AB

COMMONWEALTH OF MASSACHUSETTS

CONTRACT DOCUMENTS AND SPECIAL PROVISIONS

PROPOSAL NO.	613769-129394
P.V. =	$4,405,000.00
PLANS	NO

FOR

Scheduled and Emergency Drainage Repairs and Improvements at Various Locations

in

DISTRICT 3

In accordance with the STANDARD SPECIFICATIONS
for HIGHWAYS and BRIDGES dated 2024

This Proposal to be opened and read: **TUESDAY, MARCH 4, 2025 at 2:00 P.M.**

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DOCUMENT 00010

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TABLE OF CONTENTS (Continued)

*** END OF DOCUMENT ***

DOCUMENT 00102

NOTICE TO CONTRACTORS

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

TUESDAY, MARCH 4, 2025 at 2:00 P.M. **
DISTRICT 3
Scheduled and Emergency Drainage Repairs and Improvements at Various Locations

****Date Subject to Change**

PROJECT VALUE = $4,045,000.00

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

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

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

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

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

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

NOTICE TO CONTRACTORS (Continued)

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

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

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

PRICE ADJUSTMENTS

This Contract contains price adjustments for hot mix asphalt and Portland cement mixtures, diesel fuel, and gasoline. For reference the base prices are as follows: liquid asphalt $560.00 per ton, Portland cement $425.53 per ton, diesel fuel $2.980 per gallon, and gasoline $2.426 per gallon, and Steel Base Price Index 369.8. MassDOT posts the **Price Adjustments** on their Highway Division's website at
https://www.mass.gov/massdot-contract-price-adjustments

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

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

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

BY: Monica G. Tibbits-Nutt, Secretary and CEO, MassDOT
Jonathan L. Gulliver, Administrator, MassDOT Highway Division
SATURDAY, FEBRUARY 8, 2025

DOCUMENT 00210

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

July 1, 1981, updated October 2016

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

(a) The words defined herein shall have the meaning stated below whenever they appear in this section:

(1) “Contractor" means any person, corporation, partnership, joint venture, sole proprietorship, or other entity awarded a contract pursuant to sections thirty-eight A1/2 to thirty-eight O, inclusive, of chapter seven and any contract awarded or executed pursuant to section eleven C of chapter twenty-five A, section thirty-nine M of chapter thirty, or sections forty-four A to forty-four H, inclusive, of chapter one hundred and forty-nine, which is for an amount or estimated amount greater than one hundred thousand dollars.

(2) "Contract" means any contract awarded or executed pursuant to sections thirty-eight A1/2 to thirty-eight O, inclusive, of chapter seven and any contract awarded or executed pursuant to section eleven C of chapter twenty-five A, section thirty-nine M of chapter thirty, or sections forty-four A through forty-four H, inclusive, of chapter one hundred and forty-nine, which is for amount or estimated amount greater than one hundred thousand dollars.

(3) “Records" means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, computer printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.

(4) “Independent Certified Public Accountant" means a person duly registered in good standing and entitled to practice as a certified public accountant under the laws of the place of his residence or principal office and who is in fact independent. In determining whether an accountant is independent with respect to a particular person, appropriate consideration should be given to all relationships between the accountant and that person or any affiliate thereof. Determination of an accountant's independence shall not be confined to the relationships existing in connection with the filing of reports with the awarding authority.

(5) “Audit", when used in regard to financial statements, means an examination of records by an independent certified public accountant in accordance with generally accepted accounting principles and auditing standards for the purpose of expressing a certified opinion thereon, or, in the alternative, a qualified opinion or a declination to express an opinion for stated reasons.

(6) "Accountant's Report", when used in regard to financial statements, means a document in which an independent certified public accountant indicates the scope of the audit which he has made and sets forth his opinion regarding the financial statements taken as a whole with a listing of noted exceptions and qualifications, or an assertion to the effect that an overall opinion cannot be expressed. When an overall opinion cannot be expressed the reason therefor shall be stated. An accountant's report shall include as a part thereof a signed statement by the responsible corporate officer attesting that management has fully disclosed all material facts to the independent certified public accountant, and that the audited financial statement is a true and complete statement of the financial condition of the contractor.

(7) “Management", when used herein, means the chief executive officers, partners, principals or other person or persons primarily responsible for the financial and operational policies and practices of the contractor.

(8) Accounting terms, unless otherwise defined herein, shall have a meaning in accordance with generally accepted accounting principles and auditing standards.

(b) Subsection (a)(2) hereof notwithstanding, every agreement or contract awarded or executed pursuant to sections thirty-eight A 1/2 to thirty-eight O, inclusive, of chapter seven, or eleven C of chapter twenty-five A, and pursuant to section thirty-nine M of chapter thirty or to section forty-four A through H, inclusive, of chapter one hundred and forty-nine, shall provide that:

(1) The contractor shall make, and keep for at least six years after final payment, books, records, and accounts which in reasonable detail accurately and fairly reflect the transactions and dispositions of the contractor, and

(2) Until the expiration of six years after final payment, the office of inspector general, and the commissioner of capital asset management and maintenance shall have the right to examine any books, documents, papers or records of the contractor or of his subcontractors that directly pertain to, and involve transactions relating to, the contractor or his subcontractors, and

(3) If the agreement is a contract as defined herein, the contractor shall describe any change in the method of maintaining records or recording transactions which materially affect any statements filed with the awarding authority, including in his description the date of the change and reasons therefor, and shall accompany said description with a letter from the contractor's independent certified public accountant approving or otherwise commenting on the changes, and

(4) If the agreement is a contract as defined herein, the contractor has filed a statement of management on internal accounting controls as set forth in paragraph (c) below prior to the execution of the contract, and

(5) If the agreement is a contract as defined herein, the contractor has filed prior to the execution of the contracts and will continue to file annually, an audited financial statement for the most recent completed fiscal year as set forth in paragraph (d) below.

(c) Every contractor awarded a contract shall file with the awarding authority a statement of management as to whether the system of internal accounting controls of the contractor and its subsidiaries reasonably assures that:

(1) transactions are executed in accordance with management's general and specific authorization;

(2) transactions are recorded as necessary

i. to permit preparation of financial statements in conformity with generally accepted accounting principles, and

ii. to maintain accountability for assets;

(3) access to assets is permitted only in accordance with management's general or specific authorization; and

(4) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.

Every contractor awarded a contract shall also file with the awarding authority a statement prepared and signed by an independent certified public accountant, stating that he has examined the statement of management on internal accounting controls, and expressing an opinion as to:

(1) whether the representations of management in response to this paragraph and paragraph (b) above are consistent with the result of management's evaluation of the system of internal accounting controls; and

(2) whether such representations of management are, in addition, reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the applicant's financial statements.

(d) Every contractor awarded a contract by the commonwealth or by any political subdivision thereof shall annually file with the commissioner of capital asset management and maintenance during the term of the contract a financial statement prepared by an independent certified public accountant on the basis of an audit by such accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant's report. Such statements shall be made available to the awarding authority upon request.

(e) The office of inspector general, the commissioner of capital asset management and maintenance and any other awarding authority shall enforce the provisions of this section. The commissioner of capital asset management and maintenance may after providing an opportunity for the inspector general and other interested parties to comment, promulgate pursuant to the provisions of chapter thirty A such rules, regulations and guidelines as are necessary to effectuate the purposes of this section. Such rules, regulations and guidelines may be applicable to all awarding authorities. A contractor's failure to satisfy any of the requirements of this section may be grounds for debarment pursuant to section forty-four C of chapter one hundred and forty-nine.

(f) Records and statements required to be made, kept or filed under the provisions of this section shall not be public records as defined in section seven of chapter four and shall not be open to public inspection; provided, however, that such records and statements shall be made available pursuant to the provisions of clause (2) of paragraph (b).

M.G.L. c. 30, § 39O: Suspension, Delay, or Interruption or Failure to Act by Awarding Authority; Adjustment in Contract Price; Submission of Claims.

Section 39O. Every contract subject to the provisions of section thirty-nine M of this chapter or subject to section forty-four A of chapter one hundred forty-nine shall contain the following provisions (a) and (b) in their entirety and, in the event a suspension, delay, interruption or failure to act of the awarding authority increases the cost of performance to any subcontractor, that subcontractor shall have the same rights against the general contractor for payment for an increase in the cost of his performance as provisions (a) and (b) give the general contractor against the awarding authority, but nothing in provisions (a) and (b) shall in any way change, modify or alter any other rights which the general contractor or the subcontractor may have against each other.

(a) The awarding authority may order the general contractor in writing to suspend, delay, or interrupt all or any part of the work for such period of time as it may determine to be appropriate for the convenience of the awarding authority; provided however, that if there is a suspension, delay or interruption for fifteen days or more or due to a failure of the awarding authority to act within the time specified in this contract, the awarding authority shall make an adjustment in the contract price for any increase in the cost of performance of this contract but shall not include any profit to the general contractor on such increase; and provided further, that the awarding authority shall not make any adjustment in the contract price under this provision for any suspension, delay, interruption or failure to act to the extent that such is due to any cause for which this contract provides for an equitable adjustment of the contract price under any other contract provisions.

(b) The general contractor must submit the amount of a claim under provision (a) to the awarding authority in writing as soon as practicable after the end of the suspension, delay, interruption or failure to act and, in any event, not later than the date of final payment under this contract and, except for costs due to a suspension order, the awarding authority shall not approve any costs in the claim incurred more than twenty days before the general contractor notified the awarding authority in writing of the act or failure to act involved in the claim.

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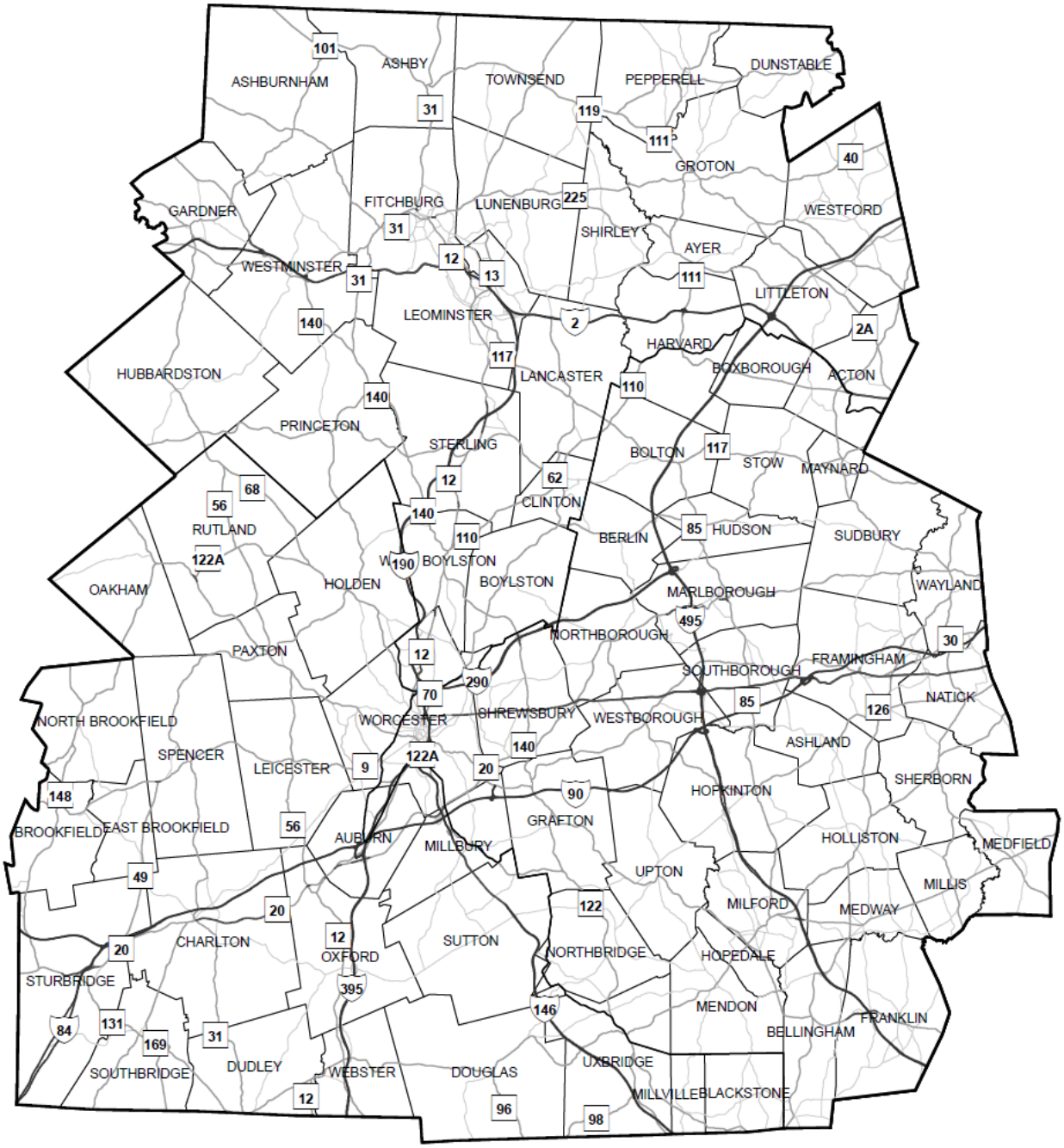
DOCUMENT 00331

LOCUS MAP

DISTRICT 3
Scheduled and Emergency Drainage Repairs and Improvements at Various Locations



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DOCUMENT 00439

Final Report ☐

Interim Report ☐

CONTRACTOR PROJECT EVALUATION FORM

For instructions on using this form, see Engineering Directive E-10-002, Dated 4/20/2010

Date: _____

City/Town: _____ Contractor: _____

Project: _____ Address: _____

F.A. No. _____ Contract Number: _____

Bid Price: _____ Notice to Proceed: _____

Funds: State: _____ Fed Aid: _____ Current Contract Completion Date: _____

Date Work Started: _____ Date Work Completed*: _____

Contractor's Superintendent: _____

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

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

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

(Give explanation of items 1 through 9 on the following page in numerical order if overall rating is below 80%. Use additional sheets if necessary.)

_____ _____

District Construction Engineer's Signature/Date Resident Engineer's Signature/Date

_____

Contractor's Signature Acknowledging Report/Date

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

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

_____

_____

CONTRACTOR PROJECT EVALUATION FORM (Continued)

Date: _____ Contract Number:_____

INFORMATION FOR DISTRICT HIGHWAY DIRECTORS RELATING TO PREQUALIFICATION

A deduction shall be recommended for unsatisfactory performance if computed overall rating is under 80%.
A deduction may be recommended for this project being completed late due to the Contractor's fault.

RECOMMENDATIONS FOR DEDUCTIONS FROM CONTRACTORS' ASSIGNED FACTOR
(*Write Yes or No in space provided*)

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

I recommend a deduction for project completed late:_____

Signed: _____
District Highway Director

EXPLANATION OF RATINGS 1 – 9:_____

WORK NOT COMPLETED WITHIN SPECIFIED TIME: _____

Revised: 04/28/17

*** END OF DOCUMENT ***

DOCUMENT 00440

Final Report ☐

Interim Report ☐

SUBCONTRACTOR PROJECT EVALUATION FORM

For instructions on using this form, see Engineering Directive E-10-002, Dated 4/20/2010

Date: _____

City/Town: _____ Subcontractor: _____

Project: _____ Address: _____

F.A. No.: _____ Contract Number: _____

Prime Contractor _____ Current Contract Completion Date: _____

Date Work Started: _____ Date Work Completed*: _____

Subcontractor's Superintendent: _____

Type of Work Performed by Subcontractor: _____

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

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

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

_____ _____

District Construction Engineer's Signature/Date Resident Engineer's Signature/Date

_____ _____

Contractor Signature Acknowledging Report/Date Subcontractor Signature Acknowledging Report/Date

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

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

_____

_____

Contractor's Comments: _____

_____

SUBCONTRACTOR PROJECT EVALUATION FORM (Continued)

Date: _____ Contract Number:_____

INFORMATION FOR DISTRICT HIGHWAY DIRECTORS RELATING TO PREQUALIFICATION

A deduction shall be recommended for unsatisfactory performance if computed overall rating is under 80%.
A deduction may be recommended for this project being completed late due to the Contractor's fault.

RECOMMENDATIONS FOR DEDUCTIONS FROM CONTRACTORS' ASSIGNED FACTOR
(*Write Yes or No in space provided*)

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

I recommend a deduction for project completed late:_____

Signed: _____
District Highway Director

EXPLANATION OF RATINGS 1 – 8: _____

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WORK NOT COMPLETED WITHIN SPECIFIED TIME: _____

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_____

Revised: 04/28/17

*** END OF DOCUMENT ***

DOCUMENT 00710
GENERAL CONTRACT PROVISIONS
Revised: 05/06/24

NOTICE OF AVAILABILITY

The STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES dated 2024, the SUPPLEMENTAL SPECIFICATIONS, the 1996 METRIC CONSTRUCTION AND TRAFFIC STANDARD DETAILS, the 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS; the 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING and the 2017 CONSTRUCTION STANDARD DETAILS are available online at https://www.mass.gov/massdot-highway-division-manuals-and-publications

SPECIAL PROVISIONS FOR RIGHT-TO-KNOW ACT REQUIREMENTS

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

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

1. Deliver to the Department, prior to the start of any work under this contract, copies of MSDS for all MSL substances to be used, stored, processed or manufactured at the worksite by the Contractor.

2. Train employees of the Department, who may be exposed to MSL substances as a result of the Contractor's work under this contract, with regard to those specific substances in accordance with requirements of the Right-To-Know Act.

3. Observe all safety precautions recommended on the MSDS for any MSL substance to be used, stored, processed, or manufactured at the worksite by the Contractor.

4. Inform the Department in writing regarding specific protective equipment recommended in the MSDS for MSL substances to which employees of the Department may be exposed as a result of the Contractor's work under this contract.

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

ALTERNATIVE DISPUTE RESOLUTION
Forum, Choice of Law and Mediations:

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

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DOCUMENT 00715

SUPPLEMENTAL SPECIFICATIONS

SEPTEMBER 30, 2024

The 2024 *Standard Specifications for Highways and Bridges* are amended by the following modifications, additions and deletions. These Supplemental Specifications prevail over those published in the Standard Specifications.

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

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

DIVISION I

GENERAL REQUIREMENTS AND COVENANTS

SECTION 1: DEFINITON OF TERMS

Subsection 1.03: Defined Terms
Under Party of the First Part replace the words Chapter 90 of the General Laws with MGL Chapter 6C, Section 4[b].

SECTION 2: PROPOSAL REQUIREMENTS AND CONDITIONS

Subsection 2.01: Proposal Forms and Plans
Replace the first paragraph under A. Prequalification Prior to Requesting Proposal Forms with the following:

Subject to the requirements of M.G.L. Chapter 81, Section 8B, each prospective Bidder proposing to bid on any work, excepting the construction, reconstruction, repair or alteration of buildings, to be awarded by the Department or by a municipality under the provisions of M.G.L. Chapter 6C, Section 4(b) must be prequalified in accordance with 700 CMR 14.00 Prequalification of contractors and subcontractors, if the amount of the proposal added to the value of the uncompleted work already under contract with the Department will aggregate $50,000 or more.

Replace the second paragraph under B. Issuance of Proposal Forms and Plans with the following:

For projects to be awarded under the provisions of M.G.L. Chapter 6C, Section 4(b), bidders may obtain plans and specifications from the applicable municipality at the place specified in the Notice to Contractors.

SECTION 4: SCOPE OF WORK

Subsection 4.04: Changed Conditions
Replace the last paragraph with the following.

The provisions of Section 39N of Chapter 30 of the General Laws, as amended, do not apply to construction contracts entered into on behalf of a municipality under the provisions of M.G.L. Chapter 6C, Section 4(b).

Subsection 4.06: Increased or Decreased Contract Quantities
Replace the second paragraph with the following.

Where the actual quantity of a pay item varies by more than 25% above or below the estimated quantity stated in the Contract, an equitable adjustment in the Contract Price for that pay item shall be negotiated upon demand of either party regardless of the cause of the variation in quantity. A demand for an equitable adjustment must be submitted to the other party within 30 days after beginning the work of the affected item that is greater than 25% above the bid quantity or within 30 days after completing the work when the actual quantity is 25% less than the bid quantity.

SECTION 9: MEASUREMENT AND PAYMENT

Subsection 9.03: Payment for Extra Work
Replace paragraph B., (2) with the following.

(2) Plus 13 percent of direct labor, for the actual costs of Federal Insurance Contribution Act (FICA) including Medicare; Federal Unemployment Tax Act (FUTA); State Unemployment Tax Act (SUTA), which includes Unemployment Insurance, the Workforce Training Fund Program, ~~and~~ Employer Medical Assistance Contribution, and COVID-19 Recovery Assessment; Earned Sick Time (EST) Law (940 CMR 33.00); and Paid Family and Medical Leave (PFML) Act (458 CMR 2.00); or, as an alternative to the above 13 percent, the Contractor may elect to use actual rates for FICA, FUTA, SUTA, EST and PFML provided the actual rates are supported with verifiable documentation and shall be subject to review by MassDOT Audit Operations.

Subsection 9.04: Partial Payments
Replace the last sentence of the first paragraph with the following;.

No such estimates or payment shall be required to be made when, in the Engineer's judgment, the work is not proceeding in accordance with the provisions of the Contract, or when in their judgment the total value of the work completed since the last estimate amounts to less than $5,000.00.

DIVISION II

CONSTRUCTION DETAILS

DIVISION II: Construction Details
Replace M4.02.15 Cement Mortar with M4.04.0 Grout, Mortar, and Concrete Products where encountered, including in Subsections 230.40, 485.40, 501.40, 685.40, 940.40A and 983.40.

SECTION 100: EARTHWORK, GRADING, DEMOLITION, RODENT CONTROL AND BORINGS

SUBSECTION 150: EMBANKMENT

Subsection 150.62: Embankment Construction with Materials Other Than Rock
Replace the fourth paragraph with the following.

The embankment materials shall be compacted to not less than 95% of the maximum dry density of the embankment material as determined by AASHTO T 99, Method C. If required, a correction for oversized particles shall be in accordance with Annex A of AASHTO T 99. If the material retained on the ¾-in. sieve is 30% or more of the total sample, this test shall not apply and the material shall be compacted to the target density. The target density shall be established by determining the number of passes of a roller required to produce a constant and uniform density, after conducting a series of tests using either AASHTO T 310, *In-Place Density and Moisture Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)*, AASHTO T 191, *Density of Soil In-Place by the Sand-Cone Method*, or *ASTM D 8167 Standard Test Method for In-Place Bulk Density of Soil and Soil-Aggregate by a Low-Activity Nuclear Method (Shallow Depth)*. The Contractor shall, without additional compensation, employ whatever measures may be necessary to adjust the natural water content of the suitable embankment material to permit the placement and compaction as hereinbefore specified.

SUBSECTION 160: CONTROLLED LOW-STRENGTH MATERIAL

Subsection 160: Controlled Low-Strength Material
Add this new subsection.

DESCRIPTION

160.20: General

Controlled Low-Strength Material shall be installed in accordance with the relevant provisions of Subsection 150: Embankment, Section 901: Cement Concrete and in accordance with the procedures described herein.

Controlled Low Strength Materials (CLSM) shall be a self-compacting, self-leveling, flowable, excavatable or non-excavatable, low strength, rigid setting, and unshrinkable material, used as an alternative to compacted granular fills, including backfill, structural fill, utility fill, pavement base, subgrade, subbase, base course, conduit bedding, erosion control, and void filling.

MATERIALS

160.40: General

Material for controlled low-strength material shall meet the requirement specified of M4.08.0 Controlled Low-Strength Material. The material shall be specified by the Engineer as one of the following types;

CLSM – Manual Excavatable (≤100 psi)
CLSM – Mechanical Excavatable (101-300 psi)
CLSM – Structural Non Excavatable (> 300 psi)

Permeability testing as specified in Table M4.08.0-2 shall be required when the material is placed outside of roadway areas or footings for concrete structures, or as directed by the Engineer.

CONSTRUCTION METHODS

160.60: General

The Contractor shall submit a placement plan for Controlled Low-Strength Material (CLSM). The plan shall include the type of CLSM, detailed descriptions of methods used for placing and containing the controlled density fill and the set time to strength.

The Contractor shall remove all debris prior to placing the fill. Fill shall not be placed against any structural elements or utilities unless approved by the Engineer.

CLSM shall be poured in lifts not exceeding 4 feet to insure stability under the fluid effects of the pour. Care shall be taken to ensure the integrity of the forms or other means of supporting the material until the material sets up.

COMPENSATION

160.80: Method of Measurement

Controlled Low-Strength Material shall be measured by the cubic yard in place to the neat lines established on the plans or specified by the Engineer. When backfilling pipes the horizontal neat lines shall be not greater than 3.0 ft. greater than the rated inside diameter of the pipe and vertically from the top of the crushed stone foundation material, if any, or 6 in. below the pipe invert whichever is less to the specified top elevation. A deduction shall be made for the volume of the pipe or conduit encased.

160.81: Basis of Payment

Payment under this item shall constitute full compensation for the placement, testing, and all material, equipment and labor to complete the work.

