	3	TEST PIT FOR EXPLORATION AT PER CUBIC YARD		
153	10	CONTROLLED DENSITY FILL (M4.08.0 TYPE 2E) AT PER CUBIC YARD		
170	50000	FINE GRADING & COMPACTING SUBGRADE AREAS AT PER SQUARE YARD		
201	1	CATCH BASIN WITH 4 FOOT SUMP AT PER EACH		

202	1	MANHOLE AT PER EACH	
220	365	STRUCTURE ADJUSTED AT PER EACH	
220.1	365	CATCH BASINS AND/OR MANHOLES LOWERED AND PLATED AT PER EACH	
220.15	55	WATER GATES AND GAS GATES LOWERED AND PLATED AT PER EACH	
220.2	20	DRAINAGE STRUCTURE REBUILT AT PER VERTICAL FOOT	
220.3	2	DRAINAGE STRUCTURE CHANGE IN TYPE AT PER EACH	
220.5	50	STRUCTURE REMODELED AT PER EACH	
227.3	50	REMOVAL AND DISPOSAL OF DRAINAGE STRUCTURES SEDIMENTS AT PER CUBIC YARD	
252.12	25	12" Corrugated Plastic (Polyethylene) Pipe AT PER LINEAR FOOT	
272	75	REMOVAL AND DISPOSAL OF PIPE AT PER LINEAR FOOT	
358	55	GATE BOX ADJUSTED AT PER EACH	

359	5	GATE BOX REMOVED AND DISPOSED AT PER EACH	
402	100	DENSE GRADED CRUSHED STONE FOR SUB-BASE AT PER CUBIC YARD	
402.11	125	DENSE GRADED CRUSHED STONE FOR SHOULDER PLACEMENT (ROADWAY BACKUP) AND SIDEWALKS AT PER CUBIC YARD	
403	34000	RECLAIMED BASE COURSE AT PER SQUARE YARD	
403.1	75	CRUSHED STONE FOR BLENDING AT PER TON	
415.1	25000	PAVEMENT STANDARD MILLING AT PER SQUARE YARD	
440	5000	CALCIUM CHLORIDE FOR ROADWAY DUST CONTROL AT PER POUND	
441	34000	LIQUID CALCIUM CHLORIDE FOR BLENDING AT PER GALLON	
452	500	ASPHALT EMULSION FOR TACK COAT AT PER GALLON	
453	25500	HOT POURED RUBBERIZED ASPHALT SEALER AT PER LINEAR FOOT	

460.221	5850	CLASS I BITUMINOUS CONCRETE PAVEMENT TYPE I-1 (TOP) AT PER TON	
460.32	4900	CLASS I BITUMINOUS CONCRETE PAVEMENT TYPE I-1 (BINDER) AT PER TON	
482.3	500	SAWCUTTING (INCLUSIVE IN SOME ITEMS) AT PER LINEAR FOOT	
504	50	GRANITE CURB TYPE VA4 - STRAIGHT AT PER LINEAR FOOT	
504.1	25	GRANITE CURB TYPE VA4 - CURVED AT PER LINEAR FOOT	
580	250	CURB REMOVED AND RESET AT PER LINEAR FOOT	
581	5	CURB INLET REMOVE AND RESET AT PER EACH	
594	100	CURB REMOVED AND DISCARDED AT PER LINEAR FOOT	
595	5	CURB INLET REMOVED AND DISCARDED AT PER EACH	
697.1	300	COMPOST SOCK AT PER LINEAR FOOT	
697.2	50	SILT SACK AT PER EACH	

701	125	CONCRETE SIDEWALKS AT PER SQUARE YARD	
701.1	25	CONCRETE DRIVEWAYS AT PER SQUARE YARD	
701.2	85	CONCRETE WHEELCHAIR RAMP AT PER SQUARE YARD	
702	125	HOT MIX ASPHALT SIDEWALK OR DRIVEWAY AT PER TON	
706.7	50	MISCELLANEOUS WALK TREATMENT AT PER SQUARE YARD	
751.2	125	PLANTABLE SOIL BORROW AT PER CUBIC YARD	
765.01	1000	HYDROSEEDING AT PER SQUARE YARD	
854.034	15000	TEMPORARY PAVEMENT MARKING - 4 INCH (REMOVABLE TAPE) AT PER LINEAR FOOT	

TOTAL BID PRICE

$_____

CONTRACTOR NAME: **CONTRACTOR SIGNATURE:**

_____ _____

CONTRACT

CONTRACT made this day of June 2025, by and between the Town of Bedford, Massachusetts, acting by its Select Board, hereinafter referred to as the Town and _____, hereinafter referred to as the Contractor.

WITNESSETH, that the Town and the Contractor, for the mutual consideration, hereinafter named, agree as follows:

Article l. The Contractor, at the request of the Town, shall provide the following material and/or service for the Town: **Resurfacing and Reconstruction Paving** as provided in the Specification form attached hereto and made a part hereof.

Article 2. The Town shall pay the Contractor for such materials delivered in complete conformity with the specifications, and/or services performed in a good and workmanlike manner, a sum or sums of money, as provided in the Bid Form attached hereto and made a part hereof.

IN WITNESS WHEREOF, the parties have hereunto set their hands and seals of the day and year first stated.

TOWN OF BEDFORD
MASSACHUSETTS
ON BEHALF OF THE
SELECT BOARD

_____

_____

_____

_____

_____

CONTRACTOR

_____
Name of Entity submitting bid, whether individual partnership, corporation, joint venture or other business or legal entity

_____
Type of Entity

By _____
Authorized signature of Entity submitting bid

_____
Bidder's duly authorized position, office or title

I hereby certify there are sufficient funds for the above bid.

_____
Town Accountant

CONTRACT

CONTRACT made this day of June 2025, by and between the Town of Bedford, Massachusetts, acting by its Select Board, hereinafter referred to as the Town and _____, hereinafter referred to as the Contractor.

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IN WITNESS WHEREOF, the parties have hereunto set their hands and seals of the day and year first stated.

TOWN OF BEDFORD
MASSACHUSETTS
ON BEHALF OF THE
SELECT BOARD

_____

_____

_____

_____

_____

CONTRACTOR

_____
Name of Entity submitting bid, whether individual partnership, corporation, joint venture or other business or legal entity

_____
Type of Entity

By _____
Authorized signature of Entity submitting bid

_____
Bidder's duly authorized position, office or title

I hereby certify there are sufficient funds for the above bid.

_____
Town Accountant

14 RESURFACING AND RECONSTRUCTION PAVING

Affidavit of Non-Collusion

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

_____
Date

_____
Name of Entity submitting bid, whether individual partnership, corporation, joint venture or other business or legal entity.

_____
Type of Entity

_____
Address

_____

_____
Telephone

_____
E-Mail Address

By_____
Authorized Signature of Entity submitting bid

_____
Bidder's duly authorized position, office or title

14 RESURFACING AND RECONSTRUCTION PAVING

STATEMENT OF TAX COMPLIANCE

The Bidder certifies under the penalties of perjury, pursuant to M.G.L. c.62C, Section 49A(b), that it has complied with all laws of the Commonwealth relating to taxes, to reporting of employees and contractors, and to withholding and remitting child support. The Bidder also understands that the Massachusetts Conflict of Interest Law, Chapter 268A of the Massachusetts General Laws, applies to the party ultimately chosen as Contractor with respect to the services required to be provided under this Contract. The Contractor and its officers, employees, agents, subcontractors and affiliated agencies shall not participate in any activity which constitutes a violation of the Massachusetts Conflict of Interest Law or which creates an appearance of a violation of the Massachusetts Conflict of Interest Law.

_____
Federal Identification Tax Number

_____
Name of Entity submitting bid, whether individual partnership, corporation, joint venture or other business or legal entity

_____
Type of Entity

_____
Address

_____
Telephone

By_____
Authorized Signature of Entity submitting bid

_____
Bidder's duly authorized position, office or title

DIVISION II
CONSTRUCTION DETAILS

SECTION 101
CLEARING AND GRUBBING

CONSTRUCTION METHODS

SUBSECTION 101.61 CLEARING AND GRUBBING
Add the following at the end of this subsection:

The Contractor may use any equipment, materials or labor as he deems necessary, with no additional measurement or payment to be made.

COMPENSATION

SUBSECTION 101.81 BASIS OF PAYMENT
Add the following after this first sentence of this subsection.

All labor, material and equipment required to perform Clearing and Grubbing shall be considered incidental to the bid item, with no additional measurement or payment to be made.

SECTION 120
EXCAVATION

DESCRIPTION

SUBSECTION 120.20 GENERAL
Add the words "Removal and Disposal of surplus road base" after the words "Unclassified Excavation" in the last sentence of the first paragraph.

Add the following at the end of this subsection:

All locations to be excavated shall be stripped of topsoil prior to excavation. This work shall be paid at the unit price for topsoil excavated and stacked.

The contractor will be responsible for obtaining all the necessary permits and for finding a proper area to dispose of surplus material. The Town of Bedford reserves the right to request a small tonnage of excess reclaimed base material to be transported and placed at a location of the Town's choosing.

Any Petramat or other fabric material that is encountered during cold planer operations and not thoroughly bonded to the existing asphalt shall be removed by the contractor prior to proceeding with resurfacing.

Add the following new subsection:
SUBSECTION 120.27 REMOVAL AND DISPOSAL OF SURPLUS ROAD BASE

This work shall include the excavation of excess reclaimed road base as directed by the engineer. All surplus material resulting from reclamation and not needed for use on the project, as determined by the Engineer, shall be disposed of by the contractor outside and away from the limits of the project, with no additional measurement or payment. The Town of Bedford reserves the right to request a small tonnage of excess reclaimed base material to be transported and placed at a location of the Town's choosing.

Add the following new subsection:
SUBSECTION 120.28 EXCAVATION FOR PATCHING

This work shall include the excavation of existing pavement and /or sub-base as well as any boulders or rock below the sub-base as necessary. The work shall also include the grading and compaction of sub-base to the required cross section as shown on the plans or as directed by the Engineer. All surplus material resulting from excavation and not needed for use on the project, as determined by the Engineer, shall be disposed of by the contractor outside and away from the limits of the project, with no additional measurement or payment.

Add the following new subsection:
SUBSECTION 120.29 EXCAVATION FOR ROAD WIDENING AND RELOCATION

This work shall include all excavation along the edge of the existing roadway for the purpose of road widening and/or relocation. Said work shall be performed in a manner as to protect any and all existing utilities and landscape material from damage.

Add the following new subsection:
SUBSECTION 120.30 SAWCUTTING

This work shall include the full depth cutting of the existing pavement, which may include sawcutting for granite curb, driveways, reclaim end treatment, drainage and roadway patching unless otherwise noted in such items as inclusive. Sawcutting shall be complete to the existing sub-base by a motorized saw along lines as shown on the plans or as directed by the Engineer.

CONSTRUCTION METHODS

SUBSECTION 120.60 GENERAL
Add the following at the end of this subsection:

D. Care when excavating for sidewalks

The Contractor shall take all necessary precautions to prevent damage to walls, building foundations, and fences abutting sidewalks and driveways designated for replacement. Where

required, new sidewalks shall meet said walls and fences. Prior to sidewalk removal, a sawcut shall be provided in all sidewalks to be removed a distance, to be determined by the Town of Bedford Department of Public Works (6 inches minimum) from the face of adjacent buildings, retaining walls, and fences. The final 6 inches (minimum) of sidewalk will be removed with caution under the resident Town of Bedford Department of Public Works' supervision. There will be no additional payment for labor or equipment necessary to meet this "remove with caution" requirement. The Contractor is responsible for damage to walls, foundations and fences due to his construction activities and shall be repaired at the Contractor's own cost. Any brick, paver, or stamped concrete/asphalt sidewalk, crosswalk, or roadway disturbed by construction activity shall be repaired by the Contractor at no additional cost. Any brick, paver, or stamped concrete/ asphalt sidewalk, crosswalk, or roadway damaged or to be restored shall match the same materials that exist, including concrete base if appropriate, unless otherwise indicated on the plans, or directed by the Engineer.
When practical sawcuts shall be made at existing control joints.

SUBSECTION 120.65 TOPSOIL EXCAVATED AND STACKED
Add the following at the end of this subsection:

The Contractor will restore any areas used or damaged in the stockpiling operation at his own expense.

Add the following new subsection:
SUBSECTION 120.68 REMOVAL AND DISPOSAL OF SURPLUS ROAD BASE

This work shall include the excavation, removal and satisfactory disposal, in accordance with relevant provisions of Section 120.60 of all materials listed under Section 120.27 as directed by the engineer.

COMPENSATION

SUBSECTION 120.80 METHOD OF MEASUREMENT
Add the following at the end of this subsection:

Sawcutting will be measured by the linear foot to the limits as shown on the plans or as directed by the Engineer.

Any rock or boulders that must be excavated and measure less than one cubic yard in volume shall be considered incidental to the excavation work with no additional measurement of payment to be made. Any rock or boulders that must be excavated and measure one cubic yard or greater in volume shall be considered Class A Rock and shall be measured in accordance with the pay limits as described above.

SUBSECTION 120.81 BASIS OF PAYMENT
Add the following at the end of this subsection:

Sawcutting will be paid at the contract unit price per linear foot of payment cut.

SUBSECTION 120.82 PAYMENT ITEMS
Add the following payment items in numerical order:

ITEM 120.11	Excavation for Patching	Cubic Yard
ITEM 120.12	Excavation for Road Widening and Relocation	Cubic Yard
ITEM 120.13	Removal and Disposal of surplus road base (from reclaim operations)	Cubic Yard
ITEM 482.3	Sawcutting	Linear Foot

Insert the following new section in numerical order:

SECTION 130
STREET SWEEPING

DESCRIPTION

SUBSECTION 130.20 GENERAL

Street sweeping shall be by mechanical street sweeper vehicle to clear the paved surface of all debris, to the extent as determined by the Engineer.

CONSTRUCTION METHODS

SUBSECTION 130.60 GENERAL

The timing of the street sweeping operation should be such that the road remains sufficiently clean between the completion of the sweeping and the start of any reclamation and/or repaving. Should the Engineer decide that the road surface requires additional sweeping, no additional compensation shall be offered the Contractor to complete this process.

No additional compensation will be allowed when street sweeping operations are used as a means of clearing off and/or exposing areas of pavement covered with vegetation or debris.

COMPENSATION

SUBSECTION 130.80 METHOD OF MEASUREMENT

Measurement shall be made by the hour, with a minimum of four hours measured per each day of use unless otherwise noted in such items as inclusive.

SUBSECTION 130.81 BASIS OF PAYMENT

Street sweeping will be paid at the contract unit price per hour, with a four-hour minimum per day unless otherwise noted in such items as inclusive.

When sweeping is performed in preparation for paving operations then it shall be inclusive to the paving items.

SUBSECTION 130.82 PAYMENT ITEMS

ITEM 130. Street Sweeping Hour

SECTION 150
EMBANKMENT

CONSTRUCTION METHODS

SUBSECTION 150.64 BACKFILLING FOR STRUCTURES AND PIPES

A. General.

Revise the 2nd sentence of this subsection to read as follows:

When suitable backfill material cannot be obtained from excavation, gravel borrow shall be used as provided by the Town.

COMPENSATION

SUBSECTION 150.80 METHOD OF MEASUREMENT

Add the following after the 9th paragraph of this section:

Crushed Stone (¾") when used for pipe bedding shall be included in the item price for the associated pipe, with no separate measurement or payment.

Insert the following new section in numerical order:

SECTION 153
CONTROLLED DENSITY FILL

DESCRIPTION

SUBSECTION 150.20 GENERAL

Excavatable Controlled Density Fill (CDF) shall be used as backfill material in utility trenches, abandoned structures and other locations as determined by the Engineer.

MATERIALS

SUBSECTION 150.40 GENERAL

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

Controlled Density Fill, Type 2E
M4.08.0

CONSTRUCTION METHODS

SUBSECTION 150.60 GENERAL

Controlled Density Fill shall be placed in a manner such that no damage will occur to utility lines, pipes or structures. The material shall be placed so that no voids are left upon completion of the backfilling process.
Steel road plates shall protect the CDF until the fill reaches a point that it will not be deformed by traffic passing over it. Per direction of the engineer, CDF may be left one foot below bottom of asphalt with remaining backfill material placed after appropriate curing time as directed by the engineer. Additional backfill will be paid at contract unit price for the material used as directed.

COMPENSATION

SUBSECTION 150.80 METHOD OF MEASUREMENT

Controlled Density Fill shall be measured in place by the cubic yard.

SUBSECTION 150.81 BASIS OF PAYMENT

Payment for Controlled Density Fill will be paid for at the contract unit price per cubic yard. No additional compensation shall be offered for material placed beyond the limits of excavation as shown in the plans or as determined by the Engineer.
Additional backfill will be paid at contract unit price for the material used as directed.

SUBSECTION 150.82 PAYMENT ITEMS

ITEM 153.	Controlled Density Fill - Excavatable	Cubic Yard

SECTION 201
BASINS, MANHOLES AND INLETS

MATERIALS

SUBSECTION 201.40 GENERAL
Add the following at the end of this subsection:

Clay brick conforming to Section M4.05.2 of the Standard Specifications shall be used to adjust all manholes and catch basin frames and grates or covers to grade. For sewer manholes, Grade SS bricks shall be used for sewer inverts and shelves. Grade MS bricks shall be used for other locations.

All exterior surfaces of manhole brickwork shall be plastered with cement mortar.

CONSTRUCTION METHODS

SUBSECTION 201.60 GENERAL
Add the following at the end of this subsection:

Catch basins may be required to be built on (connected to) existing lines. Work may include, but is not limited to, excavation around existing pipe, removal/trimming existing pipe to inside face of catch basin, building new catch basin around existing pipes (including base and 4' sump), and backfilling/compacting around catch basin.

The limits of the excavation shall be sawcut or milled full depth through all existing pavement prior to any excavation for structure placement.

SUBSECTION 201.63 PLACING CASTINGS
Delete the following sentence

'Cement Concrete collars shall be placed around the castings after the final setting as shown on the plans and as directed'

Replace with the following sentence

'Asphalt Concrete collars shall be placed around the castings after the final setting as shown on the plans and as directed'

Add the following at the end of this subsection:

All three-flanged rectangular frames shall be placed as described above. The side of the casting without a flange shall be filled in with bricks and mortar or steel plates sufficient to cover any opening in the structure or as directed by the Engineer. Said work shall be considered incidental to Item 220, Drainage Structure Adjusted with no additional measurement or payment to be made.

SUBSECTION 201.65 LAYING BRICKS AND BLOCKS
Add the following at the end of this subsection:

A minimum of 2 courses of brick shall be used to set frames on all manholes, catch basin and leaching basins.

COMPENSATION

SUBSECTION 201.80 METHOD OF MEASUREMENT
Replace the first two paragraphs of this section with the following:

Measurement for catch basins, manholes and drop inlets shall be measured as complete units regardless of depth.

Sawcutting or milling of existing pavement to the excavation limits for structure placement shall be considered incidental to the cost of associated items, with no additional measurement or payment.

SUBSECTION 201.81 BASIS OF PAYMENT
Delete the following sentence
'Payment for the concrete collars shall be included in the contract unit price of the structure involved'

Replace with the following sentence
'Payment for the asphalt collars shall be included in the contract unit price of the structure involved'

Add the following at the end of this subsection:

All costs associated with construction of catch basins saddling existing drainage lines shall be included in the unit price per catch basin.

SECTION 220
ADJUSTMENT, REBUILDING AND REMODELING OF DRAINAGE STRUCTURES

CONSTRUCTION METHODS

SUBSECTION 220.60 GENERAL
Add the following at the end of this subsection:

Lowering and plating of Catch Basins, Manholes, Water and Gas gates shall follow the detail described in section 403.

COMPENSATION

SUBSECTION 220.80 METHOD OF MEASUREMENT
Add the following to the end of this subsection:

Catch Basins and/or manholes lowered and plated as described in section 403 will be measured in place by the unit each, complete and approved.

Water gates and gas gates lowered and plated as described in section 403 will be measured in place by the unit each, complete and approved.

SUBSECTION 220.81 BASIS OF PAYMENT
Revise 6th sentence to read as follows:

Catch Basins and/or manholes lowered and plated as described in section 403 will be paid for at the contract unit price each.

Water gates and gas gates lowered and plated as described in section 403 will be paid for at the contract unit price each.

SUBSECTION 220.82 PAYMENT ITEMS
Add the following payment items in numerical order:

ITEM 220.1	Catch Basins and/or manholes lowered and plated	Each
ITEM 220.15	Water gates and gas gates lowered and plated	Each

SECTION 230
CULVERTS, STORM DRAINS AND SEWER PIPES

CONSTRUCTION METHODS

SUBSECTION 230.60 GENERAL
Add the following at the end of this subsection:

For all pipes, including services, the limits of the trench shall be sawcut or milled full depth through all existing pavements prior to any excavation for pipe placement.

Add the following new subsection:
SUBSECTION 230.66 UTILITY WARNING AND IDENTIFICATION TAPE

Buried Utility Warning and Identification Tape shall be placed at locations as directed by the Engineer. Said warning tape shall be made of plastic backed aluminum foil tape or detectable magnetic plastic tape with a minimum width of 3 inches. It shall be color coded and labeled

continually along entire length of the tape in bold black letters for the appropriate utility, and detectable by an electronic detection instrument. The markings on the tape should be permanent and unaffected by moisture or light.

Buried Utility Warning and Identification Tape shall be considered incidental to the work being done and no additional compensation will be offered for this item.

COMPENSATION

SUBSECTION 230.80 METHOD OF MEASUREMENT
Add the following at the end of this subsection:

The placement of pipe bedding shall be considered incidental to the placement of associated pipe, with no separate measurement or payment.

Sawcutting or milling of existing pavement to the excavation limits for pipe placement shall be considered incidental to the cost of associated items, with no additional measurement or payment.

SUBSECTION 230.81 BASIS OF PAYMENT
Add the following at the end of this subsection:

Backfill to replace material removed under Class B Trench Excavation for sewer pipe shall be ¾" crushed stone for drainage as specified in Section 150.

SUBSECTION 230.82 PAYMENT ITEMS
Add the following payment items in numerical order:

ITEM 252.12112 Inch Corrugated Plastic (Polyethylene) Pipe Flared End Each

SECTION 270
PIPES REMOVED AND RELAID OR STACKED

Change the title of this Section to read:

SECTION 270
PIPES REMOVED AND RELAID, STACKED OR DISPOSED

DESCRIPTION

SUBSECTION 270.20 GENERAL
Insert the word "disposing," after the word "relaying,"

CONSTRUCTION METHODS

Add the following new Subsection:
SUBSECTION 270.65 DISPOSING

All pipe removed shall be disposed of by the contractor outside and away from the limits of the project, with no additional measurement or payment.

COMPENSATION

SUBSECTION 270.80 METHOD OF MEASUREMENT
Add the following at the end of this subsection:

Pipes removed and disposed, as directed, will be measured as the actual length of pipe removed.

SUBSECTION 270.81 BASIS OF PAYMENT
Add the following at the end of this subsection:

Pipes removed and disposed will be paid for at the contract unit price per linear foot of pipe required to be removed and disposed.

SUBSECTION 270.82 PAYMENT ITEMS
Add the following payment items in numerical order:

ITEM 272.	Pipe Removed and Disposed	Linear Foot

SECTION 301
WATER SYSTEMS

DESCRIPTION

SUBSECTION 301.22 PROTECTION OF UNDERGROUND STRUCTURES
Replace this entire subsection with the following:

The Contractor shall take every precaution to protect all conduits, pipe or structures uncovered during excavation. In the event that a pipe or structure that has been unmarked or is mistakenly marked in the field or on the plans is damaged by the Contractor, an allowance shall be made by the Town for compensation to the Contractor for the cost to repair the damage. No compensation shall be made for pipes or structures that are damaged that have been correctly marked out in the field or on the plans.

CONSTRUCTION METHODS

SUBSECTION 301.60, PART F. REMOVAL OF CASTINGS
Insert the word "disposed," after the word "reset,"

Add this new subsection:
SUBSECTION 301.61 GAS GATES

It shall be the sole responsibility of the Contractor to coordinate with National Grid to have any and all gas gates adjusted to the proper grades or as directed by the Engineer. Unless otherwise directed by National Grid, it shall be the responsibility of National Grid to adjust said gates. In the case that an agreement is made with National Grid for the contractor to adjust the gas gates then compensation will be made to the contractor by the town under item 358.

COMPENSATION

SUBSECTION 301.80 METHOD OF MEASUREMENT
Add the following at the end of this subsection:

Measurement of water and gas gate boxes adjusted shall include all risers as necessary, up to a length of 12 inches.

Allowances shall be made for compensation to the Contractor for water mains, gates or services that are broken or disrupted during excavation within the trench limits as defined in the construction plans that have either been unmarked in the field or are located at a minimum of five (5) feet parallel to either the left or right of the water main, gate or service marking as laid out in the field. Such allowances for compensation shall be measured per each occurrence of the preceding scenario.

Water gates and gas gates lowered and plated as described in section 403 will be measured in place by the unit each, complete and approved.

SUBSECTION 301.81 BASIS OF PAYMENT
Add the following at the end of this subsection:

All risers up to a length of 12 inches shall be considered incidental to the contract unit price for gate boxes adjusted, with no additional measurement or payment. If gate box needs replacement below 12" from final grade then payment will be made under item 357 for the excavation, disposal of materials, installation and proper backfilling and under item 358 for adjustment to final grade.

Allowances for compensation shall be paid per each occurrence as measured in Subsection 301.80.

Water gates and gas gates lowered and plated as described in section 403 will be paid for at the contract unit price each.

SUBSECTION 301.82 PAYMENT ITEMS
Add the following payment items in numerical order:

ITEM 220.15	Water gates and gas gates lowered and plated	Each
ITEM 359	Gate Box Removed and Disposed	Each
ITEM 381.4	Service Box Removed and Disposed	Each
ITEM 384.3	Compensation for Unmarked or Mistakenly Damaged Water Facility	Each

SECTION 402
DENSE GRADED CRUSHED STONE FOR SUB-BASE

CONSTRUCTION METHODS

SUBSECTION 402.61 SPREADING AND COMPACTING
Add the following at the end of this subsection:

The overall depth of the Gravel for Base Course layer shall be no greater than 8 inches after compaction.

COMPENSATION

SUBSECTION 402.80 METHOD OF MEASUREMENT
Add the following at the end of this Subsection:

When quantities of Dense Graded Crushed Stone for Sub-base or Shoulder Backup are given in tons, a factor of 1.65 tons per cubic yard will be used to convert the measurement to cubic yards.

SECTION 403
RECLAIMED BASE COURSE AND/OR SUB-BASE

DESCRIPTION

SUBSECTION 403.20 GENERAL
Add the following at the end of this subsection:

If there are no plans provided then the maximum depth of reclaim shall be fifteen inches (15”) measured from the surface of the existing asphalt down or a lesser depth as directed by the engineer.

CONSTRUCTION METHODS

SUBSECTION 403.60 GENERAL
Add the following at the end of this subsection:

Sawcutting in conformance with Item 482 shall be done for end treatments for full road width in all reclaim areas.

COMPENSATION

SUBSECTION 403.80 METHOD OF MEASUREMENT
Delete sentence three of paragraph one and replace with:

The lowering and plating of gates and structures shall be paid per each as described below.

Add the following at the end of this subsection:

As described above the structures that are lowered and plated for reclaimed operations and then raised to final grade will be paid under item 220.1 for the lowering and plating. Additionally, they will be paid for under item 220.5 structure remodeled and finally under item 220 structure adjusted when brought to final grade.
Gates that are lowered and plated for reclaimed operations and then raised to final grade will be paid under item 220.15 for the lowering and plating. Additionally, they will be paid for under item 358 gate box adjusted when brought to final grade. This will be full measurement for the lowering, plating, and raising of gates to final grade.

SUBSECTION 403.81 BASIS OF PAYMENT
Replace the second paragraph of this Subsection with the following:

The lowering and plating of castings will be paid separately under item 220.1 Catch Basins and/or Manholes lowered and plated and item 220.15 Water gates and Gas gates lowered and plated. The lowering and plating of the gas gates will be paid per each to the contractor both if they perform the work and if they coordinate the performance of the work through the respective utility company.

Replace the third paragraph of this Subsection with the following:

Removal and disposal of unsuitable material, surplus reclaimed material, or any sub-base/subgrade material necessary for grade changes shall be paid for at the contract unit price per cubic yard for Item 120.13, Unclassified Excavation of Excess Reclaimed Material.
<u>Sawcutting for reclaim end treatment shall be inclusive to the reclaim item.</u>

SUBSECTION 403.82 PAYMENT ITEMS

Add the following payments items:

ITEM 220.1	Catch Basins and/or manholes lowered and plated	Each
ITEM 220.15	Water gates and gas gates lowered and plated	Each

Insert the following new section in numerical order:

SECTION 441
LIQUID CALCIUM CHLORIDE FOR BLENDING

DESCRIPTION

SUBSECTION 441.20 GENERAL

Liquid Calcium Chloride shall be used for blending into reclaimed base material as directed by the Engineer.

MATERIALS

SUBSECTION 441.40 MATERIALS

The calcium chloride solution shall be provided by the manufacturer as a true solution and shall not be reconstituted from flake calcium chloride. The calcium chloride shall meet the following material specifications (see ASTM Designation D98; AASHTO-M144).

Calcium Chloride		35% ± 1%
Alkali Chloride as NaCl	2% max.	
Magnesium as MgCl	0.1%	

Typical (in lbs. per gallon)

Calcium Chloride			5.05
Sodium Chloride			0.2
Magnesium Chloride	0.004		
Calcium Sulfate		0.004	
Water		6.002	
			11.26

CONSTRUCTION METHODS

SUBSECTION 441.60 GENERAL

The distributor for calcium shall be capable of applying liquid calcium chloride in accurately measured quantities at any rate between 0.1 to 2.0 gallons per square yard of roadway

surface, at any length of spray bars up to 20 feet. The distributor shall be capable of marinating a uniform rate of distribution of material regardless of change in grade, width or direction of the road. The distributor shall be equipped with a Digital Volumetric Accumulator capable of measuring gallons applied and distance traveled. The volume and measuring device shall be equipped with a power unit for the pump so that application is by pressure, not gravity. The spray nozzles and pressure system shall provide a sufficient and uniform fan-shaped spray of material throughout the entire length of the spray bar at all times while operating and shall be adjustable laterally and horizontally. The spray shall completely cover the roadway surface receiving the treatment.

After the first pulverization of the existing road pavement, one application of calcium chloride totaling 0.75 gallon per square yard shall be applied to the reclaimed material. The aggregate mass shall then be pulverized again to ensure proper asphalt, gravel and calcium chloride blending to the desired depth. Following base compaction, shaping, regrading and final compaction a final capping of 0.25 gallons per square yard of calcium chloride shall be applied.

COMPENSATION

SUBSECTION 441.80 METHOD OF MEASUREMENT

Liquid Calcium Chloride for Blending shall be measured by the gallon used.

SUBSECTION 441.81 BASIS OF PAYMENT

Payment for Liquid Calcium Chloride for Blending shall be paid for at the contract unit price per gallon used. Payment will be for the actual quantity applied that is not to exceed the quantity as calculated based on the aforementioned application rates and surface applications area as shown on the plans or as determined by the Engineer.

SUBSECTION 441.82 PAYMENT ITEMS

ITEM 441.	Liquid Calcium Chloride for Blending Gallon

SECTION 460
HOT MIX ASPHALT FOR LOCAL STREETS

CONSTRUCTION METHODS

SUBSECTION 460.42 WEATHER LIMITATIONS

Replace all references to 'April 1st' with 'Patriots Day'

Add the following sentence to the end of paragraph 2;

The ‘sudden rain’ provision is ONLY in the case of unforecasted rain, in all other cases the mix will be forfeited by the contractor with no compensation including that mix that is in transit.

SUBSECTION 460.43 Preparation of Underlying Surface

C. Patching Existing Pavement Courses.

Replace sentence 2 of paragraph 4 with the following:

The hot mix asphalt pavement shall be laid in courses with the top course 1.5 inches after rolling and previous courses no greater than 2.5 inches after rolling and shall match the total thickness of the existing asphalt or as directed by the engineer. It is anticipated that HMA for patching will need to be hand laid. Sawcutting asphalt in accordance with Item 482.3 shall be performed for all roadway patching.

COMPENSATION

SUBSECTION 460.90 METHOD OF MEASUREMENT

A. Patching

Add the following at the end of this subsection:

When quantities of HMA for patching are measured in cubic yards (such as patching), a factor of 1.70 tons per cubic yard will be used to convert the measurement to tons.

Sawcutting shall be measured by the linear foot of asphalt cut.

SUBSECTION 460.93 PAYMENT ITEMS

Add the following item:

451.	HMA for Patching	TON
482.3	Sawcutting	Linear Foot

SECTION 460
CLASS I BITUMINOUS CONCRETE PAVEMENT TYPE I-1

CONSTRUCTION METHODS

SUBSECTION 460.49 HOT MIX ASPHALT JOINTS

Add the following at the end of this subsection:

Tack coat and sand shall be applied to all joints composed of bituminous concrete immediately after paving or as directed by the Engineer.

SUBSECTION 460.63 PREPARATION OF UNDERLYING SURFACE
Replace the first sentence with the following:

HMA mixtures shall be placed only upon properly prepared and approved surfaces that are clean from foreign material, including grass and vegetation, and dry; and when weather conditions are suitable.

D. Leveling Courses
Add the following at the end of this subsection:

It should be noted that roads could require several lifts of leveling material in order to eliminate water problems in low spots prior to placing the top course of bituminous concrete.

COMPENSATION

SUBSECTION 460.90 METHOD OF MEASUREMENT

B. Tack Coat
Add the following at the end of this subsection:

Tack coat and sand, when applied to joints in accordance with subsection 460.49, shall be considered incidental to Item 460, Class I Bituminous Concrete Pavement, Type I-1, with no additional measurement or payment to be made.

Add the following at the end of this subsection:

Price adjustments for hot mix asphalt (all asphalt items under section 460) will be made in accordance with Document 00811 published by MassDOT revised July 8, 2016. Asphalt adjustment shall be documented on each invoice with no adjustment shown on invoice one. Invoice two will include the adjusted asphalt cost from the invoice one tonnage and so on. The contractor shall provide documentation and calculations demonstrating the proper adjustment. The base bid for liquid asphalt on this contract shall be the period price at the date of the bid opening as published by MassDOT on its website.

Insert the following new section in numerical order:

SECTION 473
Random Crack Sealing – Polymer & Crumb Rubber Modified (PCRM) Asphalt Compound with Reinforcing Fibers

DESCRIPTION

SUBSECTION 473.20 GENERAL

The work covered by this section of the specification consists of furnishing all plant, labor, equipment and materials necessary to perform all operations in connection with the cleaning and sealing of construction and random cracks in bituminous concrete pavements, including vegetation removal and sterilization of cracks, where necessary.

MATERIALS

SUBSECTION 473.40 GENERAL

Crack sealant shall be a modified asphalt-fiber compound designed specifically for improving the strength and performance of the parent asphalt sealant.

a) **The asphalt binder** shall consist of a blend of neat asphalt binder, chemically modified crumb rubber (CMCR), and a polymer package, all of which meet the following specifications:
   - The binder will meet PG 64-28E requirements after modification including:
     - PG grade requirements of AASHTO M320
     - Requirements of AASHTO TP70/MP19
   - Modification, at a minimum, shall consist of 7% crumb rubber, and the maximum particle size for the recycled tire rubber shall be 80 mesh (#80 sieve)
   - The asphalt supplier shall provide testing for both the neat and modified asphalt binders
   - See below for typical modified test results for 64-28E with crumb rubber:

<u>DSR ORIGINAL</u>
- kPa >1.00 @ 64° C. Fail temp = 76+° C

<u>DSR RTFO</u>
- kPa >2.20 @ 64° C. Fail temp = 76+° C

<u>MSCR</u>
- JNR (MSCR unit of measure): 3.2 E <0.5% @ 64° C
- R3200 (Average % Recovery): >70%

<u>DSR PAV</u>
- kPa <6000 @ 64° C

<u>BBR</u>
- Stiffness <300 @ -18° C. M-Value >0.300 @ -18° C

b) **The fiber reinforcing materials** shall be short-length polyester fibers having the following properties:

Length*	0.25	in.	± 0.02	in.
Elongation at Break (ASTM D2256-90)	35%		± 3%	
Melting Point (ASTM D3418-82)	>475°F			(246°C)
Crimps/Inch (ASTM D3937-90)	None			
Cross Section	Round			
Denier (ASTM D1577-90)	4.5	Nominal		dpf
Tensile Strength (ASTM D2256-90)	>70,000			psi

Diameter 0.0008 in. **
Specific Gravity (ASTM D792-91) 1.32 to 1.40
** At temperatures ranging from ambient to maximum finished product mix temperature*
*** Subject to Normal Variations*

c) **Modifying Compound:** The modified asphalt-fiber compound shall be mixed at a rate of 8% fiber weight to weight of asphalt cement. This compound having the same chemical base provides compatibility and exhibits excellent bond strengths. The fiber functions to re-distribute high stress and strain concentrations that are imposed on the sealant by thermal sources, traffic loading, etc.

CONSTRUCTION METHODS

SUBSECTION 473.60 GENERAL

Preparation of Cracks

a) **Debris and Vegetation Removal:** All cracks shall be blown clean and sterilized by use of a propane air torch generating 2,000°F and 3,000' feet/second velocity to eliminate all vegetation, dirt, moisture and seeds. All debris removed from the cracks shall be removed

b) **General:** No crack sealant material shall be applied in wet cracks or where frost, snow or ice is present; or when the ambient temperature is below 50°F.

Preparation and Placement of Sealant

a) The asphalt-fiber compound shall be thoroughly mixed for a minimum of one hour before application can begin. To ensure a uniform fiber distribution in the sealant, and also to limit fluctuations in the application temperature of the blended material, the Contractor must have a full melter kettle of sealant mixed, heated to the proper application temperature, and ready for testing at the start of each work day. Once that batch of sealant is emptied from the melter kettle, crack sealing operations will cease for the remainder of the day. No new materials will be allowed to be added to the melter kettle during the work day under any circumstances. Minimum application temperature shall be 320°F.

b) Sealant shall be delivered to the pavement cracks through a high-pressure hose line and applicator shoe. Diameter of the applicator shoe is not to exceed 3.5" inches. Once the pavement cracks are sealed, the width of the sealant on the pavement (overbanding) shall be no greater than 3" inches. When traffic requires immediate use of the roadway, a boiler slag aggregate shall be broadcast over the cracks to prevent the sealant from being picked up at no additional cost to the Owner.

Workmanship

All workmanship shall be of the highest quality, and any excess of spilled sealant shall be removed from the pavement by approved methods and discarded. Any workmanship determined to be below the high standards of the particular craft involved will not be accepted, and will be corrected and/or replaced as required by the Owner.

Performance

a) It is the intention of the Owner not to award a contract for this work under this or any other proposal if the contractor cannot furnish satisfactory evidence that he has the ability and experience to perform this class of work, and that he has sufficient capital and equipment to enable him to prosecute the work successfully and to complete it within the time named in the contract. The Owner reserves the right to reject this or any other proposal, or to award the contract as is deemed to be in the best interest of said Owner.

b) Properly formulated and mixed asphalt fiber compound overbanding shall not be greater than three inches (3") in width. Penalties will be imposed upon the Contractor for overbanding beyond three inches (3").

c) The Contractor must submit the following with his bid proposal:
   - A list of six (6) jobs which he has successfully completed with the polymer and crumb rubber modified asphalt compound with reinforcing fibers specified herein, giving the name and address of these projects so they can be investigated prior to the award of the contract.
   - The trade name of the crack sealant the contractor intends to use.
   - The manufacturer of the crack sealant the contractor intends to use.

d) The Owner will require the Contractor to successfully perform a 200' foot test strip in the field prior to commencing work under the contract.

e) Manufacturer's certificate of material compliance will be furnished to the Owner certifying conformance to the above material specifications, including the following:
   - Performance Grade of Unmodified Asphalt: **PG 64-28S** (standard)
   - AASHTO M-320, Table 1
   - 7% chemically-modified crumb rubber (CMCR)
     - Composed of 100% 80-mesh recycled tire rubber
   - 3-4% specially formulated polymer package
   - Performance Grade of Modified Asphalt: **PG 64-28E** (able to withstand "extremely heavy" traffic loads)
   - AASHTO M-320, Table 1
     - "E" Jnr 3.2 kPa @ 64^0C: **<0.5%**
     - R3200 (Average % Recovery) @ 3.200 kPa: **>70%**
   - 8% polyester reinforcing fibers

SUBSECTION 473.61 EQUIPMENT

Equipment used in the performance of the work required by this section of the specification shall be subject to approval by the Owner, and maintained in a satisfactory working condition at all times.

(a) **Air Compressor:** Air compressors shall be capable of furnishing not less than 100 cubic feet of air per minute at not less than 90 lbs. per square inch pressure at the nozzle. The compressor shall be equipped with traps that will maintain the compressed air free of oil and water.

(b) **Broom or Sweeper:** Manually operated, gas powered air-broom or self-propelled sweeper designed especially for use in cleaning highway and airfield pavements shall be used to remove debris, dirt and dust from the cracks.

(c) **Melter:** The unit used to melt or maintain the crack sealant compound at the recommended application temperature shall be the indirect fired type. It shall be equipped with a remote heat exchanger and hot oil circulation pump capable of maintaining a consistent temperature of the heat transfer oil. The heat transfer oil shall be circulated to all sides and the bottom of the vat containing the crack sealant compound making a continuous loop back to the heat exchanger and having a flash point of not less than 600°F. The melter shall be equipped with a satisfactory means of agitating the crack sealant at all times. This may be accomplished by continuous stirring with mechanically operated paddles and/or by a circulating gear pump attached to the melter. The melter must be equipped with a thermostatic control calibrated between 200°F and 550°F, and must be capable of pumping an 8% fiber content blend.

COMPENSATION

SUBSECTION 473.80 METHOD OF MEASUREMENT

The quantity to be measured for payment will be the number of gallons of crack sealing actually applied, and this quantity shall be determined and verified daily. .

SUBSECTION 473.81 BASIS OF PAYMENT

The accepted quantity of crack sealing will be paid for at the contract unit price per gallon of the type specified in the proposal, which shall be full compensation for furnishing, transporting, handling and placing the material specified and furnishing of all labor, tools, equipment and incidentals for the satisfactory completion of this item.

Asphalt Price Adjustments
Contractor's bid prices shall be based upon the current State DOT asphalt cement index posted exactly two (2) weeks prior to the due date for receipt of bids ("Bid Index"). If the posted State DOT asphalt cement index in place when the work is performed differs by more than 5% from the Bid Index, then contractor's invoices shall include price adjustments for the asphaltic materials (Micro-Surfacing, crack sealing, chip seal phase of cape seals, and tack coat), and such adjustments shall be proportionate to the mix design asphalt content (%) of each of these materials.

SUBSECTION 473.82 PAYMENT ITEMS

ITEM 473. Crack Sealing Gallon

SECTION 500
CURB AND EDGING

DESCRIPTION

SUBSECTION 501.20 GENERAL
Add the following at the end of this subsection:

Granite Curb shall be set in a concrete bed with asphalt patch as shown on the attached detail.

Sawcutting is required in advance of setting curb and is incidental to the item as described in subsection 501.80.

MATERIALS

SUBSECTION 501.40 GENERAL
Add the following at the end of this subsection:

M4 Cement Concrete (4,000 PSI)

CONSTRUCTION METHODS

SUBSECTION 501.65 FILLING ABOUT TRENCH
Replace this section with the following:

After the curb, curb corners, curb inlets, and edging is set, the space between it and the wall of the trench shall be filled to the height of the bottom of the existing asphalt layer (or as directed by engineer if no existing asphalt) on front and back of curbing with cement concrete (M4-4,000 psi). The front (road side) of the curbing trench shall then be filled, with bituminous concrete installed in lifts no greater than two inches (2") and thoroughly compacted, to top of existing asphalt.

COMPENSATION

SUBSECTION 501.80 METHOD OF MEASUREMENT
Add the following at the end of this subsection:

No additional measurement shall be made for Cement Concrete installed as part of the installation of Granite Curb.

Bituminous Concrete shall be measured per ton installed and thoroughly compacted.

Sawcutting shall be incidental to the items for Granite curb and Granite edging.

SUBSECTION 501.81 BASIS OF PAYMENT
Add the following at the end of this subsection:

Cement Concrete shall be considered incidental to the item for Granite Curb with no additional payment made.

Bituminous Concrete shall be paid per ton under Item 451 Hot mix asphalt for miscellaneous work.

Sawcutting shall be incidental to the items for Granite curb and Granite edging.

SUBSECTION 501.82 PAYMENT TERMS
Add the following at the end of this subsection:

ITEM 451. HMA for Patching TON

SECTION 665
FENCES AND GATES REMOVED AND RESET, AND REMOVED AND STACKED

Change the title of this Section to read:

SECTION 665
FENCES AND GATES REMOVED AND RESET, STACKED OR DISPOSED

DESCRIPTION

SUBSECTION 665.20 GENERAL
Insert the word "disposing," after the word "resetting,"

CONSTRUCTION METHODS

Add the following new Subsection:
SUBSECTION 665.63 DISPOSING

All fencing to be removed and disposed shall be disposed of by the contractor outside and away from the limits of the project, with no additional measurement or payment.

COMPENSATION

SUBSECTION 665.80 METHOD OF MEASUREMENT

Replace the first six words of the second paragraph with "Fence that is removed and stacked or disposed".

SUBSECTION 665.81 BASIS OF PAYMENT
Replace the first six words of the second paragraph with "Fence that is removed and stacked or disposed".

SUBSECTION 665.82 PAYMENT ITEMS
Add the following payment item in numerical order:

ITEM 669.1.	Fence Removed and Disposed	Linear Foot

SECTION 670
SEDIMENTATION FENCE

Change the title of this Section to read:

SECTION 670
SEDIMENTATION FENCE AND COMPOST SOCK

DESCRIPTION

SUBSECTION 670.20 GENERAL
Add the following at the end of this subsection:

Sediment fences and/or compost sock shall be erected in all areas adjacent to wetland areas before any construction activity commences to prevent overflow of unsuitable materials into adjacent areas of streams.

The Contractor shall furnish and install degradable compost socks for perimeter berm at locations shown on the plan as directed by the engineer. Removal shall be inclusive to the item, and will be conducted as directed by the Engineer. The compost sock for perimeter berm shall be used as such and is not intended for areas which may receive concentrated flows such as channels or restricted outlets.

MATERIALS

SUBSECTION 670.40 MATERIALS
Replace the first sentence of this subsection with the following:

The siltation fence shall be a woven material and meet the following design criteria:

	Test Method	Values
Grab Strength	ASTM D-1682	90 lbs.
Elongation	ASTM D-1682	15% min. 50% max. @ 45 lbs.
Permitivity	ASTM 4491	0.01 (Sec. 1)
EOS (sieve No.)	----	20

U.V. Resistance ASTM D-4355 70
(500 hours exposure)

The compost sock shall be a biodegradable material and meet the following design criteria:

- A mesh tube, oval to round in cross section, 12 inches in diameter. Sock must have a minimum durability of one year after installation.
- Composed of a knitted biodegradable or photodegradable material with 1/8 to 3/8 inch openings. Fabric must be clean; evenly woven; free of encrusted concrete or other contaminated materials; and free from cuts, tears, broken or missing yarns and thin, open, or weak places.

The compost media shall meet the following design criteria:

- Compost may be derived from green material consisting of chipped, shredded, or ground vegetation; or clean recycled wood products.
- Compost must not be derived from mixed municipal solid waste and be reasonably free of visible contaminates. Compost must not contain paint, petroleum products, pesticides or any other chemical residues harmful to animal life or plant growth. Compost must not possess objectionable odors. 2.3 Chemical, Physical and Biological Parameters.
- Compost products specified for use in this application must meet the criteria specified in Table 1, below.
- Only compost products that meet all applicable state and federal regulations pertaining to its production and distribution may be used in this application. Approved compost products must meet related state and federal chemical contaminant (e.g., heavy metals, pesticides, etc.) and pathogen limits pertaining to the feedstocks (source materials) in which it is derived.

Parameters	**Units of Measure**	**Characteristics**
pH2	pH units	5.0-8.5
Soluble salt concentration (electrical conductivity)	dS/m (mmhos/cm)	Maximum 5
Moisture Content	% wet weight basis	30-60
Organic Matter Content	% dry weight basis	25-65
Particle Size	% passing a selected mesh size, dry weight basis	3”, 100% passing 1”, 90% to 100% passing ¾”, 70% to 100% passing ¼”, 30% to 75% passing Maximum: particle size length of 6” (no more than 60% passing ¼” in high rainfall/flow rate situations)
Stability Carbon Dioxide Evolution Rate	Mg CO2-C per g OM per day	<8

Physical Contaminants (man-made inerts)	%, dry weight basis	<1

Note: The composition of this media is similar to the vegetated filter berm media from AASHTO R 51. Very coarse (woody) composts that contain less than 30% of fine particles (1mm in size) shall be avoided, as optimum reductions in total suspended solids (TSS) is desired and berms may be seeded.

Renumber subsection 670.40 to read 670.60.

CONSTRUCTION METHODS

SUBSECTION 670.60 CONSTRUCTION METHODS
Add the following at the end of this subsection:

Temporary sediment fences, or portions thereof, may be left in place at the discretion of the Engineer. Sediment fence shall not be removed until approved by the Conservation Commission and the Engineer.

Installation and maintenance of compost sock;

Site Preparation

To ensure optimum performance, cut down or remove heavy vegetation, and level uneven surfaces to ensure that the filter sock uniformly contacts the ground surface.

Installation

- Prior to installation, clear the area of obstructions including rocks, clods, and debris greater than one inch
- Fill socks uniformly with compost to the desired length such that the logs do not deform. Secure ends.
- When more than one compost sock is required to achieve desired length, join socks longitudinally with a 1 foot 6 inch overlap.
- Compost sock may be installed using installation method Type 1, Type 2, or a combination:
    - Installation method Type 1: – Place directly on the ground with good contact with the finish grade. – Secure with wood stakes every 4 feet along the length of the compost sock. – Secure the ends of the compost sock by placing a stake 6 inches from the end of the compost sock. – Drive the stakes into the soil so that the top of the stake is less than 2 inches above the top of the compost sock.
    - Installation method Type 2: – Place directly on the ground with good contact with the finish grade. – Secure with rope and notched wood stakes. – Drive stakes into the soil until the notch is even with the top of the compost sock. – Lace the rope between stakes and over the compost sock. Knot the rope at each stake. – Tighten the compost sock to the surface of the slope by driving the stakes further into the soil.