160.82: Payment Items

160.1	Controlled Low-Strength Material - Manual Excavatable (≤ 100 PSI)	Cubic Yard
160.2	Controlled Low-Strength Material – Mechanical Excavatable (101-300 PSI)	Cubic Yard
160.3	Controlled Low-Strength Material (>300 PSI)	Cubic Yard

SECTION 200: DRAINAGE

SUBSECTION 201: BASINS, MANHOLES AND INLETS

Subsection 201.40: General
Replace "Cement Mortar ..... M4.02.15" with "Mortar ..... M4.04.0".

SECTION 400: SUB-BASE, BASE COURSES, SHOULDERS, PAVEMENTS AND BERMS

SUBSECTION 401: GRAVEL SUB-BASE

Subsection 401.60: Gravel Sub-base
Replace the last sentence of the first paragraph with the following.

The specific density of the Gravel Sub-base shall be maintained by determining the number of passes of a roller required to produce a constant and uniform density, after conducting a series of tests using a nuclear device or the sand/volume method in accordance with AASHTO T310, AASHTO T 191, or ASTM D 8167.

SUBSECTION 402: DENSE GRADED CRUSHED STONE FOR SUB-BASE

Subsection 402.61: Spreading and Compacting
Replace the last sentence of the first paragraph with the following.

The specified density of the Dense Graded Crushed Stone shall be maintained by determining the number of passes of a roller are required to produce a constant and uniform density, after conducting a series of tests using a nuclear device or the sand/volume method in accordance with AASHTO T310, AASHTO T 191, or ASTM D 8167.

SUBSECTION 403: RECLAIMED PAVEMENT FOR BASE COURSE AND/OR SUB-BASE

Subsection 403.64: Compaction and Dust Control
Replace the second paragraph with the following.

The reclaimed base course shall be tested for compaction and smoothness and accuracy of grade in accordance with the applicable provisions of 401.60: Gravel Sub-base. The required density shall be measured by using a nuclear device or the sand/volume method in accordance with AASHTO T310, AASHTO T 191, or ASTM D 8167. If any portions are found to be unacceptable by the Engineer, such portions shall be reprocessed, regraded, and recompacted until the required smoothness and accuracy are obtained.

SUBSECTION 404: RECLAIMED PAVEMENT BORROW MATERIAL

Subsection 404.60: General
Replace the second sentence with the following.

The specified density of the Reclaimed Pavement Borrow Material shall be maintained by determining the number of passes of a roller that are required to produce a constant and uniform density, after conducting a series of tests using a nuclear device or the sand/volume method in accordance with AASHTO T310, AASHTO T 191, or ASTM D 8167

SUBSECTION 450: HOT MIX ASPHALT PAVEMENT

Subsection 450.40: General
Add the following paragraph to the end of this subsection.

Prior to placing hot mix asphalt the contractor shall provide notice to the Engineer at least 48 hours in advance of the work. The notice shall include the anticipated schedule, HMA tonnage, the type of mix, the mix provider and plant location.

SUBSECTION 460: HOT MIX ASPHALT PAVEMENT FOR LOCAL ROADS

Subsection 460.40: General
Add the following paragraph to the end of this subsection.

Prior to placing hot mix asphalt the contractor shall provide notice to the Engineer at least 48 hours in advance of the work. The notice shall include the anticipated schedule, HMA tonnage, the type of mix, the mix provider and plant location.

SUBSECTION 466: STRESS ABSORBING MEMBRANE & STRESS ABSORBING MEMBRANE INTERLAYER

Subsection 466.40: General
Replace this subsection with the following.

Prior to placing stress absorbing membrane the contractor shall provide notice to the Engineer at least 48 hours in advance of the work. The notice shall include the anticipated schedule, tonnage, the type of mix, the mix provider and plant location. Stress absorbing membrane and stress absorbing membrane interlayer shall be constructed as specified herein.

SUBSECTION 470: HOT MIX ASPHALT PAVEMENT BERM

Subsection 470.40: General
Replace this subsection with the following.

Prior to placing hot mix asphalt the contractor shall provide notice to the Engineer at least 48 hours in advance of the work. The notice shall include the anticipated schedule, HMA tonnage, the type of mix, the mix provider and plant location. The Contractor shall obtain HMA berm material of the type specified.

SUBSECTION 472: TEMPORARY ASPHALT PATCHING

Subsection 472.40: General
Add the following paragraph to the beginning of this subsection.

Prior to placing hot mix asphalt the contractor shall provide notice to the Engineer at least 48 hours in advance of the work. The notice shall include the anticipated schedule, HMA tonnage, the type of mix, the mix provider and plant location.

SUBSECTION 486: ULTRATHIN BONDED OVERLAY

Subsection 486.40: General
Add the following paragraph to the end of this subsection.

Prior to placing ultrathin bonded overlay the contractor shall provide notice to the Engineer at least 48 hours in advance of the work. The notice shall include the anticipated schedule, tonnage, the type of mix, the mix provider and plant location.

SECTION 600: HIGHWAY GUARD, FENCES AND WALLS

SUBSECTION 690: WALLS REMOVED AND RESET

Subsection 690.40: General
Replace the last sentence with the following.

Mortar shall meet the requirement of M4.04.0: Grout, Mortar, and Concrete Products.

SECTION 700: INCIDENTAL WORK

SUBSECTION 702: HOT MIX ASPHALT SIDEWALKS AND DRIVEWAYS

Subsection 702.40: General
Add the following paragraph to the end of this subsection.

Prior to placing hot mix asphalt the contractor shall provide notice to the Engineer at least 48 hours in advance of the work. The notice shall include the anticipated schedule, HMA tonnage, the type of mix, the mix provider and plant location.

SECTION 800: TRAFFIC CONTROL DEVICES

SUBSECTION 825: RECTANGULAR RAPID FLASHING BEACONS

Subsection 825: Rectangular Rapid Flashing Beacons
Add this new subsection.

DESCRIPTION

825.20: General

This work shall consist of furnishing and installing a solar-powered, actuated, Rectangular Rapid Flashing Beacon (RRFB) system at the location(s) shown in the Plans.

MATERIALS

825.40: General

Rectangular Rapid-Flashing Beacons shall meet the requirements specified in the following Subsections of Division III, Materials:

Cement Concrete.....M4.02.00
Signal Posts and Bases M10.05.1
APS Pushbuttons.....M10.09.1
RRFB Assemblies.....M10.11.0

An RRFB system shall include the following items (quantities shown in the Major Items List found in the Plans):

- Cement Concrete Foundation
- Signal Post and Pedestal Base
- APS Pushbutton
- Light Bar
- Signage
- Enclosure for Controller, Activation Unit, and Battery System
- Solar Panel
- All mounting and supporting hardware and wiring necessary to complete a working system

The Contractor shall supply cement concrete foundations per the Plans.

The Contractor shall supply Schedule 80 aluminum signal posts with a brushed or spun finish and square, pedestal aluminum bases with a natural finish unless otherwise shown in the Plans or Special Provisions.

Each Light Bar shall have a pair of yellow beacons facing one or both directions of traffic, as shown in the Plans.

All sign designs shall conform to the MUTCD. Sign panel information, including dimensions, shall be per the Plans.

The warning signs (MUTCD code W11-2, W11-15, or S1-1 signs – see Plans for sign type), and the diagonal downward arrow sign (W16-7P) signs shall be on Type A substrate, conforming to 828.42: Panels. The sign sheeting shall be fluorescent yellow-green, conforming to ASTM D4956 Type IX.

An R10-25 sign, conforming to the MUTCD, shall be mounted above the APS Pushbutton on a Type A substrate or may be integral to the button assembly.

The solar panel and battery system may be integrated into a single unit or housed separately, per the manufacturer's design. These may also be co-housed with the Light Bar and/or the Controller and Activation Unit.

The solar panel and battery system shall be sized appropriately to accommodate 300 actuations per day, 365 days a year, for the duration of the repeating flashing sequence shown in the Plans. The sizing calculations shall be based upon solar and temperature conditions for a typical December-January in Massachusetts. The system shall have a minimum autonomy of 5 days.

Each assembly shall be rated for wind speeds of up to 90 mph.

Any proprietary software required for the programming and/or operation of the system during its lifetime shall be included at no additional cost.

825.41: Shop Drawings

Within 30 days from the Notice to Proceed the Contractor shall submit shop drawings for the RRFB system, including cutsheets for all components to show conformance with M10.05, M10.09.1, and M10.11.0 and these specifications.

Shop drawings shall include all solar and battery sizing calculations. These calculations shall have Contractor- or manufacturer-supplied, site-specific shading factors applied.

825.42: Material Warranties

All RRFB components shall include a minimum 1-year manufacturer's replacement warranty for manufacturing or installation defects starting at the date of acceptance by the Engineer. A battery shall be considered defective should it not retain 80% of its original capacity within the warranty period.

CONSTRUCTION METHODS

825.60: General

RRFBs shall be installed on new foundations at the locations as shown in the Plans. Bases shall be secured to the foundation in accordance with the manufacturer's specifications.

All systems shall be installed per the manufacturer's instructions.

The location and orientation of the system shall be per the Plans.

The arrow on each APS pushbutton shall be aligned parallel to the direction of travel of the crosswalk.

The Light Bar(s) shall be oriented towards the incoming lane(s).

Solar panels shall be oriented to maximize sunlight gain.

SYSTEM OPERATION

825.70: APS Pushbuttons

APS Pushbuttons shall actuate the RRFB system. Upon actuation, an audible speech message shall be broadcast from each pushbutton in the system that says, "Warning lights are flashing," shall be stated twice. This message shall be repeated upon each actuation. No other messages shall be allowed.

While the system is in dark mode, the APS Pushbuttons shall broadcast a locator tone. The locator tone shall have a duration of 0.15 seconds or less and shall repeat at 1-second intervals at all times that the system is in dark mode. The locator tone shall be set 2 to 5 dBA above ambient sound, shall automatically adjust intensity, but cap at a maximum volume of 100 dBA.

APS Pushbuttons shall have all other vibrotactile and percussive indications disabled.

825.71: Light Bar

The Light Bar shall remain dark until actuated.

Upon actuation, all Light Bars in the system shall be activated simultaneously for a predetermined repeating flash sequence. The flashing rate shall be 75 flashing sequences per minute.

The left and right yellow beacons shall operate using the following sequence:

A. The yellow beacon on the left-hand side shall be illuminated for approximately 50 milliseconds.
B. Both yellow beacons shall be dark for approximately 50 milliseconds.
C. The yellow beacon on the right-hand side shall be illuminated for approximately 50 milliseconds.
D. Both yellow beacons shall be dark for approximately 50 milliseconds.
E. The yellow beacon on the left-hand side shall be illuminated for approximately 50 milliseconds.
F. Both yellow beacons shall be dark for approximately 50 milliseconds.
G. The yellow beacon on the right-hand side shall be illuminated for approximately 50 milliseconds.
H. Both yellow beacons shall be dark for approximately 50 milliseconds.
I. Both yellow beacons shall be illuminated for approximately 50 milliseconds.
J. Both yellow beacons shall be dark for approximately 50 milliseconds.
K. Both yellow beacons shall be illuminated for approximately 50 milliseconds.
L. Both yellow beacons shall be dark for approximately 250 milliseconds.

The flash rate of each individual RRFB indication, as applied over the full flashing sequence, shall not be more than 5 flashes per second, to avoid frequencies that might cause seizures.

The sequence shall then be repeated until the duration time has been met and then all yellow beacons shall return to dark mode simultaneously. The duration time shall be per the Plans.

The predetermined repeating flash sequence shall be immediately initiated every time a pushbutton detector is actuated. If the RRFBs are already flashing and an actuation is received, it shall restart the duration time. There shall be no delay time programmed between actuations.

COMPENSATION

825.80: Method of Measurement

RRFBs will be measured as a single system, 2-Post Assembly or 3-Post Assembly, furnished and installed.

825.81: Basis of Payment

The work will be paid for at the contract price each under the respective item for a 2-Post Assembly System or 3-Post Assembly System. Any additional wiring, mounting equipment, or other materials or labor required to for an operating system per the Plans and Specifications shall be considered as incidental to the construction and be included in the contract price.

825.82: Payment Item

825.2	RRFB (2-Post Assembly System)	Each
825.3	RRFB (3-Post Assembly System)	Each

SECTION 900: STRUCTURES

Subsection 922: Elastomeric Bearing Pads
Add this new subsection.

SUBSECTION 922: ELASTOMERIC BEARING PADS

DESCRIPTION

922.20: General
This specification consists of the construction requirements for elastomeric bearing pads. Elastomeric bearing pads shall consist of plain or laminated bearings consisting of layers of elastomers restrained at their interfaces by bonded steel laminates.

MATERIALS

922.40: General

Elastomeric bearing pads shall meet the following requirements:

Elastomeric Bearing Pads M9.14.5

Anchor bolts M8.01.5

CONSTRUCTION METHODS

922.50: Submittals

The Contractor shall submit the following to the Engineer for approval:

1. Prior to fabrication:
    a. Written notification 30 days prior to the start of bearing production. The notification shall include the contract number, quantity, type, and size of bearing being produced, manufacturer's name, and the name of the independent testing lab.
    b. Shop drawings for approval in accordance with Subsection 5.02, 14 days prior to the start of bearing production.
2. At the time of bearing pad delivery:
    a. A certificate of compliance (COC) certifying that the elastomeric bearing pads meet the requirements of the contract specifications. The COC shall be accompanied by:
        - A mill certificate for steel laminates used in bearings, where applicable.
        - Fabricator QC test reports.
    b. Independent test results as required under Subsection 922.62.

922.51: Fabricators

Fabricators shall be in accordance with Subsection M9.14.5D.

922.52: Fabrication

Fabrication shall be in accordance with Subsection M9.14.5E.

In addition to the number of bearing pads required for the contract the Contractor shall order additional bearing pads as defined in Subsection M9.14.5G, in order to allow the Engineer to randomly select a bearing pad for testing in accordance with 922.72.

922.53: Packaging, Handling, & Storage

The bearing pads shall be packaged, handled, and stored in accordance with Subsection M9.14.5F.

All bearing devices and components shall be stored on the project in an area that provides protection from environmental and physical damage. When installed, bearings shall be clean and free of all foreign substances.

922.54 Installation

Bearing pads shall be installed only on concrete bridge seat bearing areas that have been prepared in accordance with Subsection 901.65A(3).

Bearing pads shall be installed by qualified personnel to the positions, elevations, and slopes shown on the plans and to the dimensions and offsets prescribed by the manufacturer. The bearing pads shall be adjusted, as necessary, to take into account the ambient temperature at installation and future movements of the bridge due to temperature changes, release of falsework, and shortening due to post-tensioning.

Elastomeric bearings shall be placed directly on the concrete surface provided that it is flat within the bearing area to within a tolerance of 0.005 times the smallest nominal dimension of the bearing as measured by a straight edge from peak to valley. Bearings shall be placed on surfaces that do not deviate from the specified bridge seat slope in any direction by more than 0.01 rad.

Any bearing areas that exceed these tolerances shall be brought into compliance by grouting or use of shims as directed by the Engineer before the weight of the structure acts on the bearing.

Bearings that have an internal tapered load plates shall be marked with an arrow that points up-station in order to properly align the slope of the internal tapered load plate with the centerline of the bridge.

Sole plates that sit on the bearing shall not be welded to the beam flange in the field unless at least 1.5 in. of the steel exists between the weld and the elastomer. In no case shall the elastomer or the bond be subjected to temperatures higher than 400°F.

No beams shall be erected until the bearings have been accepted by the Engineer.

CONTRACTOR QUALITY CONTROL

922.60: General

The Contractor shall provide a Quality Control System (QC System) to ensure that all materials and workmanship meet the required specifications.

922.61: Quality Control Inspection

The Contractor shall perform QC inspection of all work items addressed under this specification. Inspection activities during placement may be performed by qualified production personnel. The Contractor's QC personnel shall have overall responsibility for the QC inspection. The Contractor shall not rely on the results of the Engineer's Acceptance inspection for QC purposes. The Engineer shall be provided with the opportunity to monitor and witness all QC inspections.

QC inspection activities must address the following three primary components:

a. Materials
b. Environmental Conditions
c. Workmanship

The minimum frequency of QC inspection activity shall be in accordance with the requirements below.

Table 922.61-1 - Minimum QC Inspection of Elastomeric Bearing Pads

Inspection Component	Inspection Attribute	Minimum Inspection Frequency	Point of Inspection	Inspection Method
Materials	Bearing Pad	Each Delivery	Bearing Pad	Check COC
	Geometry and Surface	Each Bearing Pad	Bearing Pad Surface	Visual Check & Check Measurement
Environmental Conditions	Temperature of Air	1 per Day	At Project Site	Check Measurement
Workmanship	Bridge Seat	Each Bearing Location	Bearing Pad Location	Visual Check
	Elevation	Each Bearing Pad	Bearing Pad Location	Check Measurement
	Orientation	Each Bearing Pad	Bearing Pad Location	Check Measurement

922.62: Quality Control Sampling and Testing Requirements

The Contractor shall have each Lot of bearing pads sampled and tested in accordance with Subsection M9.14.5G. This shall include both QC and compliant independent laboratory test results.

DEPARTMENT ACCEPTANCE

922.70: General

The Department shall sample and test bearing pads as part of its Acceptance activities. Independent testing shall also be used to supplement its testing.

922.71: Acceptance Inspection

The Engineer will perform Acceptance inspection to ensure that materials and completed work are in conformance with the contract requirements. Acceptance inspection is intended to visually assess the quality of each Lot produced and placed and will address only the inspection components of materials and workmanship in support of the Department's final Acceptance determination. All Acceptance inspection activities by the Department will be performed independent of the Contractor's QC inspection.

Table 922.71-1 – Department Acceptance Inspection of Elastomeric Bearing Pads

Inspection Component	Inspection Attribute	Minimum Inspection Frequency	Point of Inspection	Inspection Method
Materials	Bearing Pad	1 Per Bearing Pad	Bearing Pad Surface	Check COC
	Geometry and Surface	1 Per Bearing Pad	Bearing Pad Surface	Visual Check & Check Measurement
Workmanship	Elevation	1 per Bearing Pad	Bearing Pad Location	Check Measurement
	Orientation	1 per Bearing Pad	Bearing Pad Location	Check Measurement

922.72: Acceptance Sampling and Testing Requirements

For Acceptance samples taken by the Engineer at the project, the sampling rate shall be in accordance with Subsection M9.14.5G. Bearing pads shall be tested by the Department in accordance with Table M9.14.5-1.

922.73: Lot Acceptance Determination Based on Inspection Results

The Engineer's Acceptance inspection results will be used in the final Acceptance determination for all Lots. Prior to final Acceptance of each Lot produced and placed, the Engineer will evaluate all Acceptance inspection information for the Lot. The materials and product workmanship for the completed work will be evaluated for conformance with the plans and the requirements specified in Subsections 922.60, 922.61, and 922.62.

When the Acceptance information identifies deficiencies in either material quality or product workmanship, the location will be isolated and further evaluated by the Engineer through additional Acceptance inspection. Depending upon the findings of the additional Acceptance inspection activity, the Engineer will determine the disposition of the nonconforming work in accordance with Division I, Subsection 5.03, Conformity with Plans and Specifications.

922.74: Lot Acceptance Determination Based on Testing Data

Prior to final Acceptance of each Lot, the Engineer will evaluate all available QC, independent, and Acceptance testing data for the Lot to determine conformance with the minimum requirements in Subsection M9.14.5G and Table M9.14.5-1.

If a test result does not meet the minimum requirement, the Contractor and Engineer will further assess the quality to determine whether the material can remain in place.

If the Engineer's assessment determines that the material quality is not sufficient to permit the bearing pad to remain in place, the pad shall be removed and replaced. When a nonconforming bearing pad is corrected or replaced, the Engineer will perform Acceptance testing of the replacement bearing pad and evaluate the test results for conformance with the minimum requirements.

922.75: Final Lot Acceptance Determination

For each Lot produced and placed, the Engineer will evaluate all Acceptance inspection and testing data for the Lot. The final review and visual inspection shall be conducted jointly by the Contractor and Engineer. Any items that do not meet the requirements of the specifications and plans shall be addressed at this time, at no additional cost to the Department.

After each Lot is complete, including any corrective action, the Engineer will perform a final evaluation of all Acceptance data for the Lot. The Engineer will accept the Lot if the evaluation of all inspection and testing data for the Lot is in conformance with this specification and the contract documents.

When the above requirements have been met, the Engineer will accept all completed bearing pads.

COMPENSATION

922.80: Method of Measurement

Laminated Elastomeric Bearing Pads will be measured by each pad installed. Plain Elastomeric Bearing Pads will be measured by the square foot installed. The measured quantities do not include the additional bearings required for conformance and destructive testing.

922.81: Basis of Payment

Payment under this item shall be at the contract unit price. This price will include all materials, equipment, tools and labor, additional bearing pads for testing and all required testing necessary to complete the work.

922.82: Payment Items

921.	Laminated Elastomeric Bearing Pad with Anchor Bolts	Each
922.	Laminated Elastomeric Bearing Pad without Anchor Bolts	Each
923.	Laminated Sliding Elastomeric Bearing Pad with Anchor Bolts	Each
933.	Plain Elastomeric Bearing Pad	Square Foot

SECTION 970: DAMP-PROOFING

Subsection 970.30: General
Add the following material to this subsection.

Mortar..... M4.04.0

Subsection 970.40: General
Replace the second sentence in the second paragraph with the following.

All holes in concrete surfaces shall be satisfactorily filled with mortar before damp-proofing is applied.

SUBSECTION 983: REVETMENT

Subsection 983.64 Special Slope Paving Under Bridges
Replace the last sentence under B. Quarry Stone or Precast Concrete Blocks. with the following.

Mortar shall then be placed in the joints to the top of the paved surface.

Subsection 983.65 Channel Paving and Grouted Channel Paving
Replace the last sentence with the following.

The grout shall conform to M4.04.0: Grout, Mortar, and Concrete Products.

DIVISION III

MATERIALS SPECIFICATIONS

SECTION M4: CEMENT AND CEMENT CONCRETE MATERIALS

Subsection M4.02.00 Cement Concrete
Add the following to the end of this subsection.

Alkali Silica Reactivity - Resistant Portland Cement Concrete

All cement concrete and precast/prestressed concrete products shall be alkali silica reactivity-resistant. Proportion Portland cement concrete mixes to include materials that meet either the aggregate requirement or Alkali-Silica Reactivity (ASR) mitigation criteria listed below. Provide cement mill test reports from certified laboratories that show the materials' source, composition and the cement alkali content expressed as sodium oxide equivalent(s) not to exceed 1.4%. Certified test reports according to test procedures as specified in Table A will be required to be submitted with the trial batch submission to RMS for approval every year or whenever the source of material is changed.

Select non-reactive aggregates that meet all the criteria of Table M4.02.00-2. Mitigate the mix as described below when nonreactive aggregates are unavailable. If non-reactive aggregates are used for portland cement concrete mix, 15% by weight of the cementitious content shall be fly ash meeting AASHTO M 295, Type F.

Select a material or a combination of materials that meet the criteria shown in Table M4.02.00-3 to mitigate ASR when concrete mixes must be proportioned with reactive aggregates. Perform verification test according to AASHTO T 303 and ASTM C295 to determine the effectiveness of the resulting mix design against ASR. Use the same proportion of cement and pozzolan for each test mixture as that proposed for the actual mix design. Provide the Department with certified documentation of the mixtures' effectiveness to control ASR.

Table M4.02.00-2: Tests and Criteria for Proposed Aggregates

Procedure	Description	Limits
AASHTO T 303: Accelerated Detection of Potentially Deleterious Expansion of Mortar Bars Due to Alkali-Silica Reaction	Mean mortar bar expansion at 14 days. Perform a polynomial fit (1) of 4, 7, 11, and 14 days to determine reliability of results	0.08% maximum metamorphic aggregate; 0.10% maximum all other aggregates. Repeat AASHTO T 303 if r^2 is less than 0.95.
ASTM C295: Petrographic Examination of Aggregates for Concrete	Optically strained, microfractured, or microcrystalline quartz	5.0% maximum (2)
	Chert or chalcedony	3.0% maximum (2)
	Tridymite or cristobolite	1.0% maximum (2)
	Opal	0.5% maximum (2)
	Natural volcanic glass	3.0% maximum (2)

(1) Use a second order polynomial of $\%Exp = A^o + A^1 SQRT(t) + A^2t$. See publication SD92-04-F.
(2) Based on the total aggregate sample.

Table M4.02.00-3: Mitigation Methods for ASR in Portland Cement Concrete

Material	Specification	Cementitious Material Percentage (1)
Low alkali cement (2)	AASHTO M 85	100%
Fly ash - Class F	AASHTO M 295	15% minimum to 30% (4) maximum
Silica Fume (5)	AASHTO M 307	6% ± 1% (6)
Slag Grade 100 and 120	AASHTO M 302	25% minimum to 50% maximum

(1) Measure this minimum content of cementitious material as percent by weight of cement plus pozzolan.
(2) This single criterion is not effective in all cases in remediating ASR. Low alkali cement (0.60% maximum (3)) must be used in combination with other pozzolanic materials in Table B.
(3) Na_2O equivalent = $\%Na_2O + 0.658 (\%K_2O)$
(4) Fly ash, Type F, shall replace 15% by weight of the design cement content, and any additional fly ash will be considered as fine aggregate.
(5) Silica fume shall only be used in silica fume cement concrete.
(6) The total amount of Type F fly ash and silica fume shall constitute 20% by weight of the design cement content, and any additional fly ash shall be considered as fine aggregate.

Subsection M4.02.15 Cement Mortar
Delete this subsection.

Subsection M4.04.0: Grout, Mortar and Concrete Products
Replace this subection with the following.

M4.04.0: Grout, Mortar, and Concrete Products

Grout, cementitious mortar, and concrete products shall be packaged, dry, and preblended with preformulated constituent materials (excluding mixing water) to produce a material with acceptable quality characteristics and material properties, including time of set, compressive strength, flexural strength, slant shear bond strength, resistance to alkali silica reaction, freezing/thawing, and de-icing cycles, shrinkage, expansion, and sulfate reaction.

Mortar products shall be defined as products containing aggregate of which less than 5% by mass of the total mixture is retained on the 3/8 in. sieve. Mortar products for concrete repairs shall be used only on repair depths of 2 in. or less. Concrete products shall be defined as products containing aggregate of which 5% or more by mass of the total mixture is retained on the 3/8 in. sieve. Concrete products for concrete repairs shall be used only on repair depths greater than 2 in.

The aggregate sources included in the prepackaged product or extended into the product shall meet Section M4.02.02: Aggregates. Grout, cementitious mortar, and concrete products shall only be applied per the requirements provided on the product's technical data sheet. Grout, cementitious mortar, and concrete products shall maintain valid listing on the MassDOT Qualified Construction Materials List (QCML). Grout, cementitious mortar, and concrete products shall meet requirements specified herein.

A. Technical Data Sheet.

The Manufacturer shall submit the product's technical data sheet to the Department for review. At a minimum, the product's technical data sheets shall include:

(a) Product Name
(b) Manufacturer, including address and contact information
(c) Packaging
(d) Yield
(e) Product Description, including an overview of the product and its intended application(s) and use(s).

(f) Technical Data, including quality characteristics and corresponding performance criteria with the AASHTO and/or ASTM standard test methods identified.
(g) Recommended Equipment
(h) Instructions, including surface preparation, mixing, forming, placing, finishing, curing, and protection from adverse conditions, such as precipitation, cold conditions, and hot conditions.
(i) Limitations
(j) Storage and Shelf Life
(k) Safety

B. Mix Design Formulation.

Products that are extended with aggregate not included in the original product packaging shall be formulated per the product's technical data sheet and evaluated through Department mix design evaluation and verification testing. Producers shall report and submit proposed mix design formulations onto the Department issued mix design sheet. The Producer shall select an AASHTO accredited independent laboratory to conduct verification testing. The sampling and testing conducted by the independent laboratory shall be witnessed by the Department.

C. Product Verification Testing.

Verification test results shall be within the limits specified herein.

M4.04.1: Conventional Grout, Cementitious Mortar, and Concrete Products

Conventional grout, cementitious mortar, and concrete products shall meet the requirements of Section M4: Cement and Cement Concrete Materials, performance criteria of the product's technical data sheet, and the requirements specified herein.

M4.04.2: Rapid Hardening Cementitious Mortar and Concrete Products

Rapid hardening cementitious mortar and concrete products shall meet the requirements and performance criteria of the product's technical data sheet, ASTM C928 Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs, and Table M4.04.2-2.

Table M4.04.2-1: Types of Rapid Hardening Cementitious Products for Concrete Repairs

Type	Description	Application
R1	General Rapid Hardening	Vertical and Overhead Repairs
R2	Medium Rapid Hardening	Vertical and Overhead Repairs
R3	Very Rapid Hardening	Horizontal, Vertical, and Overhead Repairs

Table M4.04.2-2: Verification Testing Requirements

Property	Method	Quality Characteristic		Limits					
				R1		R2		R3	
				Min.	Max.	Min.	Max.	Min.	Max.
Setting	T 197	Initial Set (min.)		Technical Data Sheet					
		Final Set (min.)		Technical Data Sheet					
Strength	T 97[1]	Flexural Strength (psi)	24 Hours	–	–	–	–	650	–
			7 Days	–	–	–	–	–	–
Durability	T 358	Surface Chloride Ion Penetration Resistance (kΩ-cm)	28 Days	21	–	21	–	21	–
	T 161 (A)	Relative Durability Factor		90	–	90	–	90	–
		Mass Loss (%)		–	6.0	–	6.0	–	6.0
[1] Not applicable to vertical and overhead repair applications.									

M4.04.3: Mortar Products for Unit Masonry

Mortar products for unit masonry shall meet the requirements and performance criteria of the product's technical data sheet and Type M specified in ASTM C270 Standard Specification for Mortar for Unit Masonry. Field proportioned cement mortar for laying brick and block shall be composed of 1 part Portland cement and 2 parts of fine aggregate by volume with a sufficient amount of water to form a workable mixture, while still achieving the properties specified herein.

M4.04.4: Grout Products for Unit Masonry

Grout products for unit masonry shall meet the requirements and performance criteria of the product's technical data sheet and ASTM C476 Standard Specification for Grout for Masonry.

M4.04.5: Non-Shrink Grout Products

Non-shrink grout products are intended for use under applied load, including supporting a structure, transfer medium between load-bearing members, shear keys, and other non-shrink applications, where a change in height below initial placement height is to be avoided. Non-shrink grout products shall meet the requirements and performance criteria of the product's technical data sheet and ASTM C1107 Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink).

SECTION M5: PIPE, CULVERT SECTIONS AND CONDUIT

Subsection M5.01.0: Joint Material for Pipe
Replace M4.02.15 Cement Mortar with M4.04.0 Grout, Mortar, and Concrete Products in paragraph B.

SECTION M8: METALS AND RELATED MATERIALS

Subsection M8.18.1: Traffic Signal Supports
Delete the heading Posts and the two paragraphs under it. Delete the heading Bases and the three paragraphs under it.

SECTION M9: MISELLANEOUS MATERIALS

Subsection M9.14.5: Elastomeric Bridge Bearing Pads
Replace this subsection with the following:

M9.14.5: Elastomeric Bearing Pads

A. General Requirements

Elastomeric bearing pads shall be plain or laminated. They shall meet the applicable requirements of AASHTO M 251, the MassDOT Bridge Manual, and the AASHTO LRFD Bridge Design and Construction Specifications. The type of bearing will be specified on the plans.

Laminated elastomeric bearing pads consist of layers of elastomers restrained at their interfaces by bonded metal laminates.

B. Material Requirements

Plain elastomeric bearing pads shall consist of elastomer.

Laminated elastomeric bearing pad shall consist of:

- Elastomer
- Internal Steel Laminates
- Tapered Internal Load Plates (if used)

The components of the elastomeric bearing pad shall conform to AASHTO M 251 and the following:

- The elastomer compound shall be 100% virgin neoprene and classified as being of low-temperature grade 3.
- The steel laminates shall meet the requirements of ASTM A 1011 Grade 36 or higher

C. Material Qualification

Elastomeric bearing pads shall be approved on a project basis. The Contractor shall furnish to the Research and Materials Section certified independent test reports demonstrating conformance. All testing shall be performed by the same independent lab in accordance with Subsection M9.14.5G.

D. Fabricators

Bearing shall be fabricated by a fabricator listed on the MassDOT Qualified Construction Materials List (QCML).

E. Fabrication

Fabrication shall not begin until the shop drawings have been approved and the Department has an inspector at the fabricator's facility.

The shop drawings shall specify bearing dimensions as shown on the plans and, where applicable, shall include:

- Elastomer thickness and edge cover,
- Number and thickness of steel reinforcing laminates,
- Dimensions of load plates (if any),
- Design shear modulus of the elastomer shall be as shown on the Plans.

Plain elastomeric bearing pads shall be fabricated and tested in accordance with the "Method A" design outlined in the AASHTO LRFD Bridge Design Specifications.

Laminated elastomeric bearing pads shall be fabricated and tested in accordance with the "Method B" design outlined in the AASHTO LRFD Bridge Design Specifications.

The manufacturer shall designate the bearings in each Lot, as described in Subsection M9.14.5G, and certify that each bearing in the Lot was manufactured in a reasonably continuous manner from the same batch of elastomer and cured under the same conditions. In addition, the manufacturer shall certify that each bearing in the Lot satisfies the requirements of this specification, AASHTO M 251, the AASHTO LRFD Bridge Construction Specifications, and the contract plans and documents.

The tolerances on the overall dimensions for the bearings shall be according to Table 2 of AASHTO M 251, except that the tolerance on the overall vertical dimension shall be limited to 0, +1/8" regardless of the design thickness.

All steel included in the final bearing product must conform to Buy America Requirements.

F. Packaging, Handling, & Storage

The bearing pads shall be packaged, handled, and stored as specified below:

Prior to shipment from the point of manufacture, bearings shall be packaged in such a manner to ensure that during shipment and storage the bearings will be protected against damage from handling, weather, or any normal hazard. Each completed bearing shall have its components clearly identified, be securely bolted, strapped, or otherwise fastened to prevent any relative movement, and be marked on it top as to location and orientation in each structure in the project in conformity with the contract documents.

Each elastomeric bearing shall be marked in indelible ink or flexible paint. The marking shall consist of the order number, lot number, bearing identification number, and elastomer type and grade per AASHTO M 251. For bearing pads fabricated with a tapered internal load plate, a 1/32" deep direction arrow shall be inscribed into the bearing which will allow the bearing to be aligned with the up-station direction. All marks shall be permanent and be visible after the bearing is installed.

G. Testing Requirements

Quality Control System

Fabricators shall perform Quality Control (QC) testing in accordance with their quality system. QC test reports shall accompany the bearing pads when delivered to the project.

Acceptance System

MassDOT will evaluate the fabricator's quality system and QC test reports. It will also perform its own testing and verify the independent laboratory's test reports, if applicable.

Lot Sizes

Sampling of bearing pads for testing shall be random and performed on a Lot basis. A Lot of bearings shall be a group of 100 or fewer bearings that are:

- For a single contract,
- Cured under the same conditions,
- The same size and configuration,
- Manufactured in a reasonably continuous manner from the same batch of elastomer.

Testing of Plain Bearings

Testing Laboratory

Plain elastomeric bearing pads shall be tested by both an independent laboratory and MassDOT:

- Independent testing shall be performed by a nationally recognized third-party laboratory approved by the Research & Materials Section.
- Acceptance testing shall be performed by the Research and Materials.

Sampling Frequency

Each Lot of plain bearings shall be randomly sampled for testing. The Contractor shall ensure that the fabricator produces the additional bearings required for testing.

Samples for independent testing shall be selected by the fabricator. The sampling rate for the independent

testing shall be as follows:

- Lot sizes less than 10 bearings – One full-size bearing per Lot.
- Lot sizes greater than or equal to 10 bearings – Two full-size bearings per lot.

Samples for Acceptance testing shall be selected by the Engineer. The sampling rate for Acceptance testing shall be one bearing pad per lot.

Testing Requirements

The laboratory shall test the bearings in accordance with Sections 8 and 9 of AASHTO M 251 as specified below:

1. Dimensions per Section 8.4.
2. Elastomer per Section 8.6.
    - The hardness, tensile strength, and ultimate elongation shall be in accordance with Table 1 of AASHTO M 251.
3. Test procedures per Section 8.9.
    - Heat resistance per Section 8.9.3.

Testing of Laminated Bearings

Testing Laboratory

Laminated elastomeric bearing pads shall be tested by both an independent laboratory and MassDOT:

- Independent testing shall be performed by a nationally recognized third-party laboratory approved by the Research & Materials Section.
- Acceptance testing shall be performed by the Research and Materials.

Sampling Frequency

Each Lot of laminated bearings shall be randomly sampled for testing. The Contractor shall ensure that the fabricator produces the additional bearings required for testing.

Samples for independent testing shall be selected by the fabricator. The sampling rate for the independent testing shall be as follows:

- Lot sizes less than 10 bearings – One full-size bearing per Lot.
- Lots sizes greater than or equal to 10 bearings:
    - One full-size bearing per every twenty per lot, or a minimum of two bearings.
    - The number of laminated bearings to sample shall be determined by taking the Lot size divided by 20. If the integer part of this calculation is 0 or 1, then two bearings shall be sampled. For example, if the lot size is 58 laminated bearings, two bearings shall be sampled; if the lot size is 65, three bearings shall be sampled; and if the lot size is 22, two bearings shall be sampled.

Samples for Acceptance testing shall be selected by the Engineer. The sampling rate for Acceptance testing shall be one bearing pad per lot.

Testing Requirements

Testing of the bearings shall be in accordance with Sections 8 and 9 of AASHTO M 251 as specified below:

1. Dimensions per Section 8.4.
2. Elastomer per Section 8.6.
    - The hardness, tensile strength, and ultimate elongation shall be in accordance with Table 1 of AASHTO M 251.
3. Compressive strain at the maximum design dead plus live service compressive load per Section 8.8.1.1.

- The compressive deflection, as determined per Section 9.1., between the two loadings for each bearing tested shall not exceed 10%.

4. Bond via Compressive Load per Section 8.8.2.2.
5. Shear Modulus of the elastomer per Section 8.8.3.
   - Shear modulus shall meet the requirements on the plans.
6. Test procedures per Section 8.9.
   a. Additional Low Temperature Shear Modulus testing per Section 8.9.1.
   b. Heat resistance per Section 8.9.3.
   c. Compression set per Section 8.9.4.
   d. Creep per Section 8.9.5.
      - The percent creep shall be less than 35%.
   e. Long Term Compression per Section 8.9.6.

Table M9.14.5-1: Department Acceptance Testing of Elastomeric Bearing Pads

Quality Characteristic	**Test Method**	**Requirement**
Hardness	ASTM D2240	From Independent Test Results ± 5 Pts
Tensile Strength	ASTM D412	≥ 2250 psi
Ultimate Elongation	ASTM D412	Minimum Elongation Based on Durometer according to AASHTO M 251 Table 1
Shear Modulus (see Note 1)	ASTM D4014	Specified Value ± 15%
After Heat Aging for 70 Hours at 100°C (Maximum Change from Unaged Testing)		
Hardness	ASTM D573	Hardness + 15 Pts
Tensile Strength	ASTM D573	Tensile Strength - 15%
Ultimate Elongation	ASTM D573	Ultimate Elongation - 40%
Note 1: Test is only required for laminated elastomeric bearing pads.		

SECTION M10: TRAFFIC CONTROL DEVICES

Subsection M10.05.0: Traffic Signal Structures (General)
Add this new subsection.

M10.05.0: Traffic Signal Structures (General)

The bases of all Traffic Signal Structures shall be supplied with a bonding lug.

Subsection M10.05.1: Signal Posts and Bases
Add this new subsection.

M10.05.1: Signal Posts and Bases

All Signal Posts shall be one-piece 4-in. diameter, Schedule 40 or Schedule 80, and machine-threaded.

Signal Posts may be fabricated from aluminum with a brushed or spun finish or from steel with a galvanized finish.

The interior of Signal Posts shall be coated as specified in Underwriters Laboratories UL-6 for enameled conduit, or aluminum conduit conforming to M5.07.1: Electrical Conduit-Rigid Metallic (Type RM), Paragraph C.

Signal Posts Bases shall be fabricated to accept the threads from the Signal Post and locked into place with set screws.

Signal Post Bases shall be fabricated from aluminum with a natural or anodized finish or galvanized cast iron.

Signal Post Bases shall be square or octagonal.

Signal Posts and Bases conform to Table M10.05.1-1.

Table M10.05.1-1: Signal Post and Base Material Requirements

Component	Material	Specification
Signal Post	Aluminum	6063-T6 (ASTM B221, B429 or B241)
Signal Post	Steel	ASTM A53, Grade A or B
Signal Post Base	Aluminum	356.0-T6 (ASTM B26, B108)
Signal Post Base	Cast Iron	AASHTO M 105

Subsection M10.11.0: RRFB Assemblies
Add this new subsection.

M10.11.0: RRFB Assemblies

Rectangular Rapid Flashing Beacon (RRFB) Assemblies shall consist of a Light Bar and an enclosure for the Controller and Activation Unit.

Light Bar

The Light Bar shall consist of two rapidly-flashed rectangular-shaped yellow indications, each with an LED-array based pulsing light source. The size of each RRFB indication shall conform to the Construction Standard Details.

The light intensity of the yellow indications during daytime conditions shall meet the minimum specifications for Class 1 yellow peak luminous intensity in the publication "Directional Flashing Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles J595," 2005, Society of Automotive Engineers (SAE). A photocell or equivalent device shall be included to reduce the brilliance of the LED beacons during nighttime conditions.

Controller and Activation Unit

The enclosure for the Controller and Activation Unit shall be NEMA rated for outdoor use and protection against rain and sleet.

The Controller and Activation Unit shall be powered by a DC battery/solar array system or a 120 VAC service connection.

The Controller and Activation Unit shall be actuated by a pedestrian pushbutton, a passive pedestrian detection device, or both.

Communications between multiple units within the same system shall be via a 900MHz or 2.4 GHz frequency hopping spread spectrum with a minimum range of 200 ft. Multiple channels shall be available to prevent cross-communication between multiple systems located close to each other.

The Controller shall be programmable via an on-board user interface or a no-fee wireless (Wi-Fi, Bluetooth®, etc.) connection and application.

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END OF SUPPLEMENTAL SPECIFICATIONS

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DOCUMENT 00718

SPECIAL PROVISION FOR PARTICIPATION BY MINORITY OR WOMEN'S BUSINESS ENTERPRISES AND SERVICE- DISABLED VETERAN- OWNED BUSINESS ENTERPRISES
(Implementing Chapter 102, Section 24 and
Chapter 273, Section 124, of the Acts of 1994 and Chapter 56, Sections 1 to 5 of the Acts of 2010
and subsequent Acts)
Revised: September 27, 2021

I. PARTICIPATION

M/WBE PARTICIPATION GOAL
On this Contract, the Massachusetts Department of Transportation (MassDOT) has established a goal for participation by Minority or Women Business Enterprise(s) (M/WBE). One half of the goal shall be met in the form of contractor activity. This goal shall remain in effect throughout the life of the Contract.

☒ Design-Bid-Build Projects: M/WBE Participation Goal **10%**
(*One half of this goal shall be met in the form of Subcontractor construction activity*)

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

SDVOBE PARTICIPATION BENCHMARK
On this Contract, the Massachusetts Department of Transportation (MassDOT) has established a goal for participation by Service- Disabled Veteran- Owned Business Enterprise(s) (SDVOBE). This goal shall remain in effect throughout the life of the Contract.

☐ Design-Bid-Build Projects: SDVOBE Participation Goal ____**%**

☐ Design-Build Projects: SDVOBE Design Participation Goal ___**%** and SDVOBE Construction Participation Goal ___**%**

II. POLICY

It is the policy of the MassDOT that Minority, Women Business Enterprises (M/WBEs) and Service- Disabled Veteran- Owned Business Enterprises (SDVOBEs) have equal opportunity to receive and participate in the performance of its state funded Contracts.

III. M/WBE and SDVOBE OBLIGATION

The Contractor agrees to take all necessary and reasonable steps to ensure that MBE, WBE, and SDVOBEs have the maximum opportunity to compete for, and to perform, Department Contracts.

IV. FAILURE TO COMPLY WITH M/WBE OR SDVOBE REQUIREMENTS

All Contractors and Subcontractors are hereby advised that failure to carry out the requirements of these Provisions constitutes a breach of Contract which may result in termination of the Contract, a determination that the Contractor or Subcontractor be barred from bidding on Department Contracts for up to three (3) years, or any other remedy as the Department may impose under Section XIV of these Special Provisions.

V. REQUIRED SUBCONTRACT PROVISIONS

The Prime Contractor shall include the Provisions of Sections II, III, and IV above in every subcontract making those provisions binding on each subcontractor, supplier, manufacturer, consultant or service provider.

VI. DEFINITIONS

For the purpose of these Special Provisions, the terms listed below are defined as follows:

Minority Business Enterprise or MBE means any individual, business organization, or non-profit corporation certified as a MBE by the Supplier Diversity Office (SDO), formerly known as the State Office of Minority and Women Business Assistance (SOMWBA), or by the Department for the purposes of a particular bid or proposal to be submitted to the Department.

Women Business Enterprise or WBE means any individual, business or organization, or non-profit corporation certified as a WBE by SDO, or by the Department for the purposes of a particular bid or proposal to be submitted to the Department.

Service- Disabled Veterans- Owned Businesses or SDVOBE means a business not less than 51 percent of which is owned by one or more service- disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and the management and daily business operations of which are controlled by one or more service- disabled veterans or, in the case of a veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

"Contractor activity" means any work, including but not limited to, construction, demolition, renovation, survey, test boring services, or maintenance work performed under the Contract.

"Approved Joint Venture" means a joint venture between M/WBEs and non-M/WBEs, or SDVOBEs and non-SDVOBEs, which has been established for the purpose of participation on a particular contract, where:

1. The M/WBE or SDVOBE partner(s) shares in the ownership, control, management responsibilities, risks and profits of the joint venture; and

2. The Joint Venture has been approved by the Department for M/WBE or SDVOBE participation on the particular contract.

"Equipment Rental Firm" means a firm that owns equipment and assumes actual and contractual responsibility to rent said equipment to perform a useful function of the work of the contract consistent with normal industry practice.

"Material Supplier" means a vendor engaged in sales to the highway construction industry from an established place of business or source of supply, which:

(a) Manufactures goods from raw materials or substantially alters them before resale, or

(b) Provides and maintains a storage facility for materials used in the work, consistent with normal industry practice.

“Department” means the Massachusetts Department of Transportation (MassDOT).

"SDO" means the Massachusetts Supplier Diversity Office.

VII. ELIGIBILITY of M/WBEs

Only firms, *OTHER THAN THE PRIME CONTRACTOR*, which have been certified by SDO and/or the Department as eligible to participate on state funded contracts as MBEs or WBEs may be used on this contract for credit toward the toward the M/WBE participation goal.

1. SDO Directory of Certified M/WBEs: The Supplier Diversity Office publishes a Directory of certified MBE and WBEs. This Directory can be obtained from SDO at https://www.sdo.osd.state.ma.us/. This site lists those firms which have been certified as minority owned (MBEs) or women owned (WBEs) in accordance with the criteria of 425 CMR 2.00 et seq to participate as M/WBEs on state funded contracts. It also lists the kinds of work in which each firm engages but does not constitute an endorsement of the quality or performance of any business and does not represent Department subcontractor approval.

2. Application for Certification by the Department for a Particular Project: A firm which has (1) submitted a fully completed M/WBE application to SDO at least 30 days previously, (2) has provided in a timely manner, any additional information which may have been requested by SDO, and (3) can provide evidence, satisfactory to the Department, of a bidder's conditional commitment to subcontract with the firm, if certified, may apply directly to the MassDOT Office of Civil Rights to be certified for participation on the particular contract.

3. Joint Venture Approval: To obtain recognition as an approved joint venture between M/WBEs and non-/M/WBEs, the Joint Venture must provide to the MassDOT Office of Civil Rights, at least 14 business days before the bid opening date, the Joint Venture Affidavit Document B00847, and a copy of the Joint Venture Agreement, which shall include a detailed breakdown of the following:

   (a) Capital participation by the M/WBE,

   (b) Specific equipment to be provided to the Joint Venture by the M/WBE,

   (c) Specific responsibilities of the M/WBE in the management of the Joint Venture,

   (d) Workforce and specific skills to be provided to the Joint Venture by the M/WBE, and

   (e) Percentage distribution to the M/WBE of the projected profit or loss incurred by the Joint Venture.

   (f) The Joint Venture shall provide all such additional information as may be requested by the Department for the purpose of determining joint venture eligibility.

VIII. ELIGIBILITY of SDVOBEs

Only firms, *OTHER THAN THE PRIME CONTRACTOR*, which have demonstrated that they are listed as a service-disabled veteran- owned small businesses within the VetBiz database may be used on this contract for credit toward the SDVOBE participation goal.

1. VetBiz Database: The website, located at www.VetBiz.gov, listing verified service- disabled veteran- owned businesses.

2. Joint Venture Approval: To obtain recognition as an approved joint venture between SDVOBEs and non-/SDVOBEs, the joint venture must provide to the MassDOT Office of Civil Rights, at least 14 business days before the bid opening date, an application for joint venture participation approval, and a copy of the Joint Venture Agreement, which shall include a detailed breakdown of the following:

   (a) Capital participation by the SDVOBE,

   (b) Specific equipment to be provided to the joint venture by the SDVOBE,

   (c) Specific responsibilities of the SDVOBE in the management of the Joint Venture,

   (d) Workforce and specific skills to be provided to the joint venture by the SDVOBE, and

(e) Percentage distribution to the SDVOBE of the projected profit or loss incurred by the Joint Venture.

(f) The Joint Venture shall provide all such additional information as may be requested by the Department for the purpose of determining joint venture eligibility.