- Install compost sock approximately parallel to the slope contour or as otherwise specified in the SWPPP or ordered by the Engineer.

Maintenance

- Inspect compost socks regularly, and after each rainfall event, to ensure that they are intact and functioning correctly. Remove sediment that builds up behind the sock before it interferes with the functionality of the sock. Deposit the removed sediment within the project limits so that the sediment is not subject to erosion by wind or by water.
- Repair or replace split, torn, or unraveling socks. Replace broken or split stakes. Sagging or slumping compost socks must be repaired with additional stakes or replaced. Correct locations where rills and other evidence of concentrated runoff have occurred beneath the socks. Compost socks must be repaired or replaced within 24 hours of identifying the deficiency.
- Remove sock mesh tubes when directed by the Engineer. Cut mesh and empty sock contents in place and rake to distribute evenly.

COMPENSATION

SUBSECTION 670.80 METHOD OF MEASUREMENT
Add the following at the end of this subsection:

Compost sock shall be measured per linear foot complete in place and shall include removal and disposal.

SUBSECTION 670.82 PAYMENT ITEMS
Add the following item:

697.1	Compost Sock	Linear Foot

Insert the following new section in numerical order:

SECTION 697
SILT SACK

DESCRIPTION

SUBSECTION 697.20 GENERAL

The work under this item shall conform to the relevant provisions of Section 670 of the Supplemental Specifications and the following:

Contractor shall provide and maintain silt sack at all existing catch basins within the project limits and as required by the Engineer.

MATERIALS

SUBSECTION 697.40 GENERAL

The silt sack shall be manufactured from a woven polypropylene fabric with an oil-absorbent pillow insert or made completely from an oil-absorbent fabric with a woven pillow insert that meets or exceeds the following specifications.

PROPERTIES	TEST METHOD	UNITS
Grab Tensile Strength	ASTM D-4632	265 LBS
Grab Tensile Elongation	ASTM D-4632	20%
Puncture	ASTM D-4833	135 LBS
Mullen Burst	ASTM D-3786	420 PS
Trapezoid Tear	ASTM D-4533	45 LBS
UV Resistance	ASTM D-4355	90%
Apparent Opening Size	ASTM D-4751	20 US SIEVE
Flow Rate	ASTM D-4491	200GAL/MIN/SQ FT
Permittivity	ASTM D-4491	1.5 SEC-1

All silt sacks must have an overflow to accommodate rain events.

CONSTRUCTION METHODS

SUBSECTION 697.60 GENERAL

The work under this item shall include the periodic maintenance of the sacks that have become clogged with debris. The Contractor shall keep silt sacks clear during construction and shall not remove them until pavement is in place and the seeded areas have taken root. The cost of replacing the silk sack shall be incidental to this item. No separate payment shall be for additional silt sacks used at a single location.

The Contractor shall be responsible for field measuring all existing and new drainage structures to ensure that the proper size sediment collection sack is provided for each structure.

Disposal of Accumulated Material

All material removed from the silt sacks shall be properly handled and disposed of by the Contractor in accordance with all Massachusetts Department of Environmental Protection (DEP) regulations, policies and guidelines.

Material removed shall be transported immediately to the place of disposal in machines or trucks that will not spill the material along the roadway. Any material falling on the roadway shall be removed at the Contractor's own expense.

NOTE: **The Contractor should be aware that many landfills may require testing and analysis of the material prior to accepting it for disposal at the facility. The Contractor shall be aware that in the event that the test results indicate a hazardous waste that cannot be land filled. The Contractor shall be responsible for all costs associated with adhering to special regulations regarding disposal of waste materials removed from silt sacks.**

COMPENSATION

SUBSECTION 697.80 Method of Measurement

Silt Sack will be measured for payment by the each, complete in place.

SUBSECTION 697.81 Basis of Payment

Silt Sack will be paid for at the Contract unit price per each, which price shall include all labor, materials, equipment and incidental costs required to provide, install, maintain and remove silt sacks in locations required by the Engineer for the duration of the project.

SUBSECTION 697.82 PAYMENT ITEMS

ITEM 697.2 Silt Sack Each

SECTION 700
INCIDENTAL WORK

Replace subsection 701 with the following:

Interim Subsection 701: Cement Concrete Sidewalks, Pedestrian Curb Ramps, and Driveways

Description

701.20: General

This work shall consist of the construction of cement concrete sidewalks, pedestrian curb ramps, and driveways in accordance with the specifications and within the tolerances established on the plans.

Minimum clear path of travel for all walkways shall be no less than 60” per Town of Bedford Standards and as shown on the standard details.

Materials

701.30: General

Materials shall meet the requirements specified in the following Subsections of Division III, Materials except as noted herein:

Gravel Borrow, Type b M1.03.0

Cement Concrete (≥ 4,000 psi) M4.02.00

Preformed Expansion Joint Filler M9.14.0[1]

[1] Preformed expansion joint filler shall conform to Subsection M9.14.0 or ASTM D8139.

Fiber Mesh shall meet the following requirements;

Fiber mesh fibers (100% virgin polypropylene, collated, fibrillated fibers) at a rate of 1.0 - 1.5 lb. per cubic yard of concrete shall be added for reinforcement. Fiber mesh shall be FIBERMESH 150, manufactured by PROPEX Concrete Systems or an approved equal. Installation shall be per manufacturer's recommendations.

The following best practices may be incorporated into the cement concrete mix design at no additional cost to the Department as identified herein.

A. Combined Aggregate System.

The combined aggregate system for the mix design may be analyzed using the Tarantula Curve, Shilstone Chart, fineness modulus, and coarse aggregate content to enhance the properties of the concrete.

1. Tarantula Curve.

The combined aggregate system for the mix design may be analyzed using the Tarantula Curve to evaluate potential properties of the concrete, including workability, segregation, edge slumping, surface finishing, and cohesion.

Table 701.30-1: Tarantula Curve Particle Size Distribution

Sieve Opening	Percent by Mass Targets (%)		Percent by Mass Retained (%)		
	Passing	Retained			
1-1/2 in.	100	–	–	–	–
1 in.	92	8	0 – 16	–	–
3/4 in.	82	10	0 – 20	–	–
1/2 in.	69	13	4 – 20	–	–
3/8 in.	56	13	4 – 20	–	–
No. 4	43	13	4 – 20	–	–
No. 8	37	6	0 – 12	Coarse Sand 20 – 40	–
No. 16	31	6	0 – 12		–
No. 30	18	13	4 – 20		Fine Sand 24 – 34
No. 50	5	13	4 – 20	–	
No. 100	0	5	0 – 10	–	
No. 200	0	0	0 – 2	–	

2. Shilstone Workability-Coarseness Chart.

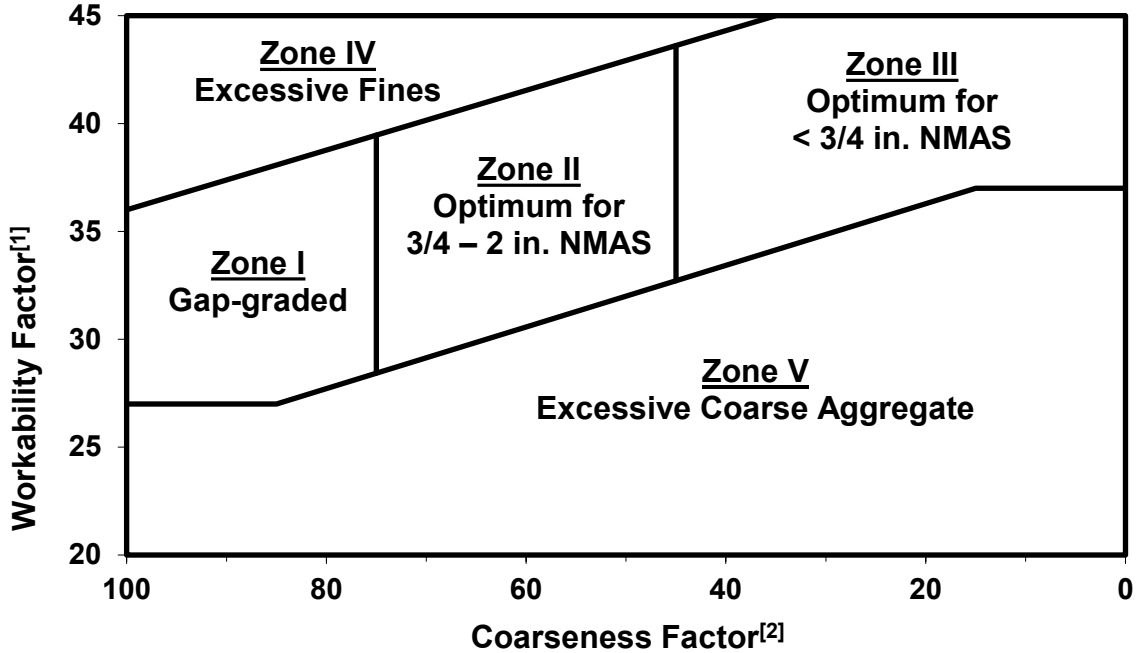
The combined aggregate system for the mix design may be analyzed using the Shilstone Workability-Coarseness Chart, to evaluate potential properties of the concrete, including workability.

Table 701.30-2: Shilstone Workability-Coarseness

Zone	Property	Cause
Zone I	Gap-graded; High potential for segregation during placement and consolidation; Cracking, blistering, spalling, and scaling	Deficiency in intermediate particles; Non-cohesive

Zone II	Optimum mixture for nominal maximum aggregate size from 2 in. – ¾ in.	Optimized workability factor and coarseness factor
Zone III	Optimum mixture for nominal maximum aggregate size < ¾ in.	Optimized workability factor and coarseness factor
Zone IV	Sticky; High potential for segregation during consolidation and finishing; Variable strength, high shrinkage, cracking, curling, spalling, and scaling	Excessive fines
Zone V	Rocky; Lacking plasticity	Excessive amount of coarse and intermediate aggregate

Figure 701.30-1: Shilstone Workability-Coarseness Chart



[1] The workability factor is determined by the equation WF = W + (C - 564) / 38, where WF = workability factor, W = percent passing No. 8 sieve and C = total cementitious materials content.
[2] The coarseness factor is determined by the equation CF = (Q/R) / 100, where CF = coarseness factor, Q = cumulative percent retained on 3/8 in. sieve and R = cumulative percent retained on No. 8 sieve.

3. Fineness Modulus.

The combined aggregate system for the mix design may be analyzed using the fineness modulus, to evaluate potential properties of the concrete, including the fineness or coarseness of the mix design and estimating the design proportions of fine and coarse aggregates. The coarseness of the mix design increases as the fineness modulus increasers. The fineness modulus is determined by calculating the total cumulative percentages by mass retained on each designated sieve and dividing by 100.

4. Coarse Aggregate Content.

The combined aggregate system for the mix design may be analyzed using the coarse aggregate content. The coarse aggregate content is determined by calculating the total cumulative percentages by mass retained on the No. 4 sieve.

B. Paste System.

The quality of the paste system is determined by the water-cementitious ratio, air content, cementitious materials, and chemical admixtures incorporated into the mix design.

1. Water-Cementitious Ratio.

The water-cementitious ratio for the mix design may be analyzed to evaluate potential properties of the concrete, including strength, concrete and reinforcement bonding, and resistance to freezing, thawing, de-icing, sulfate reaction, corrosion of steel reinforcement, drying shrinkage, cracking, and volume change from wetting and drying. The water-cementitious ratio is determined by calculating the total water content by mass and dividing by the total cement and supplementary cementitious material (SCM) content by mass. The recommended water-cementitious ratio design target is identified in Table 701.30-3. The water-cementitious ratio shall be less than or equal to 0.45.

Table 701.30-3: Freezing, Thawing, and De-icing Resistance

Exposure Class	Severity	Condition	Water-Cementitious Ratio	
			Recommendation	Requirement
F3	Very Severe	Exposed to freezing and thawing cycles and accumulation of snow, ice, and de-icing chemicals; Frequent exposure to water	≤ 0.40	≤ 0.45

2. Air Content.

The air content for the mix design may be analyzed to evaluate potential properties of the concrete, including strength and resistance to freezing, thawing, de-icing, and sulfate reaction. The recommended air content design targets are identified in Table 701.30-4.

Table 701.30-4: Freezing, Thawing, and De-icing Resistance

Exposure Class	Severity	Condition	Nominal Maximum Aggregate Size (in.)	Air Content Target Recommendation (%)
F3	Very Severe	Exposed to freezing and thawing cycles and accumulation of snow, ice, and de-icing chemicals; Frequent exposure to water	3/8	7.5
			1/2	7.0
			3/4	6.0

3. Cement and Supplementary Cementitious Materials Content.

The cement and supplementary cementitious materials content incorporated into the mix design shall promote quality properties of the cement concrete, including resistance to alkali silica reaction, freezing, thawing, de-icing, and sulfate reaction. Incorporation of supplementary cementitious materials (SCM) in cement concrete may affect workmanship properties, including workability, bleed rate, setting time, and other properties. Adequate adjustments in Contractor workmanship practices, including placement, finishing, curing, and other construction practices shall be required to account for these changes in properties and to prevent scaling due to freezing,

thawing, and de-icing cycles. The cement and supplementary cementitious materials content shall meet the design criteria identified in Table 701.30-5.

Table 701.30-5: Alkali Silica Reaction and Freezing, Thawing, and De-icing Resistance[1][2]

Exposure Class	Severity	Condition	Material	Replacement by Weight of Cement (%)
F3	Very Severe	Exposed to freezing and thawing cycles and accumulation of snow, ice, and de-icing chemicals; Frequent exposure to water	Low Alkali Cement (≤ 0.60% Alkalinity)	–
			Blended Hydraulic Cement[3]	–
			Fly Ash (Class F)	15 – 30
			Slag (Grade 100 or 120)	25 – 50
			Silica Fume	5 – 10
			Total SCM	≤ 50
			Total Fly Ash and Silica Fume	≤ 35

[1] Acceptable replacement by weight of cement for alkali silica reaction resistance shall be determined by the alkali silica reaction resistance performance test results and the criteria identified in Table 701.73-1: Minimum Acceptance Sampling and Testing Requirements.

[2] Test results meeting the alkali silica reaction resistance performance criteria of Table 701.30-6: Alternative Performance Evaluation to Alkali Silica Reaction Resistance Design Criteria may supersede the replacement by weight of cement design criteria.

[3] SCMs in blended hydraulic cement shall meet the criteria identified for fly ash, slag, and silica fume.

Table 701.30-6: Alternative Performance Evaluation to Alkali Silica Reaction Resistance Design Criteria

Method	Quality Characteristic	Criteria
C295	Petrographic Examination for Potential Alkali Aggregate Reactive Constituents and Deleterious Materials in Aggregate[1]	–
	Optically Strained, Microfractured or Microcrystalline Quartz (%)	≤ 5.0
	Chert or Chalcedony (%)	≤ 3.0
	Trydimite or Cristobalite (%)	≤ 1.0
	Opal (%)	≤ 0.5
	Natural Volcanic Glass (%)	≤ 3.0
T 380	Alkali Silica Reaction Resistance: Expansion of Miniature Concrete Prisms at 56 days (%)	≤ 0.03[2]

[1] Examination of aggregate shall be performed and reported to identify and quantify potential alkali-aggregate reactive constituents and deleterious materials in aggregate, as defined in ASTM C294 Standard Descriptive Nomenclature for Constituents of Concrete Aggregates and ASTM C295 Standard Guide for Petrographic Examination of Aggregates for Concrete.

[2] 56-day expansion results greater than 0.03 but less than or equal to 0.04 shall be considered non-reactive if the average two-week rate of expansion from day 56 to day 84 is less than or equal to 0.01%, otherwise, expansion results shall be considered reactive.

4. Chemical Admixtures.

Chemical admixtures may be incorporated into the mix design to enhance the properties of the concrete.

Table 701.30-7: Chemical Admixtures

Spec.	Type	Chemical Admixture	Properties
M 194	A	Water-Reducing	Increases Workability and Air Content; Decreases Water Demand (5 – 10%, 3 – 6 in. Slump)
	B	Retarding	Increases Initial and Final Setting Time, Air Content, Long-Term Strength; Offsetting of Accelerating Effect of Hot Weather; Decreases Early-Age Strength
	C	Accelerating	Increases Early-Age Strength; Decreases Initial and Final Setting Time
	D	Water-Reducing and Retarding	Type A and Type B Admixture Properties
	E	Water-Reducing and Accelerating	Type A and Type C Admixture Properties
	F	High Range Water-Reducing	Increases Workability (More Effective than Type A), Air Content, Early-Age Strength, and Ultimate Strength; Decreases Water Demand (12 – 40%, > 6 in. Slump) and Permeability
	G	High Range Water-Reducing and Retarding	Type F and Type B Admixture Properties
	S-SRA	Shrinkage Reducing	Increases Setting Time; Decreases Drying Shrinkage Cracking and Bleed Rate
	S-CRA	Crack Reducing	Decreases Cracking (More Effective than SRAs) and Crack Width
M 154	AEA	Air-Entraining	Increases Cohesion, Workability, Stabilization of Air Bubbles, Resistance to Freezing, Thawing, and De-icing, Resistance to Alkali-Reactive Environment, and Resistance to Sulfate Reaction
M 194[1]	MRWRA	Mid Range Water-Reducing	Type A and Type F Admixture Properties; Increases Workability (Especially Concrete with SCMs); Decreases Water Demand (6 – 12 %, 5 – 8 in. Slump)
C1622	CWA	Cold Weather	Increases Hydration Rate; Decreases Freezing Point of Mixing Water

[1] Mid range water-reducing admixtures (MRWRA) may meet either water-reducing (A) or high range water-reducing (F) admixture criteria.

5. Paste Content.

The paste content for the mix design may be optimized to enhance potential properties of the concrete, including workability, strength, permeability, and resistance to drying shrinkage and cracking and volume change from wetting and drying. The volume of paste should adequately fill the voids and provide sufficient separation between the aggregate particles to promote workability and effective bonding of particles.

Table 701.30-8: Paste Content

Mix Design Characteristic	Recommendation
Volume of Cement Concrete (cf)[1]	27
Paste Content (%)[2]	≤ 28[3]
Paste Content to Aggregate Void Content Ratio[4]	1.25 – 1.75
Excess Volume of Paste for Workability (%)[5]	–

[1] The volume of cement concrete is determined by the following equation, where W = Weight (lbs.), SG = Specific Gravity, D = Density (pcf), and V = Volume (cf).

$V_{CEMENT} = W_{CEMENT} / SG_{CEMENT} * D_{WATER}$

$V_{SCM} = W_{SCM} / SG_{SCM} * D_{WATER}$

$V_{ADMIXTURE} = V_{ADMIXTURE}$ in oz. / 957.5 oz. per cf

$V_{WATER} = V_{WATER}$ in gal. / 7.48 gal. per cf

$V_{COARSE} = W_{COARSE} / SG_{COARSE} * D_{WATER}$

$V_{FINE} = W_{FINE} / SG_{FINE} * D_{WATER}$

$V_{CONCRETE} = V_{CEMENT} + V_{SCM} + V_{ADMIXTURE} + V_{WATER} + V_{COARSE} + V_{FINE} + V_{AIR}$

[2] The paste content by volume of cement concrete is determined by the following equation, where V = Volume (cf) and PC = Paste Content (%).

$V_{PASTE} = V_{CEMENT} + V_{SCM} + V_{ADMIXTURE} + V_{WATER}$

$PC_{CONCRETE} = V_{PASTE} / V_{CONCRETE}$

[3] The cracking tendency of structural concrete is significantly reduced when the paste content by volume is less than or equal to 28 percent.

[4] The paste content to aggregate void content ratio is determined by the following equation, where D = Density (pcf), SG = Specific Gravity, BD = Bulk Density (pcf), VC = Void Content (%), V = Volume (cf), AVC = Aggregate Void Content (%), PC = Paste Content (%), and R = Ratio. Workability increases as the paste content to aggregate void content ratio increases. Decreased paste content to aggregate void content ratios will result in decreased workability, where water-reducing admixtures provide no benefit.

$VC_{COARSE} = SG_{COARSE} * D_{WATER} – BD_{COARSE} / D_{COARSE}$

$VC_{FINE} = SG_{FINE} * D_{WATER} – BD_{FINE} / D_{FINE}$

$VC_{AGGREGATE} = [(V_{COARSE} / (V_{COARSE} + V_{FINE})) * VC_{COARSE} + (V_{FINE} / (V_{COARSE} + V_{FINE})) * VC_{FINE}]$

$AVC_{CONCRETE} = [VC_{AGGREGATE} * ((V_{COARSE} + V_{FINE}) / V_{CONCRETE})]$

$R_{PC\text{-}AVC} = PC_{CONCRETE} / AVC_{CONCRETE}$

[5] The excess paste content for workability is determined by the following equation, where PC = Paste Content (%), AC = Air Content (%), AVC = Aggregate Void Content (%), and EPC = Excess Paste Content for Workability (%).

$$EPC_{CONCRETE} = PC_{CONCRETE} + AC_{CONCRETE} - AVC_{CONCRETE}$$

C. Initial Curing Materials.

The materials and procedures used for initial curing methods of cement concrete shall meet the Manufacturer's instructions and recommendations and the requirements specified herein.

Cement concrete with a low to negligible bleeding rate, exposure to highly evaporative environments, high content of silica fume, fine cement, or other fine cementitious material, low water to cementitious ratio, high air content, or water-reducing admixtures have an increased susceptibility to surface drying and plastic shrinkage between placement and finishing operations. Initial curing materials and procedures shall be applied immediately after the bleed water sheen has disappeared from the surface of the concrete or the concrete surface exhibits loss of moisture and surface drying, between placement and finishing operations. Initial curing materials shall not be worked into the surface in subsequent finishing operations.

1. Liquid-Applied Evaporation Reducers.

Liquid-applied evaporation reducers used for initial curing methods shall produce an effective monomolecular film over the bleed water layer, to reduce the rate of evaporation of the bleed water from the surface and plastic shrinkage when the evaporation rate equals or exceeds the bleeding rate.

D. Intermediate Curing Materials.

The materials and procedures used for intermediate curing methods of cement concrete shall meet the Manufacturer's instructions and recommendations and the requirements specified herein.

In instances where finishing operations have been completed prior to the concrete achieving final set and the concrete surface exhibits loss of moisture and surface drying, the following curing materials and procedures shall be applied immediately to the concrete surface prior to the application of final curing materials, to prevent the loss of moisture without damaging the concrete surface, until final set of the concrete has been achieved and final curing materials have been applied to the concrete surface.

- 701.30.C.1: Liquid-Applied Evaporation Reducers
- 701.30.E.3.a: Liquid Membrane-Forming Compounds for Curing
- 701.30.E.3.b: Liquid Membrane-Forming Compounds for Curing and Sealing

E. Final Curing Materials.

The materials and procedures used for final curing methods of cement concrete shall meet the Manufacturer's instructions and recommendations and the requirements specified herein.

Curing water shall be free of deleterious impurities, causing staining and deterioration. The potential staining ability of curing water shall be evaluated by means of CRD-C401 (US Army Corps of Engineers 1975) for instances where curing water quality is questioned. Curing water shall not exceed a temperature differential of more than 20°F from the internal concrete temperature, to prevent cracking due to temperature gradients causing strain that exceeds the strain capacity of concrete. Curing water shall remain above freezing temperatures throughout the duration of the curing cycle.

Final curing materials and procedures shall be applied to the concrete surface immediately after application of initial and intermediate curing materials, finishing operations, and final set of cement concrete, to prevent the loss of moisture and surface drying.

Materials used for final curing methods of cement concrete shall accommodate all exposed cement concrete surfaces with a continuous application of moisture throughout the entire duration of the

final curing method cycle and provide controlled and gradual termination of the final curing method cycle.

Final curing materials applied to the concrete shall allow the concrete to mature sufficiently to achieve its designed and desired properties, including strength, volume stability, permeability, durability, and resistance to freezing, thawing, and de-icing cycles. Insufficient application of final curing materials results in decreased strength and durability of the top surface of concrete.

Protection to the concrete surface and curing materials shall be required in instances where adverse weather conditions are present, until curing operations can be initiated without damaging the surface of the concrete.

Final curing materials and procedures shall be applied to the concrete surface throughout the entire duration of the curing cycle and meet minimum sustained temperature, duration, and strength requirements, as specified in applicable Division II: Construction Details and herein. Controlled and gradual termination of the final curing method cycle shall begin only after all specified conditions are met, until the concrete gradually cools to within 20°F of the ambient temperature.

1. Saturated Covers.

Saturated covers used for final curing methods shall meet AASHTO M 182, Class 3. Saturated covers shall be in good condition, free from holes, tears, or other defects that would render it unsuitable for curing cement concrete and cementitious materials. Saturated covers shall be dried to prevent mildew when storing. Prior to application, saturated covers shall be thoroughly rinsed in water and free of harmful substances that are deleterious or cause discoloration to cement concrete and cementitious materials. Saturated covers shall have sufficient thickness and proper positioning onto the surface to maximize moisture retention. Saturated covers shall contain a sufficient amount of moisture to prevent moisture loss from the surface of cement concrete and cementitious materials. Saturated covers shall have the ability to retain sufficient moisture from continuous watering so that a film of water remains on the surface of cement concrete and cementitious materials throughout the entire duration of the final curing method cycle. Saturated covers shall not absorb water from cement concrete and cementitious materials. Polyethylene film may be applied over the saturated cover to limit the amount of continuous watering required for sufficient moisture retainage. Saturated covers shall accommodate uniform and slow drying of cement concrete and cementitious materials surfaces immediately prior to removal.