IX. COUNTING M/WBE PARTICIPATION AND SDVOBE BENCHMARKS TOWARDS M/WBE AND SDVOBE GOALS

In order for M/WBE participation and SDVOBE benchmarks to count toward the Contract goal, the M/WBE and SDVOBE must have independently managed, supervised and performed the Contract work with its own workforce, equipment and resources. M/WBE and SDVOBE participation which fulfills these requirements shall be counted toward meeting the M/WBE and SDVOBE goals in accordance with the following rules:

1 If a firm has been determined to be an eligible MBE, WBE or SDVOBE, the total dollar value of the contract performed by the M/WBE or SDVOBE is counted toward the applicable goal as follows:

a. Except as provided below, in Section IX (1)(g), work performed by a M/WBE or a SDVOBE Prime Contractor shall not be counted toward the M/WBE or SDVOBE goal, and all Prime Contractors, including M/WBE or SDVOBE Prime Contractors, must comply with the M/WBE and SDVOBE requirements of this Contract.

b. For a M/WBE or SDVOBE material supplier, sixty percent (60%) of the amount to be paid for materials and supplies required under this Contract shall be credited toward the goal.

c. For a M/WBE or SDVOBE who provides a bonafide service such as professional, technical, consultant or managerial services and assistance in the procurement of essential personnel, facilities, equipment, materials, or supplies required for performance of the contract, reasonable fees or commissions charged for the service shall be listed, but the cost of items themselves shall not be credited.

d. For a M/WBE or SDVOBE hauler, trucker, or delivery service, which is not also the manufacturer of or a regular dealer in the materials and supplies, reasonable fees charged for delivery of materials and supplies required on the job site shall be credited; the cost of the materials and supplies themselves shall not be credited.

e. For a M/WBE or SDVOBE who provides any bonds or insurance specifically required for the performance of the contract, reasonable fees or commissions charged for such service shall be listed, but the face amount or actual premium paid for the bond or insurance shall not be credited.

f. The Department shall determine if the fees or commissions listed in accordance with paragraphs (c), (d), and (e) are not excessive as compared with fees or commissions customarily allowed for similar services.

g. That portion of the contract total dollar value equal to the percentage of ownership and control of the M/WBE partner(s) or SDVOBE partner(s) in an approved Joint Venture shall be counted toward the Contract goal, except that credit for M/WBE and SDVOBE participation in an approved Prime Joint Venture shall not exceed one half of the Contract goal.

X. JOINT CHECK POLICY

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

2. In the event that a Contractor, M/WBE or SDVOBE Subcontractor desires to a use joint check, MassDOT will require prior notice and will closely monitor the arrangement for compliance. MassDOT may allow a joint check arrangement and give credit to a Contractor for use of the M/WBE or SDVOBE where one or more of the following conditions exist:

   - The use of a joint check is in fact required by this type of vendor or supplier as a standard industry practice that applies to all Contractors (M/WBEs, SDVOBE and non-M/WBEs or non-SDVOBEs); or is required by a specific vendor or supplier;

   - Payment for supplies or materials would be delayed for an unreasonably extended period without the joint check arrangement;

   - The M/WBE or SDVOBE (or any of its Subcontractors) has a pattern or history of not paying a vendor or supplier within a reasonable time or has not established enough of a credit history with the supplier or vendor; and/or

   - The presence of severe adverse economic conditions, where credit resources may be limited and such practices may be necessary or required to effect timely payments.

3. Other factors MassDOT may consider:

   - Whether there is a requirement by the Prime Contractor that a M/WBE or SDVOBE should use a specific vendor or supplier to meet their Subcontractor specifications;

   - Whether there is a requirement that a M/WBE or SDVOBE use the Prime Contractor's negotiated price;

   - The independence of the M/WBE or SDVOBE;

   - Whether approval has been sought prior to use of a joint check arrangement; and

   - Whether any approved joint check arrangement has exceeded a reasonable period of use;

   - The operation of the joint check arrangement; and

   - Whether the M/WBE or SDVOBE has made an effort to establish alternate arrangements for following periods (i.e., the M/WBE or SDVOBE must show it can, or has, or why it has not, established or increased a credit line with the vendor or supplier).

Even with the use of a Joint Check, both the Contractor and M/WBE or SDVOBE remain responsible for compliance with all other elements of the Special Provisions, and must still be able to prove that a commercially useful function is being performed for the Contractor.

XI. JOINT CHECK PROCEDURES

- The M/WBE or SDVOBE advises its General or Prime Contractor that it will have to use a Joint Check and provide proof of such requirement.
- The General or the Prime Contractor submits a request for approval to MassDOT, using MassDOT's approved Joint Check Request form (Document B00846) and by notification on the M/WBE Letter of Intent (Document B00843) or SDVOBE Letter of Intent (Document B00845), and any other relevant documents. Requests that are not initiated during the bid process should be made in writing and comply with the procedure.
- The Contractor and M/WBE or SDVOBE must have:
  (a) a written agreement with the material supplier/vendor;
  (b) applied for credit with the subject material supplier and has supplied the vendor's response;

(c) shown that it will place all orders to the subject material supplier/vendor;
(d) made and retains all decision-making responsibilities concerning the materials; and
(e) provided a Joint Check Agreement that is acceptable to MassDOT;

- The MassDOT Office of Civil Rights will review the request and render a decision as part of the approval process for M/WBE or SDVOBE Schedules and Letters of Intent.
- Review and Approval will be project specific and relevant documents will be made part of the Project Contract file.
- Payments should be made in the name of both the M/WBE or SDVOBE and vendor or supplier. Payments should be issued and signed by the Contractor as only the guarantor for prompt payment of purchases to the vendor or supplier. The payment to the vendor or supplier should be handled by the M/WBE or SDVOBE (i.e. if possible, funds or the joint check should be processed by the M/WBE or SDVOBE and sent by the M/WBE or SDVOBE to the vendor or supplier).
- MassDOT may request copies of cancelled checks (front and back) and transmittal information to verify any payments made to the M/WBE or SDVOBE and vendor or supplier.
- MassDOT may request other information and documents, and may ask questions of the Contractor, Subcontractor and vendor or supplier prior to, during, and after the project performance to ascertain whether the Subcontractor is performing a commercially useful function and all parties are complying with M/WBE or SDVOBE Program policies and procedures as part of the Subcontractor approval process.

XII. AWARD DOCUMENTATION AND PROCEDURES

1. The two lowest bidders/the two bidders with the lowest price per quality score point, including any M/WBE bidder or SDVOBE bidder, shall submit, by the close of business on the third business day after the bid opening, a completed Schedule of M/WBE and SDVOBE participation, in the form attached, which shall list:

   a. The full company name, address and telephone number of each M/WBE or SDVOBE with whom the bidder intends to make a commitment;

   b. The Contract item(s), by number(s) and quantity(ies), if applicable, or specific description of other business activity to be performed by each M/WBE or SDVOBE as set forth in the Letters of Intent. The bidder shall list only firms which have the capacity to perform, manage and supervise the work proposed in accordance with the requirements of Section XII of these Special Provisions.

   c. The total dollar amount to be paid to each M/WBE or SDVOBE. (Bidders are cautioned that at least one half of the participation goal must be met with Contract work.)

   d. The total dollar amount to be paid to each M/WBE or SDVOBE which is eligible for credit toward the M/WBE or SDVOBE goal under the crediting rules set out in Section IX.

   e. The total creditable M/WBE or SDVOBE participation as a percentage of the total bid price.

2. All firms listed on the Schedule must be currently certified.

3. The two lowest bidders/the two bidders with the lowest price per quality score point shall submit with their Schedules of Participation, fully completed, signed Letters of Intent from each of the M/WBEs or SDVOBEs listed on the Schedule. The Letters of Intent shall be in the form attached and shall identify specifically the contract activity the M/WBE or SDVOBE proposes to perform, expressed as contract item number, if applicable, description of the activity, quantity, unit price and total price. In the event of discrepancy between the Schedule and the Letter of Intent, the Letter of Intent shall govern.

4. Evidence of good faith efforts will be evaluated by the Department in the selection of the lowest responsible bidder/best value bidder. All information requested by the Department for the purpose of evaluating the bidder's efforts to achieve the goal must be provided within three calendar days and must be accurate and complete in every detail. The apparent low bidder's/best value bidder's attainment of the M/WBE or SDVOBE goal or a satisfactory demonstration of good faith efforts is a prerequisite for Award of the Contract.

5. Failure to meet, or to demonstrate good faith efforts to meet, the requirements of these Special Provisions shall render a bid non-responsive. Therefore, in order to be eligible for award, the bidder (1) must list on the Schedule of Participation, and provide the required Letters of Intent for, M/WBE or SDVOBE participation which meets or exceeds the Contract goal in accordance with the terms of these Special Provisions or (2) must demonstrate, to the satisfaction of the Department, that good faith efforts were made to achieve the goal.

6. If the Department finds that the percentage of M/WBE or SDVOBE participation submitted by the bidder on its Schedule does not meet the Contract goal, or that the Letters of Intent were not timely filed, and that the bidder has not demonstrated good faith efforts to comply with these requirements, it shall propose that the bidder be declared ineligible for Award. In that case, the bidder may request administrative reconsideration. Such requests must be sent in writing within three calendar days of receiving notice of proposed ineligibility to: The Office of the General Counsel, Massachusetts Department of Transportation, 10 Park Plaza, Boston, MA, 02116.

7. If, after administrative reconsideration, the Department finds that the bidder has not shown that sufficient good faith efforts were made to comply with the requirements of these Special Provisions it shall reject the bidder's proposal and may retain the proposal guaranty.

8. Actions which constitute evidence of good faith efforts to meet the M/WBE or SDVOBE goals include, but are not limited to, all of the following examples:

    a. Efforts made to select portions of the work proposed to be performed by M/WBEs or SDVOBEs in order to increase the likelihood of achieving the stated goal, including, where appropriate, but not limited to, breaking down contracts into economically feasible units to facilitate M/WBE and SDVOBE participation. The value of such work is required to at least equal the M/WBE and SDVOBE goal.

    b. Reasonable written notification prior to the opening of bids soliciting individual M/WBEs or SDVOBEs interested in participation in the contract as subcontractors, regular dealers, manufacturers, consultants, or service providers and identifying the specific items or type of work being solicited.

    c. Written notification to M/WBE or SDVOBE economic development assistance agencies and organizations which provide assistance in recruitment and placement of M/WBEs and SDVOBEs, describing the type of work, supplies or services being considered for M/WBE or SDVOBE subcontracting on this contract.

    d. Efforts made to negotiate with M/WBEs or SDVOBEs for specific items of work including evidence of:
        (1) The names, addresses, telephone numbers of M/WBEs or SDVOBEs who were contacted, the dates of initial contact and whether initial solicitations of interest were followed up by contacts with M/WBEs or SDVOBEs to determine with certainty whether the M/WBEs or SDVOBEs were interested. Personal or phone contacts are expected.

        (2) A description of the information provided by the M/WBEs or SDVOBEs regarding the plans and specifications and estimated quantities for portions of the work to be performed.

        (3) A statement of why additional agreements with M/WBEs or SDVOBEs were not reached.

        (4) Documentation of each M/WBE or SDVOBE contacted but rejected and the reasons for the rejection.

    e. Absence of any agreements between the Contractor and the M/WBE or SDVOBE in which M/WBE or SDVOBE promises not to provide subcontracting quotations to other bidders.

    f. Efforts made to assist the M/WBEs or SDVOBEs that need assistance in obtaining bonding, insurance, or lines of credit required by the Contractor.

g. Documentation that qualified M/WBEs or SDVOBEs are not available, or are not interested.

h. Attendance at any meeting scheduled by the Department to encourage better Contractor-M/WBE or Contractor- SDVOBE relationships and/or to inform M/WBEs or SDVOBEs of forthcoming M/WBE or SDVOBE utilization opportunities.

i. Advertisement, in general circulation media, in trade association publications and in disadvantaged business enterprise-focused media, of interest in utilizing M/WBEs or SDVOBEs and the area of interest.

j. Efforts to effectively use the services of available minority community organizations; women organizations, veteran organizations, minority, women disadvantaged and veteran contractor's groups; local, state and federal disadvantaged business assistance offices; and other organizations that provide assistance in recruitment and placement of M/WBEs or SDVOBEs.

9. The demonstration of good faith efforts must establish that the Contractor has actively and aggressively sought out M/WBEs or SDVOBEs to participate in the project and has taken all actions which could be reasonably expected to achieve the goal. Examples of circumstances or actions not acceptable as reasons for failure to meet the M/WBE or SDVOBE goal, include, but are not limited to:

a. The M/WBE or SDVOBE was unable to provide performance and/or payment bonds.

b. The M/WBEs or SDVOBEs commercially reasonable bid was rejected based on price.

c. The M/WBE or SDVOBE would not agree to perform items of work at the unit bid price.

d The Contractor does not want to subcontract a percentage of the work sufficient to meet the goal.

e. Solicitation by mail or fax only.

XIII. COMPLIANCE

1. All activity performed by a M/WBE or SDVOBE for credit toward the Contract goal must be performed, managed and supervised by the M/WBE or SDVOBE. Prime Contractor shall not enter into, or condone, any other arrangement.

2. The Prime Contractor shall not perform with its own organization, or assign to any other business, any activity designated for the M/WBEs or SDVOBEs named on the Schedule submitted by the Prime Contractor under Section IX, or under Section XII(6), without the approval of the Department in accordance with the requirements of Sections XIII(6) and XIII(10).

3. The Department may suspend payment for any activity which was not performed by the M/WBE or SDVOBE to whom the activity was committed on the approved Schedule of Participation, or which was not performed in accordance with the requirements of Section XIII(1).

4. The Department retains the right to approve or disapprove all subcontractors. Requests by the Prime Contractor for approval of participation by a M/WBE or SDVOBE subcontractor for credit toward the Contract goal must include, in addition to any other requirements for subcontractor approval, the following:

a. A copy of the proposed subcontract. The subcontract must be for at least the dollar amount, and for the work described, in the Prime Contractor's Schedule of Participation.

b. A resume stating the qualifications and experience of the M/WBE or SDVOBE superintendent and/or foreperson who will supervise the on-site work. A new resume will be required for any change in supervisory personnel during the progress of the work.

c. A Schedule of Operations indicating when the M/WBE or SDVOBE is expected to perform the work.

d. A list of (1) equipment owned by the M/WBE or SDVOBE to be used on the Project, and (2) equipment to be leased by the M/WBE or SDVOBE for use on the Project.

e. A list of: (1) all projects (public and private) which the M/WBE or SDVOBE is currently performing, (2) all projects (public and private) to which the M/WBE or SDVOBE is committed, (3) all projects (public and private) to which the M/WBE or SDVOBE intends to make a commitment. For each contract, list the contracting organization, the name and telephone number of a contact person for the contracting organization, the dollar value of the work, a description of the work, and the M/WBEs or SDVOBEs work schedule for each project.

5. If, pursuant to the subcontractor approval process, the Department finds that a M/WBE or SDVOBE subcontractor does not have sufficient experience or resources to perform, manage and supervise work of the kind proposed in accordance with the requirements of Section XIII(1), approval of the M/WBE or SDVOBE subcontractor may be denied. In the event of such denial, the Prime Contractor shall proceed in accordance with the requirements of Sections XIII(6) and XIII(10).

6. If, for reasons beyond its control, the Prime Contractor cannot comply with its M/WBE or SDVOBE commitment in accordance with the Schedule of participation submitted under Section IX and the terms of these Special Provisions, the Prime Contractor shall submit to the Department the reasons for its inability to comply with its obligations under Section I and shall submit, and request approval for, a revised Schedule of Participation. If approved by the Department, the revised Schedule shall govern the Prime Contractor's performance in meeting its obligations under these special provisions.

7. A Prime Contractor's compliance with the participation goal in Section I shall be determined by reference to the required percentage of the total Contract price, including any additions and modifications thereto, provided, however, that no decrease in the dollar amount of a bidder's commitment to any M/WBE or SDVOBE shall be allowed without the approval of the Department.

8. If the Contract amount is increased, the Prime Contractor shall submit a revised Schedule of Participation in accordance with Sections XIII(6) and XIII(10).

9. In the event of the decertification of a M/WBE or SDVOBE participating or scheduled to participate on the contract for credit toward the goal, the Contractor shall proceed in accordance with Sections XIII(6) and XIII(10).

10. The Prime Contractor shall notify the Department immediately of any facts which come to its attention indicating that it may or will be unable to comply with any aspect of its M/WBE or SDVOBE obligation under this Contract.

11. Any notice required by these Special Provisions shall be given in writing to the Resident Engineer and the district designated Compliance Officer with a copy to the Director of Compliance, Office of Diversity and Civil Rights, 10 Park Plaza, Room 3170, Boston MA 02116.

12. The Prime Contractor and its subcontractors shall comply with the Department’s Electronic Reporting System Requirements (Contract Document 00821) and submit all information required by the Department related to the M/WBE Special Provisions and SDVOBE Special Provisions through the Equitable Business Opportunity Solution (EBO). The Department reserves the right to request reports in the format it deems necessary anytime during the performance of the Contract.

13. The Contractor shall pay each M/WBE or SDVOBE for satisfactory performance of its Contract no later than 10 days from receipt of payment for the work from the Department. Any delay or postponement of payment to the M/WBEs or SDVOBEs must be for good cause and only with the prior approval of the Department.

14. The Department may withhold the Contractor's next periodic payment if each M/WBE or SDVOBE is not paid in accordance with Section XIII(13).

15. The Department may require specific performance of the Prime Contractor's commitment under the Contract by requiring the Prime Contractor to subcontract with a M/WBE or SDVOBE for any contract or specialty item.

XIV. SANCTIONS

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

1. Retain, in connection with final acceptance and final payment, an amount determined by multiplying the total contract amount by the percentage in Section I, less the amount paid to approved M/WBEs or SDVOBEs for work performed under the Contract in accordance with the provisions of Section X. The Prime Contractor shall have the right to appeal such retention of funds in accordance with the provisions of M.G.L. c. 30A s.10.

2. Suspend, terminate or cancel this Contract, in whole or in part, and call upon the Prime Contractor's surety to perform all terms and conditions in the Contract.

3. In accordance with 720 CMR 5.05(1)(f), modify or revoke the Prime Contractor's Prequalification status or recommend that the Prime Contractor not receive award of a pending Contract. The Prime Contractor may appeal the determination of the Prequalification Committee in accordance with the provisions of 720 CMR 5.07.

4. Initiate debarment proceedings under M.G.L. c.29 §29F.

XV. FURTHER INFORMATION

Any proposed M/WBE, SDVOBE, bidder, Contractor or subcontractor shall provide such information as is necessary in the judgement of the Department to ascertain its compliance with the terms of this Special Provision.

XVI. LIST OF ADDITIONAL DOCUMENTS

1. The following documents shall be completed and signed by the bidder and designated M/WBEs or SDVOBEs in accordance with Section XII - Award Documentation and Procedures. These documents must be returned by the bidder to MassDOT's Bid Document Distribution Center:

   □ Schedule of M/WBEs (Document B00842) or SDVOBE Participation (Document B00844)
   □ Letter of Intent: M/WBEs (Document B00843) or SDVOBE (Document B00845)
   □ M/WBEs or SDVOBE Joint Check Arrangement Approval Form (Document B00846), if Contractor and M/WBE or SDVOBE plan, or if M/WBE or SDVOBE is required to use a Joint Check (when applicable)

2. The following document shall be signed and returned by Contractor and Subcontractors/M/WBEs or SDVOBEs to the MassDOT District Office overseeing the Project, as applicable:

   □ Contractor/Subcontractor Certification Form (Document No. 00859) (a checklist of other documents to be included with every subcontract (M/WBEs or SDVOBEs and non-M/WBEs or SDVOBEs alike)).

3. The following document shall be provided to MassDOT's Office of Civil Rights and Prequalification Office at least fourteen (14) business days before the bid opening date:

   □ Joint Venture Affidavit of M/WBE or SDVOBE/Non-M/WBE or Non-SDVOBE (Document B00847)

4. The following document shall be provided to MassDOT's District Office of Civil Rights within 30 calendar days after the work of the DBE is completed, or no later than 30 calendar days after the work of the DBE is on a completed and processed CQE. This document shall be completed and submitted by the Prime Contractor:

   □ Certificate of Completion by a Minority/Women or Disadvantaged Business Enterprise (M/W/DBE) (Form No. CSD-100)

** END OF DOCUMENT ***

DOCUMENT 00761

SPECIAL PROVISIONS FOR CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

Revised: 02/09/16

I. Instructions for Certification - Primary Covered Transactions:

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

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

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

3. The prospective primary participant shall provide immediate written notice to the MassDOT if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the MassDOT for assistance in obtaining a copy of those regulations.

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

6. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," provided by the MassDOT, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the "Lists of Parties Excluded From Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration and the Debarment Lists compiled by both the Massachusetts Office of the Attorney General and the Department of Capital Asset Management and Maintenance (DCAMM) and published separately in the Central Register.

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

9. Except for transactions authorized under paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available, the MassDOT may terminate this transaction for cause or default.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion -- Primary Covered Transactions

The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal, State or local department or agency;

2. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

3. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 2 of this certification; and

4. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

II. Instructions for Certification - Lower Tier Covered Transactions:

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

1. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available the MassDOT may pursue available remedies, including suspension and/or debarment.

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

3. The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the MassDOT for assistance in obtaining a copy of those regulations.

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

5. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

6. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List and the Debarment Lists.

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

8. Except for transactions authorized under paragraph 4 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, the MassDOT may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions

The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal, State or local department or agency.

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

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DOCUMENT 00811

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

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

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

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

Period Price
The Period Price is the price of liquid asphalt for each monthly period as determined by the Department using the average selling price per standard ton of PG64-28 paving grade (primary binder classification) asphalt, FOB manufacturer's terminal, as listed under the "East Coast Market - New England, Boston, Massachusetts area" section of the Poten & Partners, Inc. "Asphalt Weekly Monitor". This average selling price is listed in the issue having a publication date of the second Friday of the month and will be posted as the Period Price for that month. The Department will post this Period Price on its website at https://www.mass.gov/service-details/massdot-current-contract-price-adjustments following its receipt of the relevant issue of the "Asphalt Weekly Monitor". Poten and Partners has granted the Department the right to publish this specific asphalt price information sourced from the Asphalt Weekly Monitor.

Price Adjustment Determination, Calculation and Payment
The Contract Price of the HMA mixture will be paid under the respective item in the Contract. Price Adjustments, as herein provided, either upwards or downwards, will be made after the work has been performed using the monthly period price for the month during which the work was performed.

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

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

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

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

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

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DOCUMENT 00812

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

This monthly fuel price adjustment is inserted in this contract because the national and worldwide energy situation has made the future cost of fuel unpredictable. This adjustment will provide for either additional compensation to the Contractor or repayment to the Commonwealth, depending on an increase or decrease in the average price of diesel fuel or gasoline.

This adjustment will be based on fuel usage factors for various items of work developed by the Highway Research Board in Circular 158, dated July 1974. These factors will be multiplied by the quantities of work done in each item during each monthly period and further multiplied by the variance in price from the Base Price to the Period Price.

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

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

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

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

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

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

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

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DOCUMENT 00813

SPECIAL PROVISIONS

PRICE ADJUSTMENTS FOR STRUCTURAL STEEL AND REINFORCING STEEL

January 15, 2025

This special provision applies to all projects containing the use of structural steel and/or reinforcing steel as specified elsewhere in the Contract work. It applies to all structural steel and all reinforcing steel, as defined below, on the project. Compliance with this provision is mandatory, i.e., there are no "opt-in" or "opt-out" clauses. Price adjustments will be handled as described below and shall only apply to unfabricated reinforcing steel bars and unfabricated structural steel material, consisting of rolled shapes, plate steel, sheet piling, pipe piles, steel castings and steel forgings.

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

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

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

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

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

Base Prices and Period Prices are defined as follows:

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

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

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

The Period Price Date is the date the steel was delivered to the fabricator as evidenced by an official bill of lading submitted to the Department containing a description of the shipped materials, weights of the shipped materials and the date of shipment. This date is used to select the Period Price Index.

The index used for the calculation of Period Prices is the U.S. Department of Labor Bureau of Labor Statistics Producer Price Index (PPI) Series ID WPU101702 (Not Seasonally Adjusted, Group: Metals and Metal Products, Item: Semi-finished Steel Mill Products.) As this index is subject to revision for a period of up to four (4) months after its original publication, no price adjustments will be made until the index for the period is finalized, i.e., the index is no longer suffixed with a "(P)".

Period Prices are determined as follows:

Period Price = Base Price X Index Factor
Index Factor = Period Price Index / Base Price Index

Example of a Period Price Calculation:

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

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

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

Index Factor = Period Price Index / Base Price Index = 218.0 / 229.4 = 0.950
Period Price = Base Price X Index Factor = $0.82/Pound X 0.950 = $0.78/Pound

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

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

* To access the PPI website and obtain a Base Price Index or a Period Price Index, go to http://data.bls.gov/cgi-bin/srgate

End of example.

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

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

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

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

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

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

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

TABLE

Steel Type		Price per Pound
1	ASTM A615/A615M Grade 60 (AASHTO M31 Grade 60 or 420) Reinforcing Steel	$0.57
2	ASTM A27 (AASHTO M103) Steel Castings, H-Pile Points & Pipe Pile Shoes (See Note below.)	$0.79
3	ASTM A668 / A668M (AASHTO M102) Steel Forgings	$0.79
4	ASTM A108 (AASHTO M169) Steel Forgings for Shear Studs	$0.82
5	ASTM A709/A709M Grade 36 / AASHTO M270M/M270 Grade 36 or 250 Structural Steel Plate	$0.87
6	ASTM A709/A709M Grade 36 / AASHTO M270M/M270 Grade 36 or 250 Structural Steel Shapes	$0.81
7	ASTM A709/A709M Grade 50 / AASHTO M270M/M270 Grade 50 or 345 Structural Steel Plate	$0.87
8	ASTM A709/A709M Grade 50 / AASHTO M270M/M270 Grade 50 or 345 Structural Steel Shapes	$0.81
9	ASTM A709/A709M Grade 50WT / AASHTO M270M/M270 Grade 50WT or 345WT Structural Steel Plate	$0.90
10	ASTM A709/A709M Grade 50WT / AASHTO M270M/M270 Grade 50WT or 345WT Structural Steel Shapes	$0.82
11	ASTM A709/A709M Grade 50W / AASHTO M270M/M270 Grade 50W 345W Structural Steel Plate	$0.90
12	ASTM A709/A709M Grade 50W / AASHTO M270M/M270 Grade 50W or 345W Structural Steel Shapes	$0.82
13	ASTM A709/A709M Grade HPS 50W / AASHTO M270M/M270 Grade HPS 50W or 345W Structural Steel Plate	$0.94
14	ASTM A709/A709M Grade HPS 70W / AASHTO M270M/M270 Grade HPS 70W or 485W Structural Steel Plate	$1.01
15	ASTM A514/A514M-05 Grade HPS 100W / AASHTO M270M/M270 Grade HPS 100W or 690W Structural Steel Plate	$1.54
16	ASTM A992/A992M Grade 50S / AASHTO M270M/M270 Grade 50S or 345S Structural Steel Plate	$0.90
17	ASTM A992/A992M Grade 50S / AASHTO M270M/M270 Grade 50S or 345S Structural Steel Shapes	$0.82
18	ASTM A276 Type 316 Stainless Steel	$4.61
19	ASTM A240 Type 316 Stainless Steel	$4.61
20	ASTM A148 Grade 80/50 Steel Castings (See Note below.)	$1.58
21	ASTM A53 Grade B Structural Steel Pipe	$1.01
22	ASTM A500 Grades A, B, 36 & 50 Structural Steel Pipe	$1.01
23	ASTM A252, Grades 240 (36 KSI) & 414 (60 KSI) Pipe Pile	$0.80
24	ASTM 252, Grade 2 Permanent Steel Casing	$0.80
25	ASTM A36 (AASHTO M183) for H-piles, steel supports and sign supports	$0.85
26	ASTM A328 / A328M, Grade 50 (AASHTO M202) Steel Sheetpiling	$1.52
27	ASTM A572 / A572M, Grade 50 Sheetpiling	$1.52
28	ASTM A36/36M, Grade 50	$0.87
29	ASTM A570, Grade 50	$0.85
30	ASTM A572 (AASHTO M223), Grade 50 H-Piles	$0.87
31	ASTM A1085 Grade A (50 KSI) Steel Hollow Structural Sections (HSS), heat-treated per ASTM A1085 Supplement S1	$1.01
32	AREA 140 LB Rail and Track Accessories	$0.52

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

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DOCUMENT 00814

SPECIAL PROVISIONS
PRICE ADJUSTMENT FOR PORTLAND CEMENT CONCRETE MIXES

January 12, 2009

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

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

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

The Period Price of Portland cement will be determined by using the latest published price, in dollars per ton (U.S.), for Portland cement (Type I) quoted for Boston, U.S.A. in the **Construction Economics** section of *ENR Engineering News-Record* magazine or at the ENR website http://www.enr.com under **Construction Economics**. The Period Price will be posted on the MassDOT website the Wednesday immediately following the publishing of the monthly price in ENR, which is normally the first week of the month.

The Contract Price of the Portland cement concrete mix will be paid under the respective item in the Contract. The price adjustment, as herein provided, upwards or downwards, will be made after the work has been performed, using the monthly period price for the month during which the work was performed.

The price adjustment applies only to the actual Portland cement content in the mix placed on the job in accordance with the Standard Specifications for Highways and Bridges, Division III, Section M4.02.01. No adjustments will be made for any cement replacement materials such as fly ash or ground granulated blast furnace slag.

The Price Adjustment will be a separate payment item. It will be determined by multiplying the number of cubic yards of Portland cement concrete placed during each monthly period times the Portland cement content percentage times the variance in price between the Base Price and Period Price of Portland cement.

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

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

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DOCUMENT 00820

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

I. Definitions

For purposes of this contract,

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

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

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

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

II. Equal Opportunity, Non-Discrimination and Affirmative Action

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

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

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

The Contractor shall post hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the Massachusetts Commission Against Discrimination setting forth the provisions of the Fair Employment Practices Law of the Commonwealth (Massachusetts General Laws Chapter l51 B).

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

III. Minority and Women Workforce Participation

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

IV. Liaison Committee

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

V. Reports and Records

The Contractor shall prepare projected workforce tables on a quarterly basis when required by the administering agency. These shall be broken down into projections, by week, of workers required in each trade. Copies shall be furnished one week in advance of the commencement of the period covered, and also, when updated, to the administering agency and the Liaison Committee when required.

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

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

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

VI. Access to Work Site

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

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

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

VIII. Sanctions

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

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

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

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

IX. Severability

The provisions of this section are severable, and if any of these provisions shall be held unconstitutional by any court of competent jurisdiction, the decision of such court shall not affect or impair any of the remaining provisions.

X. Contractor's Certification

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

XI. Subcontractor Requirements

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

Rev'd 03/07/14

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DOCUMENT 00821

ELECTRONIC REPORTING REQUIREMENTS
CIVIL RIGHTS PROGRAMS AND CERTIFIED PAYROLL

Implemented on March 2, 2009 Revised June 04, 2019

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

Contractor and Sub-Contractor EBO User Certification

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

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

Vetting of Firms and Designated Firm Individuals

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

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

Interim Reporting Requirements

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

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DOCUMENT 00859

CONTRACTOR/SUBCONTRACTOR CERTIFICATION FORM ‡

The contractor shall submit this completed document 00859 to MassDOT for each subcontract.

_____ **(Contractor)** **Date:**_____

_____**(Subcontractor)** ☐ District Approved Subcontractor

Contract No: 129394 **Project No.** 613769 **Federal Aid No.:** NFA

Location: DISTRICT 3

Project Description: Scheduled and Emergency Drainage Repairs and Improvements at Various Locations

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

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

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

Document #

☐ 00718 –Participation By Minority Or Women's Business Enterprises and SDVOBE†
☐ 00761 –Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion
☐ 00820 – MA Supplemental Equal Employment Opportunity, Non-Discrimination, and Affirmative Action Program
☐ 00821 – Electronic Reporting Requirements, Civil Rights Programs, and Certified Payroll
☐ 00859 – Contractor/Subcontractor Certification Form (this document)
☐ 00860 – MA Employment Laws
☐ 00861 – Applicable State Wage Rates in the Contract Proposal**
☐ B00842 – MA Schedule of Participation By Minority or Women Business Enterprises (M/WBEs)†
☐ B00843 – MA Letter of Intent – M/WBEs†

** Does not apply to Material Suppliers, unless performing work on-site
† Applies only if Subcontractor is a M/WBE; only include these forms for the particular M/WBE Entity

☐ B00844 - Schedule of Participation By SDVOBE
☐ B00845 - Letter of Intent – SDVOBE
☐ B00846 – M/WBE or SDVOBE Joint Check Arrangement Approval Form
☐ B00847 – Joint Venture Affidavit

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

Document #

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

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

*Applicable only to Contracts or Subcontracts in excess of $10,000
**Does not apply to Material Suppliers, unless performing work on-site
† Applies only if Subcontractor is a DBE; only include these forms for the particular DBE Entity

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

_____ _____
(Print Name and Title) (Authorized Signature)

PART 2

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

1. This company recognizes that if this is a Federal-Aid Project, then this Contract is covered by the equal employment opportunity laws administered and enforced by the United States Department of Labor ("USDOL"), Office of Federal Contract Compliance Programs ('OFCCP"). By signing below, we acknowledge that this company has certain reporting obligations to the OFCCP, as specified by 41 CFR Part 60-4.2.
2. This company further acknowledges that any contractor with fifty (50) or more employees on a Federal-aid Contract with a value of fifty-thousand ($50,000) dollars or more must annually file an EEO-1 Report (SF 100) to the EEOC, Joint Reporting Committee, on or before September 30th, each year, as specified by 41 CFR Part 60-1.7a.
3. For more information regarding the federal reporting requirements, please contact the USDOL, OFCCP Regional Office, at 1-646-264-3170 or EEO-1, Joint Reporting Committee at 1-866-286-6440. You may also find guidance at: http://www.dol.gov/ofccp/TAguides/consttag.pdf or http://www.wdol.gov/dba.aspx#0.
4. This company ☐ has, ☐ has not, participated in a previous contract or subcontract subject to the Equal Opportunity clauses set forth in 41 CFR Part 60-4 and Executive Order 11246, and where required, has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance Programs or the EEO Commission all reports due under the applicable filing requirements.
5. This company is in full compliance with applicable Federal and Commonwealth of Massachusetts laws, rules, and regulations and is not currently debarred or disqualified from bidding on or participating in construction contracts in any jurisdiction of the United States. See : https://www.mass.gov/service-details/contractors-and-vendors-suspended-or-debarred-by-massdot
6. This company is properly registered and in good standing with the Office of the Secretary of the Commonwealth.

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

Firm: _____
Address: _____
_____
_____
Telephone Number:_____
Federal I.D. Number:_____
Estimated Start Date:_____
Estimated Completion Date:_____
Estimated Dollar Amount:_____

_____
(Print Name and Title)

_____
(Authorized Signature)

_____
(Date)

Rev'd 09/02/22

*** END OF DOCUMENT ***

DOCUMENT 00860

COMMONWEALTH OF MASSACHUSETTS PUBLIC EMPLOYMENT LAWS

Revised February 20, 2019

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

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

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

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

The Prevailing Wage Rate generally includes the following:

> Minimum Hourly Wage + Employer Contributions to Benefit Plans = Prevailing Wage Rate or Total Rate
>
> Any employer who does not make contributions to Benefit Plans must pay the total Prevailing Wage Rate directly to the employee.

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

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

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

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

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

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

STATEMENT OF COMPLIANCE

Date: _____

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

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

_____
(Contractor or Subcontractor)

on the _____
(MassDOT Project Location and Contract Number)

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

Signature _____

Title _____

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

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

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

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

*** END OF DOCUMENT ***

DOCUMENT 00861

STATE PREVAILING WAGE RATES

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Proposal No. 613769-129394

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

MAURA HEALEY
Governor

KIM DRISCOLL
Lt. Governor

LAUREN JONES
Secretary

MICHAEL FLANAGAN
Director

Awarding Authority: MassDOT Highway

Contract Number: 129394 **City/Town:** WORCESTER

Description of Work: DISTRICT 3: Scheduled and Emergency Drainage Repairs and Improvements at Various Locations

Job Location: District-wide

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: 02/11/2025 **Wage Request Number:** 20250211-020

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 2)*	08/01/2024	$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 WORKER (PIPES & TANKS) *HEAT & FROST INSULATORS LOCAL 6 (WORCESTER)*	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 (WORCESTER)*	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 Worcester*

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)*	09/01/2024	$48.37	$9.83	$19.97	$0.00	$78.17
	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 - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	$21.77	$9.83	$1.73	$0.00	$33.33
2	45	$21.77	$9.83	$1.73	$0.00	$33.33
3	55	$26.60	$9.83	$3.40	$0.00	$39.83
4	55	$26.60	$9.83	$3.40	$0.00	$39.83
5	70	$33.86	$9.83	$16.51	$0.00	$60.20
6	70	$33.86	$9.83	$16.51	$0.00	$60.20
7	80	$38.70	$9.83	$18.24	$0.00	$66.77
8	80	$38.70	$9.83	$18.24	$0.00	$66.77

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

Notes:

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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

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 (WORCESTER)*	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 - Worcester*

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 2)*	08/01/2024	$78.11	$10.08	$24.29	$0.00	$112.48
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 2)*	08/01/2024	$51.97	$10.08	$24.29	$0.00	$86.34
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 2)*	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 2)*	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 96*	09/01/2024	$47.05	$13.99	$19.22	$0.00	$80.26
	09/07/2025	$48.16	$14.98	$19.60	$0.00	$82.74
	09/06/2026	$49.38	$15.96	$20.00	$0.00	$85.34

Apprentice - *ELECTRICIAN - Local 96*

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$18.82	$13.99	$0.56	$0.00	$33.37
2	45	$21.17	$13.99	$0.64	$0.00	$35.80
3	48	$22.58	$13.99	$15.79	$0.00	$52.36
4	55	$25.88	$13.99	$16.26	$0.00	$56.13
5	65	$30.58	$13.99	$16.91	$0.00	$61.48
6	80	$37.64	$13.99	$17.90	$0.00	$69.53

Effective Date - 09/07/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$19.26	$14.98	$0.58	$0.00	$34.82
2	45	$21.67	$14.98	$0.65	$0.00	$37.30
3	48	$23.12	$14.98	$16.09	$0.00	$54.19
4	55	$26.49	$14.98	$16.57	$0.00	$58.04
5	65	$31.30	$14.98	$17.25	$0.00	$63.53
6	80	$38.53	$14.98	$18.26	$0.00	$71.77

Notes:

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

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR *ELEVATOR CONSTRUCTORS LOCAL 41*	01/01/2025	$62.83	$16.28	$21.36	$0.00	$100.47
	01/01/2026	$63.68	$16.38	$21.76	$0.00	$101.82
	01/01/2027	$64.53	$16.48	$22.16	$0.00	$103.17

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *ELEVATOR CONSTRUCTOR - Local 41*

Effective Date - 01/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$31.42	$16.28	$0.00	$0.00	$47.70
2	55	$34.56	$16.28	$21.36	$0.00	$72.20
3	65	$40.84	$16.28	$21.36	$0.00	$78.48
4	70	$43.98	$16.28	$21.36	$0.00	$81.62
5	80	$50.26	$16.28	$21.36	$0.00	$87.90

Effective Date - 01/01/2026

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$31.84	$16.38	$0.00	$0.00	$48.22
2	55	$35.02	$16.38	$21.76	$0.00	$73.16
3	65	$41.39	$16.38	$21.76	$0.00	$79.53
4	70	$44.58	$16.38	$21.76	$0.00	$82.72
5	80	$50.94	$16.38	$21.76	$0.00	$89.08

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 41*	01/01/2025	$43.98	$16.28	$21.36	$0.00	$81.62
	01/01/2026	$44.58	$16.38	$21.76	$0.00	$82.72
	01/01/2027	$45.17	$16.48	$22.16	$0.00	$83.81
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"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY	11/01/2024	$25.37	$15.30	$16.40	$0.00	$57.07
OPERATING ENGINEERS LOCAL 4	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"						
FIRE ALARM INSTALLER	09/01/2024	$47.05	$13.99	$19.22	$0.00	$80.26
ELECTRICIANS LOCAL 96	09/07/2025	$48.16	$14.98	$19.60	$0.00	$82.74
	09/06/2026	$49.38	$15.96	$20.00	$0.00	$85.34
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINT/COMMISSIONING	09/01/2024	$47.05	$13.99	$19.22	$0.00	$80.26
ELECTRICIANS LOCAL 96	09/07/2025	$48.16	$14.98	$19.60	$0.00	$82.74
	09/06/2026	$49.38	$15.96	$20.00	$0.00	$85.34
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIREMAN (ASST. ENGINEER)	12/01/2024	$45.96	$15.55	$16.50	$0.00	$78.01
OPERATING ENGINEERS LOCAL 4	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)	12/01/2024	$27.01	$9.65	$17.80	$0.00	$54.46
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	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	03/01/2024	$49.47	$8.83	$20.27	$0.00	$78.57
FLOORCOVERERS LOCAL 2168 ZONE II						

Apprentice - *FLOORCOVERER - Local 2168 Zone II*

Effective Date - 03/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.74	$8.83	$1.76	$0.00	$35.33
2	55	$27.21	$8.83	$1.76	$0.00	$37.80
3	60	$29.68	$8.83	$3.52	$0.00	$42.03
4	65	$32.16	$8.83	$3.52	$0.00	$44.51
5	70	$34.63	$8.83	$16.75	$0.00	$60.21
6	75	$37.10	$8.83	$16.75	$0.00	$62.68
7	80	$39.58	$8.83	$18.51	$0.00	$66.92
8	85	$42.05	$8.83	$18.51	$0.00	$69.39

Notes: Steps are 750 hrs.
% After 10/1/17; 45/45/55/55/70/70/80/80 (1500hr Steps)
Step 1&2 $32.63/ 3&4 $39.28/ 5&6 $59.86/ 7&8 $66.52

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FORK LIFT/CHERRY PICKER *OPERATING ENGINEERS LOCAL 4*	12/01/2024	$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

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

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 63*	01/01/2025	$42.23	$12.20	$18.74	$2.13	$75.30
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (ELECTRICAL CONTROLS) *ELECTRICIANS LOCAL 96*	09/01/2024	$47.05	$13.99	$19.22	$0.00	$80.26
	09/07/2025	$48.16	$14.98	$19.60	$0.00	$82.74
	09/06/2026	$49.38	$15.96	$20.00	$0.00	$85.34
For apprentice rates see "Apprentice- ELECTRICIAN"						
HVAC (TESTING AND BALANCING - AIR) *SHEETMETAL WORKERS LOCAL 63*	01/01/2025	$42.23	$12.20	$18.74	$2.13	$75.30
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) *PLUMBERS LOCAL 4*	09/01/2024	$55.00	$9.90	$17.77	$0.00	$82.67
	03/01/2025	$56.40	$9.90	$17.77	$0.00	$84.07
	09/01/2025	$57.80	$9.90	$17.77	$0.00	$85.47
	03/01/2026	$59.20	$9.90	$17.77	$0.00	$86.87
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC *PLUMBERS LOCAL 4*	09/01/2024	$55.00	$9.90	$17.77	$0.00	$82.67
	03/01/2025	$56.40	$9.90	$17.77	$0.00	$84.07
	09/01/2025	$57.80	$9.90	$17.77	$0.00	$85.47
	03/01/2026	$59.20	$9.90	$17.77	$0.00	$86.87

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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 (WORCESTER)*	09/01/2024	$51.23	$14.75	$19.61	$0.00	$85.59
	09/01/2025	$54.31	$14.75	$19.61	$0.00	$88.67
	09/01/2026	$57.38	$14.75	$19.61	$0.00	$91.74

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

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.62	$14.75	$14.32	$0.00	$54.69
2	60	$30.74	$14.75	$15.37	$0.00	$60.86
3	70	$35.86	$14.75	$16.43	$0.00	$67.04
4	80	$40.98	$14.75	$17.49	$0.00	$73.22

Effective Date - 09/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$27.16	$14.75	$14.32	$0.00	$56.23
2	60	$32.59	$14.75	$15.37	$0.00	$62.71
3	70	$38.02	$14.75	$16.43	$0.00	$69.20
4	80	$43.45	$14.75	$17.49	$0.00	$75.69

Notes:
Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER *IRONWORKERS LOCAL 7 (WORCESTER AREA)*	03/16/2024	$53.67	$8.35	$26.70	$0.00	$88.72

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *IRONWORKER - Local 7 Worcester*

Effective Date - 03/16/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$32.20	$8.35	$26.70	$0.00	$67.25
2	70	$37.57	$8.35	$26.70	$0.00	$72.62
3	75	$40.25	$8.35	$26.70	$0.00	$75.30
4	80	$42.94	$8.35	$26.70	$0.00	$77.99
5	85	$45.62	$8.35	$26.70	$0.00	$80.67
6	90	$48.30	$8.35	$26.70	$0.00	$83.35

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 3) *MILLWRIGHTS LOCAL 1121 - Zone 3*	01/06/2025	$43.48	$10.08	$21.22	$0.00	$74.78
	01/05/2026	$45.76	$10.08	$21.22	$0.00	$77.06

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *MILLWRIGHT - Local 1121 Zone 3*

Effective Date - 01/06/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$23.91	$10.08	$5.36	$0.00	$39.35
2	65	$28.26	$10.08	$6.34	$0.00	$44.68
3	75	$32.61	$10.08	$18.78	$0.00	$61.47
4	85	$36.96	$10.08	$19.76	$0.00	$66.80

Effective Date - 01/05/2026

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$25.17	$10.08	$5.36	$0.00	$40.61
2	65	$29.74	$10.08	$6.34	$0.00	$46.16
3	75	$34.32	$10.08	$18.78	$0.00	$63.18
4	85	$38.90	$10.08	$19.76	$0.00	$68.74

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 2)*	08/01/2024	$51.97	$10.08	$24.29	$0.00	$86.34
For apprentice rates see "Apprentice- PILE DRIVER"						
PILE DRIVER *PILE DRIVER LOCAL 56 (ZONE 2)*	08/01/2024	$51.97	$10.08	$24.29	$0.00	$86.34

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PILE DRIVER - Local 56 Zone 2*

Effective Date - 08/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	$23.39	$10.08	$2.53	$0.00	$36.00
2	55	$28.58	$10.08	$5.07	$0.00	$43.73
3	70	$36.38	$10.08	$19.22	$0.00	$65.68
4	80	$41.58	$10.08	$21.76	$0.00	$73.42

Notes:

% Indentured BEFORE 8/1/2020, 50/60/70/75/80/80/90/90

Step 1 $60.36/2 $65.75/3 $70.75/4 $73.35/5&6 $75.95/7&8 81.14

Apprentice to Journeyworker Ratio:1:5

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)"						
PLUMBER & PIPEFITTER *PLUMBERS LOCAL 4*	09/01/2024	$55.00	$9.90	$17.77	$0.00	$82.67
	03/01/2025	$56.40	$9.90	$17.77	$0.00	$84.07
	09/01/2025	$57.80	$9.90	$17.77	$0.00	$85.47
	03/01/2026	$59.20	$9.90	$17.77	$0.00	$86.87

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PLUMBER/PIPEFITTER - Local 4*

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$22.00	$9.90	$0.00	$0.00	$31.90
2	50	$27.50	$9.90	$0.00	$0.00	$37.40
3	60	$33.00	$9.90	$0.00	$0.00	$42.90
4	70	$38.50	$9.90	$8.06	$0.00	$56.46
5	80	$44.00	$9.90	$8.06	$0.00	$61.96

Effective Date - 03/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$22.56	$9.90	$0.00	$0.00	$32.46
2	50	$28.20	$9.90	$0.00	$0.00	$38.10
3	60	$33.84	$9.90	$0.00	$0.00	$43.74
4	70	$39.48	$9.90	$8.06	$0.00	$57.44
5	80	$45.12	$9.90	$8.06	$0.00	$63.08

Notes:
Steps - 2000 hrs; Step 4 w/lic 75%, Step 5 w/lic 85%
Step 4 w/lic $52.59, Step 5 w/lic $57.44

Apprentice to Journeyworker Ratio:1:3

PNEUMATIC CONTROLS (TEMP.) *PLUMBERS LOCAL 4*	09/01/2024	$55.00	$9.90	$17.77	$0.00	$82.67
	03/01/2025	$56.40	$9.90	$17.77	$0.00	$84.07
	09/01/2025	$57.80	$9.90	$17.77	$0.00	$85.47
	03/01/2026	$59.20	$9.90	$17.77	$0.00	$86.87
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)"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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"						
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 - Dauphinais (Bellingham)*	01/01/2025	$27.60	$11.26	$6.15	$0.00	$45.01
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"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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"						
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	$52.28	$13.03	$21.70	$0.00	$87.01
	08/01/2025	$53.78	$13.03	$21.70	$0.00	$88.51
	02/01/2026	$55.03	$13.03	$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	$26.14	$13.03	$15.55	$0.00	$54.72
2	60	$31.37	$13.03	$21.70	$0.00	$66.10
3	65	$33.98	$13.03	$21.70	$0.00	$68.71
4	75	$39.21	$13.03	$21.70	$0.00	$73.94
5	85	$44.44	$13.03	$21.70	$0.00	$79.17

Effective Date - 08/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$26.89	$13.03	$15.55	$0.00	$55.47
2	60	$32.27	$13.03	$21.70	$0.00	$67.00
3	65	$34.96	$13.03	$21.70	$0.00	$69.69
4	75	$40.34	$13.03	$21.70	$0.00	$75.07
5	85	$45.71	$13.03	$21.70	$0.00	$80.44

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	$52.53	$13.03	$21.70	$0.00	$87.26
	08/01/2025	$54.03	$13.03	$21.70	$0.00	$88.76
	02/01/2026	$55.28	$13.03	$21.70	$0.00	$90.01
For apprentice rates see "Apprentice- ROOFER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SHEETMETAL WORKER *SHEETMETAL WORKERS LOCAL 63*	01/01/2025	$42.23	$12.20	$18.74	$2.13	$75.30

Apprentice - *SHEET METAL WORKER - Local 63*

Effective Date - 01/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	$19.00	$5.49	$4.86	$0.85	$30.20
2	50	$21.12	$6.10	$5.40	$0.94	$33.56
3	55	$23.23	$6.71	$9.71	$1.15	$40.80
4	60	$25.34	$7.32	$9.71	$1.23	$43.60
5	65	$27.45	$7.93	$9.71	$1.31	$46.40
6	70	$29.56	$8.54	$9.71	$1.39	$49.20
7	75	$31.67	$9.15	$9.71	$1.47	$52.00
8	80	$33.78	$9.76	$17.66	$1.78	$62.98
9	85	$35.90	$10.37	$17.66	$1.86	$65.79
10	90	$38.01	$10.98	$17.66	$1.94	$68.59

Notes:

Apprentice to Journeyworker Ratio:1:3

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
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 669*	04/01/2023	$47.43	$11.45	$16.61	$0.00	$75.49

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *SPRINKLER FITTER - Local 669*

Effective Date - 04/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	$21.34	$8.22	$0.00	$0.00	$29.56
2	50	$23.72	$8.22	$0.00	$0.00	$31.94
3	55	$26.09	$11.45	$7.20	$0.00	$44.74
4	60	$28.46	$11.45	$8.35	$0.00	$48.26
5	65	$30.83	$11.45	$8.35	$0.00	$50.63
6	70	$33.20	$11.45	$8.60	$0.00	$53.25
7	75	$35.57	$11.45	$8.60	$0.00	$55.62
8	80	$37.94	$11.45	$8.60	$0.00	$57.99
9	85	$40.32	$11.45	$8.60	$0.00	$60.37
10	90	$42.69	$11.45	$8.60	$0.00	$62.74

Notes:

Apprentice to Journeyworker Ratio:1:1

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"						
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
VOICE-DATA-VIDEO TECHNICIAN *ELECTRICIANS LOCAL 96*	09/01/2024	$35.29	$13.99	$17.57	$0.00	$66.85
	09/07/2025	$36.12	$14.98	$17.91	$0.00	$69.01
	09/06/2026	$37.04	$15.96	$18.27	$0.00	$71.27

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *VOICE-DATA-VIDEO TECHNICIAN - Local 96*

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$17.65	$13.99	$4.41	$0.00	$36.05
2	55	$19.41	$13.99	$4.46	$0.00	$37.86
3	60	$21.17	$13.99	$17.15	$0.00	$52.31
4	65	$22.94	$13.99	$17.20	$0.00	$54.13
5	70	$24.70	$13.99	$17.25	$0.00	$55.94
6	75	$26.47	$13.99	$17.30	$0.00	$57.76
7	80	$28.23	$13.99	$17.36	$0.00	$59.58
8	85	$30.00	$13.99	$17.41	$0.00	$61.40

Effective Date - 09/07/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$18.06	$14.98	$4.51	$0.00	$37.55
2	55	$19.87	$14.98	$4.57	$0.00	$39.42
3	60	$21.67	$14.98	$17.48	$0.00	$54.13
4	65	$23.48	$14.98	$17.53	$0.00	$55.99
5	70	$25.28	$14.98	$17.59	$0.00	$57.85
6	75	$27.09	$14.98	$17.64	$0.00	$59.71
7	80	$28.90	$14.98	$17.70	$0.00	$61.58
8	85	$30.70	$14.98	$17.75	$0.00	$63.43

Notes:

Apprentice to Journeyworker Ratio:1:1

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)

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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 LOCAL 4*	09/01/2024	$55.00	$9.90	$17.77	$0.00	$82.67
	03/01/2025	$56.40	$9.90	$17.77	$0.00	$84.07
	09/01/2025	$57.80	$9.90	$17.77	$0.00	$85.47
	03/01/2026	$59.20	$9.90	$17.77	$0.00	$86.87
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.