2. Sheet Materials.

Sheet materials, including polyethylene film, white burlap-polyethylene sheeting, and reinforced paper, used for final curing methods shall meet ASTM C171 and the requirements specified herein. Sheet materials shall inhibit moisture loss and reduce temperature rise in concrete exposed to radiation from the sun during the final curing method cycle. Adjoining covers shall overlap not less than 12 inches. All edges of the sheet materials shall be secured to maintain a moist environment.

a. Polyethylene Film.

Polyethylene film shall be clear, white, or black in color and consist of a single sheet manufactured from polyethylene resins, be free of visible defects, including tears, wrinkles, and discontinuity. The film shall prohibit mottling and uneven spots from appearing on the surface of concrete, due to variations in temperature, moisture content, or both. Application of additional curing water under the film or application of a polyethylene film bonded to absorbent fabric to the concrete surface may be required to prevent mottling and to retain and evenly distribute the moisture. Polyethylene film shall accommodate concrete surfaces with constant contact without damage. The film shall be sufficient in length to extend beyond the edges of the concrete surface. Edges of adjacent polyethylene film shall overlap a minimum of 6 inches and be tightly sealed with the use of sand, wood planks, pressure-sensitive tape, mastic, or glue to maintain close contact with the

concrete surface, retain moisture, and prevent the formation of air pockets throughout the entire duration of the final curing method cycle.

i. White Polyethylene Film.

White polyethylene film shall minimize heat gain caused by absorption of solar radiation and shall be exclusively used during warm weather applications.

ii. Clear and Black Polyethylene Films.

Clear and black polyethylene films shall inhibit absorption of solar radiation for cold weather applications.

b. White Burlap-Polyethylene Sheeting.

White burlap-polyethylene sheeting shall be securely bonded to the burlap so to avoid separation of the materials during handling and curing of the concrete.

c. Reinforced Impervious Paper.

Reinforced impervious paper shall be white in color, consist of two sheets of kraft paper cemented together with a bituminous adhesive, and reinforced with embedded cords or strands of fiber running in both directions. Reinforced impervious paper shall be free of holes, tears, and pin holes from deterioration of the paper through repeated use. Reinforced impervious paper shall be treated to prevent tearing when wetted and dried. Reuse of reinforced impervious paper shall be permitted so long as it is able to retain moisture on the surface of concrete. The paper shall be discarded and prohibited from use when moisture is no longer retained in the material.

3. Liquid Membrane-Forming Compounds.

Compounds shall form a continuous, non-yellowing, and durable film with quality moisture-retention properties. Compounds shall maintain the relative humidity of the concrete surface above 80% for seven days to sustain cement hydration. Compounds shall not affect the original color of the concrete surface. Compounds shall not degrade due to exposure to ultraviolet light from direct sunlight. Compounds shall meet the local and federal allowable Volatile Organic Compound (VOC) content limits.

White-pigmented compounds shall be used in instances where solar-heat gain is concern to the concrete surface. White-pigmented compounds shall be agitated in the container prior to application to prevent pigment from settling out resulting in non-uniform overage and ineffective curing.

Careful considerations shall be made by the Contractor to determine if the evaporation rate is exceeding the rate of bleeding, thus causing the surface to appear dry even though bleeding is still occurring. To diagnose and prevent this condition, the Contractor may place a transparent plastic sheet over a test area of the uncured and unfinished concrete surface and shall determine if any bleed water accumulates under the plastic. Under such conditions, the application of liquid membrane-forming compounds to the concrete surface shall be delayed to prevent bleed water from being sealed below the concrete surface, map cracking of the membrane films, reduction in moisture-retention capability, and the need for reapplication of the compound.

Prior to use, compounds shall be thoroughly mixed, stirred, and agitated per the Manufacturer's instructions and recommendations.

Compounds shall be applied continuously and uniformly to the surface of the concrete per the Manufacturer's instructions and recommendations. Compounds shall be applied immediately after the disappearance of the surface water sheen following final finishing. Applicating of the compound immediately after final finishing and before all free water on the surface has evaporated will help prevent the formation of cracks. When using compounds to reduce moisture loss from formed surfaces, the exposed surface shall be wetted immediately after form removal and kept moist until the curing compound is applied. The concrete shall be allowed to reach a uniformly damp appearance with no free water on the surface, and then application of the compound shall

begin at once. Delayed application will result in surface drying, absorption of the compound into the concrete, and no forming of a continuous membrane.
The concrete surface shall be damp when the compound is applied. Power-driven spray equipment shall be used for uniform application of compounds on large paving projects. Spray nozzles recommended by the compound Manufacturer and use of windshields shall be arranged by the Contractor to prevent wind-blown loss of compound and to ensure proper coverage application rates are achieved. The compound shall be applied by power sprayer, using appropriate wands and nozzles with pressures between 25 and 100 psi. The Contractor shall fill the power sprayer with curing compound from the Manufacturer's original container in the presence of the Engineer. Any dilution as recommended by the Manufacturer shall take place in the presence of the Engineer. For very small areas such as repairs, the compound shall be applied with a wide, soft-bristled brush or paint roller.
The Contractor shall verify the application rate and procedures are in accordance with the Manufacturer's instructions and recommendations. At least one uniform coat shall be applied at a rate of 150 to 200 ft2/gallon. On very deeply textured surfaces, the surface area to be treated shall be at least twice the surface area of the surface. In such cases, two separate applications may be needed, each at 200 ft2/gallon or greater if specified by the Manufacturer to achieve the desired moisture retention rate, with the first being allowed to become tacky before the second is applied. If two coats are necessary to ensure complete coverage, for effective protection the second coat should be applied at right angles to the first. Complete coverage of the surface shall be attained due to the potential for formation of small pinholes in the membrane, which will result in loss of moisture from the concrete. Compounds shall not sag, run off peaks, or collect in grooves.
Compounds and procedures shall be compatible with concrete surfaces receiving subsequent applications or placements of concrete, overlays, coatings, paints, sealers, finishes or other toppings to ensure acceptable bonding to the concrete. Testing to establish compatibility among the curing compound, subsequent surface treatments, concrete moisture content and the actual finished surface texture of the concrete shall be conducted when compatibility is not known. The compound Manufacturer shall be consulted by the Contractor to determine the compatibility of the application. Compounds shall not be applied to concrete surfaces where bonding of subsequent applications or placements is incompatible or is of concern. The use of wax-based curing compounds shall be prohibited in instances where concrete surfaces are subject to additional toppings and vehicular, pedestrian, or other traffic. Deliberate removal of compounds in the presence of the Engineer and in accordance with Manufacturer's instructions and recommendations shall be conducted as an alternative to compatibility testing, incompatibility, or in instances where bonding is of concern. Bonding of subsequent materials may still be inhibited by the presence of the compound even after the moisture retention characteristics of the compound have diminished.

a. Liquid Membrane-Forming Compounds for Curing.

Liquid membrane-forming compounds for curing shall meet ASTM C309, the Manufacturer's instructions and recommendations, and the requirements specified herein.

Table 701.30-1: Types of Compounds for Curing

Type	Description
Type 1	Clear or translucent without dye
Type 1-D	Clear or translucent with fugitive dye
Type 2	White pigmented

Table 701.30-2: Composition Class of Compounds for Curing

Type	Description
Class A	Unrestricted composition, generally wax-based products
Class B	ASTM D883 resin-based products

b. Liquid Membrane-Forming Compounds for Curing and Sealing.

Liquid membrane-forming compounds for curing and sealing shall meet ASTM C 1315, the Manufacturer's instructions and recommendations, and the requirements specified herein.

In addition to moisture-retention capabilities compounds shall exhibit specific properties, including alkali resistance, acid resistance, adhesion-promoting quality, and resistance to degradation by ultraviolet light.

Table 701.30-3: Types of Compounds for Curing and Sealing

Type	Description
Type I	Clear or translucent
Type II	White pigmented

Table 701.30-4: Class of Compounds for Curing and Sealing

Type	Description
Class A	Non-yellowing

F. Protective Sealing Compounds.

Protective sealing compounds shall maintain valid listing on the Department Qualified Construction Materials List (QCML) and meet AASHTO M 224, NCHRP Report 244 and the requirements specified herein.

Protective sealing compounds shall sufficiently penetrate the concrete to seal the surface pores and fill the capillaries of the concrete by chemically reacting with the concrete and forming a hydrophobic layer. Protective sealing compounds shall limit the penetration of liquids, gases, and harmful substances into hardened concrete, including water, de-icing agents, and carbon dioxide to protect concrete from freezing, thawing, and de-icing cycles, corrosion of reinforcing steel, and acid attack. Protective sealing compounds shall limit the buildup of vapor pressure between the concrete and the applied sealer. Protective sealing compounds shall retard the penetration of harmful substances into hardened concrete. Protective sealing compounds shall maintain their protective properties during environmental exposure to freezing, thawing, and de-icing cycles. Protective sealing compounds shall not reduce the frictional properties of the concrete. Protective sealing compounds shall not affect the original color of the concrete surface if maintaining the original color is desired by the Department. Protective sealers shall meet the local and federal allowable Volatile Organic Compound (VOC) content limits.

Curing methods conforming to Department specifications shall be applied to the concrete prior to the application of protective sealers. Protective sealers shall not be applied to the concrete for a minimum of 28 days after placement and the surface shall be sufficiently prepared, clean, and dry for at least 24 hours with ambient temperatures exceeding 60°F. Protective sealers shall not be applied to concrete placed where freezing, thawing, and de-icing cycles are expected immediately after, due to the retainage of water in the concrete. Periodic re-application shall be required for protective penetrants requiring multiple applications and for concrete surfaces exhibiting wear to ensure long-term protection of the concrete surface.

G. Cold Weather Concreting Materials.

Cold weather concreting shall be defined as the procedures, operations, materials, and equipment required for the mixing, delivery, placement, finishing, curing, and protection of concrete during cold weather conditions, while exposed to air temperatures falling below, or expected to fall below 40°F.

The protection period shall be defined as the minimum duration required to prevent concrete from the negative effects of cold weather exposure. The protection period shall remain in place while cold weather conditions exist. Controlled and gradual termination of the protection period shall be conducted only after 100% f'c is attained and all specified conditions are met.

The procedures, operations, materials, and equipment selected for cold weather concreting shall adequately maintain specified temperature ranges by addressing all variables, including ambient weather conditions, geometry of the structure, and mix design proportions. Concrete temperatures for cold weather concreting shall meet Table 701.30-5.

Table 701.30-5: Concrete Temperature Requirements for Cold Weather Concreting

Phase	**Cold Weather Temperature (°F)**	**Concrete Temperature (°F)**
Mixing	30-39	60-75
	0-30	65-80
	< 0	70-85
Placement	< 40	55-75
Protection Period	< 40	55-75
Termination of Protection Period – Allowable Rate of Decrease in 24 Hours	< 40	≤ 50

Cold weather concreting procedures, operations, materials, and equipment shall be developed and performed to prevent damage to concrete due to freezing at early ages, to ensure that the concrete develops the recommended strength for safe removal of forms, to maintain curing conditions that promote quality strength and durability development, to limit rapid temperature fluctuation, and to provide protection consistent with intended serviceability of the structure. The Contractor shall develop and submit to the Department for review and approval, cold weather concreting procedures for the mixing, delivery, placement, finishing, curing, and protection of concrete during cold weather, including:

- Procedures for protecting the subgrade from frost and the accumulation of ice or snow on reinforcement or forms prior to placement
- Methods and requirements for cold weather protection and temperature control of constituent materials incorporated into the mix design
- Chemical admixtures incorporated into the mix design for cold weather protection and temperature control
- Methods and requirements for cold weather protection and temperature control during mixing, delivery, placement, finishing, curing, and protection period
- Curing methods to be used during and following the protection period
- Types of covering, insulation, heating, or enclosures to be provided
- Methods for verification of in-place strength
- Procedures for measuring and recording concrete temperatures
- Procedures for preventing drying during dry, windy conditions

All procedures, operations, materials, and equipment required for adequate protection and curing shall be present and ready for use prior to concrete production.

1. Insulating Materials.

Insulating materials used for cold weather concreting shall meet the requirements specified herein. The thermal resistance of the proposed insulation system shall be determined to meet the concrete temperature range requirements specified herein. Supplemental heat, including hydronic heating systems, shall be applied in instances where insulating materials cannot achieve the concrete temperature requirements.

2. Heaters.

Heaters used for cold weather concreting including direct fired, indirect fired, and hydronic heaters shall meet ANSI A10.10 carbon monoxide limits, safety regulations for ventilation, and the stability, operation, fueling, and maintenance of heaters and the requirements specified herein.

a. Direct Fired Heaters.

Direct fired heaters generate heat to an enclosed space through the combustion of fossil fuels, including oil, kerosene, propane, gasoline, and natural gas. Hot air comprised of carbon dioxide and carbon monoxide combustion products, is discharged into the enclosed space. Direct fired heaters shall be prohibited from heating the air directly surrounding the concrete surface due to calcium carbonate formation interfering with the hydration reaction, from the reaction between the carbon dioxide generated from the combustion of fossil fuels and the calcium hydroxide on the surface of freshly placed concrete, resulting in a soft, chalky, and nondurable concrete surface. Direct fired heaters shall only be used on concrete surfaces protected from fossil fuel combustion products.

b. Indirect Fired Heaters.

Indirect fired heaters generate heat to an enclosed space through the combustion of fossil fuels, including oil, kerosene, propane, gasoline, and natural gas. The carbon dioxide and carbon monoxide combustion products are expelled through venting, resulting in clean heated air discharged into the enclosed space. Indirect fired heaters are suitable for heating the air directly surrounding the concrete surface.

c. Hydronic Heaters.

Hydronic heaters generate heat to an enclosed space through the circulation of the heat-transfer fluid in a closed system of pipes or hoses. The heat-transfer fluid is comprised of a propylene glycol water solution and is heated through the combustion of fossil fuels, including diesel fuel and kerosene. The combustion of fossil fuel occurs outside of the enclosed space and does not expose the concrete surface to the deleterious effects of carbon dioxide.

After the concrete placement achieves final set, polyethylene film or other suitable material shall sufficiently serve as a vapor barrier. The heat-transfer hoses shall be placed on top of the vapor barrier and covered with insulating materials meeting 701.30.G.1. Hydronic heaters shall be used to thaw or preheat subgrades prior to concrete placement and provide supplementary heat to insulating materials. Hydronic heaters shall provide an even distribution of heat to prevent curling and cracking induced by temperature gradients within concrete.

3. Enclosures.

Enclosures shall be made of wood, canvas tarpaulins, polyethylene film, or prefabricated rigid plastic. Enclosures shall be airtight, block wind, prevent admittance of cold air, conserve heat, and withstand wind and snow loads. Enclosures shall provide adequate headroom for craftsmen and sufficient space between the concrete and the enclosure to permit free circulation of warm air. Supplementary heat shall be supplied to enclosures by hydronic heaters, live steam, hot forced air, or indirect fired combustion heaters. Icing along the perimeter of the enclosure shall be prevented when live steam is utilized. Heaters and ducts shall be positioned to prevent the hot, dry air from overheating or drying the concrete surface. Insulating materials meeting 701.30.G.1 shall be applied as a vapor barrier to the concrete surface immediate after final set is attained.

H. Hot Weather Concreting Materials.

Hot weather concreting shall be defined as the procedures, operations, materials, and equipment required for the mixing, delivery, placement, finishing, bleed water evaporation, curing, and protection of concrete during hot weather conditions, while exposed to air temperatures exceeding, or expected to exceed 80°F; concrete temperatures approaching, or expected to approach 90°F; evaporation rates of surface water approaching, or expected to approach the bleeding rate of the concrete; high solar radiation; low relative humidity; and high wind speed.

The protection period shall be defined as the minimum duration required to prevent concrete from the negative effects of hot weather exposure, including the acceleration of rate of moisture loss and rate of cement hydration, difficulties in curing, increased concrete temperature, increased water demand, accelerated slump loss, increased rate of setting, increased tendency for plastic shrinkage and thermal cracking, increased potential for cold joints, and difficulties in controlling entrained air content. The protection period shall remain in place while hot weather conditions exist. Controlled and gradual termination of the protection period shall be conducted when conditions permit. The allowable rate of temperature decrease shall not exceed 5°F per hour and meet the allowable rate of temperature decrease specified in 701.30.G: Cold Weather Concreting Materials.

The procedures, operations, materials, and equipment selected for hot weather concreting shall adequately maintain specified temperature ranges and evaporation rates by addressing all variables, including ambient weather conditions, geometry of the structure, and mix design proportions. Initial materials meeting 701.30.C: Initial Curing Materials shall be applied to the concrete surface while the concrete and air temperatures, relative humidity of the air, and the wind speed have the capacity to evaporate free water from the fresh concrete surface at a rate that is equal to or greater than bleeding rate of the concrete. The evaporation rate of surface water shall be determined by the following equation:

$$E = (T_c^{2.5} - r * T_a^{2.5})(1 + 0.4V) \times 10^{-6}$$

where E = evaporation rate of water-covered surface ($lb/ft^2/hr$), T_c = concrete temperature of the evaporating surface (°F), r = relative humidity of air surrounding the evaporating surface (%), T_a = temperature of the air surrounding the evaporative surface (°F), and V = average wind speed 20 inches above the evaporating surface. The air surrounding the evaporating surface shall be defined as the air approximately 4 to 6 feet above the evaporating surface on the windward side and shielded from the sun's rays.

Hot weather concreting procedures, operations, materials, and equipment shall be developed and performed to prevent damage to concrete and promote long-term durability. The Contractor shall develop and submit to the Department for review and approval, hot weather concreting procedures for the mixing, delivery, placement, finishing, curing, and protection of concrete during hot weather, including:

- Procedures for preparing the subgrade prior to placement
- Methods and requirements for hot weather protection and temperature control of constituent materials incorporated into the mix design
- Chemical admixtures incorporated into the mix design for hot weather protection and temperature control
- Methods and requirements for hot weather protection and temperature control during mixing, delivery, placement, finishing, curing, and protection period
- Initial curing methods to be used to reduce surface evaporation
- Curing methods to be used during and following the protection period
- Types of covering, insulation, cooling, or enclosures to be provided

- Evaporation rate and bleeding rate of concrete calculations
- Procedures for measuring and recording concrete temperatures
- Procedures for preventing drying during dry, windy conditions

All procedures, operations, materials, and equipment required for adequate protection and curing shall be present and ready for use prior to concrete production.

Construction Methods

701.40: Pre-Placement

A. Excavation.

Excavation of the area shall be in accordance with the applicable portions of Subsection 120: Excavation.

B. Subgrade and Subbase.

The subgrade for the sidewalks and driveways shall be shaped parallel to the proposed surface of the sidewalks and driveways and thoroughly compacted. All depressions in the subgrade shall be filled with suitable material and again compacted until the surface is smooth and hard. Prior to the placement of the subbase, the Contractor shall inspect the prepared subgrade to ensure that it is in conformance with the required grade and cross-section. Subgrade shall be fine graded to meet the applicable requirements of Subsection 170: Grading.

After the subgrade has been prepared, a gravel subbase shall be placed upon it. After being compacted thoroughly, the subbase shall be at least 8 inches thick and parallel to the proposed surface of the sidewalk. Prior to the placement of the cement concrete, the Contractor shall inspect the prepared subbase material to ensure that it is in conformance with the required grade and cross-section. Subbase material that is not in accordance with the plans or specifications shall be reworked or replaced to meet the applicable requirements of Subsection 170: Grading before the start of cement concrete placement. When placing cement concrete, the compacted subbase shall not be frozen or have standing water.

C. Forms.

Side forms and transverse forms shall be smooth, free from warp, of sufficient strength to resist springing out of shape, of a depth to conform to the thickness of the proposed sidewalk or pedestrian curb ramp and of a type satisfactory to the Engineer.

All mortar or dirt from previously used forms shall be completely removed prior to use. The forms shall be well staked and thoroughly graded and set to the established lines with their upper edge conforming to the grade of the finished sidewalk or pedestrian curb ramp which shall have sufficient pitch to the roadside edge to provide for surface drainage.

All pedestrian curb ramp joints and transition sections which define grade changes shall be formed staked and checked for dimension, grade and slope conformance prior to placing cement concrete. All forms shall be oiled before placing concrete.

701.41: Placement

The concrete shall be placed in alternate slabs 30 ft long except as otherwise ordered. The slabs shall be separated by transverse preformed expansion joint filler ½ in. thick.

Preformed expansion joint filler shall be placed adjacent to or around existing structures as directed.

Detectable warning panels conforming to the plans shall be securely incorporated into the work by means acceptable to the Engineer. When a plan is not available detectable warning panels shall be installed at all ramps or as otherwise directed by the engineer. Detectable warning panels shall be yellow unless otherwise indicate in the standard details.

All concrete shall be fiber reinforced.
Placement of cement concrete shall be completed no later than 2 P.M. on each day of operation to ensure proper set-up time before the end of the work day.
The Town of Bedford does not allow pouring of cement concrete sidewalks between November 1 and March 31. All sections prone to pedestrian and/or vehicular movement shall be protected, as necessary, until proper curing has occurred. All vandalized sections shall be replaced at contractor's expense.

On the foundation as specified above, the concrete shall be placed in such quantity that after being thoroughly consolidated in place it shall be 4 in. deep. At driveways and curb ramps, the sidewalks shall be 6 in. deep.
In conveying the concrete from the place of mixing to the place of deposit, the operation shall be conducted in such a manner that no mortar will be lost, and the concrete shall be so handled that the concrete will be of uniform composition throughout, showing neither excess nor lack of mortar in any one place.
The surface of all concrete sidewalks shall be uniformly scored into block units of areas not more than 36 ft². The depth of the scoring shall be at least ½ in. deep and no more than ½ in. wide.

701.42: Initial Curing

In instances where the bleed water sheen has disappeared from the surface of the concrete or the concrete surface exhibits loss of moisture and surface drying between placement and finishing operations, the Contractor shall apply one of the following initial curing materials and procedures meeting 701.30.C: Initial Curing Materials until finishing operations occur.

- 701.30.C.1: Liquid-Applied Evaporation Reducers

Initial curing materials shall not be worked into the surface in subsequent finishing operations.

701.43: Finishing

The finishing of concrete surface shall be done by experienced and competent cement finishers. No finishing operation shall be performed while free water is present. Finishing operations shall be delayed until all bleed water and water sheen has left the surface and the concrete has started to stiffen. After water sheen has disappeared, edging operations, where required, shall be completed. After edging and joining operations, the surface shall be floated. Magnesium floats shall be used for all finishing operations. If necessary tooled joints and edges shall be rerun before and after floating to maintain uniformity. After floating, the surface shall be brushed by drawing a soft-bristled push broom with a long handle over the surface of the concrete to produce a nonslip surface.

701.44: Intermediate Curing

In instances where finishing operations have been completed prior to the concrete achieving final set and the concrete surface exhibits loss of moisture and surface drying, the Contractor shall apply one of the following intermediate curing materials and procedures meeting 701.30.D: Intermediate Curing Materials immediately to the concrete surface prior to the application of final curing materials, to prevent the loss of moisture without damaging the concrete surface, until final set of the concrete has been achieved and final curing materials have been applied to the concrete surface.

- 701.30.C.1: Liquid-Applied Evaporation Reducers
- 701.30.E.3.a: Liquid Membrane-Forming Compounds for Curing
- 701.30.E.3.b: Liquid Membrane-Forming Compounds for Curing and Sealing

701.45: Final Curing

The Contractor shall apply one of the following final curing materials and procedures meeting 701.30.E: Final Curing Materials to the concrete surface immediately after application of initial and intermediate curing materials, finishing operations, and final set of cement concrete, to prevent the loss of moisture and surface drying.

- 701.30.E.1: Saturated Covers
- 701.30.E.2: Sheet Materials
- 701.30.E.3.a: Liquid Membrane-Forming Compounds for Curing
- 701.30.E.3.b: Liquid Membrane-Forming Compounds for Curing and Sealing

The Contractor shall apply final curing materials and procedures to the concrete surface throughout the entire duration of the curing cycle and meet minimum sustained temperature, duration, and strength requirements, as specified in in Table 701.45-1. Controlled and gradual termination of the curing cycle shall begin after all specified conditions are met.

Table 701.45-1: Termination of Curing Cycle

Sustained Concrete Temperature	**Final Curing Cycle Duration**	**Compressive Strength[1]**
50°F ≤ °F ≤ 90°F	≥ Seven (7) days	≥ 70% f'_c

[1] Compressive strength cylinders for termination of curing cycle shall be cast and field cured with the same environmental conditions that the sidewalk is subjected to throughout the entire duration of the final curing cycle, per 701.73: Acceptance Sampling and Testing.

701.46: Protective Sealing

The Contractor shall apply sealing materials and procedures meeting 701.30.F: Protective Sealing Compounds only if one or more of the following final curing materials and procedures were applied:

- 701.30.E.1: Saturated Covers
- 701.30.E.2: Sheet Materials
- 701.30.E.3.a: Liquid Membrane-Forming Compounds for Curing

Protective sealing compounds shall not be applied to concrete surfaces applied with a final curing material and procedure meeting 701.30.E.3.b: Liquid Membrane-Forming Compounds for Curing and Sealing.

701.47: Cold Weather Concreting

The Contractor shall conduct cold weather concreting procedures, operations, materials, and equipment required for the mixing, delivery, placement, finishing, curing, and protection of concrete, while surfaces are exposed to air temperatures falling below, or expected to fall below 40°F in accordance with 701.30.G: Cold Weather Concreting Materials. All procedures, operations, materials, and equipment required for adequate protection and curing shall be present and ready for use prior to concrete production.