DOCUMENT A00801

SPECIAL PROVISIONS

DISTRICT 3
Scheduled and Emergency Drainage Repairs and Improvements at Various Locations

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

SCOPE OF WORK

The work to be done under this contract consists of drainage related repairs performed on drainage systems under the control of District 3 and includes:

- Adjusting & rebuilding of drainage structures.
- Installation of drainage pipes and structures.
- Repairing of drainage outlets and systems.
- Removing and resetting curb, edging, curb corners, and curb inlets of every type.
- Furnishing and setting curb, curb inlets, curb corners, and edging and HMA curbs and berms.
- Repair of roadways and embankments and washout areas as directed.
- Repair and construction of concrete headwalls, wing-walls and culverts.
- Providing and maintaining temporary erosion controls.
- Other incidental work to complete the above work.

All work shall be performed within, and accessed by, existing State, City or Town roadway layouts. No rights to enter upon, or occupy, private property have been acquired for this project. Fence work shall be performed from the MassDOT owned side of fence to the greatest extent possible.

Work may be required regardless of the weather conditions, at the discretion of the Engineer.

All work under this Contract shall be done in conformance with the *2024 Standard Specifications for Highways and Bridges*, the *Supplemental Specifications* contained in this book, the *2017 Construction Standard Details*, the *Traffic Management Plans and Detail Drawings*, *MassDOT Work Zone Safety Temporary Traffic Control,* the *1990 Standard Drawings for Signs and Supports*; the *2015 Overhead Signal Structure and Foundation Standard Drawings*, the *2009 Manual on Uniform Traffic Control Devices (MUTCD) with Revisions 1, 2, and 3 and the November 2022 Massachusetts Amendments to the MUTCD*; the *1968 Standard Drawings for Traffic Signals and Highway Lighting*; *The American Standard for Nursery Stock*; the Plans and these Special Provisions.

LOCATION OF WORK

Work under this contract will be required on any or all state highways and roadways within District 3. Work locations will be within the limits of District 3 on various roadways as assigned by the Engineer. The following web link provides the cities and towns under the jurisdiction of District 3:

https://www.mass.gov/service-details/find-your-highway-district-office

MassDOT - Highway Division reserves the right to add additional roadways or locations throughout the duration of this contract. Locations will be determined by the Engineer.

CONTRACTOR QUESTIONS AND ADDENDUM ACKNOWLEDGMENTS

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

Contractors should email questions and addendum acknowledgments to the following email address massdotspecifications@dot.state.ma.us The MassDOT project file number and municipality is to be placed in the subject line.

ACCESS MASSDOT HIGHWAY INFORMATION ON WEBSITE

Access MassDOT Highway Information related to Construction, Design/Engineering, Contractor/Vendor Information, Approved Materials and Fabricators, Manuals, Publications and Forms at:

https://www.mass.gov/orgs/highway-division

WORK SCHEDULE

All proposed work hours shall conform to Subsection 7.09 and be subject to the written approval of the Engineer.

Work is restricted to a normal 8-hour day, 5-day week, with the Prime Contractor and all Subcontractors working on the same shift. No work shall be done on Saturdays, Sundays, holidays, or the day before or after a holiday without prior approval of the Engineer.

Allowable work hours for specific locations will be determined by the District Highway Director or his/her representative. On high volume and/or high-speed roadways, work may be restricted to non-peak hours or night work as directed by the Engineer to avoid peak traffic volumes in order to maintain safety and productivity.

Work may not proceed beyond the normal 8-hour day unless prior approval is obtained from the Engineer for that day. Approval to work overtime will only be given when special conditions exist that warrant working overtime as determined by the Engineer.

The Contractor may schedule night shifts longer than 8-hours with approval of the Engineer. No additional compensation will be made for work scheduled during nighttime hours.

CONTRACTOR NOTIFICATION

Scheduled Work

The Contractor will be notified of scheduled work by either a written or electronic Work Order. The work order will identify the location and a detailed scope of work for the assignment. This work shall be scheduled and commence on site within five (5) days of notification by the Department.

MassDOT may also direct that scheduled or routine assignments shall commence on a particular date and time. If the Contractor has not reported and started work within 4 hours of the time expected, a non-response damages will be assessed to the contractor.

CONTRACTOR NOTIFICATION (Continued)

Emergency Work

Since it may be necessary for the Contractor to respond to emergency situations where immediate response is necessary, the Contractor is required to provide to MassDOT the name(s) and telephone number(s) of a person or persons who can be contacted 24 hours a day for the contract's duration. and who has the authority to provide whatever labor, materials, and equipment that may be necessary to address the emergency.

The Contractor will be notified of emergency work that REQUIRES IMMEDIATE ATTENTION by verbal *and* written/electronic Work Order. The work order will identify the location of the work, the scope of the work and details the Engineer's expectations. The Work Order will also identify lane closure(s) required.

The Contractor will be required to commence this emergency work on site within four (4) hours, unless otherwise directed, after notification by the Department.

NON-RESPONSE DAMAGES
(Supplementing Subsection 8.11)

Scheduled Work

If after notification, the Contractor has not started scheduled work on site within five (5) days of the notification, a non-response damages will be assessed to the Contractor. Contract payments will be reduced by five hundred dollars ($500.00) for each day or portion of a day that the work is delayed, excluding Saturdays, Sundays, and Holidays, *unless the work was scheduled to be performed on one of these days.*

The non-response damages for scheduled work can be waived at the discretion of the Engineer when it is deemed that the weather, traffic or other environmental conditions prohibit the performance of the scheduled work.

Emergency Work

If after notification, the Contractor has not started emergency work on site within four (4) hours of the notification, a non-response damages will be assessed to the Contractor. Contract payments will be reduced by one thousand dollars ($1,000.00) for each time there is a failure to respond within the specified hours.

PROVISIONS FOR TRAVEL AND PROSECUTION OF WORK

(Supplementing Subsections 7.09, 7.10, and 8.03)

Attention is directed to the fact that these work areas may be heavily traveled, high speed roads.

Operations that will affect the flow of traffic on such roads within the project limits are restricted to the hours of least volume. This may include night and weekend work. The hours of all work operations shall be as authorized by the Engineer.

The Contractor shall contact the District to obtain the allowable work hours for each location prior to starting the necessary work.

On a two lane undivided highway two way traffic shall be maintained during "peak hours". On Interstate highway all lanes shall remain open during the "peak hours". "Peak hours" are defined as the hours from 5:00 AM to 10:00 AM and from 3:00 PM to 7:00 PM.

The time periods outlined above include the "set-up" and "breakdown" of the traffic pattern employed.

Work will be restricted to one roadway at all times unless additional work crews are approved by the Engineer. The Contractor shall not begin any work, other than emergency work, in any other roadway until the roadway being worked on is completed.

SUBMITTALS/CONTRACTOR'S WORK REPORT

Each time there is an improvement or repair performed, it shall be recorded by the Contractor in a log supplied by him at no additional compensation. Three (3) legible copies of all pages of the log that contain new entries shall be furnished once every month to the Engineer. Each log entry shall include a breakdown of the contract items and include detailed locations with corresponding mile marker or station. A sample daily report shall be submitted to the Engineer for approval at the pre-construction conference.

EQUIVALENT SINGLE AXLE LOADS (ESALS)

The estimated traffic level to be used for SUPERPAVE HMA mixture designs for this contract, expressed in Equivalent Single Axle Loads (ESALs) for the design travel lane over a 20-year period, is either a traffic level 2 (0.3-10.0) million 18-kip (80-kn) ESALs or a traffic level 3 (≥10.0) million 18 kip ESALS as directed by the Engineer. Contractor will be provided with traffic information for the design mix at each location where work order is being requested.

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TRAFFIC ACCOMMODATION
(Supplementing Section 7.17)

Safety devices/signing for construction operations shall comply with the relevant provisions of Section 850 of the Standard Specifications, the applicable sections of the MUTCD and the following:

Sign placement shall conform to the applicable sketches shown in the standard Traffic Control Plan (TCP) or MUTCD, whichever is more stringent for the application.

Safety devices and sign placement shall conform to the applicable sketches shown in the standard Work Zone Safety Guidelines included in this Contract – document A00815.

For conditions not shown in the Work Zone Safety Guidelines, the Contractor is directed to MassDOT's Standard Details and Drawings for the Development of Temporary Traffic Control Plans available on MassDOT's website:

https://www.mass.gov/files/documents/2017/10/24/tcp.pdf

Truck Mounted Attenuators, when shown in the sketches, are mandatory for this project.

In this case, safety devices and sign placement shall conform to the applicable sketches shown in the Standard Traffic Control Plans or MUTCD, whichever is more stringent for the application.

The Contractor shall bring three sets of the appropriate sketches for the work site to all work order assignment meetings. The purpose is to ensure that all concerned parties (i.e. Contractors, Sub-Contractors and the Engineer) have and agree upon the required traffic management for the specific working conditions.

Traffic police, when required, shall be located at a sufficient distance in advance of the work area, so that they can warn oncoming motorists of the work.

RESTORATION OF EXISTING FACILITIES

The Contractor will be required to satisfactorily restore or replace in kind all facilities damaged or disrupted by his/her operations at no additional compensation. This is to include replacing with the same type of materials and construction as formerly existed, repaving the site, replacing berm, placing loam and seed, and restoring any underground facilities disturbed by his/her activities.

SUBSECTION 7.05 INSURANCE REQUIREMENTS
B. Public Liability Insurance

The insurance requirements set forth in this section are in addition to the requirements of the Standard Specifications and supersede all other requirements.

Paragraphs 1 and 2

MassDOT - Highway Division and applicable railroads shall be named as additional insureds.

DRAINAGE

The contractor shall maintain the drainage systems in the project area to provide continual drainage of travel ways and construction area.

All pipes and structures installed as part of this contract shall be left in a clean and operable condition at the completion of the work.

The respective contract unit prices for applicable drainage Items shall include all costs for the removal and disposal of existing structures and drainage pipes being replaced, unsuitable material, various pavements encountered in the installation of drainage, dewatering, and any incidentals not otherwise specified and paid for. For bid purposes, the contractor shall be responsible for determining the various types and extent of materials to be excavated.

MULTIPLE CREWS

Since this contract encompasses all of District 3, the Contractor shall be prepared to provide more than one crew and up to 3 as needed throughout the duration of the contract which may work at different locations. If additional crews are requested but not provided the Contractor shall be assessed non-response damages as described within the special provisions.

PROTECTION OF UNDERGROUND FACILITIES

The Contractor's attention is directed to the necessity of making his/her own investigation in order to assure that no damage to existing structures, drainage lines, traffic signal conduits, etcetera, will occur.

The Contractor shall notify Massachusetts DIG SAFE and procure a Dig Safe Number for each location prior to disturbing existing ground in any way. Contact the Dig Safe Call Center by dialing 811 or 1-888-344-7233 or online at www.digsafe.com.

ARCHITECTURAL ACCESS BOARD TOLERANCES

The Contractor is hereby notified that they are ultimately responsible for constructing all project elements in strict compliance with the current AAB/ADA rules, regulations and standards.

All construction elements in this project associated with sidewalks, walkways, wheelchair ramps and curb cuts are controlled by 521CMR - Rules and Regulations of the Architectural Access Board (AAB).

The AAB Rules and Regulations specify maximum slopes and minimum dimensions required for construction acceptance. There is no tolerance allowed for slopes greater than the maximum slope nor for dimensions less than the minimum dimensions.

Contractors shall establish grade elevations at all wheel chair ramp locations, and shall set transition lengths according to the appropriate table in the Construction Standards (or to the details shown on the plans).

All wheelchair ramp joints and transition sections which define grade changes shall be formed, staked and checked prior to placing cement concrete. All grade changes are to be made at joints.

HOLIDAY WORK RESTRICTIONS

(Supplementing Subsection 7.09)

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

Below are the holiday work restrictions:

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

Martin Luther King's Birthday (Federal Holiday)
No work restrictions due to traffic concerns, however work on local roadways requires permission by the DHD and local police chief.

President's Day (Federal Holiday)
No work restrictions due to traffic concerns, however work on local roadways requires permission by the DHD and local police chief.

Evacuation Day (Suffolk County State Holiday)
No work restrictions due to traffic concerns.

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

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

HOLIDAY WORK RESTRICTIONS (Continued)

Memorial Day (Federal Holiday)
No work on major arterial roadways from 5:00 AM on the Friday before, until the normal start of business on the following day.

Bunker Hill Day (Suffolk County State Holiday)
No work restrictions due to traffic concerns.

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

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

Labor Day (Federal Holiday)
No work on major arterial roadways from 5:00 AM on the Friday before, until the normal start of business on the following day.

Columbus Day (Federal Holiday)
No work on major arterials from 5:00 AM on the Friday before, until the normal start of business on the following day

Veterans' Day (Federal Holiday)
No work restrictions due to traffic concerns.

Thanksgiving Day (Federal Holiday)
No work on major arterials from 5:00 AM two days before until the normal start of business on the following Monday.

Christmas Day (Federal Holiday)
No work on major arterial roadways from 5:00 AM on the day before until the normal start of business on the next subsequent business day.

NOTICE TO OWNERS OF UTILITIES

Written notice shall be given by the Contractor to all public service corporations or officials owning or having charge of publicly or privately owned utilities of his/her intention to commence operations affecting such utilities at least one week in advance of the commencement of such operations and the Contractor shall at that time file a copy of such notice with the Engineer.

The District Office maintains a list of utility contact persons, addresses and telephone numbers for each town, which may be requested by the Contractor for each location of work. Additionally, a list of public and private utilities can be found on the MassDOT website at:

https://hwy.massdot.state.ma.us/webapps/utilities/select.asp

Select District 3 on top of the webpage, select the City/Town, and then locate the utility.

The utility contact list is for guidance only and is not guaranteed to be complete or up to date.

Town officials are shown at the website http://www.mass.gov under the "for Government" tab, select "City/Town official directory" under "Online Services" heading. Enter the city/town on the left of the webpage and locate the official to contact.

The Contractor shall also be responsible for informing the following officials in each area that he is assigned to work in as required by the Engineer:

Superintendent, Department of Public Works or Town Engineer
Superintendent, Water Department
Superintendent, Sewer Department
Police and Fire Department
Electric Department

NATIONAL GRID EMERGENCY TELEPHONE NUMBERS

GAS:
Emergency: 1-800-233-5325
New Service: 1- 877-696-4743
Customer Support: 1-800-732-3400

ELECTRIC:
Outage/ Emergency: 1-800-465-1212
New Service: 1-800-375-4730
Customer Support: 1-800-322-3223

EVERSOURCE EMERGENCY TELEPHONE NUMBERS

GAS:
Outage/ Emergency: 800-592-2000
New Service: 866-678-2744
Customer Support: 800-592-2000

ELECTRIC:
Outage/ Emergency: 800-592-2000 or 844-726-7562
New Service: 1-888-633-3797 (1-888-need pwr)
Customer Support: 1-800-340-9822

MASSDOT I-91, I-90 and I-291 FIBER OPTIC CABLE NOTIFICATION AND PROTECTION REQUIREMENTS (D1,D2,D3 D6 only)

Prior to the start of any excavation work on I-91, I-90 or I-291, it shall be the responsibility of the Contractor to make their own investigation in order to assure that no damage to existing Fiber Optic Cable (FOC), electrical and signal cables, handholes, ITS cameras, overhead and ground mounted variable message boards, and other appurtenant infrastructure (jointly referred to as the ITS infrastructure) will occur. Extreme care shall be taken when excavating adjacent to or in the vicinity of existing ITS infrastructure. The Contractor may be required to hand dig within 18" either side of the conduit, as directed by the engineer and with no additional compensation, and will be held financially responsible for repairing any damage to the ITS infrastructure. Damage to the ITS infrastructure due to Contractor operations shall be repaired by MassDOT hired and approved Contractors and billed to the Contractor. The Contractor shall be responsible for all costs relating to such repairs.

PUBLIC SAFETY AND CONVENIENCE

(Supplementing Subsection 7.09)

The Contractor shall provide necessary access for fire apparatus and other emergency vehicles through the work zones to abutting properties at all times.
Sweeping and cleaning of surfaces beyond the limits of the project to clean up material caused by spillage or vehicular tracking during the various phases of the work shall be considered as incidental to the work being performed under the Contract and there will be no additional compensation.

The Contractor, without additional compensation, shall provide access to all abutters during prosecution of the work, except for such periods and at such locations as authorized in writing by the Engineer.

ENVIRONMENTAL PERMITS, CONDITIONS & RESTRICTIONS

No environmental permits have been obtained in advance for this Contract. No work can occur on or otherwise impact water or wetland resource areas until all environmental permits have been obtained.

If field conditions and/or Contractor-suggested methodologies warrant obtaining environmental permits, the Contractor must notify the Resident Engineer prior to commencement of the proposed activity. The Resident Engineer will coordinate all contact with Local, State or Federal environmental agencies with the MassDOT Environmental Section.

All time delays as a result of filing for and obtaining or modifying permits are not subject to a claim. Additionally, the Contractor may be required to submit additional information with respect to proposed work subject to environmental regulations.

No debris of any type shall be allowed to enter the water or wetlands resource areas, either temporarily or permanently.

The Contractor is further advised that any and all time delays as a result of filing for and obtaining permits, are not subject to a claim. Also, the Contractor may be required to submit additional information with respect to proposed work subject to environmental regulations.

The Contractor shall not enter upon or otherwise disturb in any way any existing wetlands, bank, land under water body, or land subject to flooding. No other work shall be undertaken until all erosion control measures are in place.

Any equipment or machinery found to be leaking oils or lubricants (or any pollutive substance) shall be immediately removed from the site of operation and not returned until fully repaired.

The Contractor shall be equipped to prevent the spreading of pollutants beyond the limits of the construction activity areas and undertake measures necessary to remove pollutants from streams affected by his/her activities, as required by the provisions of the Massachusetts Clean Water Act. The Massachusetts Department of Environmental Protection, 100 Cambridge Street Boston, MA 02134, may be contacted regarding such appropriate measures applicable to specific situations.

CONTRACTOR ACTIVITY ADJACENT TO WETLANDS

The Contractor shall not stockpile material or equipment, perform maintenance or refuel equipment in a wetland area, within 100 feet of a wetland, or within 200 feet of a river, stream, pond, or other similar open body of water.

CONTRACTOR ACTIVITY ADJACENT TO CURB AND SIDEWALK

Any curbing and associated pavements removed by the Contractor in order to cut or remove trees or stumps shall be reset or rebuilt, and full compensation for such work shall be included in the contract unit price for the tree and stump removal items involved.

PRECAUTIONS FOR PROTECTION OF THE ENVIRONMENT

During the execution of work under this Contract, the Contractor shall exercise care in the placement and storage of equipment, materials and debris as some areas of the site are in environmentally sensitive areas. No equipment, materials or debris can be placed or stored in or near a resource or drainage area leading to a resource as directed by the Engineer.

Storage and lay-down areas within depot yards must be first approved by the Engineer in concurrence with the Depot Foreman to ensure no adverse impacts to maintenance operations.

EROSION AND SEDIMENTATION CONTROL

(Supplementing Subsection 7.02)

This work shall consist of temporary control measures as directed by the Engineer during the life of the contract to control erosion and sedimentation.

The erosion and sedimentation control features installed by the Contractor shall be satisfactorily maintained by the Contractor until they are ordered removed by the Engineer.

In the event that temporary erosion and sedimentation control measures are required due to the Contractor's negligence or carelessness, and such additional measures are ordered by the Engineer, the work shall be performed by the Contractor at his/her own expense. Temporary erosion and sedimentation control work, which is not attributed to the Contractor’s negligence or carelessness, will be performed as ordered by the Engineer.

Repeated failures by the Contractor to control erosion and/or sedimentation shall be cause for the Engineer to employ outside assistance or to use his/her own forces to provide the necessary protective measures. The cost of such assistance plus project engineering cost will be charged to the Contractor and appropriate deductions made from the Contractor's monthly progress estimate.

NORTHERN LONG-EARED BAT AND TRICOLORED BAT PROTECTION

The northern long-eared bat (*Myotis septentrionalis*; NLEB) and tricolored bat (*Perimyotis subflavus*; TCB) are listed as federally endangered or proposed endangered, respectfully, under the Endangered Species Act (ESA). The U.S. Fish and Wildlife Service (USFWS) developed this guidance to address ESA compliance and promote conservation of NLEB and TCB. As there is no Federal nexus (Federal funding or permits) for this project, Section 7 consultation was not required or conducted. However, Section 9 of the ESA prohibits anyone from "taking" or harming an endangered species, and the below language shall be adhered to in order to maintain compliance with the ESA.

The following Avoidance and Minimization Measures (AMMs) must be strictly adhered to in order to protect NLEB and TCB and to be in compliance with the ESA. Contact MassDOT Environmental Services - Wildlife & Endangered Species Unit Supervisor (David Paulson, david.j.paulson@dot.state.ma.us, 857-262-3378) for questions about project limits, restrictions, or conservation measures.

The Resident Engineer can check on the status of AMM applicability by sending a locus map of the proposed work to MassDOT Highway Division's Environmental Services Section - Wildlife & Endangered Species Unit Supervisor for review and a determination if some of the AMMs and TOY restriction can be waived.

Required AMM for all projects:

- The Contractor shall ensure all personnel working in on the project site are aware of all environmental commitments related to NLEB and TCB, including all applicable AMMs. NLEB Bat information (https://www.fws.gov/midwest/endangered/mammals/nleb/ and https://www.fws.gov/species/tricolored-bat-perimyotis-subflavus) shall be made available to all personnel.

If temporary lighting is proposed within the project scope, the following AMM is applicable:

Lighting AMM:

- Direct temporary lighting away from suitable habitat during the active season: **April 1 to October 31.**

If the Removal of Trees and/or Woody Vegetation >3-inch in diameter is proposed within the project scope, the following AMMs are applicable:

Tree AMMs:

- If additional cutting is proposed by the Contractor that is outside the scope of this contract, additional review is required by the MassDOT Highway Division's Environmental Services Section, and additional review and restrictions may be required by the USFWS.
- Ensure tree removal is limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g., install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits).
- In order to protect northern long-eared bats and their young during their active season, **no tree cutting shall be conducted during the Time of Year (TOY) restriction of April 1 to October 31**.
- Do not remove **documented** or NLEB roosts that are still suitable for roosting, or trees within 0.25 miles of roosts, or **documented** foraging habitat any time of year (http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/species-information-and-conservation/rare-mammals/northern-long-eared-bat.html).
- The Contractor shall ensure all personnel working in on the project site are aware of all environmental commitments related to NLEB and TCB, including the **TOY** restriction.

ASIAN LONGHORNED BEETLE ADVISORY

Some of the work under this Contract will be located within the Asian Longhorned Beetle (ALB) Eradication Program Regulated Boundary. The Contractor must be aware of the Regulated Boundary as it may be expanded during the execution of the work under this Contract.

https://www.mass.gov/guides/asian-longhorned-beetle-in-massachusetts#-current-detections-

EMERALD ASH BORER ADVISORY

To the extent possible, all trees and brush shall be disposed on site, typically chipped and spread in place. When trees or brush must be removed, such as in urban, or otherwise populated areas, Contractor shall identify proposed location for disposal, and provide written notification to the Engineer for approval. Disposal shall be in city or town of project, or at minimum, within county, of construction operations.

RESTORATION OF EXISTING PROPERTY

Work site locations which have been disturbed shall be repaired with loam and seed under the contract items or as directed. This work shall also include, but is not limited to, stump removal and restoring the cavity, stabilization methods for erosion protection, and disturbed areas due to present or past fallen tree or logs, Such restorative work shall be incidental to the various contract items.

Any negligent or unnecessary disturbance caused by the Contractor's operations shall be repaired by the contractor at no additional expense to MassDOT.

CONTAMINATED SOIL AND/OR GROUNDWATER

CONTAMINATED SOIL

Soil to be removed from the project area shall not be assumed to be uncontaminated and must be evaluated prior to off-site management for potential contamination with hazardous materials. ***No soil may be disposed of off-site without proper assessment by the contractor and approval from the Resident Engineer (RE), District Environmental Engineer (DEE), or the project designee.***

If the soil is deemed to be questionable during the review of the RE/DEE/Project Designee, emergency containment protocols shall take place. Manpower and equipment will be tracked along with any additional site controls needed to keep the workforce; environment safe. Payment for these emergency operations will be administered through an extra work order if the need arises. The contractor will be required to safely contain, remove, and dispose of the hazardous materials.

SOIL STOCKPILING DIRECTIVE P-22-001

Any stockpiling of soil must be performed in compliance with Policy Directive P-22-001, Off-Site Stockpiling of Soil from MassDOT Construction Projects. This directive limits the allowable locations for off-site stockpiling of soil generated during MassDOT projects and various requirements that must be satisfied by the contractor prior to off-site stockpiling.

ASBESTOS PIPE

The contractor may encounter pipe that is made of asbestos cement. Please include the following language in the Special Provisions:

ASBESTOS CONTAINING MATERIALS

Information about specific locations where repairs are to occur is unavailable. The Contractor should be aware of the potential to encounter asbestos pipe during this project. If encountered, the Contractor must immediately cease the operation, secure the site, notify the Engineer and obtain Asbestos Liability Insurance for this project. The Contractor and MassDOT – Highway Division shall be named as additional insureds.

The contractor will be reimbursed for the proper handling and disposal of any pipe encountered. The asbestos cement pipes must be managed as a "Special Waste" and in Massachusetts may only be disposed of at a facility that is permitted to accept ACWM under 310 CMR 19.061 ("Special Waste" regulation).

Any special provisions recommended for this project are considered standard and, as such, should not be modified without prior written approval from Environmental Services.

PIPE CONNECTION / DISCONNECTION TO STRUCTURE

If reconstructing or installing a drainage structure, connecting existing pipe is incidental to structure or installation item.

For connecting pipe, the wall shall provide the minimum size opening required to surround the pipe. The pipe end shall be set or cut off flush with the inside face of the new structure wall and the remaining space around the pipe completely filled with cement grout for the full thickness of the structure wall. Inverts shall be constructed to provide a smooth uniform flow channel from the pipe through the structure.

MASONRY PLUGS

The Contractor shall plug open ends of abandoned pipes and unintended openings in structures encountered on the project with concrete, cement mortar and brick, or cement mortar and stone. This work will be incidental to the construction operations that were occurring when the opening was discovered and no additional compensation will be made.

MISCELLANEOUS CEMENT CONCRETE WORK

Cement concrete used for collars around drainage structures, for gate boxes, for trench caps, or in conjunction with new or reset curb or edging shall be brought up only to a height which will allow a minimum of three inches of hot mix asphalt to be placed over the concrete. The surface of the cement concrete shall be given a float finish and shall be free of honeycomb or excessive roughness.

The surface shall be cured according to the applicable provisions of the Standard Specifications, or the curing may be done by an application of RS-1 emulsion as soon as the surface has hardened sufficiently but not later than 24 hours after placing the concrete.

All costs associated with the application of RS-1 emulsion shall be considered incidental throughout this Contract.

CASTINGS FOR STRUCTURES

All castings in paved areas shall be adjusted to the finish grade before the top course pavement is placed. All adjustments made to new structures or rebuilt structures shall be included under the contract unit price for the respective structures.

It shall also be a requirement of this Contract that all structures in traveled ways or deemed hazardous by the Engineer be protected with suitable covers (steel plates or equal) in conformance with Subsection 7.09.

SUPPLEMENTAL REQUIREMENTS FOR NON-BID ITEMS

(Supplementing Subsection 3.04)

The Contractor will be paid for additional artisans, equipment rental, materials, engineering services and specialty services required to perform the work plus (10%) percent, plus actual increased bond premium.

The Contractor shall be required to furnish certified paid receipts for additional artisans, equipment rental, materials, engineering services and specialty services that are required to perform the work prior to payment by the Department. Increased bond premium for additional artisans, equipment rental, materials, engineering services and specialty services will be paid after a certified paid receipt is submitted showing payment of the increased bond.

NON-BID-ITEMS

The following specs included under Non-bid Items will be required only as directed by the Engineer to cover such a work that has not been included in any contract bid Items. the Contractor will not bid on these Items; however, the Contractor will be reimbursed for the cost as described in each suction below:

PAYMENT FOR MATERIALS

Materials will be compensated only if the necessary materials cannot be executed under other items within this contract.

MassDOT reserves the right to furnish any required materials or parts for which there is no pay Item.

The Contractor will be paid his/her actual net cost for materials plus 10% for materials supplied and transported to the job site within District 3 as required by the Engineer. No materials shall be ordered until approved by the Engineer.

The Contractor shall be required to furnish certified paid receipts for all materials that are required prior to payment by the Department.

A minimum of two competitive prices must be submitted to the Engineer and a third competitive price may be required as directed by the Engineer. Any arrangements for the purchase of materials will be considered incidental.

Delivery charges will be reimbursed as actual costs without markup. State and Federal taxes if billed will not be reimbursed by MassDOT.

PAYMENT FOR RENTAL EQUIPMENT

Equipment shall be compensated only if the necessary improvements cannot be executed under other items within this contract.

The Contractor will be paid the net actual cost for rental equipment, either contractor owned or rented, required for work under this contract plus ten (10) percent. The Contractor must get the authorization of the Resident Engineer before any equipment is rented and competitive prices may be required if the Engineer directs.

The Contractor shall be required to furnish certified paid receipts for all rental equipment that is required to maintain or repair the various drainage systems prior to payment by the Department.

The actual cost for rental equipment shall be judged in accordance with the rate specified in the Rental Blue Book and it is the Contractor's responsibility to provide a copy of the Rental Blue Book to the Department prior to payment. The rental compensation shall also include the cost of an operator. The rental equipment will be paid on an hourly basis and will not carry any overtime rate after eight hours of operation.

All rental equipment and tools shall be in good working condition. The Contractor shall not be paid for equipment down time at the discretion of the Engineer. There shall be no compensation of pickup trucks used only for transportation to and from the Contractor's place of business or any staging area.

ENGINEERING SERVICES COST ESTIMATE

When engineering designs or other consulting services are deemed necessary by the Engineer, the design firm will submit a cost estimate of the proposed work. This estimate will include the classification, estimated hours needed, and actual hourly rate for each individual anticipated to be used in developing the finished product. The billable rates shall include overhead and profit. Overhead shall be as approved by MassDOT Audit Section or in absence of approved audited rates a maximum 155% shall apply for overhead. The profit fee is 10%. The billable rate shall be calculated using 1.10*(Base Hourly Rate + Base Hourly*Overhead Rate %).

SPECIALTY SERVICES

The Contractor will be paid his/her actual cost (plus 10%) for the services of a specialty subcontractor that may be required to perform certain work, not covered under the items of this contract. However, no services shall be obtained until approved by the Engineer.

Should the Contractor perform work outside the scope of the bid items contained in this contract, the additional work may be paid for under the Specialty Services item. The Contractor shall submit a time and material calculation sheet for the additional work for review and approval. Payment shall be made based on the approved calculation sheet. Any bid item work done with additional work shall be paid under the respective contract bid items.

SPECIALTY SERVICES (Continued)

Competitive prices may be required if the Engineer directs. A specific sub-contractor may be designated by the Engineer to do certain work. The contractor will also provide the Engineer the name(s) and telephone number(s) of the sub-contractor's representative who can be contacted 24 hours a day for the contract's duration, and who has the authority to provide whatever labor, materials and equipment which may be necessary to address an emergency. It is the intent of this contract that the Engineer will have direct contact with the approved designated sub-contractor during an emergency.

MATERIAL OPTIONS

In the case of all option items listed in the proposal, the Contractor shall inform the Engineer of his/her option prior to the installation of the material. Once the option is designated, all material for the work shall remain the same throughout the project.
OR

In the case of all option items listed in the proposal, the Engineer shall direct the Contractor of his/her option prior to the installation of the material.

OPTIONS

Item Number	Item Descriptions	Unit
234.12	12 Inch Drainage Pipe – Option	Foot
234.15	15 Inch Drainage Pipe – Option	Foot
234.18	18 Inch Drainage Pipe – Option	Foot
234.24	24 Inch Drainage Pipe – Option	Foot
234.36	36 Inch Drainage Pipe – Option	Foot

PIPE OPTIONS
Reinforced Concrete Pipe
Corrugated Plastic (Polyethylene) Pipe
Corrugated Plastic (Polypropylene) Pipe

235.12	12 Inch Drainage Pipe Flared End – Option	Each
235.15	15 Inch Drainage Pipe Flared End – Option	Each
235.18	18 Inch Drainage Pipe Flared End – Option	Each
235.24	24 Inch Drainage Pipe Flared End – Option	Each
235.36	36 Inch Drainage Pipe Flared End – Option	Each

PIPE OPTIONS
Reinforced Concrete Pipe
Corrugated Plastic (Polyethylene) Pipe
Corrugated Plastic (Polypropylene) Pipe

SUBSECTION 8.14 UTILITY COORDINATION, DOCUMENTATION, AND MONITORING RESPONSIBILITIES

A. GENERAL

In accordance with the provisions of Section 8.00 Prosecution and Progress, utility coordination is a critical aspect to this Contract. This section defines the responsibility of the Contractor and MassDOT, with regard to the initial utility relocation plan and changes that occur as the prosecution of the Work progresses. The Engineer, with assistance from the Contractor shall coordinate with Utility companies that are impacted by the Contractor's operations. To support this effort, the Contractor shall provide routine and accurate schedule updates, provide notification of delays, and provide documentation of the steps taken to resolve any conflicts for the temporary and/or permanent relocations of the impacted utilities. The Contractor shall provide copies to the Engineer of the Contractor communication with the Utility companies, including but not limited to:

- Providing advanced notice, for all utility-related meetings initiated by the Contractor.
- Providing meeting minutes for all utility-related meetings that the Contractor attends.
- Providing all test pit records.
- Request for Early Utility work requirements of this section (see below).
- Notification letters for any proposed changes to Utility start dates and/or sequencing.
- Written notification to the Engineer of all apparent utility delays within seven (7) Calendar Days after a recognized delay to actual work in the field – either caused by a Utility or the Contractor.
- Any communication, initiated by the Contractor, associated with additional Right-of-Way needs in support of utility work.
- Submission of completed Utility Completion Forms.

B. PROJECT UTILITY COORDINATION (PUC) FORM

The utility schedule and sequence information provided in the Project Utility Coordination Form (if applicable) is the best available information at the time of the bid and has been considered in setting the contract duration. The Contractor shall use all of this information in developing the bid price and the Baseline Schedule Submission, inclusive of the individual utility durations sequencing requirements, and any work that has been noted as potentially concurrent utility installations.

C. INITIATION OF UTILITY WORK

The Engineer will issue all initial notice-to-proceed dates to each Utility company based on either the:

1) Contractor's accepted Baseline Schedule
2) An approved Early Utility Request in the form of an Early Utility sub-net schedule (in accordance with the requirements of this Subsection)
3) An approved Proposal Schedule

C.1 - BASELINE SCHEDULE – UTILITY BASIS

The Contractor shall provide a Baseline Schedule submission in accordance with the requirements of Subsection 8.02 and inclusive of all of the information provided in the PUC Form that has been issued in the Contract documents. This is to include the utility durations, sequencing of work, allowable concurrent work, and all applicable considerations that have been depicted on the PUC Form.

SUBSECTION 8.14 (Continued)

C.2 – EARLY UTILITY REQUEST – (aka SUBNET SCHEDULE) PRIOR TO THE BASELINE

All early utility work is defined as any anticipated/required utility relocations that need to occur prior to the Baseline Schedule acceptance. In all cases of proposed early utility relocation, the Contractor shall present all known information at the pre-construction conference in the form of a 'sub-net' schedule showing when each early utility activity needs to be issued a notice-to-proceed. The Contractor shall provide advance notification of this intent to request early utility work in writing at or prior to the Pre-Construction meeting. Prior to officially requesting approval for early utility work, the Contractor shall also coordinate with MassDOT and all utility companies (private, state or municipal) which may be impacted by the Contract. If this request is acceptable to the Utilities and to MassDOT, the Engineer will issue a notice-to-proceed to the affected Utilities, based on these accepted dates.

C.3 – PROPOSAL SCHEDULE - CHANGES TO THE PUC FORM

If the Contractor intends to submit a schedule (in accordance with MassDOT Standard Specifications, Division I, Subsection 8.02) that contains durations or sequencing that vary from those provided in the Project Utility Coordination (PUC) Form, the Contactor must submit this as an intended change, in the form of a Proposal Schedule and in accordance with MassDOT Standard Specifications, Division I, Subsection 8.02. These proposed changes are subject to the approval of the Engineer and the impacted utilities, in the form of this Proposal Schedule and a proposed revision to the PUC form. The Contractor shall not proceed with any changes of this type without written authorization from the Engineer, that references the approved Proposal Schedule and PUC form changes. The submission of the Baseline Schedule should not include any of these types of proposed utility changes and should not delay the submission of the Baseline Schedule. As a prerequisite to the Proposal Schedule submission, and in advance of the utility notification(s) period, the Contractor shall coordinate the proposed utility changes with the Engineer and the utility companies, to develop a mutually agreed upon schedule, prior to the start of construction.

D. UTILITY DELAYS

The Contractor shall notify the Engineer upon becoming aware that a Utility owner is not advancing the work in accordance with the approved utility schedule. Such notice shall be provided to the Engineer no later than seven (7) calendar days after the occurrence of the event that the Contractor believes to be a utility delay. After such notice, the Engineer and the Contractor shall continue to diligently seek the Utility Owner's cooperation in performing their scope of Work.

In order to demonstrate that a critical path delay has been caused by a third-party Utility, the Contractor must demonstrate, through the requirements of the monthly Progress Schedule submissions and the supporting contract records associated with Subsection 8.02, 8.10 and 8.14, that the delays were beyond the control of the Contractor.

SUBSECTION 8.14 (Continued)

All documentation provided in this section is subject to the review and verification of the Engineer and, if required, the Utility Owner. In accordance with MassDOT Specifications, Division I, Subsection 8.10, a Time Extension will be granted for a delay caused by a Utility, only if the actual duration of the utility work is in excess of that shown on the Project Utility Coordination Form, and only if;

1) proper Notification of Delay was provided to MassDOT in accordance with the time requirements that are specified in this Section
2) the utility delay is a critical path impact to the Baseline Schedule (or most recently approved Progress Schedule)

E. LOCATION OF UTILITIES

The locations of existing utilities are shown on the Contract drawings as an approximation only. The Contractor shall perform a pre-construction utility survey, including any required test pits, to determine the location of all known utilities no later than thirty (30) calendar days before commencing physical site work in the affected area.

F. POST UTILITY SURVEY – NOTIFICATION

Following completion of a utility survey of existing locations, the Contractor will be responsible to notify the Engineer of any known conflicts associated with the actual location of utilities prior to the start of the work. The Engineer and the Contractor will coordinate with any utility whose assets are to be affected by the Work of this Contract. A partial list of utility contact information is provided in the Project Utility Coordination Form.

G. MEETINGS AND COOPERATION WITH UTILITY OWNERS

The Contractor shall notify the Engineer in advance of any meeting they initiate with a Utility Owner's representative to allow MassDOT to participate in the meeting if needed.

Prior to the Pre-Construction Meeting, the Contractor should meet with all Utility Owners who will be required to perform utility relocations within the first 6 months of the project, to update the affected utilities of the Project Utility Coordination Form and all other applicable Contract requirements that impact the Utilities. The Contractor shall copy the Engineer on any correspondence between the Utility Owner and the Contractor.

H. FORCE ACCOUNT / UTILITY MONITORING REQUIREMENTS

The Engineer will be responsible for recording daily Utility work force reports. The start, suspension, re-start, and completion dates of each of the Utilities, within each phase of the utility relocation work, will be monitored and agreed to by the Engineer and the Contractor as the work progresses.

I. ACCESS AND INSPECTION

The Contractor shall be responsible for allowing Utility owners access to their own utilities to perform the relocations and/or inspections. The Contractor shall schedule their work accordingly so as not to delay or prevent each utility from maintaining their relocation schedule.

SUBSECTION 8.02 SCHEDULE OF OPERATIONS

Replace this subsection with the following:

An integrated cost and schedule controls program shall be implemented by the Contractor to track and document the progress of the Work from Notice to Proceed (NTP) through the Contractor Field Completion (CFC) Milestone. The Contractor's schedules will be used by the Engineer to monitor project progress, plan the level-of-effort required by the Department's work force and consultants and as a critical decision-making tool. Accordingly, the Contractor shall ensure that it complies fully with the requirements specified herein and that its schedules are both accurate and updated as required by the specification throughout the life of the project. Detailed requirements are provided in Division II, Section 722 Construction Scheduling.

SECTION 722
CONSTRUCTION SCHEDULING
DESCRIPTION

722.20 General

The Contractor's approach to prosecution of the Work shall be disclosed to the Department by submission of a Critical Path Method (CPM) schedule and a cost/resource loaded Construction Schedule as defined by the schedule type set forth below. These requirements are in addition to any requirements imposed in other sections.

This section establishes the requirement for scheduling submissions. There are four schedule types identified as types A, B, C and D. The schedule type applicable to this project is established in the project special provisions.

All schedules shall be prepared and submitted in accordance with this specification and the instructions contained in the Construction Schedule Toolkit located on the MassDOT-Highway Division website at https://www.mass.gov/info-details/massdot-highway-contractors-schedule-toolkit.

Type A –

- Schedule Planning Session
- Baseline CPM Schedule
- Monthly Update CPM Schedule
- Short-term Construction Schedule
- Contract Schedule Update Meeting
- Cost-loaded & Resource Loaded CPM
- Resources Graphic Reporting
- Cash Flow Projections from the CPM
- Cash Flow Charts
- Monthly Projected Spending Report (PSR)
- Contractor-furnished CPM software and computer

Type B –

- Schedule Planning Session
- Baseline CPM Schedule
- Monthly Update CPM Schedule
- Short-term Construction Schedule
- Contract Schedule Update Meeting
- Cost-loaded & Resource Loaded CPM
- Monthly Projected Spending Report (PSR)
- Contractor-furnished CPM software and computer

Type C –

- Schedule Planning Session
- Baseline CPM Schedule
- Monthly Update CPM Schedule
- Short-term Construction Schedule
- Contract Schedule Update Meeting
- Monthly Projected Spending Report (PSR)
- Contractor-furnished CPM software and computer

SECTION 722 (Continued)

Type D -

- Bar chart schedule updated monthly or at the request of the Engineer
- Short-term Construction Schedule
- Monthly Projected Spending Report (PSR)

EQUIPMENT, PERSONNEL

722.40 General

A. **Software Requirements**

The Contractor shall use Primavera P6 computer scheduling software.

In addition to the requirements of Section 740 – Engineer's Field Office and Equipment, the Contractor shall provide to the Department one (1) copy of the scheduling software, one (1) software license and one (1) computer capable of running the scheduling software for the duration of the Contract. This computer and software shall be installed in the Engineer's Field Office. The computer and software shall be maintained and serviced at no additional cost to the Department.

B. Scheduler Requirements

The Scheduler shall be approved by the Engineer.

For Type A, B and C Schedules the name of the Contractor's Project Scheduler together with his/her qualifications shall be submitted to the Department for approval by the Engineer within seven (7) Calendar Days after NTP. The Project Scheduler shall have a minimum of five (5) years of project CPM scheduling experience, three (3) years of which shall be on projects of similar scope and value as the project for which the Project Scheduler is being proposed. References shall be provided from past projects that can attest to the capabilities of the Project Scheduler.

SCHEDULING METHODS

722.60 General

A. **Schedule Planning Session**

The Contractor shall conduct a schedule planning session prior to submission of the Baseline Schedule. This session will be attended by the Department and its consultants. During this session, the Contractor shall present its planned approach to the project including, but not limited to:

1. the Work to be performed by the Contractor and its subcontractors;
2. the planned construction sequence and phasing; planned crew sizes;
3. summary of equipment types, sizes, and numbers to be used for each work activity;
4. all early work related to third party utilities;
5. identification of the most critical submittals and projected submission timelines;
6. estimated durations of major work activities;
7. the anticipated Critical Path of the project and a summary of the activities on that Critical Path;
8. a summary of the most difficult schedule challenges the Contractor is anticipating and how it plans to manage and control those challenges;

SECTION 722 (Continued)

9. a summary of the anticipated quarterly cash flow over the life of the project.

This will be an interactive session and the Contractor shall answer all questions that the Department and its consultants may have. The Contractor shall provide a written summary of the information presented and discussed during the session to the Engineer. The Contractor's Baseline Schedule and accompanying Schedule Narrative shall incorporate the information discussed at this Schedule Planning Session.

B. **Schedule Reviews by the Department**

1. Baseline Schedule Reviews
   The Engineer will respond to the Baseline Schedule Submission within thirty (30) Calendar Days of receipt providing comments, questions and/or disposition that either accepts the schedule or requires revision and resubmittal. Rejected Baseline Schedules shall be resubmitted within fifteen (15) Calendar Days after receipt of the Engineer's comments.
2. Contract Progress Schedule / Monthly Update Reviews / Recovery Schedules
   The Engineer will respond to each submittal within twenty-one (21) Calendar Days. Rejected schedules shall be resubmitted by the Contractor within five (5) Calendar Days after receipt of the Engineer's comments.

The Engineer's review comments shall not be construed as direction to change the Contractor's means and methods. The review and acceptance of the CPM schedule does not relieve the Contractor of the responsibility for accomplishing the work within the contract required completion dates. Omissions and errors in the accepted CPM schedule shall not excuse performance less than that required by the Contract.

722.61 Schedule Content and Preparation Requirements

All schedules shall be prepared and submitted in accordance with the instructions contained in the Construction Schedule Toolkit located on the MassDOT-Highway Division website at:
https://www.mass.gov/info-details/massdot-highway-contractors-schedule-toolkit
and the following:

A. **LOGIC**

The schedules shall divide the Work into activities with appropriate logic ties to show:

1. conformance with the requirements of this Section and Division I, Subsection 8.02 - Schedule of Operations
2. the Contractor's overall approach to the planning, scheduling, and execution of the Work
3. conformance with any additional sequences of Work required by the Contract Documents, including, but not limited to, Subsection 8.03 - Prosecution of Work and Subsection 8.06 – Limitations of Operations.

SECTION 722 (Continued)

B. **ACTIVITIES**

The schedule shall clearly define the progression of the Work from the Notice to Proceed (NTP) to Contractor Field Completion (CFC) by using separate activities, or including attributes within appropriate activities, to address each of the following:

1. Notice to Proceed
2. Work Breakdown Structure
3. The Critical Path is clearly defined and organized.
4. Float shall be clearly identified.
5. Detailed activities to satisfy permit requirements.
6. Subcontractor approvals at fifteen (15) Calendar Days from submittal to response
7. The preparation and submission of shop drawings, procedures, and other required submittals, with a planned duration that is to be demonstrated to the Engineer as reasonable.
8. The review and return of shop drawings, procedures, and other required submittals, approved or with comments, the duration of which shall be thirty (30) Calendar Days, unless otherwise specified or as approved by the Engineer.
9. Procurement of fabricated materials and equipment with long lead times, including time for review and approval of submittals required before procuring and fabricating.
10. Each component of the Work defined by specific activities.
11. Right-of-Way (ROW) takings that have been identified in the Contract.
12. Early Utility Relocation (by others) that has been identified in the Contract.
13. Interfaces with adjacent work, utility companies, other public agencies, sensitive abutters, and/or any other third-party work affecting the Contract.
14. Utility work to be performed in accordance with the Project Utility Coordination (PUC) Form as provided in Section 8.14 - Utilities Coordination, Documentation and Monitoring Responsibilities
15. Access Restraints – restrictions on access to areas of the Work that are defined by the Department in the bid package, in Subsection 8.06 – Limitations of Operations or elsewhere in the Contract
16. Limitations of Work – time of year restrictions and any other limitations identified in the contract
17. Traffic work zone set-up and removal, night work and phasing
18. Material Certifications
19. Milestones listed in Subsection 8.03 - Prosecution of Work or elsewhere in the Contract Documents
20. For Type A and B Contracts only: All items to be paid for, including all Unit Price and Lump Sum pay items, shall be identified by activity. This shall include all non-construction activities such as engineering work; purchase of permanent materials and equipment, purchase of structural steel stock, equipment procurement, equipment delivery to the site or storage location and the representative amount of overhead/indirect costs that was included in the Contractor's Bid Prices.