701.48: Hot Weather Concreting

The Contractor shall conduct hot weather concreting procedures, operations, materials, and equipment required for the mixing, delivery, placement, finishing, curing, and protection of concrete, while surfaces are exposed to air temperatures exceeding, or expected to exceed 80°F; concrete temperatures approaching, or expected to approach 90°F; evaporation rates of surface water approaching, or expected to approach the bleeding rate of the concrete; high solar radiation; low relative humidity; and high wind speed in accordance with 701.30.H: Hot Weather Concreting Materials. All procedures, operations, materials, and equipment required for adequate protection and curing shall be present and ready for use prior to concrete production

Contractor Quality Control

701.60: General

The Contractor shall provide adequate Quality Control (QC) to ensure that all materials and workmanship conform with the specification requirements.

Compensation

701.80: Method of Measurement

Cement Concrete Sidewalks, Pedestrian Curb Ramps, and Driveways will be measured in square yards.
Excavation will be measured by the cubic yard as specified in 120.1
Gravel Borrow will be measured by the cubic yard as specified in 151.22.
Fine grading and compacting will be measured by the square yard as specified in 170.

Sawcutting shall be incidental to the items for cement concrete sidewalks.

Fiber reinforcement shall be incidental to all cement concrete items.

701.81: Basis of Payment

Cement Concrete Sidewalk, Cement Concrete Pedestrian Curb Ramp, and Cement Concrete Driveway will be paid for at the contract unit price per square yard complete in place, including detectable warning panels and all incidental materials, labor, and equipment necessary to complete the work to the satisfaction of the Engineer.
Gravel will be paid for at the contract unit price per cubic yard under Item 151.22: Gravel Borrow.
Fine grading and compacting will be paid for at the contract unit price per square yard under Item 170: Fine Grading and Compacting – Subgrade Areas.
Excavation will be paid for at the contract unit price per cubic yard under the excavation items.

Fiber reinforcement shall be incidental to all cement concrete items.

Sawcutting shall be incidental to the items for cement concrete sidewalks.

701.82: Payment Items

701.2 Cement Concrete Pedestrian Curb Ramp Square Yard

Insert the following new subsection in numerical order:

SECTION 702
HOT MIX ASPHALT SIDEWALKS AND DRIVEWAYS

CONSTRUCTION METHODS

702.42 CONSTRUCTION OF HOT MIX ASPHALT SIDEWALKS AND DRIVEWAYS

E. Hot Mix Asphalt Placement.

Replace (b) with the following:

For sidewalks, the compacted lift thickness for intermediate course shall be 1.5 in. and the surface course shall be 1.5in.

COMPENSATION

702.81 BASIS OF PAYMENT

Emphasis shall be added to the last sentence:

All required sawcutting in the existing pavement in accordance with this specification will be included in the contract unit price for Hot Mix Asphalt Sidewalks and Driveways.

Add the following the end of this subsection:

Price adjustments for hot mix asphalt (all asphalt items under section 701) will be made in accordance with Document 00811 published by MassDOT revised July 8, 2016. Asphalt adjustment shall be documented on each invoice with no adjustment shown on invoice one. Invoice two will include the adjusted asphalt cost from the invoice one tonnage and so on. The contractor shall provide documentation and calculations demonstrating the proper adjustment. The base bid for liquid asphalt on this contract shall be the period price at the date of the bid opening as published by MassDOT on its website.

Insert the following new subsection in numerical order:

SECTION 706
MISCELLANEOUS WALK TREATMENT

DESCRIPTION

SUBSECTION 706.20 GENERAL

The work under this item shall conform to the relevant provisions of Section 700 of the Standard Specifications and the following:

The work consists of reusing existing or supplying and installing new various sidewalk treatments as shown on the plans or required by the Engineer. Work includes new/used pavers to provide transitions from walkways and driveways to new cement concrete walk, removing and relaying of existing brick or field stone walks similar to the existing conditions and in close conformity with existing lines and grades.

Samples, Submittals and Field Mock-Up

The Contractor shall reuse the existing bricks, pavers, field stone or other materials or provide new similar materials as required and specified in the standard specifications, these special provisions or as indicated on the Drawings. The Contractor shall provide material descriptions, certified test results and manufacturer's product information for any new materials as required by the Engineer.

The Contractor shall submit at representative sample to the Engineer to indicate each shape, size and color to be supplied. The Contractor shall submit the manufacturers' product data for Polymeric Sand.

Quality Assurance

Maintain quality control of all batching, coloring, and forming of all units, supplemental unit parts, and in the delivery of said units.

All manufacturers shall have a minimum of five (5) years in producing brick pavers.

All pavers shall conform to standards defined by ASTM: American Society for Testing and Materials with relation to requirements of materials and their performance standards.

Units shall be free of cracks, chips, scratches and any other defect at the time of delivery. All units shall be placed in a storage area, protected from damage prior to and during transit to the Owner's or Contractor's site.

Edging Material shall meet minimum requirements based on the Stork Method.

MATERIALS
SUBSECTION 706.40 GENERAL

Brick Walk Pavers

Brick pavers will match in size, color and quality to the existing brick pavers used in each respective walkway. New pavers will have a thickness of 2 inches and be set as shown on the plans or as required by the Engineer.

Brick Driveway Pavers

Brick driveway pavers will match in size, color and quality of the existing brick pavers used in each respective driveway. New pavers will comply with ASTM c1272-11 type R & F Specifications for Heavy Vehicular Paving Brick 2-3/4" thickness and shall be set as shown on the plans or as required by the Engineer.

CONSTRUCTION METHODS

SUBSECTION 706.60 GENERAL

Delivery, Handling and Storage

Deliver pavers to the site in steel banded, plastic banded, or plastic wrapped cubes capable of transfer by forklift or clamp lift, with manufacturer's name and product brand. Store all materials in dry locations, protected from weather, stored off the ground, and secured on-site.

Polymeric sand shall be covered with a waterproof covering to prevent exposure to rainfall or removal by wind. The covering shall be secured in place.

Installation

The Joint Sand, also called polymeric sand and bedding sand shall be furnished and placed under requirements of Section 706, of the Standard Specifications, as shown on the plans or required by the Engineer.

Dense graded crushed stone shall be furnished and placed under the requirements of Section 402, of the Standard Specifications, as shown on the plans or as required by the Engineer.

The setting bed for the walkway pavers shall be masonry sand over a base of dense graded crushed stone over gravel borrow. Spread the sand setting bed evenly over the base and screed to thickness noted on the Drawings.

The setting bed for the driveway pavers shall be neoprene modified asphalt adhesive over a base of cement concrete, air entrained, 4000 psi, ¾ inch, 610 lbs/cu.yd. over gravel borrow.

Gravel borrow base shall be furnished and placed under requirements of Section 151, gravel base course of the Standard Specifications, and the sections and elevations shown on the Drawings.

Lay the pavers in the pattern(s) to match the existing walkway and/or driveway or as required by the Engineer. Maintain straight and uniform pattern lines.

New paver areas shall be hand placed paving units set with maximum 1/8 inch joints. Mechanically vibrate pavers to uniform and true level to finish grade.

Reset or new pavers used to rebuild existing walkways and/or driveways shall be set with joint width matching existing joint width of walkway and/or driveway being retained.

Polymeric sand shall only be added to joints when pavers are completely dry. All sand shall be swept from paver surface before the joint sand is watered in to avoid sand cementing to the paver surface. After initial joint sand application is watered in and pavers are completely dry, a second application of sand shall be swept into the joints to fill any remaining voids. After all sand has been removed from the paver surface the joints shall be watered thoroughly. This process shall be repeated until all joints are filled. Clean all paver surfaces as needed until the polymeric sand is completely removed from the brick surface.

Pavers shall have a deviation of 3/8” or less over a 10’ length measured with a metal straight edge.

Cut pavers shall be no less than half a brick. Pavers shall be cut with a masonry saw and have a clean edge. Pavers that get chipped or do not have a clean edge will either be recut or replaced with a new paver.

The complete paver surface shall be swept clean and washed down with water to provide a finished installation according to manufacturers’ recommendations. Any stains that occur during construction shall be removed prior to acceptance at no cost to the Owner.

Any damaged paving units found prior to project acceptance shall be removed. The paver replacement units shall match in color with adjacent units, at no additional cost to the Owner.

If installing edging before bedding sand and pavers:
Place edging on compacted base. Edging shall not be installed on top of the bedding layer. Spike rigid style edging using predrilled holes, with a maximum spacing of 24" between spikes. Spike placement may be placed through the back if needed. Installing flexible style edging with a maximum spacing between spikes of 12". Connect additional sections of edging as needed.

If installing edging after bedding sand & pavers:
Use a trowel or flat head shovel to cut down along the back of the paver, and pull away the excess bedding sand without disturbing the base material. Connect sections together. Place edging directly on the compacted base material. Slide the retention lip under the bedding layer. Edging shall not be installed on top of the bedding layer. Spike into place following the same spike placement specifications as noted above. Nail the spike at an angle with the point driven inward toward the pavement (toe-nailing) to keep edging tight to the pavement.

COMPENSATION

SUBSECTION 706.80 METHOD OF MEASUREMENT

Miscellaneous Walk Treatment will be measured for payment by the square yard, complete in place.

SUBSECTION 706.81 BASIS OF PAYMENT

Miscellaneous Walk Treatment will be paid at the Contract unit price per square yard, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

No separate payment will be made for excavation, gravel borrow, fine grading and compacting, geotechnical fabric, dense graded crushed stone, setting bed sand, concrete, and polymeric joint sand, but all costs in connection therewith shall be included in the unit bid price for Item 706.7 Miscellaneous Walk Treatment.

Where new brick walk, existing brick walk or field stone is removed and reset over an area where there is no sidewalk or driveway currently, reclaimed base may be used or, if none is available, gravel borrow will be provided and paid for under item 151 Gravel Borrow.

SUBSECTION 706.82 PAYMENT ITEMS

ITEM 706.7	Miscellaneous walk treatment	Square Yard

SECTION 751
LOAM BORROW, PLANTABLE SOIL BORROW, PROCESSED PLANTING MATERIAL OR TOPSOIL REHANDLED AND SPREAD

CONSTRUCTION METHODS

SUBSECTION 751.61 PLANTABLE SOIL BORROW
Add the following at the end of this subsection:

Plantable Soil Borrow shall be placed at a compacted depth of no less than 4 inches.

COMPENSATION

SUBSECTION 751.80 METHOD OF MEASUREMENT
Replace the first sentence of this subsection with the following:

The quantity of Plantable Soil Borrow shall be measured in place after compaction to the limits specified on the plans, or as directed by the Engineer. When quantities of Plantable Soil Borrow are given in tons, a factor of 1.40 tons per cubic yard will be used to convert the measurement to cubic yards.

END OF SPECIAL PROVISIONS

MAURA HEALEY
Governor

KIM DRISCOLL
Lt. Governor

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

Prevailing Wage Rates

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

LAUREN JONES
Secretary

MICHAEL FLANAGAN
Director

Awarding Authority: Town of Bedford

Contract Number:

City/Town: BEDFORD

Description of Work: Reclamation, grading, and/or relocating sections of the existing roadway, earth excavation, installation of drains, adjusting/ rebuilding drainage, sewer, and water structures, etc..

Job Location: various locations throughout Bedford

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, the awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. The 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 form 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 within90 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.

Issue Date: 03/20/2025 **Wage Request Number:** 20250320-020

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	01/01/2025	$39.95	$15.57	$20.17	$0.00	$75.69
	06/01/2025	$40.95	$15.57	$20.17	$0.00	$76.69
	12/01/2025	$40.95	$15.57	$21.78	$0.00	$78.30
	01/01/2026	$40.95	$16.17	$21.78	$0.00	$78.90
	06/01/2026	$41.95	$16.17	$21.78	$0.00	$79.90
	12/01/2026	$41.95	$16.17	$23.52	$0.00	$81.64
	01/01/2027	$41.95	$16.77	$23.52	$0.00	$82.24
(3 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	01/01/2025	$40.02	$15.57	$20.17	$0.00	$75.76
	06/01/2025	$41.02	$15.57	$20.17	$0.00	$76.76
	12/01/2025	$41.02	$15.57	$21.78	$0.00	$78.37
	01/01/2026	$41.02	$16.17	$21.78	$0.00	$78.97
	06/01/2026	$42.02	$16.17	$21.78	$0.00	$79.97
	12/01/2026	$42.02	$16.17	$23.52	$0.00	$81.71
	01/01/2027	$42.02	$16.77	$23.52	$0.00	$82.31
(4 & 5 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	01/01/2025	$40.14	$15.57	$20.17	$0.00	$75.88
	06/01/2025	$41.14	$15.57	$20.17	$0.00	$76.88
	12/01/2025	$41.14	$15.57	$21.78	$0.00	$78.49
	01/01/2026	$41.14	$16.17	$21.78	$0.00	$79.09
	06/01/2026	$42.14	$16.17	$21.78	$0.00	$80.09
	12/01/2026	$42.14	$16.17	$23.52	$0.00	$81.83
	01/01/2027	$42.14	$16.77	$23.52	$0.00	$82.43
ADS/SUBMERSIBLE PILOT *PILE DRIVER LOCAL 56 (ZONE 1)*	01/01/2024	$117.16	$10.08	$24.29	$0.00	$151.53
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR *LABORERS - ZONE 2*	12/01/2024	$40.61	$9.65	$17.70	$0.00	$67.96
	06/01/2025	$42.00	$9.65	$17.70	$0.00	$69.35
	12/01/2025	$43.38	$9.65	$17.70	$0.00	$70.73
	06/01/2026	$44.82	$9.65	$17.70	$0.00	$72.17
	12/01/2026	$46.26	$9.65	$17.70	$0.00	$73.61
	06/01/2027	$47.71	$9.65	$17.70	$0.00	$75.06
	12/01/2027	$49.16	$9.65	$17.70	$0.00	$76.51
	06/01/2028	$50.66	$9.65	$17.70	$0.00	$78.01
	12/01/2028	$52.16	$9.65	$17.70	$0.00	$79.51
For apprentice rates see "Apprentice- LABORER"						
AIR TRACK OPERATOR (HEAVY & HIGHWAY) *LABORERS - ZONE 2 (HEAVY & HIGHWAY)*	12/01/2024	$40.61	$9.65	$17.80	$0.00	$68.06
	06/01/2025	$42.00	$9.65	$17.80	$0.00	$69.45
	12/01/2025	$43.38	$9.65	$17.80	$0.00	$70.83
	06/01/2026	$44.82	$9.65	$17.80	$0.00	$72.27
	12/01/2026	$46.26	$9.65	$17.80	$0.00	$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. *HEAT & FROST INSULATORS LOCAL 6 (BOSTON)*	12/01/2024	$42.80	$14.50	$11.05	$0.00	$68.35
	06/01/2025	$43.80	$14.50	$11.05	$0.00	$69.35
	12/01/2025	$44.80	$14.50	$11.05	$0.00	$70.35

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ASPHALT RAKER *LABORERS - ZONE 2*	12/01/2024	$40.11	$9.65	$17.70	$0.00	$67.46
	06/01/2025	$41.50	$9.65	$17.70	$0.00	$68.85
	12/01/2025	$42.88	$9.65	$17.70	$0.00	$70.23
	06/01/2026	$44.32	$9.65	$17.70	$0.00	$71.67
	12/01/2026	$45.76	$9.65	$17.70	$0.00	$73.11
	06/01/2027	$47.21	$9.65	$17.70	$0.00	$74.56
	12/01/2027	$48.66	$9.65	$17.70	$0.00	$76.01
	06/01/2028	$50.16	$9.65	$17.70	$0.00	$77.51
	12/01/2028	$51.66	$9.65	$17.70	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"						
ASPHALT RAKER (HEAVY & HIGHWAY) *LABORERS - ZONE 2 (HEAVY & HIGHWAY)*	12/01/2024	$40.11	$9.65	$17.80	$0.00	$67.56
	06/01/2025	$41.50	$9.65	$17.80	$0.00	$68.95
	12/01/2025	$42.88	$9.65	$17.80	$0.00	$70.33
	06/01/2026	$44.32	$9.65	$17.80	$0.00	$71.77
	12/01/2026	$45.76	$9.65	$17.80	$0.00	$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$57.03	$15.55	$16.50	$0.00	$89.08
	06/01/2025	$58.33	$15.55	$16.50	$0.00	$90.38
	12/01/2025	$59.78	$15.55	$16.50	$0.00	$91.83
	06/01/2026	$61.08	$15.55	$16.50	$0.00	$93.13
	12/01/2026	$62.53	$15.55	$16.50	$0.00	$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$57.03	$15.55	$16.50	$0.00	$89.08
	06/01/2025	$58.33	$15.55	$16.50	$0.00	$90.38
	12/01/2025	$59.78	$15.55	$16.50	$0.00	$91.83
	06/01/2026	$61.08	$15.55	$16.50	$0.00	$93.13
	12/01/2026	$62.53	$15.55	$16.50	$0.00	$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER *LABORERS - ZONE 2*	12/01/2024	$40.11	$9.65	$17.70	$0.00	$67.46
	06/01/2025	$41.50	$9.65	$17.70	$0.00	$68.85
	12/01/2025	$42.88	$9.65	$17.70	$0.00	$70.23
	06/01/2026	$44.32	$9.65	$17.70	$0.00	$71.67
	12/01/2026	$45.76	$9.65	$17.70	$0.00	$73.11
	06/01/2027	$47.21	$9.65	$17.70	$0.00	$74.56
	12/01/2027	$48.66	$9.65	$17.70	$0.00	$76.01
	06/01/2028	$50.16	$9.65	$17.70	$0.00	$77.51
	12/01/2028	$51.66	$9.65	$17.70	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BLOCK PAVER, RAMMER / CURB SETTER *LABORERS - ZONE 2*	12/01/2024	$40.61	$9.65	$17.70	$0.00	$67.96
	06/01/2025	$42.00	$9.65	$17.70	$0.00	$69.35
	12/01/2025	$43.38	$9.65	$17.70	$0.00	$70.73
	06/01/2026	$44.82	$9.65	$17.70	$0.00	$72.17
	12/01/2026	$46.26	$9.65	$17.70	$0.00	$73.61
	06/01/2027	$47.71	$9.65	$17.70	$0.00	$75.06
	12/01/2027	$49.16	$9.65	$17.70	$0.00	$76.51
	06/01/2028	$50.66	$9.65	$17.70	$0.00	$78.01
	12/01/2028	$52.16	$9.65	$17.70	$0.00	$79.51
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY) *LABORERS - ZONE 2 (HEAVY & HIGHWAY)*	12/01/2024	$40.61	$9.65	$17.80	$0.00	$68.06
	06/01/2025	$42.00	$9.65	$17.80	$0.00	$69.45
	12/01/2025	$43.38	$9.65	$17.80	$0.00	$70.83
	06/01/2026	$44.82	$9.65	$17.80	$0.00	$72.27
	12/01/2026	$46.26	$9.65	$17.80	$0.00	$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
BOILER MAKER *BOILERMAKERS LOCAL 29*	01/01/2024	$48.12	$7.07	$20.60	$0.00	$75.79

Apprentice - *BOILERMAKER - Local 29*

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	$31.28	$7.07	$13.22	$0.00	$51.57
2	65	$31.28	$7.07	$13.22	$0.00	$51.57
3	70	$33.68	$7.07	$14.23	$0.00	$54.98
4	75	$36.09	$7.07	$15.24	$0.00	$58.40
5	80	$38.50	$7.07	$16.25	$0.00	$61.82
6	85	$40.90	$7.07	$17.28	$0.00	$65.25
7	90	$43.31	$7.07	$18.28	$0.00	$68.66
8	95	$45.71	$7.07	$19.32	$0.00	$72.10

Notes:

Apprentice to Journeyworker Ratio:1:4

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) *BRICKLAYERS LOCAL 3 (LOWELL)*	02/01/2025	$63.66	$11.49	$22.90	$0.00	$98.05
	08/01/2025	$65.81	$11.49	$22.90	$0.00	$100.20
	02/01/2026	$67.16	$11.49	$22.90	$0.00	$101.55
	08/01/2026	$69.36	$11.49	$22.90	$0.00	$103.75
	02/01/2027	$70.76	$11.49	$22.90	$0.00	$105.15

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

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

Effective Date - 02/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$31.83	$11.49	$22.90	$0.00	$66.22
2	60	$38.20	$11.49	$22.90	$0.00	$72.59
3	70	$44.56	$11.49	$22.90	$0.00	$78.95
4	80	$50.93	$11.49	$22.90	$0.00	$85.32
5	90	$57.29	$11.49	$22.90	$0.00	$91.68

Effective Date - 08/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$32.91	$11.49	$22.90	$0.00	$67.30
2	60	$39.49	$11.49	$22.90	$0.00	$73.88
3	70	$46.07	$11.49	$22.90	$0.00	$80.46
4	80	$52.65	$11.49	$22.90	$0.00	$87.04
5	90	$59.23	$11.49	$22.90	$0.00	$93.62

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$56.40	$15.55	$16.50	$0.00	$88.45
	06/01/2025	$57.68	$15.55	$16.50	$0.00	$89.73
	12/01/2025	$59.12	$15.55	$16.50	$0.00	$91.17
	06/01/2026	$60.40	$15.55	$16.50	$0.00	$92.45
	12/01/2026	$61.84	$15.55	$16.50	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CAISSON & UNDERPINNING BOTTOM MAN *LABORERS - FOUNDATION AND MARINE*	12/01/2024	$48.10	$9.65	$18.22	$0.00	$75.97
	06/01/2025	$49.60	$9.65	$18.22	$0.00	$77.47
	12/01/2025	$51.10	$9.65	$18.22	$0.00	$78.97
	06/01/2026	$52.65	$9.65	$18.22	$0.00	$80.52
	12/01/2026	$54.15	$9.65	$18.22	$0.00	$82.02
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING LABORER *LABORERS - FOUNDATION AND MARINE*	12/01/2024	$46.95	$9.65	$18.22	$0.00	$74.82
	06/01/2025	$48.45	$9.65	$18.22	$0.00	$76.32
	12/01/2025	$49.95	$9.65	$18.22	$0.00	$77.82
	06/01/2026	$51.50	$9.65	$18.22	$0.00	$79.37
	12/01/2026	$53.00	$9.65	$18.22	$0.00	$80.87
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN *LABORERS - FOUNDATION AND MARINE*	12/01/2024	$47.28	$9.65	$18.22	$0.00	$75.15
	06/01/2025	$48.78	$9.65	$18.22	$0.00	$76.65
	12/01/2025	$50.28	$9.65	$18.22	$0.00	$78.15
	06/01/2026	$51.83	$9.65	$18.22	$0.00	$79.70
	12/01/2026	$53.33	$9.65	$18.22	$0.00	$81.20
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CARBIDE CORE DRILL OPERATOR *LABORERS - ZONE 2*	12/01/2024	$40.11	$9.65	$17.70	$0.00	$67.46
	06/01/2025	$41.50	$9.65	$17.70	$0.00	$68.85
	12/01/2025	$42.88	$9.65	$17.70	$0.00	$70.23
	06/01/2026	$44.32	$9.65	$17.70	$0.00	$71.67
	12/01/2026	$45.76	$9.65	$17.70	$0.00	$73.11
	06/01/2027	$47.21	$9.65	$17.70	$0.00	$74.56
	12/01/2027	$48.66	$9.65	$17.70	$0.00	$76.01
	06/01/2028	$50.16	$9.65	$17.70	$0.00	$77.51
	12/01/2028	$51.66	$9.65	$17.70	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"						
CARPENTER *CARPENTERS -ZONE 2 (Eastern Massachusetts)*	03/01/2025	$49.62	$9.83	$19.97	$0.00	$79.42
	09/01/2025	$50.87	$9.83	$19.97	$0.00	$80.67
	03/01/2026	$52.12	$9.83	$19.97	$0.00	$81.92
	09/01/2026	$53.37	$9.83	$19.97	$0.00	$83.17
	03/01/2027	$54.62	$9.83	$19.97	$0.00	$84.42

Apprentice - *CARPENTER - Zone 2 Eastern MA*

Effective Date - 03/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	$22.33	$9.83	$1.73	$0.00	$33.89
2	45	$22.33	$9.83	$1.73	$0.00	$33.89
3	55	$27.29	$9.83	$3.40	$0.00	$40.52
4	55	$27.29	$9.83	$3.40	$0.00	$40.52
5	70	$34.73	$9.83	$16.51	$0.00	$61.07
6	70	$34.73	$9.83	$16.51	$0.00	$61.07
7	80	$39.70	$9.83	$18.24	$0.00	$67.77
8	80	$39.70	$9.83	$18.24	$0.00	$67.77

Effective Date - 09/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	$22.89	$9.83	$1.73	$0.00	$34.45
2	45	$22.89	$9.83	$1.73	$0.00	$34.45
3	55	$27.98	$9.83	$3.40	$0.00	$41.21
4	55	$27.98	$9.83	$3.40	$0.00	$41.21
5	70	$35.61	$9.83	$16.51	$0.00	$61.95
6	70	$35.61	$9.83	$16.51	$0.00	$61.95
7	80	$40.70	$9.83	$18.24	$0.00	$68.77
8	80	$40.70	$9.83	$18.24	$0.00	$68.77

Notes:

Apprentice to Journeyworker Ratio:1:5

CARPENTER WOOD FRAME *CARPENTERS-ZONE 3 (Wood Frame)*	10/01/2024	$26.65	$7.02	$4.80	$0.00	$38.47
	10/01/2025	$27.75	$7.02	$4.80	$0.00	$39.57
	10/01/2026	$28.85	$7.02	$4.80	$0.00	$40.67

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
All Aspects of New Wood Frame Work						

Apprentice - *CARPENTER (Wood Frame) - Zone 3*

Effective Date - 10/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$15.99	$7.02	$0.00	$0.00	$23.01
2	60	$15.99	$7.02	$0.00	$0.00	$23.01
3	65	$17.32	$7.02	$1.00	$0.00	$25.34
4	70	$18.66	$7.02	$1.00	$0.00	$26.68
5	75	$19.99	$7.02	$4.80	$0.00	$31.81
6	80	$21.32	$7.02	$4.80	$0.00	$33.14
7	85	$22.65	$7.02	$4.80	$0.00	$34.47
8	90	$23.99	$7.02	$4.80	$0.00	$35.81

Effective Date - 10/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$16.65	$7.02	$0.00	$0.00	$23.67
2	60	$16.65	$7.02	$0.00	$0.00	$23.67
3	65	$18.04	$7.02	$1.00	$0.00	$26.06
4	70	$19.43	$7.02	$1.00	$0.00	$27.45
5	75	$20.81	$7.02	$4.80	$0.00	$32.63
6	80	$22.20	$7.02	$4.80	$0.00	$34.02
7	85	$23.59	$7.02	$4.80	$0.00	$35.41
8	90	$24.98	$7.02	$4.80	$0.00	$36.80

Notes:

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING *BRICKLAYERS LOCAL 3 (LOWELL)*	07/01/2024	$49.19	$13.35	$24.21	$1.80	$88.55

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *CEMENT MASONRY/PLASTERING - Lowell*

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.60	$13.35	$16.43	$0.00	$54.38
2	60	$29.51	$13.35	$19.21	$1.80	$63.87
3	65	$31.97	$13.35	$20.21	$1.80	$67.33
4	70	$34.43	$13.35	$21.21	$1.80	$70.79
5	75	$36.89	$13.35	$22.21	$1.80	$74.25
6	80	$39.35	$13.35	$23.21	$1.80	$77.71
7	90	$44.27	$13.35	$24.21	$1.80	$83.63

Notes:

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

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR *LABORERS - ZONE 2*	12/01/2024	$40.11	$9.65	$17.70	$0.00	$67.46
	06/01/2025	$41.50	$9.65	$17.70	$0.00	$68.85
	12/01/2025	$42.88	$9.65	$17.70	$0.00	$70.23
	06/01/2026	$44.32	$9.65	$17.70	$0.00	$71.67
	12/01/2026	$45.76	$9.65	$17.70	$0.00	$73.11
	06/01/2027	$47.21	$9.65	$17.70	$0.00	$74.56
	12/01/2027	$48.66	$9.65	$17.70	$0.00	$76.01
	06/01/2028	$50.16	$9.65	$17.70	$0.00	$77.51
	12/01/2028	$51.66	$9.65	$17.70	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$58.18	$15.55	$16.50	$0.00	$90.23
	06/01/2025	$59.51	$15.55	$16.50	$0.00	$91.56
	12/01/2025	$60.98	$15.55	$16.50	$0.00	$93.03
	06/01/2026	$62.31	$15.55	$16.50	$0.00	$94.36
	12/01/2026	$63.79	$15.55	$16.50	$0.00	$95.84
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$36.67	$15.55	$16.50	$0.00	$68.72
	06/01/2025	$37.52	$15.55	$16.50	$0.00	$69.57
	12/01/2025	$38.47	$15.55	$16.50	$0.00	$70.52
	06/01/2026	$39.33	$15.55	$16.50	$0.00	$71.38
	12/01/2026	$40.28	$15.55	$16.50	$0.00	$72.33
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2025	$58.46	$9.95	$23.95	$0.00	$92.36

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 01/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$29.23	$9.95	$0.00	$0.00	$39.18
2	55	$32.15	$9.95	$6.66	$0.00	$48.76
3	60	$35.08	$9.95	$7.26	$0.00	$52.29
4	65	$38.00	$9.95	$7.87	$0.00	$55.82
5	70	$40.92	$9.95	$20.32	$0.00	$71.19
6	75	$43.85	$9.95	$20.93	$0.00	$74.73
7	80	$46.77	$9.95	$21.53	$0.00	$78.25
8	90	$52.61	$9.95	$22.74	$0.00	$85.30

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN *LABORERS - ZONE 2*	12/02/2024	$47.00	$9.65	$18.40	$0.00	$75.05
	06/02/2025	$48.50	$9.65	$18.40	$0.00	$76.55
	12/01/2025	$50.00	$9.65	$18.40	$0.00	$78.05
	06/01/2026	$51.55	$9.65	$18.40	$0.00	$79.60
	12/07/2026	$53.05	$9.65	$18.40	$0.00	$81.10
	06/07/2027	$54.65	$9.65	$18.40	$0.00	$82.70
	12/06/2027	$56.25	$9.65	$18.40	$0.00	$84.30
	06/05/2028	$57.93	$9.65	$18.40	$0.00	$85.98
	12/04/2028	$59.60	$9.65	$18.40	$0.00	$87.65
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR *LABORERS - ZONE 2*	12/02/2024	$48.00	$9.65	$18.40	$0.00	$76.05
	06/02/2025	$49.50	$9.65	$18.40	$0.00	$77.55
	12/01/2025	$51.00	$9.65	$18.40	$0.00	$79.05
	06/01/2026	$52.55	$9.65	$18.40	$0.00	$80.60
	12/07/2026	$54.05	$9.65	$18.40	$0.00	$82.10
	06/07/2027	$55.65	$9.65	$18.40	$0.00	$83.70
	12/06/2027	$57.25	$9.65	$18.40	$0.00	$85.30
	06/05/2028	$58.93	$9.65	$18.40	$0.00	$86.98
	12/04/2028	$60.60	$9.65	$18.40	$0.00	$88.65
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS *LABORERS - ZONE 2*	12/02/2024	$47.75	$9.65	$18.40	$0.00	$75.80
	06/02/2025	$49.25	$9.65	$18.40	$0.00	$77.30
	12/01/2025	$50.75	$9.65	$18.40	$0.00	$78.80
	06/01/2026	$52.30	$9.65	$18.40	$0.00	$80.35
	12/07/2026	$53.80	$9.65	$18.40	$0.00	$81.85
	06/07/2027	$55.40	$9.65	$18.40	$0.00	$83.45
	12/06/2027	$57.00	$9.65	$18.40	$0.00	$85.05
	06/05/2028	$58.68	$9.65	$18.40	$0.00	$86.73
	12/04/2028	$60.35	$9.65	$18.40	$0.00	$88.40

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"						
DEMO: CONCRETE CUTTER/SAWYER *LABORERS - ZONE 2*	12/02/2024	$48.00	$9.65	$18.40	$0.00	$76.05
	06/02/2025	$49.50	$9.65	$18.40	$0.00	$77.55
	12/01/2025	$51.00	$9.65	$18.40	$0.00	$79.05
	06/01/2026	$52.55	$9.65	$18.40	$0.00	$80.60
	12/07/2026	$54.05	$9.65	$18.40	$0.00	$82.10
	06/07/2027	$55.65	$9.65	$18.40	$0.00	$83.70
	12/06/2027	$57.25	$9.65	$18.40	$0.00	$85.30
	06/05/2028	$58.93	$9.65	$18.40	$0.00	$86.98
	12/04/2028	$60.60	$9.65	$18.40	$0.00	$88.65
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR *LABORERS - ZONE 2*	12/02/2024	$47.75	$9.65	$18.40	$0.00	$75.80
	06/02/2025	$49.25	$9.65	$18.40	$0.00	$77.30
	12/01/2025	$50.75	$9.65	$18.40	$0.00	$78.80
	06/01/2026	$52.30	$9.65	$18.40	$0.00	$80.35
	12/07/2026	$53.80	$9.65	$18.40	$0.00	$81.85
	06/07/2027	$55.40	$9.65	$18.40	$0.00	$83.45
	12/06/2027	$57.00	$9.65	$18.40	$0.00	$85.05
	06/05/2028	$58.68	$9.65	$18.40	$0.00	$86.73
	12/04/2028	$60.35	$9.65	$18.40	$0.00	$88.40
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER *LABORERS - ZONE 2*	12/02/2024	$47.00	$9.65	$18.40	$0.00	$75.05
	06/02/2025	$48.50	$9.65	$18.40	$0.00	$76.55
	12/01/2025	$50.00	$9.65	$18.40	$0.00	$78.05
	06/01/2026	$51.55	$9.65	$18.40	$0.00	$79.60
	12/07/2026	$53.05	$9.65	$18.40	$0.00	$81.10
	06/07/2027	$54.65	$9.65	$18.40	$0.00	$82.70
	12/06/2027	$56.25	$9.65	$18.40	$0.00	$84.30
	06/05/2028	$57.93	$9.65	$18.40	$0.00	$85.98
	12/04/2028	$59.60	$9.65	$18.40	$0.00	$87.65
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$56.40	$15.55	$16.50	$0.00	$88.45
	06/01/2025	$57.68	$15.55	$16.50	$0.00	$89.73
	12/01/2025	$59.12	$15.55	$16.50	$0.00	$91.17
	06/01/2026	$60.40	$15.55	$16.50	$0.00	$92.45
	12/01/2026	$61.84	$15.55	$16.50	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2024	$78.11	$10.08	$21.66	$0.00	$109.85
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 *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2024	$55.79	$10.08	$24.29	$0.00	$90.16
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) *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2024	$83.69	$10.08	$24.29	$0.00	$118.06
For apprentice rates see "Apprentice- PILE DRIVER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DIVER/SLURRY (EFFLUENT) *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2024	$117.16	$10.08	$24.29	$0.00	$151.53
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction) *DRAWBRIDGE - SEIU LOCAL 888*	07/01/2020	$26.77	$6.67	$3.93	$0.16	$37.53
ELECTRICIAN *ELECTRICIANS LOCAL 103*	03/01/2025	$64.98	$13.00	$22.30	$0.00	$100.28
	09/01/2025	$66.89	$13.00	$22.36	$0.00	$102.25
	03/01/2026	$68.09	$13.00	$22.39	$0.00	$103.48
	09/01/2026	$70.00	$13.00	$22.45	$0.00	$105.45
	03/01/2027	$71.19	$13.00	$22.49	$0.00	$106.68
	09/01/2027	$73.11	$13.00	$22.54	$0.00	$108.65
	03/01/2028	$74.31	$13.00	$22.58	$0.00	$109.89

Apprentice - *ELECTRICIAN - Local 103*

Effective Date - 03/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$25.99	$13.00	$0.78	$0.00	$39.77
2	40	$25.99	$13.00	$0.78	$0.00	$39.77
3	45	$29.24	$13.00	$16.71	$0.00	$58.95
4	45	$29.24	$13.00	$16.71	$0.00	$58.95
5	50	$32.49	$13.00	$17.21	$0.00	$62.70
6	55	$35.74	$13.00	$17.72	$0.00	$66.46
7	60	$38.99	$13.00	$18.23	$0.00	$70.22
8	65	$42.24	$13.00	$18.74	$0.00	$73.98
9	70	$45.49	$13.00	$19.24	$0.00	$77.73
10	75	$48.74	$13.00	$19.76	$0.00	$81.50

Effective Date - 09/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$26.76	$13.00	$0.80	$0.00	$40.56
2	40	$26.76	$13.00	$0.80	$0.00	$40.56
3	45	$30.10	$13.00	$16.73	$0.00	$59.83
4	45	$30.10	$13.00	$16.73	$0.00	$59.83
5	50	$33.45	$13.00	$17.24	$0.00	$63.69
6	55	$36.79	$13.00	$17.75	$0.00	$67.54
7	60	$40.13	$13.00	$18.26	$0.00	$71.39
8	65	$43.48	$13.00	$18.77	$0.00	$75.25
9	70	$46.82	$13.00	$19.28	$0.00	$79.10
10	75	$50.17	$13.00	$19.81	$0.00	$82.98

Notes: :

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR *ELEVATOR CONSTRUCTORS LOCAL 4*	01/01/2022	$65.62	$16.03	$20.21	$0.00	$101.86

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *ELEVATOR CONSTRUCTOR - Local 4*

Effective Date - 01/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$32.81	$16.03	$0.00	$0.00	$48.84
2	55	$36.09	$16.03	$20.21	$0.00	$72.33
3	65	$42.65	$16.03	$20.21	$0.00	$78.89
4	70	$45.93	$16.03	$20.21	$0.00	$82.17
5	80	$52.50	$16.03	$20.21	$0.00	$88.74

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

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER *ELEVATOR CONSTRUCTORS LOCAL 4*	01/01/2022	$45.93	$16.03	$20.21	$0.00	$82.17
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY) *LABORERS - ZONE 2 (HEAVY & HIGHWAY)*	12/01/2024	$40.11	$9.65	$17.80	$0.00	$67.56
	06/01/2025	$41.50	$9.65	$17.80	$0.00	$68.95
	12/01/2025	$42.88	$9.65	$17.80	$0.00	$70.33
	06/01/2026	$44.32	$9.65	$17.80	$0.00	$71.77
	12/01/2026	$45.76	$9.65	$17.80	$0.00	$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	11/01/2024	$51.78	$15.30	$16.40	$0.00	$83.48
	05/01/2025	$53.22	$15.30	$16.40	$0.00	$84.92
	11/01/2025	$54.51	$15.30	$16.40	$0.00	$86.21
	05/01/2026	$55.95	$15.30	$16.40	$0.00	$87.65
	11/01/2026	$57.24	$15.30	$16.40	$0.00	$88.94
	05/01/2027	$58.67	$15.30	$16.40	$0.00	$90.37
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	11/01/2024	$53.37	$15.30	$16.40	$0.00	$85.07
	05/01/2025	$54.82	$15.30	$16.40	$0.00	$86.52
	11/01/2025	$56.12	$15.30	$16.40	$0.00	$87.82
	05/01/2026	$57.57	$15.30	$16.40	$0.00	$89.27
	11/01/2026	$58.87	$15.30	$16.40	$0.00	$90.57
	05/01/2027	$60.32	$15.30	$16.40	$0.00	$92.02
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	11/01/2024	$25.37	$15.30	$16.40	$0.00	$57.07
	05/01/2025	$26.22	$15.30	$16.40	$0.00	$57.92
	11/01/2025	$26.98	$15.30	$16.40	$0.00	$58.68
	05/01/2026	$27.83	$15.30	$16.40	$0.00	$59.53
	11/01/2026	$28.59	$15.30	$16.40	$0.00	$60.29
	05/01/2027	$29.44	$15.30	$16.40	$0.00	$61.14
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIRE ALARM INSTALLER *ELECTRICIANS LOCAL 103*	03/01/2025	$64.98	$13.00	$22.30	$0.00	$100.28
	09/01/2025	$66.89	$13.00	$22.36	$0.00	$102.25
	03/01/2026	$68.09	$13.00	$22.39	$0.00	$103.48
	09/01/2026	$70.00	$13.00	$22.45	$0.00	$105.45
	03/01/2027	$71.19	$13.00	$22.49	$0.00	$106.68
	09/01/2027	$73.11	$13.00	$22.54	$0.00	$108.65
	03/01/2028	$74.31	$13.00	$22.58	$0.00	$109.89
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING*ELECTRICIANS LOCAL 103*	03/01/2025	$51.98	$13.00	$20.27	$0.00	$85.25
	09/01/2025	$53.51	$13.00	$20.32	$0.00	$86.83
	03/01/2026	$54.47	$13.00	$20.34	$0.00	$87.81
	09/01/2026	$56.00	$13.00	$20.39	$0.00	$89.39
	03/01/2027	$56.95	$13.00	$20.42	$0.00	$90.37
	09/01/2027	$58.49	$13.00	$20.46	$0.00	$91.95
	03/01/2028	$59.45	$13.00	$20.49	$0.00	$92.94
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$45.96	$15.55	$16.50	$0.00	$78.01
	06/01/2025	$47.02	$15.55	$16.50	$0.00	$79.07
	12/01/2025	$48.19	$15.55	$16.50	$0.00	$80.24
	06/01/2026	$49.25	$15.55	$16.50	$0.00	$81.30
	12/01/2026	$50.43	$15.55	$16.50	$0.00	$82.48
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER (HEAVY & HIGHWAY) *LABORERS - ZONE 2 (HEAVY & HIGHWAY)*	12/01/2024	$27.01	$9.65	$17.80	$0.00	$54.46
	06/01/2025	$28.09	$9.65	$17.80	$0.00	$55.54
	12/01/2025	$28.09	$9.65	$17.80	$0.00	$55.54
	06/01/2026	$29.21	$9.65	$17.80	$0.00	$56.66
	12/01/2026	$29.21	$9.65	$17.80	$0.00	$56.66
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
FLOORCOVERER *FLOORCOVERERS LOCAL 2168 ZONE I*	03/01/2025	$57.73	$8.83	$20.27	$0.00	$86.83
	09/01/2025	$59.23	$8.83	$20.27	$0.00	$88.33
	03/01/2026	$60.73	$8.83	$20.27	$0.00	$89.83
	09/01/2026	$62.23	$8.83	$20.27	$0.00	$91.33
	03/01/2027	$63.73	$8.83	$20.27	$0.00	$92.83

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *FLOORCOVERER - Local 2168 Zone I*

Effective Date - 03/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	$25.98	$8.83	$1.76	$0.00	$36.57
2	45	$25.98	$8.83	$1.76	$0.00	$36.57
3	55	$31.75	$8.83	$3.52	$0.00	$44.10
4	55	$31.75	$8.83	$3.52	$0.00	$44.10
5	70	$40.41	$8.83	$16.75	$0.00	$65.99
6	70	$40.41	$8.83	$16.75	$0.00	$65.99
7	80	$46.18	$8.83	$18.51	$0.00	$73.52
8	80	$46.18	$8.83	$18.51	$0.00	$73.52

Effective Date - 09/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	$26.65	$8.83	$1.76	$0.00	$37.24
2	45	$26.65	$8.83	$1.76	$0.00	$37.24
3	55	$32.58	$8.83	$3.52	$0.00	$44.93
4	55	$32.58	$8.83	$3.52	$0.00	$44.93
5	70	$41.46	$8.83	$16.75	$0.00	$67.04
6	70	$41.46	$8.83	$16.75	$0.00	$67.04
7	80	$47.38	$8.83	$18.51	$0.00	$74.72
8	80	$47.38	$8.83	$18.51	$0.00	$74.72

Notes: Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$57.03	$15.55	$16.50	$0.00	$89.08
	06/01/2025	$58.33	$15.55	$16.50	$0.00	$90.38
	12/01/2025	$59.78	$15.55	$16.50	$0.00	$91.83
	06/01/2026	$61.08	$15.55	$16.50	$0.00	$93.13
	12/01/2026	$62.53	$15.55	$16.50	$0.00	$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$36.67	$15.55	$16.50	$0.00	$68.72
	06/01/2025	$37.52	$15.55	$16.50	$0.00	$69.57
	12/01/2025	$38.47	$15.55	$16.50	$0.00	$70.52
	06/01/2026	$39.33	$15.55	$16.50	$0.00	$71.38
	12/01/2026	$40.28	$15.55	$16.50	$0.00	$72.33
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) *GLAZIERS LOCAL 35 (ZONE 2)*	01/01/2025	$47.96	$9.95	$23.95	$0.00	$81.86

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *GLAZIER - Local 35 Zone 2*

Effective Date - 01/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.98	$9.95	$0.00	$0.00	$33.93
2	55	$26.38	$9.95	$6.66	$0.00	$42.99
3	60	$28.78	$9.95	$7.26	$0.00	$45.99
4	65	$31.17	$9.95	$7.87	$0.00	$48.99
5	70	$33.57	$9.95	$20.32	$0.00	$63.84
6	75	$35.97	$9.95	$20.93	$0.00	$66.85
7	80	$38.37	$9.95	$21.53	$0.00	$69.85
8	90	$43.16	$9.95	$22.74	$0.00	$75.85

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

HOISTING ENGINEER/CRANES/GRADALLS *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$57.03	$15.55	$16.50	$0.00	$89.08
	06/01/2025	$58.33	$15.55	$16.50	$0.00	$90.38
	12/01/2025	$59.78	$15.55	$16.50	$0.00	$91.83
	06/01/2026	$61.08	$15.55	$16.50	$0.00	$93.13
	12/01/2026	$62.53	$15.55	$16.50	$0.00	$94.58

Apprentice - *OPERATING ENGINEERS - Local 4*

Effective Date - 12/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$31.37	$0.00	$0.00	$0.00	$31.37
2	60	$34.22	$15.55	$16.50	$0.00	$66.27
3	65	$37.07	$15.55	$16.50	$0.00	$69.12
4	70	$39.92	$15.55	$16.50	$0.00	$71.97
5	75	$42.77	$15.55	$16.50	$0.00	$74.82
6	80	$45.62	$15.55	$16.50	$0.00	$77.67
7	85	$48.48	$15.55	$16.50	$0.00	$80.53
8	90	$51.33	$15.55	$16.50	$0.00	$83.38

Effective Date - 06/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$32.08	$0.00	$0.00	$0.00	$32.08
2	60	$35.00	$15.55	$16.50	$0.00	$67.05
3	65	$37.91	$15.55	$16.50	$0.00	$69.96
4	70	$40.83	$15.55	$16.50	$0.00	$72.88
5	75	$43.75	$15.55	$16.50	$0.00	$75.80
6	80	$46.66	$15.55	$16.50	$0.00	$78.71
7	85	$49.58	$15.55	$16.50	$0.00	$81.63
8	90	$52.50	$15.55	$16.50	$0.00	$84.55

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) *SHEETMETAL WORKERS LOCAL 17 - A*	02/01/2025	$59.69	$14.75	$28.12	$2.98	$105.54
	08/01/2025	$61.54	$14.75	$28.12	$2.98	$107.39
	02/01/2026	$63.49	$14.75	$28.12	$2.98	$109.34
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (ELECTRICAL CONTROLS) *ELECTRICIANS LOCAL 103*	03/01/2025	$64.98	$13.00	$22.30	$0.00	$100.28
	09/01/2025	$66.89	$13.00	$22.36	$0.00	$102.25
	03/01/2026	$68.09	$13.00	$22.39	$0.00	$103.48
	09/01/2026	$70.00	$13.00	$22.45	$0.00	$105.45
	03/01/2027	$71.19	$13.00	$22.49	$0.00	$106.68
	09/01/2027	$73.11	$13.00	$22.54	$0.00	$108.65
	03/01/2028	$74.31	$13.00	$22.58	$0.00	$109.89
For apprentice rates see "Apprentice- ELECTRICIAN"						
HVAC (TESTING AND BALANCING - AIR) *SHEETMETAL WORKERS LOCAL 17 - A*	02/01/2025	$59.69	$14.75	$28.12	$2.98	$105.54
	08/01/2025	$61.54	$14.75	$28.12	$2.98	$107.39
	02/01/2026	$63.49	$14.75	$28.12	$2.98	$109.34
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) *PIPEFITTERS LOCAL 537*	03/01/2025	$68.88	$12.70	$21.80	$0.00	$103.38
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC MECHANIC *PIPEFITTERS LOCAL 537*	03/01/2025	$68.88	$12.70	$21.80	$0.00	$103.38
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS *LABORERS - ZONE 2*	12/01/2024	$40.61	$9.65	$17.70	$0.00	$67.96
	06/01/2025	$42.00	$9.65	$17.70	$0.00	$69.35
	12/01/2025	$43.38	$9.65	$17.70	$0.00	$70.73
	06/01/2026	$44.82	$9.65	$17.70	$0.00	$72.17
	12/01/2026	$46.26	$9.65	$17.70	$0.00	$73.61
	06/01/2027	$47.71	$9.65	$17.70	$0.00	$75.06
	12/01/2027	$49.16	$9.65	$17.70	$0.00	$76.51
	06/01/2028	$50.66	$9.65	$17.70	$0.00	$78.01
	12/01/2028	$52.16	$9.65	$17.70	$0.00	$79.51
For apprentice rates see "Apprentice- LABORER"						
HYDRAULIC DRILLS (HEAVY & HIGHWAY) *LABORERS - ZONE 2 (HEAVY & HIGHWAY)*	12/01/2024	$40.61	$9.65	$17.80	$0.00	$68.06
	06/01/2025	$42.00	$9.65	$17.80	$0.00	$69.45
	12/01/2025	$43.38	$9.65	$17.80	$0.00	$70.83
	06/01/2026	$44.82	$9.65	$17.80	$0.00	$72.27
	12/01/2026	$46.26	$9.65	$17.80	$0.00	$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
INSULATOR (PIPES & TANKS) *HEAT & FROST INSULATORS LOCAL 6 (BOSTON)*	09/01/2024	$56.92	$14.75	$19.61	$0.00	$91.28
	09/01/2025	$60.34	$14.75	$19.61	$0.00	$94.70
	09/01/2026	$63.76	$14.75	$19.61	$0.00	$98.12

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

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$28.46	$14.75	$14.32	$0.00	$57.53
2	60	$34.15	$14.75	$15.37	$0.00	$64.27
3	70	$39.84	$14.75	$16.43	$0.00	$71.02
4	80	$45.54	$14.75	$17.49	$0.00	$77.78

Effective Date - 09/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$30.17	$14.75	$14.32	$0.00	$59.24
2	60	$36.20	$14.75	$15.37	$0.00	$66.32
3	70	$42.24	$14.75	$16.43	$0.00	$73.42
4	80	$48.27	$14.75	$17.49	$0.00	$80.51

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER *IRONWORKERS LOCAL 7 (BOSTON AREA)*	03/16/2024	$53.97	$8.35	$26.70	$0.00	$89.02

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *IRONWORKER - Local 7 Boston*

Effective Date - 03/16/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$32.38	$8.35	$26.70	$0.00	$67.43
2	70	$37.78	$8.35	$26.70	$0.00	$72.83
3	75	$40.48	$8.35	$26.70	$0.00	$75.53
4	80	$43.18	$8.35	$26.70	$0.00	$78.23
5	85	$45.87	$8.35	$26.70	$0.00	$80.92
6	90	$48.57	$8.35	$26.70	$0.00	$83.62

Notes:

Apprentice to Journeyworker Ratio:1:4

JACKHAMMER & PAVING BREAKER OPERATOR *LABORERS - ZONE 2*	12/01/2024	$40.11	$9.65	$17.70	$0.00	$67.46
	06/01/2025	$41.50	$9.65	$17.70	$0.00	$68.85
	12/01/2025	$42.88	$9.65	$17.70	$0.00	$70.23
	06/01/2026	$44.32	$9.65	$17.70	$0.00	$71.67
	12/01/2026	$45.76	$9.65	$17.70	$0.00	$73.11
	06/01/2027	$47.21	$9.65	$17.70	$0.00	$74.56
	12/01/2027	$48.66	$9.65	$17.70	$0.00	$76.01
	06/01/2028	$50.16	$9.65	$17.70	$0.00	$77.51
	12/01/2028	$51.66	$9.65	$17.70	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"						
LABORER *LABORERS - ZONE 2*	12/01/2024	$39.86	$9.65	$17.70	$0.00	$67.21
	06/01/2025	$41.25	$9.65	$17.70	$0.00	$68.60
	12/01/2025	$42.63	$9.65	$17.70	$0.00	$69.98
	06/01/2026	$44.07	$9.65	$17.70	$0.00	$71.42
	12/01/2026	$45.51	$9.65	$17.70	$0.00	$72.86
	06/01/2027	$46.96	$9.65	$17.70	$0.00	$74.31
	12/01/2027	$48.41	$9.65	$17.70	$0.00	$75.76
	06/01/2028	$49.91	$9.65	$17.70	$0.00	$77.26
	12/01/2028	$51.41	$9.65	$17.70	$0.00	$78.76

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *LABORER - Zone 2*

Effective Date - 12/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$23.92	$9.65	$17.70	$0.00	$51.27
2	70	$27.90	$9.65	$17.70	$0.00	$55.25
3	80	$31.89	$9.65	$17.70	$0.00	$59.24
4	90	$35.87	$9.65	$17.70	$0.00	$63.22

Effective Date - 06/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$24.75	$9.65	$17.70	$0.00	$52.10
2	70	$28.88	$9.65	$17.70	$0.00	$56.23
3	80	$33.00	$9.65	$17.70	$0.00	$60.35
4	90	$37.13	$9.65	$17.70	$0.00	$64.48

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER (HEAVY & HIGHWAY) *LABORERS - ZONE 2 (HEAVY & HIGHWAY)*	12/01/2024	$39.86	$9.65	$17.80	$0.00	$67.31
	06/01/2025	$41.25	$9.65	$17.80	$0.00	$68.70
	12/01/2025	$42.63	$9.65	$17.80	$0.00	$70.08
	06/01/2026	$44.07	$9.65	$17.80	$0.00	$71.52
	12/01/2026	$45.51	$9.65	$17.80	$0.00	$72.96

Apprentice - *LABORER (Heavy & Highway) - Zone 2*

Effective Date - 12/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$23.92	$9.65	$17.80	$0.00	$51.37
2	70	$27.90	$9.65	$17.80	$0.00	$55.35
3	80	$31.89	$9.65	$17.80	$0.00	$59.34
4	90	$35.87	$9.65	$17.80	$0.00	$63.32

Effective Date - 06/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$24.75	$9.65	$17.80	$0.00	$52.20
2	70	$28.88	$9.65	$17.80	$0.00	$56.33
3	80	$33.00	$9.65	$17.80	$0.00	$60.45
4	90	$37.13	$9.65	$17.80	$0.00	$64.58

Notes:

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: CARPENTER TENDER *LABORERS - ZONE 2*	12/01/2024	$39.86	$9.65	$17.70	$0.00	$67.21
	06/01/2025	$41.25	$9.65	$17.70	$0.00	$68.60
	12/01/2025	$42.63	$9.65	$17.70	$0.00	$69.98
	06/01/2026	$44.07	$9.65	$17.70	$0.00	$71.42
	12/01/2026	$45.51	$9.65	$17.70	$0.00	$72.86
	06/01/2027	$46.96	$9.65	$17.70	$0.00	$74.31
	12/01/2027	$48.41	$9.65	$17.70	$0.00	$75.76
	06/01/2028	$49.91	$9.65	$17.70	$0.00	$77.26
	12/01/2028	$51.41	$9.65	$17.70	$0.00	$78.76
For apprentice rates see "Apprentice- LABORER"						
LABORER: CEMENT FINISHER TENDER *LABORERS - ZONE 2*	12/01/2024	$39.86	$9.65	$17.70	$0.00	$67.21
	06/01/2025	$41.25	$9.65	$17.70	$0.00	$68.60
	12/01/2025	$42.63	$9.65	$17.70	$0.00	$69.98
	06/01/2026	$44.07	$9.65	$17.70	$0.00	$71.42
	12/01/2026	$45.51	$9.65	$17.70	$0.00	$72.86
	06/01/2027	$46.96	$9.65	$17.70	$0.00	$74.31
	12/01/2027	$48.41	$9.65	$17.70	$0.00	$75.76
	06/01/2028	$49.91	$9.65	$17.70	$0.00	$77.26
	12/01/2028	$51.41	$9.65	$17.70	$0.00	$78.76
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER *LABORERS - ZONE 2*	12/02/2024	$39.95	$9.65	$17.76	$0.00	$67.36
	06/02/2025	$41.34	$9.65	$17.76	$0.00	$68.75
	12/01/2025	$42.72	$9.65	$17.76	$0.00	$70.13
	06/01/2026	$44.16	$9.65	$17.76	$0.00	$71.57
	12/07/2026	$45.60	$9.65	$17.76	$0.00	$73.01
	06/07/2027	$47.05	$9.65	$17.76	$0.00	$74.46
	12/06/2027	$48.50	$9.65	$17.76	$0.00	$75.91
	06/05/2028	$50.00	$9.65	$17.76	$0.00	$77.41
	12/04/2028	$51.50	$9.65	$17.76	$0.00	$78.91
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER *LABORERS - ZONE 2*	12/01/2024	$40.11	$9.65	$17.70	$0.00	$67.46
	06/01/2025	$41.50	$9.65	$17.70	$0.00	$68.85
	12/01/2025	$42.88	$9.65	$17.70	$0.00	$70.23
	06/01/2026	$44.32	$9.65	$17.70	$0.00	$71.67
	12/01/2026	$45.76	$9.65	$17.70	$0.00	$73.11
	06/01/2027	$47.21	$9.65	$17.70	$0.00	$74.56
	12/01/2027	$48.66	$9.65	$17.70	$0.00	$76.01
	06/01/2028	$50.16	$9.65	$17.70	$0.00	$77.51
	12/01/2028	$51.66	$9.65	$17.70	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER (HEAVY & HIGHWAY) *LABORERS - ZONE 2 (HEAVY & HIGHWAY)*	12/01/2024	$40.11	$9.65	$17.80	$0.00	$67.56
	06/01/2025	$41.50	$9.65	$17.80	$0.00	$68.95
	12/01/2025	$42.88	$9.65	$17.80	$0.00	$70.33
	06/01/2026	$44.32	$9.65	$17.80	$0.00	$71.77
	12/01/2026	$45.76	$9.65	$17.80	$0.00	$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: MULTI-TRADE TENDER *LABORERS - ZONE 2*	12/01/2024	$39.86	$9.65	$17.70	$0.00	$67.21
	06/01/2025	$41.25	$9.65	$17.70	$0.00	$68.60
	12/01/2025	$42.63	$9.65	$17.70	$0.00	$69.98
	06/01/2026	$44.07	$9.65	$17.70	$0.00	$71.42
	12/01/2026	$45.51	$9.65	$17.70	$0.00	$72.86
	06/01/2027	$46.96	$9.65	$17.70	$0.00	$74.31
	12/01/2027	$48.41	$9.65	$17.70	$0.00	$75.76
	06/01/2028	$49.91	$9.65	$17.70	$0.00	$77.26
	12/01/2028	$51.41	$9.65	$17.70	$0.00	$78.76
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER *LABORERS - ZONE 2*	12/01/2024	$39.86	$9.65	$17.70	$0.00	$67.21
	06/01/2025	$41.25	$9.65	$17.70	$0.00	$68.60
	12/01/2025	$42.63	$9.65	$17.70	$0.00	$69.98
	06/01/2026	$44.07	$9.65	$17.70	$0.00	$71.42
	12/01/2026	$45.51	$9.65	$17.70	$0.00	$72.86
	06/01/2027	$46.96	$9.65	$17.70	$0.00	$74.31
	12/01/2027	$48.41	$9.65	$17.70	$0.00	$75.76
	06/01/2028	$49.91	$9.65	$17.70	$0.00	$77.26
	12/01/2028	$51.41	$9.65	$17.70	$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 *LABORERS - ZONE 2*	12/01/2024	$40.11	$9.65	$17.70	$0.00	$67.46
	06/01/2025	$41.50	$9.65	$17.70	$0.00	$68.85
	12/01/2025	$42.88	$9.65	$17.70	$0.00	$70.23
	06/01/2026	$44.32	$9.65	$17.70	$0.00	$71.67
	12/01/2026	$45.76	$9.65	$17.70	$0.00	$73.11
	06/01/2027	$47.21	$9.65	$17.70	$0.00	$74.56
	12/01/2027	$48.66	$9.65	$17.70	$0.00	$76.01
	06/01/2028	$50.16	$9.65	$17.70	$0.00	$77.51
	12/01/2028	$51.66	$9.65	$17.70	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR (HEAVY & HIGHWAY) *LABORERS - ZONE 2 (HEAVY & HIGHWAY)*	12/01/2024	$40.11	$9.65	$17.80	$0.00	$67.56
	06/01/2025	$41.50	$9.65	$17.80	$0.00	$68.95
	12/01/2025	$42.88	$9.65	$17.80	$0.00	$70.33
	06/01/2026	$44.32	$9.65	$17.80	$0.00	$71.77
	12/01/2026	$45.76	$9.65	$17.80	$0.00	$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
MARBLE & TILE FINISHERS *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2025	$50.36	$11.49	$21.62	$0.00	$83.47
	08/01/2025	$52.08	$11.49	$21.62	$0.00	$85.19
	02/01/2026	$53.16	$11.49	$21.62	$0.00	$86.27
	08/01/2026	$54.92	$11.49	$21.62	$0.00	$88.03
	02/01/2027	$56.04	$11.49	$21.62	$0.00	$89.15

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

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

Effective Date - 02/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.18	$11.49	$21.62	$0.00	$58.29
2	60	$30.22	$11.49	$21.62	$0.00	$63.33
3	70	$35.25	$11.49	$21.62	$0.00	$68.36
4	80	$40.29	$11.49	$21.62	$0.00	$73.40
5	90	$45.32	$11.49	$21.62	$0.00	$78.43

Effective Date - 08/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$26.04	$11.49	$21.62	$0.00	$59.15
2	60	$31.25	$11.49	$21.62	$0.00	$64.36
3	70	$36.46	$11.49	$21.62	$0.00	$69.57
4	80	$41.66	$11.49	$21.62	$0.00	$74.77
5	90	$46.87	$11.49	$21.62	$0.00	$79.98

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS,TILELAYERS & TERRAZZO MECH *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2025	$65.82	$11.49	$23.56	$0.00	$100.87
	08/01/2025	$67.97	$11.49	$23.56	$0.00	$103.02
	02/01/2026	$69.32	$11.49	$23.56	$0.00	$104.37
	08/01/2026	$71.52	$11.49	$23.56	$0.00	$106.57
	02/01/2027	$72.92	$11.49	$23.56	$0.00	$107.97

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

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

Effective Date - 02/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$32.91	$11.49	$23.56	$0.00	$67.96
2	60	$39.49	$11.49	$23.56	$0.00	$74.54
3	70	$46.07	$11.49	$23.56	$0.00	$81.12
4	80	$52.66	$11.49	$23.56	$0.00	$87.71
5	90	$59.24	$11.49	$23.56	$0.00	$94.29

Effective Date - 08/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$33.99	$11.49	$23.56	$0.00	$69.04
2	60	$40.78	$11.49	$23.56	$0.00	$75.83
3	70	$47.58	$11.49	$23.56	$0.00	$82.63
4	80	$54.38	$11.49	$23.56	$0.00	$89.43
5	90	$61.17	$11.49	$23.56	$0.00	$96.22

Notes:

Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES) *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$56.40	$15.55	$16.50	$0.00	$88.45
	06/01/2025	$57.68	$15.55	$16.50	$0.00	$89.73
	12/01/2025	$59.12	$15.55	$16.50	$0.00	$91.17
	06/01/2026	$60.40	$15.55	$16.50	$0.00	$92.45
	12/01/2026	$61.84	$15.55	$16.50	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MECHANICS MAINTENANCE *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$56.40	$15.55	$16.50	$0.00	$88.45
	06/01/2025	$57.68	$15.55	$16.50	$0.00	$89.73
	12/01/2025	$59.12	$15.55	$16.50	$0.00	$91.17
	06/01/2026	$60.40	$15.55	$16.50	$0.00	$92.45
	12/01/2026	$61.84	$15.55	$16.50	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MILLWRIGHT (Zone 2) *MILLWRIGHTS LOCAL 1121 - Zone 2*	01/06/2025	$45.09	$10.08	$21.47	$0.00	$76.64
	01/05/2026	$47.42	$10.08	$21.47	$0.00	$78.97

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *MILLWRIGHT - Local 1121 Zone 2*

Effective Date - 01/06/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$24.80	$10.08	$5.50	$0.00	$40.38
2	65	$29.31	$10.08	$6.50	$0.00	$45.89
3	75	$33.82	$10.08	$18.97	$0.00	$62.87
4	85	$38.33	$10.08	$19.97	$0.00	$68.38

Effective Date - 01/05/2026

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$26.08	$10.08	$5.50	$0.00	$41.66
2	65	$30.82	$10.08	$6.50	$0.00	$47.40
3	75	$35.57	$10.08	$18.97	$0.00	$64.62
4	85	$40.31	$10.08	$19.97	$0.00	$70.36

Notes: Step 1&2 Appr. indentured after 1/6/2020 receive no pension, but do receive annuity. (Step 1 $5.72, Step 2 $6.66)
Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:4

MORTAR MIXER *LABORERS - ZONE 2*	12/01/2024	$40.11	$9.65	$17.70	$0.00	$67.46
	06/01/2025	$41.50	$9.65	$17.70	$0.00	$68.85
	12/01/2025	$42.88	$9.65	$17.70	$0.00	$70.23
	06/01/2026	$44.32	$9.65	$17.70	$0.00	$71.67
	12/01/2026	$45.76	$9.65	$17.70	$0.00	$73.11
	06/01/2027	$47.21	$9.65	$17.70	$0.00	$74.56
	12/01/2027	$48.66	$9.65	$17.70	$0.00	$76.01
	06/01/2028	$50.16	$9.65	$17.70	$0.00	$77.51
	12/01/2028	$51.66	$9.65	$17.70	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES,GRADALLS) *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$25.37	$15.30	$16.40	$0.00	$57.07
	06/01/2025	$25.97	$15.30	$16.40	$0.00	$57.67
	12/01/2025	$26.63	$15.30	$16.40	$0.00	$58.33
	06/01/2026	$27.22	$15.30	$16.40	$0.00	$58.92
	12/01/2026	$27.89	$15.30	$16.40	$0.00	$59.59
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS) *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$31.08	$15.30	$16.40	$0.00	$62.78
	06/01/2025	$31.80	$15.30	$16.40	$0.00	$63.50
	12/01/2025	$32.60	$15.30	$16.40	$0.00	$64.30
	06/01/2026	$33.32	$15.30	$16.40	$0.00	$65.02
	12/01/2026	$34.12	$15.30	$16.40	$0.00	$65.82
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
OTHER POWER DRIVEN EQUIPMENT - CLASS II *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$56.40	$15.55	$16.50	$0.00	$88.45
	06/01/2025	$57.68	$15.55	$16.50	$0.00	$89.73
	12/01/2025	$59.12	$15.55	$16.50	$0.00	$91.17
	06/01/2026	$60.40	$15.55	$16.50	$0.00	$92.45
	12/01/2026	$61.84	$15.55	$16.50	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2025	$58.46	$9.95	$23.95	$0.00	$92.36

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 01/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$29.23	$9.95	$0.00	$0.00	$39.18
2	55	$32.15	$9.95	$6.66	$0.00	$48.76
3	60	$35.08	$9.95	$7.26	$0.00	$52.29
4	65	$38.00	$9.95	$7.87	$0.00	$55.82
5	70	$40.92	$9.95	$20.32	$0.00	$71.19
6	75	$43.85	$9.95	$20.93	$0.00	$74.73
7	80	$46.77	$9.95	$21.53	$0.00	$78.25
8	90	$52.61	$9.95	$22.74	$0.00	$85.30

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 2*	01/01/2025	$49.36	$9.95	$23.95	$0.00	$83.26

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

Effective Date - 01/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.68	$9.95	$0.00	$0.00	$34.63
2	55	$27.15	$9.95	$6.66	$0.00	$43.76
3	60	$29.62	$9.95	$7.26	$0.00	$46.83
4	65	$32.08	$9.95	$7.87	$0.00	$49.90
5	70	$34.55	$9.95	$20.32	$0.00	$64.82
6	75	$37.02	$9.95	$20.93	$0.00	$67.90
7	80	$39.49	$9.95	$21.53	$0.00	$70.97
8	90	$44.42	$9.95	$22.74	$0.00	$77.11

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PAINTER (SPRAY OR SANDBLAST, REPAINT) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2025	$47.42	$9.95	$23.95	$0.00	$81.32

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

Effective Date - 01/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.71	$9.95	$0.00	$0.00	$33.66
2	55	$26.08	$9.95	$6.66	$0.00	$42.69
3	60	$28.45	$9.95	$7.26	$0.00	$45.66
4	65	$30.82	$9.95	$7.87	$0.00	$48.64
5	70	$33.19	$9.95	$20.32	$0.00	$63.46
6	75	$35.57	$9.95	$20.93	$0.00	$66.45
7	80	$37.94	$9.95	$21.53	$0.00	$69.42
8	90	$42.68	$9.95	$22.74	$0.00	$75.37

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 2*	01/01/2025	$47.96	$9.95	$23.95	$0.00	$81.86

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

Effective Date - 01/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.98	$9.95	$0.00	$0.00	$33.93
2	55	$26.38	$9.95	$6.66	$0.00	$42.99
3	60	$28.78	$9.95	$7.26	$0.00	$45.99
4	65	$31.17	$9.95	$7.87	$0.00	$48.99
5	70	$33.57	$9.95	$20.32	$0.00	$63.84
6	75	$35.97	$9.95	$20.93	$0.00	$66.85
7	80	$38.37	$9.95	$21.53	$0.00	$69.85
8	90	$43.16	$9.95	$22.74	$0.00	$75.85

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2025	$46.02	$9.95	$23.95	$0.00	$79.92

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

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

Effective Date - 01/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.01	$9.95	$0.00	$0.00	$32.96
2	55	$25.31	$9.95	$6.66	$0.00	$41.92
3	60	$27.61	$9.95	$7.26	$0.00	$44.82
4	65	$29.91	$9.95	$7.87	$0.00	$47.73
5	70	$32.21	$9.95	$20.32	$0.00	$62.48
6	75	$34.52	$9.95	$20.93	$0.00	$65.40
7	80	$36.82	$9.95	$21.53	$0.00	$68.30
8	90	$41.42	$9.95	$22.74	$0.00	$74.11

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY) *LABORERS - ZONE 2 (HEAVY & HIGHWAY)*	12/01/2024	$39.86	$9.65	$17.80	$0.00	$67.31
	06/01/2025	$41.25	$9.65	$17.80	$0.00	$68.70
	12/01/2025	$42.63	$9.65	$17.80	$0.00	$70.08
	06/01/2026	$44.07	$9.65	$17.80	$0.00	$71.52
	12/01/2026	$45.51	$9.65	$17.80	$0.00	$72.96
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
PANEL & PICKUP TRUCKS DRIVER *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	01/01/2025	$39.78	$15.57	$20.17	$0.00	$75.52
	06/01/2025	$40.78	$15.57	$20.17	$0.00	$76.52
	12/01/2025	$40.78	$15.57	$21.78	$0.00	$78.13
	01/01/2026	$40.78	$16.17	$21.78	$0.00	$78.73
	06/01/2026	$41.78	$16.17	$21.78	$0.00	$79.73
	12/01/2026	$41.78	$16.17	$23.52	$0.00	$81.47
	01/01/2027	$41.78	$16.77	$23.52	$0.00	$82.07
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2024	$55.79	$10.08	$24.29	$0.00	$90.16
For apprentice rates see "Apprentice- PILE DRIVER"						
PILE DRIVER *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2024	$55.79	$10.08	$24.29	$0.00	$90.16

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PILE DRIVER - Local 56 Zone 1*

Effective Date - 08/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	$25.11	$10.08	$2.53	$0.00	$37.72
2	55	$30.68	$10.08	$5.07	$0.00	$45.83
3	70	$39.05	$10.08	$19.22	$0.00	$68.35
4	80	$44.63	$10.08	$21.76	$0.00	$76.47

Notes:

% Indentured BEFORE 8/1/20; 50/60/70/75/80/80/90/90

Step 1 $62.27/ 2 $67.84/3 $73.42/ 4 $76.21/ 5&6 $79.00/ 7&8 $84.58

Apprentice to Journeyworker Ratio:1:5

PIPEFITTER & STEAMFITTER *PIPEFITTERS LOCAL 537*	03/01/2025	$68.88	$12.70	$21.80	$0.00	$103.38

Apprentice - *PIPEFITTER - Local 537*

Effective Date - 03/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$27.55	$12.70	$9.05	$0.00	$49.30
2	45	$31.00	$12.70	$21.80	$0.00	$65.50
3	60	$41.33	$12.70	$21.80	$0.00	$75.83
4	70	$48.22	$12.70	$21.80	$0.00	$82.72
5	80	$55.10	$12.70	$21.80	$0.00	$89.60

Notes:

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

Apprentice to Journeyworker Ratio:**

PIPELAYER *LABORERS - ZONE 2*	12/01/2024	$40.11	$9.65	$17.70	$0.00	$67.46
	06/01/2025	$41.50	$9.65	$17.70	$0.00	$68.85
	12/01/2025	$42.88	$9.65	$17.70	$0.00	$70.23
	06/01/2026	$44.32	$9.65	$17.70	$0.00	$71.67
	12/01/2026	$45.76	$9.65	$17.70	$0.00	$73.11
	06/01/2027	$47.21	$9.65	$17.70	$0.00	$74.56
	12/01/2027	$48.66	$9.65	$17.70	$0.00	$76.01
	06/01/2028	$50.16	$9.65	$17.70	$0.00	$77.51
	12/01/2028	$51.66	$9.65	$17.70	$0.00	$79.01

For apprentice rates see "Apprentice- LABORER"

PIPELAYER (HEAVY & HIGHWAY) *LABORERS - ZONE 2 (HEAVY & HIGHWAY)*	12/01/2024	$40.11	$9.65	$17.80	$0.00	$67.56
	06/01/2025	$41.50	$9.65	$17.80	$0.00	$68.95
	12/01/2025	$42.88	$9.65	$17.80	$0.00	$70.33
	06/01/2026	$44.32	$9.65	$17.80	$0.00	$71.77
	12/01/2026	$45.76	$9.65	$17.80	$0.00	$73.21

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PLUMBERS & GASFITTERS *PLUMBERS & GASFITTERS LOCAL 12*	03/02/2025	$70.84	$14.32	$19.61	$0.00	$104.77

Apprentice - *PLUMBER/GASFITTER - Local 12*

Effective Date - 03/02/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$24.79	$14.32	$7.06	$0.00	$46.17
2	40	$28.34	$14.32	$8.02	$0.00	$50.68
3	55	$38.96	$14.32	$10.93	$0.00	$64.21
4	65	$46.05	$14.32	$12.86	$0.00	$73.23
5	75	$53.13	$14.32	$14.79	$0.00	$82.24

Notes:

** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr

Step4 with lic$76.49 tot.rate, Step5 with lic. $85.32 tot. rate

Apprentice to Journeyworker Ratio:**

PNEUMATIC CONTROLS (TEMP.) *PIPEFITTERS LOCAL 537*	03/01/2025	$68.88	$12.70	$21.80	$0.00	$103.38
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
PNEUMATIC DRILL/TOOL OPERATOR *LABORERS - ZONE 2*	12/01/2024	$40.61	$9.65	$17.70	$0.00	$67.96
	06/01/2025	$42.00	$9.65	$17.70	$0.00	$69.35
	12/01/2025	$43.38	$9.65	$17.70	$0.00	$70.73
	06/01/2026	$44.82	$9.65	$17.70	$0.00	$72.17
	12/01/2026	$46.26	$9.65	$17.70	$0.00	$73.61
	06/01/2027	$47.71	$9.65	$17.70	$0.00	$75.06
	12/01/2027	$49.16	$9.65	$17.70	$0.00	$76.51
	06/01/2028	$50.66	$9.65	$17.70	$0.00	$78.01
	12/01/2028	$52.16	$9.65	$17.70	$0.00	$79.51
For apprentice rates see "Apprentice- LABORER"						
PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY) *LABORERS - ZONE 2 (HEAVY & HIGHWAY)*	12/01/2024	$40.11	$9.65	$17.80	$0.00	$67.56
	06/01/2025	$41.50	$9.65	$17.80	$0.00	$68.95
	12/01/2025	$42.88	$9.65	$17.80	$0.00	$70.33
	06/01/2026	$44.32	$9.65	$17.80	$0.00	$71.77
	12/01/2026	$45.76	$9.65	$17.80	$0.00	$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
POWDERMAN & BLASTER *LABORERS - ZONE 2*	12/01/2024	$40.86	$9.65	$17.70	$0.00	$68.21
	06/01/2025	$42.25	$9.65	$17.70	$0.00	$69.60
	12/01/2025	$43.63	$9.65	$17.70	$0.00	$70.98
	06/01/2026	$45.07	$9.65	$17.70	$0.00	$72.42
	12/01/2026	$46.51	$9.65	$17.70	$0.00	$73.86
	06/01/2027	$47.96	$9.65	$17.70	$0.00	$75.31
	12/01/2027	$49.41	$9.65	$17.70	$0.00	$76.76
	06/01/2028	$50.91	$9.65	$17.70	$0.00	$78.26
	12/01/2028	$52.41	$9.65	$17.70	$0.00	$79.76
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
POWDERMAN & BLASTER (HEAVY & HIGHWAY) *LABORERS - ZONE 2 (HEAVY & HIGHWAY)*	12/01/2024	$40.86	$9.40	$17.55	$0.00	$67.81
	06/01/2025	$42.25	$9.40	$17.55	$0.00	$69.20
	12/01/2025	$43.63	$9.40	$17.55	$0.00	$70.58
	06/01/2026	$45.07	$9.40	$17.55	$0.00	$72.02
	12/01/2026	$46.51	$9.40	$17.55	$0.00	$73.46
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
POWER SHOVEL/DERRICK/TRENCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$57.03	$15.55	$16.50	$0.00	$89.08
	06/01/2025	$58.33	$15.55	$16.50	$0.00	$90.38
	12/01/2025	$59.78	$15.55	$16.50	$0.00	$91.83
	06/01/2026	$61.08	$15.55	$16.50	$0.00	$93.13
	12/01/2026	$62.53	$15.55	$16.50	$0.00	$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$56.40	$15.55	$16.50	$0.00	$88.45
	06/01/2025	$57.68	$15.55	$16.50	$0.00	$89.73
	12/01/2025	$59.12	$15.55	$16.50	$0.00	$91.17
	06/01/2026	$60.40	$15.55	$16.50	$0.00	$92.45
	12/01/2026	$61.84	$15.55	$16.50	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$36.67	$15.55	$16.50	$0.00	$68.72
	06/01/2025	$37.52	$15.55	$16.50	$0.00	$69.57
	12/01/2025	$38.47	$15.55	$16.50	$0.00	$70.52
	06/01/2026	$39.33	$15.55	$16.50	$0.00	$71.38
	12/01/2026	$40.28	$15.55	$16.50	$0.00	$72.33
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER *TEAMSTERS 170 - J.G. MacLellan (Lowell)*	01/01/2025	$30.00	$11.57	$6.55	$0.00	$48.12
	05/01/2025	$30.50	$11.57	$6.65	$0.00	$48.72
	01/01/2026	$30.50	$11.97	$6.65	$0.00	$49.12
RECLAIMERS *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$56.40	$15.55	$16.50	$0.00	$88.45
	06/01/2025	$57.68	$15.55	$16.50	$0.00	$89.73
	12/01/2025	$59.12	$15.55	$16.50	$0.00	$91.17
	06/01/2026	$60.40	$15.55	$16.50	$0.00	$92.45
	12/01/2026	$61.84	$15.55	$16.50	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RIDE-ON MOTORIZED BUGGY OPERATOR *LABORERS - ZONE 2*	12/01/2024	$40.11	$9.65	$17.70	$0.00	$67.46
	06/01/2025	$41.50	$9.65	$17.70	$0.00	$68.85
	12/01/2025	$42.88	$9.65	$17.70	$0.00	$70.23
	06/01/2026	$44.32	$9.65	$17.70	$0.00	$71.67
	12/01/2026	$45.76	$9.65	$17.70	$0.00	$73.11
	06/01/2027	$47.21	$9.65	$17.70	$0.00	$74.56
	12/01/2027	$48.66	$9.65	$17.70	$0.00	$76.01
	06/01/2028	$50.16	$9.65	$17.70	$0.00	$77.51
	12/01/2028	$51.66	$9.65	$17.70	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ROLLER/SPREADER/MULCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$56.40	$15.55	$16.50	$0.00	$88.45
	06/01/2025	$57.68	$15.55	$16.50	$0.00	$89.73
	12/01/2025	$59.12	$15.55	$16.50	$0.00	$91.17
	06/01/2026	$60.40	$15.55	$16.50	$0.00	$92.45
	12/01/2026	$61.84	$15.55	$16.50	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg) *ROOFERS LOCAL 33*	02/01/2025	$52.03	$13.28	$21.70	$0.00	$87.01
	08/01/2025	$53.53	$13.28	$21.70	$0.00	$88.51
	02/01/2026	$54.78	$13.28	$21.70	$0.00	$89.76

Apprentice - *ROOFER - Local 33*

Effective Date - 02/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$26.02	$13.28	$15.55	$0.00	$54.85
2	60	$31.22	$13.28	$21.70	$0.00	$66.20
3	65	$33.82	$13.28	$21.70	$0.00	$68.80
4	75	$39.02	$13.28	$21.70	$0.00	$74.00
5	85	$44.23	$13.28	$21.70	$0.00	$79.21

Effective Date - 08/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$26.77	$13.28	$15.55	$0.00	$55.60
2	60	$32.12	$13.28	$21.70	$0.00	$67.10
3	65	$34.79	$13.28	$21.70	$0.00	$69.77
4	75	$40.15	$13.28	$21.70	$0.00	$75.13
5	85	$45.50	$13.28	$21.70	$0.00	$80.48

Notes: ** 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1
Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.
(Hot Pitch Mechanics' receive $1.00 hr. above ROOFER)

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE *ROOFERS LOCAL 33*	02/01/2025	$52.28	$13.28	$21.70	$0.00	$87.26
	08/01/2025	$53.78	$13.28	$21.70	$0.00	$88.76
	02/01/2026	$55.03	$13.28	$21.70	$0.00	$90.01
For apprentice rates see "Apprentice- ROOFER"						
SHEETMETAL WORKER *SHEETMETAL WORKERS LOCAL 17 - A*	02/01/2025	$59.69	$14.75	$28.12	$2.98	$105.54
	08/01/2025	$61.54	$14.75	$28.12	$2.98	$107.39
	02/01/2026	$63.49	$14.75	$28.12	$2.98	$109.34

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

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

Effective Date - 02/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42	$25.07	$14.75	$6.13	$0.00	$45.95
2	42	$25.07	$14.75	$6.13	$0.00	$45.95
3	47	$28.05	$14.75	$12.11	$1.62	$56.53
4	47	$28.05	$14.75	$12.11	$1.62	$56.53
5	52	$31.04	$14.75	$13.09	$1.74	$60.62
6	52	$31.04	$14.75	$13.34	$1.75	$60.88
7	60	$35.81	$14.75	$14.75	$1.93	$67.24
8	65	$38.80	$14.75	$15.73	$2.04	$71.32
9	75	$44.77	$14.75	$17.69	$2.28	$79.49
10	85	$50.74	$14.75	$19.15	$2.49	$87.13

Effective Date - 08/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42	$25.85	$14.75	$6.13	$0.00	$46.73
2	42	$25.85	$14.75	$6.13	$0.00	$46.73
3	47	$28.92	$14.75	$12.11	$1.62	$57.40
4	47	$28.92	$14.75	$12.11	$1.62	$57.40
5	52	$32.00	$14.75	$13.09	$1.74	$61.58
6	52	$32.00	$14.75	$13.34	$1.75	$61.84
7	60	$36.92	$14.75	$14.75	$1.93	$68.35
8	65	$40.00	$14.75	$15.73	$2.04	$72.52
9	75	$46.16	$14.75	$17.69	$2.28	$80.88
10	85	$52.31	$14.75	$19.15	$2.49	$88.70

Notes:
Steps are 6 mos.

Apprentice to Journeyworker Ratio:1:4

SPECIALIZED EARTH MOVING EQUIP < 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	01/01/2025	$40.24	$15.57	$20.17	$0.00	$75.98
	06/01/2025	$41.24	$15.57	$20.17	$0.00	$76.98
	12/01/2025	$41.24	$15.57	$21.78	$0.00	$78.59
	01/01/2026	$41.24	$16.17	$21.78	$0.00	$79.19
	06/01/2026	$42.24	$16.17	$21.78	$0.00	$80.19
	12/01/2026	$42.24	$16.17	$23.52	$0.00	$81.93
	01/01/2027	$42.24	$16.77	$23.52	$0.00	$82.53

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SPECIALIZED EARTH MOVING EQUIP > 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	01/01/2025	$40.53	$15.57	$20.17	$0.00	$76.27
	06/01/2025	$41.53	$15.57	$20.17	$0.00	$77.27
	12/01/2025	$41.53	$15.57	$21.78	$0.00	$78.88
	01/01/2026	$41.53	$16.17	$21.78	$0.00	$79.48
	06/01/2026	$42.53	$16.17	$21.78	$0.00	$80.48
	12/01/2026	$42.53	$16.17	$23.52	$0.00	$82.22
	01/01/2027	$42.53	$16.77	$23.52	$0.00	$82.82
SPRINKLER FITTER *SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1*	03/01/2025	$72.14	$11.51	$23.80	$0.00	$107.45

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

Effective Date - 03/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$25.25	$11.51	$13.07	$0.00	$49.83
2	40	$28.86	$11.51	$13.90	$0.00	$54.27
3	45	$32.46	$11.51	$14.73	$0.00	$58.70
4	50	$36.07	$11.51	$15.55	$0.00	$63.13
5	55	$39.68	$11.51	$16.37	$0.00	$67.56
6	60	$43.28	$11.51	$17.20	$0.00	$71.99
7	65	$46.89	$11.51	$18.03	$0.00	$76.43
8	70	$50.50	$11.51	$18.85	$0.00	$80.86
9	75	$54.11	$11.51	$19.67	$0.00	$85.29
10	80	$57.71	$11.51	$20.50	$0.00	$89.72

Notes: Apprentice entered prior 9/30/10:
40/45/50/55/60/65/70/75/80/85
Steps are 850 hours

Apprentice to Journeyworker Ratio:1:3

STEAM BOILER OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$56.40	$15.55	$16.50	$0.00	$88.45
	06/01/2025	$57.68	$15.55	$16.50	$0.00	$89.73
	12/01/2025	$59.12	$15.55	$16.50	$0.00	$91.17
	06/01/2026	$60.40	$15.55	$16.50	$0.00	$92.45
	12/01/2026	$61.84	$15.55	$16.50	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$56.40	$15.55	$16.50	$0.00	$88.45
	06/01/2025	$57.68	$15.55	$16.50	$0.00	$89.73
	12/01/2025	$59.12	$15.55	$16.50	$0.00	$91.17
	06/01/2026	$60.40	$15.55	$16.50	$0.00	$92.45
	12/01/2026	$61.84	$15.55	$16.50	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TELECOMMUNICATION TECHNICIAN *ELECTRICIANS LOCAL 103*	03/01/2025	$51.98	$13.00	$20.27	$0.00	$85.25
	09/01/2025	$53.51	$13.00	$20.32	$0.00	$86.83
	03/01/2026	$54.47	$13.00	$20.34	$0.00	$87.81
	09/01/2026	$56.00	$13.00	$20.39	$0.00	$89.39
	03/01/2027	$56.95	$13.00	$20.42	$0.00	$90.37
	09/01/2027	$58.49	$13.00	$20.46	$0.00	$91.95
	03/01/2028	$59.45	$13.00	$20.49	$0.00	$92.94

Apprentice - *TELECOMMUNICATION TECHNICIAN - Local 103*

Effective Date - 03/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	$23.39	$13.00	$0.70	$0.00	$37.09
2	45	$23.39	$13.00	$0.70	$0.00	$37.09
3	50	$25.99	$13.00	$16.16	$0.00	$55.15
4	50	$25.99	$13.00	$16.16	$0.00	$55.15
5	55	$28.59	$13.00	$16.57	$0.00	$58.16
6	60	$31.19	$13.00	$16.97	$0.00	$61.16
7	65	$33.79	$13.00	$17.38	$0.00	$64.17
8	70	$36.39	$13.00	$17.78	$0.00	$67.17
9	75	$38.99	$13.00	$18.18	$0.00	$70.17
10	80	$41.58	$13.00	$18.58	$0.00	$73.16

Effective Date - 09/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	$24.08	$13.00	$0.72	$0.00	$37.80
2	45	$24.08	$13.00	$0.72	$0.00	$37.80
3	50	$26.76	$13.00	$16.16	$0.00	$55.92
4	50	$26.76	$13.00	$16.16	$0.00	$55.92
5	55	$29.43	$13.00	$16.57	$0.00	$59.00
6	60	$32.11	$13.00	$16.97	$0.00	$62.08
7	65	$34.78	$13.00	$17.38	$0.00	$65.16
8	70	$37.46	$13.00	$17.78	$0.00	$68.24
9	75	$40.13	$13.00	$18.18	$0.00	$71.31
10	80	$42.81	$13.00	$18.58	$0.00	$74.39

Notes:

Apprentice to Journeyworker Ratio:1:1

TERRAZZO FINISHERS *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2025	$64.74	$11.49	$23.59	$0.00	$99.82
	08/01/2025	$66.89	$11.49	$23.59	$0.00	$101.97
	02/01/2026	$68.24	$11.49	$23.59	$0.00	$103.32
	08/01/2026	$70.44	$11.49	$23.59	$0.00	$105.52
	02/01/2027	$71.84	$11.49	$23.59	$0.00	$106.92

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

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

Effective Date - 02/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$32.37	$11.49	$23.59	$0.00	$67.45
2	60	$38.84	$11.49	$23.59	$0.00	$73.92
3	70	$45.32	$11.49	$23.59	$0.00	$80.40
4	80	$51.79	$11.49	$23.59	$0.00	$86.87
5	90	$58.27	$11.49	$23.59	$0.00	$93.35

Effective Date - 08/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$33.45	$11.49	$23.59	$0.00	$68.53
2	60	$40.13	$11.49	$23.59	$0.00	$75.21
3	70	$46.82	$11.49	$23.59	$0.00	$81.90
4	80	$53.51	$11.49	$23.59	$0.00	$88.59
5	90	$60.20	$11.49	$23.59	$0.00	$95.28

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER *LABORERS - FOUNDATION AND MARINE*	12/01/2024	$51.28	$9.65	$18.22	$0.00	$79.15
	06/01/2025	$52.78	$9.65	$18.22	$0.00	$80.65
	12/01/2025	$54.28	$9.65	$18.22	$0.00	$82.15
	06/01/2026	$55.83	$9.65	$18.22	$0.00	$83.70
	12/01/2026	$57.33	$9.65	$18.22	$0.00	$85.20
For apprentice rates see "Apprentice- LABORER"						
TEST BORING DRILLER HELPER *LABORERS - FOUNDATION AND MARINE*	12/01/2024	$47.07	$9.65	$18.22	$0.00	$74.94
	06/01/2025	$48.57	$9.65	$18.22	$0.00	$76.44
	12/01/2025	$50.07	$9.65	$18.22	$0.00	$77.94
	06/01/2026	$51.62	$9.65	$18.22	$0.00	$79.49
	12/01/2026	$53.12	$9.65	$18.22	$0.00	$80.99
For apprentice rates see "Apprentice- LABORER"						
TEST BORING LABORER *LABORERS - FOUNDATION AND MARINE*	12/01/2024	$46.95	$9.65	$18.22	$0.00	$74.82
	06/01/2025	$48.45	$9.65	$18.22	$0.00	$76.32
	12/01/2025	$49.95	$9.65	$18.22	$0.00	$77.82
	06/01/2026	$51.50	$9.65	$18.22	$0.00	$79.37
	12/01/2026	$53.00	$9.65	$18.22	$0.00	$80.87
For apprentice rates see "Apprentice- LABORER"						
TRACTORS/PORTABLE STEAM GENERATORS *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$56.40	$15.55	$16.50	$0.00	$88.45
	06/01/2025	$57.68	$15.55	$16.50	$0.00	$89.73
	12/01/2025	$59.12	$15.55	$16.50	$0.00	$91.17
	06/01/2026	$60.40	$15.55	$16.50	$0.00	$92.45
	12/01/2026	$61.84	$15.55	$16.50	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TRAILERS FOR EARTH MOVING EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	01/01/2025	$40.82	$15.57	$20.17	$0.00	$76.56
	06/01/2025	$41.82	$15.57	$20.17	$0.00	$77.56
	12/01/2025	$41.82	$15.57	$21.78	$0.00	$79.17
	01/01/2026	$41.82	$16.17	$21.78	$0.00	$79.77
	06/01/2026	$42.82	$16.17	$21.78	$0.00	$80.77
	12/01/2026	$42.82	$16.17	$23.52	$0.00	$82.51
	01/01/2027	$42.82	$16.77	$23.52	$0.00	$83.11
TUNNEL WORK - COMPRESSED AIR *LABORERS (COMPRESSED AIR)*	12/01/2024	$59.18	$9.65	$19.00	$0.00	$87.83
	06/01/2025	$60.68	$9.65	$19.00	$0.00	$89.33
	12/01/2025	$62.18	$9.65	$19.00	$0.00	$90.83
	06/01/2026	$63.73	$9.65	$19.00	$0.00	$92.38
	12/01/2026	$65.23	$9.65	$19.00	$0.00	$93.88
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) *LABORERS (COMPRESSED AIR)*	12/01/2024	$61.18	$9.65	$19.00	$0.00	$89.83
	06/01/2025	$62.68	$9.65	$19.00	$0.00	$91.33
	12/01/2025	$64.18	$9.65	$19.00	$0.00	$92.83
	06/01/2026	$65.73	$9.65	$19.00	$0.00	$94.38
	12/01/2026	$67.23	$9.65	$19.00	$0.00	$95.88
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR *LABORERS (FREE AIR TUNNEL)*	12/01/2024	$51.25	$9.65	$19.00	$0.00	$79.90
	06/01/2025	$52.75	$9.65	$19.00	$0.00	$81.40
	12/01/2025	$54.25	$9.65	$19.00	$0.00	$82.90
	06/01/2026	$55.80	$9.65	$19.00	$0.00	$84.45
	12/01/2026	$57.30	$9.65	$19.00	$0.00	$85.95
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) *LABORERS (FREE AIR TUNNEL)*	12/01/2024	$53.25	$9.65	$19.00	$0.00	$81.90
	06/01/2025	$54.75	$9.65	$19.00	$0.00	$83.40
	12/01/2025	$56.25	$9.65	$19.00	$0.00	$84.90
	06/01/2026	$57.80	$9.65	$19.00	$0.00	$86.45
	12/01/2026	$59.30	$9.65	$19.00	$0.00	$87.95
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	01/01/2025	$40.24	$15.57	$20.17	$0.00	$75.98
	06/01/2025	$41.24	$15.57	$20.17	$0.00	$76.98
	12/01/2025	$41.24	$15.57	$21.78	$0.00	$78.59
	01/01/2026	$41.24	$16.17	$21.78	$0.00	$79.19
	06/01/2026	$42.24	$16.17	$21.78	$0.00	$80.19
	12/01/2026	$42.24	$16.17	$23.52	$0.00	$81.93
	01/01/2027	$42.24	$16.77	$23.52	$0.00	$82.53

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
WAGON DRILL OPERATOR *LABORERS - ZONE 2*	12/01/2024	$40.61	$9.65	$17.70	$0.00	$67.96
	06/01/2025	$42.00	$9.65	$17.70	$0.00	$69.35
	12/01/2025	$43.38	$9.65	$17.70	$0.00	$70.73
	06/01/2026	$44.82	$9.65	$17.70	$0.00	$72.17
	12/01/2026	$46.26	$9.65	$17.70	$0.00	$73.61
	06/01/2027	$47.71	$9.65	$17.70	$0.00	$75.06
	12/01/2027	$49.16	$9.65	$17.70	$0.00	$76.51
	06/01/2028	$50.66	$9.65	$17.70	$0.00	$78.01
	12/01/2028	$52.16	$9.65	$17.70	$0.00	$79.51
For apprentice rates see "Apprentice- LABORER"						
WAGON DRILL OPERATOR (HEAVY & HIGHWAY) *LABORERS - ZONE 2 (HEAVY & HIGHWAY)*	12/01/2024	$40.11	$9.65	$17.80	$0.00	$67.56
	06/01/2025	$41.50	$9.65	$17.80	$0.00	$68.95
	12/01/2025	$42.88	$9.65	$17.80	$0.00	$70.33
	06/01/2026	$44.32	$9.65	$17.80	$0.00	$71.77
	12/01/2026	$45.76	$9.65	$17.80	$0.00	$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
WASTE WATER PUMP OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$57.03	$15.55	$16.50	$0.00	$89.08
	06/01/2025	$58.33	$15.55	$16.50	$0.00	$90.38
	12/01/2025	$59.78	$15.55	$16.50	$0.00	$91.83
	06/01/2026	$61.08	$15.55	$16.50	$0.00	$93.13
	12/01/2026	$62.53	$15.55	$16.50	$0.00	$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER *PLUMBERS & GASFITTERS LOCAL 12*	03/02/2025	$70.84	$14.32	$19.61	$0.00	$104.77
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						

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.

WEEKLY CERTIFIED PAYROLL REPORT AND WORKFORCE PARTICIPATION FORM

CERTIFIED PAYROLL REPORT: Pursuant to MGL c. 149, s. 27B, **every contractor and subcontractor is required to submit a true and accurate copy of their certified weekly payroll records** to the awarding authority by first-class mail or e-mail. In addition, each weekly payroll must be accompanied by a statement of compliance signed by the employer. Failure to comply may result in the commencement of a criminal action or the issuance of a civil citation.

WORKFORCE PARTICIPATION GOALS: The Commonwealth of Massachusetts has set the following goals for workforce participation for minorities and women. The participation goals for this project shall be 15.3% for minorities and 6.9% for women. The Contractor shall strive to achieve on this project the labor workforce participation goals contained herein. **The Contractor shall enter the number of hours worked in each trade by each employee, identified as woman, minority, or non-minority below.**

Company Name:	Address:	Phone No.:		Payroll No.:
Employer's Signature:	**Title:**	**Contract No:**	**Tax Payer ID #:**	**Work Week Ending:**
Awarding Authority Name:	**Public Works Project Name:**	**Public Works Project Location:**		**Min. Wage Rate Sheet Number:**
General / Prime Contractor's Name:	**Subcontractor's Name:**	**Employer Hourly Fringe Benefit Contributions**		
		(B+C+D+E)	(A x F)	

Employee Name & Complete Address	Work Classification	Project Hours Non-Minority	Project Hours Minority	Project Hours Women	Employee is OSHA 10 certified (?)	Appr. Rate (%)	Hours Worked Su.	Mo.	Tu.	We.	Th.	Fr.	Sa.	Project Hours (A) All Other Hours	Hourly Base Wage (B)	Health & Welfare Insurance (C/)	ERISA Pension Plan (D)	Supp. Unemp. (E/)	Total Hourly Prev. Wage (F)	Project Gross Wages / Total Gross Wages	Check No. (H)

APPRENTICESHIP DOCUMENTATION: **Please answer the questions below.**

(1) Are any apprentice employees identified above? **YES** ☐ **NO** ☐

(2) If yes, are all apprentice employees identified above currently registered with the MA DLS Division of Apprentice Standards? **YES** ☐ **NO** ☐

(3) If yes, is a copy of the apprentice ID card issued by the MA DLS Division of Apprentice Standards included for all apprentice employees identified above? **YES** ☐ **NO** ☐

WEEKLY STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c. 149, §27B, a true and accurate record must be kept of all persons employed on the public works project for which the enclosed rates have been provided. A Payroll Form is available from the Department of Labor Standards (DLS) at mass.gov/dols/pw and includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the contract.

On a weekly basis, every contractor and subcontractor is required to submit a certified copy of their weekly payroll records to the awarding authority; this includes the payroll forms and the Statement of Compliance form. The certified payroll records must be submitted either by regular mail or by e-mail to the awarding authority. Once collected, the awarding authority is required to preserve those records for three years from the date of completion of the project.

Each such contractor and subcontractor shall furnish weekly **and** within 15 days after completion of its portion of the work, to the awarding authority directly by first-class mail or email, a statement, executed by the contractor, subcontractor or by any authorized officer thereof who supervised the payment of wages, this form, accompanied by their payroll:

WEEKLY STATEMENT OF COMPLIANCE

_____, 20____

I, _____, _____
(Name of signatory party) (Title)

do hereby state:

That I pay or supervise the payment of the persons employed by _____ on the _____
(Contractor, subcontractor or public body) (Building or project)

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

Signature _____

Title _____