SECTION 722 (Continued)

21. Contractor's request for validation of FBU (ready to open to traffic)
22. Full Beneficial Use (FBU) Contract Milestone per the following requirements: The majority of contract Work has been completed and the asset(s) has been opened for full multi-modal transportation use, except for limited contract work items that do not materially impair or hinder the intended public use of the transportation facility. All anticipated lane takings have been completed, except for minor, short term work items and as defined in Subsection 8.03 - Prosecution of Work
23. The Department's confirmation of completed work to allow for FBU.
24. Contractor's request for validation of Substantial Completion
25. Department generated punch list of twenty-one (21) Calendar Days
26. Substantial Completion Contract Milestone as defined in the standard specifications.
27. Punch list Completion Period of at least thirty (30) Calendar Days per the requirements of Subsections 5.11 - Final Acceptance, 7.15 - Claims Against Contractors for Payment of Labor, Materials and Other Purposes
28. Contractor confirmation that all punchlist work and documentation has been completed.
29. Physical Completion of the Work Contract Milestone per the requirements of Subsections 5.11 - Final Acceptance and 8.03 - Prosecution of Work
30. Documentation Completion per the requirements of Subsections 5.11 - Final Acceptance and 8.03 - Prosecution of Work
31. Contractor Field Completion Contract Milestone (which can also be considered the completion date) per the following requirements: All physical contract Work is complete including punchlist. The Contractor has fully de-mobilized from field operations and as defined in Subsection 5.11

C. **EARLY AND LATE DATES**

Early Dates shall be based on proceeding with the Work or a designated part of the Work exactly on the date when the corresponding Contract Time commences. Late Dates shall be based on completing the Work or a designated part of the Work exactly on the corresponding Contract Time, even if the Contractor anticipates early completion.

D. **DURATIONS**

Activity durations shall be in Work Days. Planned Original Durations shall be established with consideration of resources and production rates that correspond to the Contractor's Bid Price. Within all of the Department-required schedules, the Contractor shall plan the Work using durations for all physical construction activities of no less than one (1) Work Day and no greater than fourteen (14) Work Days, unless approved by the Engineer as part of the Baseline Schedule Review.

SECTION 722 (Continued)

Should there be an activity with a duration that is determined by the Engineer to be unreasonable, the Contractor will be asked to provide a basis of the duration using bid documents, historic production rates for similar work, or other form of validation that is acceptable to the Engineer. Should the Contractor and the Engineer be unable to agree on reasonable activity durations, the Engineer will, at a minimum, note the disagreement in the Baseline Schedule Review along with a duration the Engineer considers reasonable and the basis for that duration. A schedule that contains a substantial number of activities with durations that are deemed unreasonable by the Engineer will not be accepted.

E. **MATERIALS ON HAND**

The Contractor shall identify in the Baseline Schedule all items of permanent materials (Materials On Hand) for which the Contractor intends to request payment prior to the incorporation of such items into the Work.

F. **ACTIVITY DESCRIPTIONS**

The Contractor shall use activity descriptions in all schedules that clearly describe the work to be performed using a combination of words, structure numbers, station numbers, bid item numbers, work breakdown structure (WBS) and/or elevations in a concise and compact label.

G. **ACTIVITY IDENTIFICATION NUMBERS**

The Contractor shall use the activity identification numbering system specified in the MassDOT Highway Division Contractor Construction Schedule Toolkit.

H. **ACTIVITY CODES**

The Contractor shall use the activity codes specified in the MassDOT Highway Division Contractor Construction Schedule Toolkit.

I. **CALENDARS**

Different calendars may be created and assigned to all activities or to individual activities. Calendars define the available hours of work in each Calendar Day, holidays and general or project-specific non-Work Days such as Fish Migration Periods, time-of-year (TOY) restrictions and/or area roadway restrictions. All calendars shall extend two years beyond the current project completion date.

Project Special Provisions identify specific calendar restrictions some examples of special calendars include, but are not limited to:

- Winter Shutdown Period, specific work is required by separate special provision to be performed during the winter. See Special Provision 8.03 (if applicable)
- Peak traffic hours on heavily traveled roadways. This shall be from 6:30 am to 9:30 am and from 3:30 pm to 7:00 pm, unless specified differently elsewhere in the Contract.
- Special requirements by sensitive abutters, railroads, utilities and/or other state agencies as defined in the Contract.
- Planting seasons for trees, shrubs and grasses and wetlands mitigation work.

SECTION 722 (Continued)

- Cape Cod and the Islands Summer Roadway Work Restrictions: A general restriction against highway and bridge construction is enforced between Memorial Day and Labor Day, unless otherwise directed by the Engineer. Cape Ann Summer Roadway Work Restrictions: While there are no general restrictions for Cape Ann as there are for Cape Cod and the Islands, project-specific restrictions may be enforced.
- Turtle and/or Fish Migration Periods and/or other in-water work restrictions: Refer to the Project Special Provisions for specific restrictions.
- Working over Waterways Restricted Periods.
- Night-time paving and striping operations, traffic, and temperature restrictions.
- Utility Restrictions shall be as specified within the Contract.

J. **FLOAT**

For the calculation of float in the CPM schedule, the setting for *Retained Logic* is required for all schedule submissions, starting with the Baseline Schedule Submission. Should the Contractor have a reason to propose that an alternative calculation setting such as *Progress Override* be used, the Contractor shall obtain the Engineer's approval prior to modifying to this setting.

K. **COST AND RESOURCE LOADING (Types A and B only)**

For all Type A and B Schedules, the Contractor shall provide a cost and resource-loaded schedule with an accurate allocation of the costs and resources necessary to complete the Work. The costs and resources shall be assigned to all schedule activities in order to enable the Contractor to efficiently execute the Contract requirements and the Engineer to validate the original plan, monitor progress, provide cash flow projections, and analyze delays.

1. Each schedule activity shall have an assigned cost that accurately represents the value of the Work. Each schedule activity shall have its resources assigned to it by craft and the anticipated hours to accomplish the work. Each schedule activity's equipment resources shall be assigned to it by equipment type and hours operated. Front-loading or other unbalancing of the cost distribution will not be permitted.
2. The sum of the cost of all schedule activities shall be equal to the Contractor's Bid Price.
3. Indicating the labor hours per individual, per day, by craft and equipment hours/day will be acceptable.
4. The Engineer reserves the right to use the cost-loading as a means to resolve changes, disputes, time entitlement evaluations, increases or decreases in the scope of Work, unit price renegotiations and/or claims.
5. For all Type A and B Schedules, all subnets, fragnets, Proposal Schedules, and Recovery Schedules shall be cost and resource- loaded to help to quickly validate and monitor the duration of the Work to be performed.
6. For Type A Schedules, cost-loading of the schedule will also be used for cash flow projection purposes.
7. The cost-loading of each activity shall indicate the portion of the cost for that activity that is applicable to a specific bid item (cost account.) The total cost for each cost account must equal the bid item price.

SECTION 722 (Continued)

L. **NOT TO BE USED IN THE CONTRACTOR'S CPM SCHEDULE**

1. Milestones or constraint dates not specified in the Contract.
2. Scheduled work not required for the accomplishment of a Contract Milestone
3. Use of activity durations, logic ties and/or sequences deemed unreasonable by the Engineer.
4. Delayed starts of follow-on trades.
5. Float suppression techniques.
6. Leads such as leads, lags, SS, SF, & FF relationships without the expressed permission of the Department.

722.62 Submittal Requirements

All schedules shall be prepared and submitted in accordance with the requirements listed below.

Each monthly Contract Progress Schedule submittal shall be uniquely identified.

Each Submission shall, at a minimum, include the following:

a. Narrative
b. Schedule submittals shall be signed by the Scheduler
c. Schedule Printout - All Activities
d. Schedule Printout - Critical Path Layout
e. Schedule Printout - Remaining Work
f. Schedule Printout - Top 3 Float Path
g. Work Breakdown Structure (WBS) Summary
h. Project Spending Report (PSR) in Portable Document Format (.PDF)
i. Project Spending Report (PSR) in Microsoft Excel spreadsheet (.XLS)
j. Oracle Primavera P6 Schedule File (.XER)

All digital file submittals will be labeled with the following information.

- Contract Number
- Project Number
- Project locations (i.e., town(s))
- Brief description
- Submittal description (i.e., UP07)
- Data Date (MM-DD-YY)
- File Description (i.e., Critical Path)

Example: C110464 (P606309) - Orange Route 2 over 202 – UP23 (07-15-22) - Critical Path

A. **Narratives**

A written narrative shall be submitted with every schedule submittal. The narrative shall:

1. itemize and describe the flow of work for all activities on the Critical Path in a format that includes any changes made to the schedule since the previous Contract Progress Schedule / Monthly Update or the Baseline Schedule, whichever is most recent.
2. provide a description of any specification requirements that are not being followed. Identify those that are improvements and those that are not considered to be meeting the requirements.

SECTION 722 (Continued)

3. provide all references to any Notice of Delay that has been issued, within the time period of the Contract Progress Schedule Update, by letter to the Engineer. Note that any Notice of Delay that is not issued by letter will not be recognized by the Engineer. See Subsection 722.64.A – Notice of Delay.
4. provide a description of each third-party utility's planned vs. actual progress and note any that are trending late or are late per the durations and commitments as provided in the PUC Form; provide a description of the five (5) most important responses needed from the Department and the need date for the responses in order to maintain the current Schedule of Record.
5. provide a description of all critical issues that are not within the control of the Contractor or the Department (third party) and any impact they had or may have on the Critical Path.
6. provide a description of any possible considerations to improve the probability of completing the project early or on time.
7. compare Early and Late Dates for activities on the Critical Path and describe reasons for changes in the top three (3) most critical paths.
8. describe the Contractor's plan, approach, methodologies, and resources to be employed for completing the various operations and elements of the Work for the top three (3) most critical paths. For update schedules, describe and propose changes to those plans and verify that a Proposal Schedule is not required.
9. describe, in general, the need for shifts that are not 5 days/week, 8 hours/day, the holidays that are inserted into each calendar and a tabulation of each calendar that has been used in the schedule.
10. describe any out-of-sequence logic and provide an explanation of why each out-of-sequence activity does not require a correction, if one has not been provided, and an adequate demonstration that these changes represent the basis of how these activities will be built, including considerations for resources, dependencies, and previously approved production rates.
11. identify any possible duration increases resulting from actual or anticipated unit price item quantity overruns as compared to the baseline duration, with a corresponding suggestion to mitigate any possible delays to the Critical Path. If the delay is anticipated to impact the Critical Path, refer to Subsections 4.06 – Increased or Decreased Contract Quantities and 8.10 – Determination and Extension of Contract Time for Completion and submit a letter to the Engineer notifying of a potential delay.
12. include a schedule log consisting of the name of the schedule, the data date and the date submitted.
13. include and describe any notifications, communications and coordination meetings with third-parties such as utility companies that occurred from the last update including personnel names, job titles and contact information, date of meeting(s)/correspondence(s), topics discussed, and reasons the third party provided for deviations from the PUC form.

SECTION 722 (Continued)

B. **CPM Bar Charts**

One (1) timescaled bar chart containing all activities shall be prepared and submitted using a scale that yields readable plots and that meets the requirements of Subsection 722.61 – Schedule Content and Preparation Requirements Activities shall be linked by logic ties and shown on their Early Dates. Critical Paths shall be highlighted, and Total Float shall be shown for all activities.

A second timescaled bar chart shall also be prepared containing only the Critical Path or, if the Critical Path is not the longest path, the Longest Path using a scale that yields readable plots and that meets the requirements of Subsection 722.61 – Schedule Content and Preparation Requirements. Activities shall be linked by logic ties and shown on their Early Dates. Total Float shall be shown for all activities.

C. Detailed Activity Schedule Comparisons

A Detailed Activity Schedule Comparison (DASC) is a simple reporting tool in the format of a graphical report that will provide Resident Engineers with immediate, timely and up-to-date information. The DASC consists of an updated bar chart that overlays the current time period's bar chart onto the previous time period's bar chart for an easily read comparison of progress during the present and previous reporting periods.

D. Activity Cost Report and Monthly Cash Flow Projections (Type A only)

With each Contractor Quantity Estimate (CQE), the Contractor shall submit an Activity Cost Report and Cash Flow Projection that includes all activities grouped by Contract Bid Item.

The Activity Cost Report shall be generated from the Schedule of Record and shall be the basis of the Monthly Cash Flow Projection. Within each contract Bid Item, activities shall be sequenced by ascending activity identification number and shall show:

1. activity ID and description,
2. forecast start and finish dates for each activity and,
3. when submitted as a revised schedule, actual start, and finish dates for each completed activity.
4. any variance to the estimated contract quantity shall be shown.

E. Resource Graphs (Type A only)

Monthly and cumulative resource graphs for the remaining Contract period using the Early Dates and Late Dates in the Contract Progress Schedule shall be included as part of each schedule submittal.

SECTION 722 (Continued)

F. Projected Spending Reports

A Projected Spending Report (PSR) shall be prepared and submitted monthly. The PSR shall indicate the monthly spending (cash flow) projection for each month from NTP to Contractor Field Completion (CFC). Each month's actual spending shall be calculated using all CQEs paid during that month. The Projected Spending Report (PSR) shall be depicted in a tabular format and provided in both an .XLS and .PDF.

722.63. Progress Schedule Requirements

A. Baseline Schedule

The Baseline Schedule shall be due thirty (30) Calendar Days after Notice to Proceed (NTP). The Baseline Schedule shall only reflect the Work awarded to the Contractor and shall not include any additional work involving Extra Work Orders or any other type of alleged delay. The Baseline Schedule shall be prepared and submitted in accordance with Subsections 722.61 - Schedule Content and Preparation Requirements and 722.62 - Submittal Requirements. Once the Baseline Schedule has been accepted by the Engineer, with or without comments, it shall represent the as-planned schedule for the Work and become the Contract Progress Schedule of Record until such time as the schedule is updated or revised under Subsections 722.63.C - Contract Progress Schedules / Monthly Updates, 722.64.C - Recovery Schedules and 722.64.D - Proposal Schedules.

The Cost and Resource-Loading information (Types A and B only) shall be provided by the Contractor within forty-five (45) Calendar Days after NTP.

The Engineer's review comments on the Baseline Schedule and the Contractor's responses to them will be maintained for the duration of the Contract and will be used by the Engineer to monitor the Contractor's work progress by comparing it to the Contract Progress Schedule / Monthly Update.

B. Interim Progress-Only Schedule Submissions

The first monthly update of the Contract Progress Schedule/Monthly Update is due within seventy (70) Calendar Days after Notice to Proceed (NTP.) The Baseline Schedule review period ends at sixty (60) Calendar Days after NTP, see Subsection 722.60.B - Schedule Reviews by the Department. If the Baseline Schedule has not been accepted within sixty (60) Calendar Days after NTP, an Interim Progress-Only Schedule shall be due within seventy (70) Calendar Days after NTP. The purpose of the Interim Progress-Only Schedule is to document the actual progress of all activities, including non-construction activities, from NTP until the Baseline Schedule is accepted.

SECTION 722 (Continued)

C. Contract Progress Schedules / Monthly Updates

The first Contract Progress Schedule shall be submitted by the Contractor no later than seventy (70) Calendar Days after NTP. The data date for this first Progress Schedule shall be two months (approximately sixty (60) Calendar Days) after NTP. Subsequent Progress Schedules shall be submitted monthly.

Each Contract Progress Schedule shall reflect progress up to the data date. Updated progress shall be limited to asbuilt sequencing and asbuilt dates for completed and inprogress activities. Asbuilt data shall include actual start dates, remaining Work Days and actual finish dates for each activity, but shall not change any activity descriptions, the Original Durations, or the Original Resources (as planned at the time of bid), without the acceptance of the Engineer. If any activities have been completed out-of-sequence, the Contractor shall propose new logic ties for affected in-progress and future activities that accurately reflect the previously approved sequencing. Alternatively, the Contractor may submit to the Engineer for approval an explanation of why an out-of-sequence activity does not require a correction and an adequate demonstration that the changes accurately represent how the activities will be built, including considerations for resources, dependencies, and previously approved production rates. Once approved by the Engineer, the Contractor may incorporate the changes in the next Contract Progress Schedule/Monthly Update with the affected activities clearly identified and explained in the Schedule Narrative.

No revisions to logic ties, sequence, description, or duration of future activities; or planned resource costs shall be made without prior approval by the Engineer.

Any proposed logic changes for in-progress or future activities shall be submitted to the Engineer for approval before being incorporated into a Contract Progress Schedule. The logic changes must be submitted using a Proposal Schedule or a schedule fragnet submission. Once approved by the Engineer, the Contractor may incorporate the logic in the next Contract Progress Schedule/Monthly Update with the affected activities clearly identified and explained in the Schedule Narrative.

For any proposed changes to the original sequence, description or duration of future activities, the Contractor shall submit to the Engineer for approval an explanation of how the proposed description or duration change reflects how the activity will be progressed, including considerations for resources and previously approved production rates. Any description or duration change that does not accurately reflect how the activity will be progressed will not be approved by the Engineer. Once approved by the Engineer, the Contractor may incorporate the changes in the next Contract Progress Schedule/Monthly Update with the affected activities clearly identified and explained in the Schedule Narrative.

Contract Progress Schedules that extend performance beyond the Contract Time or beyond any Contract Milestone shall not be approved by the Engineer. The Contractor shall submit a Recovery Schedule, or a Time Entitlement Analysis, if any Contract Progress Schedule/Monthly Update indicates a failure to meet the Contract Dates.

SECTION 722 (Continued)

D. Short-Term Construction Schedule

The Contractor shall provide a Short-Term Construction Schedule that details daily work activities, including any multiple shift work that the Contractor intends to conduct, in a spreadsheet format. The daily activities shall directly correspond to the Contract Progress Schedule activities, with a matching reference to the activity identification number in the Contract Progress Schedule and may be at a greater level of detail. The Short-Term Construction Schedule shall be submitted every two weeks. It shall display all work for a thirty-five (35) Calendar Day period consisting of completed work for the two (2) week period prior and all planned work for the following three (3) week period. The initial submission shall be provided no later than thirty (30) Calendar Days after NTP or as required by the Engineer.

The Contractor shall be prepared to discuss the Short-Term Construction Schedule, in detail, with the Engineer in order to coordinate field inspection staff requirements, the schedule of work affecting abutters and any corresponding work with affected utilities. Short-Term Construction Schedules shall be prepared and submitted in accordance with Subsections 722.61 - Schedule Content and Preparation Requirements and 722.62 - Submittal Requirements.

722.64 Impacted Schedule Requirements

A. Notice of Delay

The Contractor shall notify the Engineer in writing, with copies to the District and State Construction Engineers, within fifteen (15) of the start of any delays to the Critical Path that are caused by actions or inactions that were not within the control of the Contractor. Delay notifications that are not provided in a letter to the Engineer, such as a delay notification in the schedule narrative, will not be recognized as contractual notice in the determination of any Time Extension related to the impacts to the work associated with this specific alleged delay. Should such a delay continue for more than one (1) week, the Contractor shall note it in the Schedule Narrative until the delay is no longer impacting the Critical Path for the completion of the Contract Milestones. The Engineer will evaluate the alleged delay and its impact and will respond to the Contractor within ten (10) Calendar Days after receipt of a notice of delay.

B. Time Entitlement Analysis

A Time Entitlement Analysis (TEA) shall consist of a descriptive narrative, prepared in accordance with Subsection 722.62.A - Narratives, and an as-built CPM schedule, which may be in the form of a schedule fragnet that has been developed from the project's Contract Progress Schedule of Record, and illustrates the impact of a delay to the Critical Path, Contract Milestones and/or Contract Completion Date as required in Subsection 8.10 - Determination and Extension of Contract Time for Completion. TEAs shall also be used to determine the schedule impact of proposed Extra Work Orders (EWO) as also required in Subsection 8.10.

TEAs shall be prepared and submitted in accordance with the requirements of Subsections 722.61 - Schedule Content and Preparation Requirements and 722.62 - Submittal Requirements and shall be based on the Contract Progress Schedule of Record applicable at the start of the delay or impact from an EWO. A TEA fragnet must start with a specific new activity describing the work contained in either a Notice of Delay previously submitted to the Department per Subsection 722.64.A - Notice of Delay or an EWO.

SECTION 722 (Continued)

TEAs shall be submitted:

1. as part of any Extra Work Order that may impact Contract Time,
2. with a request for a Time Extension,
3. within fifteen (15) Calendar Days after a request for a TEA by the Engineer for any other reason.

A TEA shall be submitted to the Engineer before any Time Extension is granted to the Contractor. Time Extensions will not be granted unless the TEA accurately reflects an evaluation of all past delays and the actual events that occurred that impacted the Critical Path. The TEA must also demonstrate a plan for the efficient completion of all of the remaining work through an optimized CPM Schedule. The analysis shall include all delays, including Contractor-caused delays, and shall be subdivided into timeframes and causes of delays.

TEAs shall incorporate any proposed activities, logic ties, resource considerations, and activity costs required to demonstrate the schedule impacts most efficiently in addition to detailing all impacts to existing activities, logic ties, the Critical Path, Contract Milestones, and the Contract Completion Date. In addition, TEAs shall accurately reflect any changes made to activities, logic ties, restraints, and activity costs, necessitated by an Extra Work Order or other schedule impact, for the completion of the remaining work. The Contractor shall provide TEAs that demonstrate that all delays have been mitigated to the fullest extent possible without requiring an Equitable Adjustment to the original bid basis.

All TEAs shall clearly indicate any overtime hours, additional shifts and the resources that are proposed to be incorporated in the schedule. The Engineer shall have final discretion over the use of overtime hours and additional shifts. The Engineer shall have the right to require that overtime hours and/or additional shifts be used to minimize the duration of Time Extensions if it is determined to be in the best interest of the Department to do so.

When accepted, the changes included in a TEA shall be incorporated into the next Contract Progress Schedule per the requirements of Subsection 722.63.C - Contract Progress Schedules / Monthly Updates. During the review of any TEA, all Contract Progress Schedules shall continue to be submitted as required.

The Engineer may request that the Contractor prepare a Proposal Schedule or a Recovery Schedule to further mitigate any delays that are shown in the accepted TEA or Contract Progress Schedule.

C. Recovery Schedules

The Contractor shall promptly report to the Engineer all schedule delays during the prosecution of the Work. –Contract Progress Schedules that predict performance extended beyond the Contract Time or beyond any Contract Milestone shall not be approved as the schedule of record. This requirement is critical to the Department's ability to make informed decisions regarding Contract Time and costs.

The Contractor shall submit a Recovery Schedule within fifteen (15) Calendar Days of a Contract Progress Schedule submission that shows failure to meet the Contract Dates unless a recovery schedule is waived by the Department. Waiving the recovery schedule does not relieve the contractor of the responsibility for the delay. The Department may revoke the waiver of a Recovery Schedule, at which time a Recovery Schedule shall be submitted within fifteen (15) Calendar Days of the Contractor being notified.

Changes represented in accepted Recovery Schedules shall be incorporated into the next Contract Progress Schedule.

SECTION 722 (Continued)

D. Proposal Schedules

A Proposal Schedule is an alternative schedule used to evaluate proposed changes to the Contract scope or significant alternatives to previously approved approaches to complete the Work, which may include changes to activity durations, logic, and sequence. For Types A and B Schedules, the Proposal Schedule shall be cost and resource loaded.

A Proposal Schedule may be requested by the Department at any time or may be offered by the Contractor. The Engineer may request that the Contractor prepare a Proposal Schedule to further mitigate any delays that are shown in an accepted TEA or Contract Progress Schedule.

The Contractor shall submit the Proposal Schedule within thirty (30) Calendar Days of a request from the Department.

The Proposal Schedule shall not be considered a Schedule of Record until the logic, durations, narrative, and basis of the Proposal Schedule have been accepted by the Engineer. If the Proposal Schedule took the form of a fragnet, it must be incorporated into the Contract Progress Schedule of Record showing the current progress of all other activities and the impacts/results of the changes made by the Proposal Schedule before the Proposal Schedule is accepted by the Department.

Proposal Schedules shall clearly indicate any proposed acceleration including overtime hours, additional shifts, and the resources that are proposed to be incorporated in the schedule. The Engineer shall have final discretion over the use of overtime hours and additional shifts. Proposal Schedules that contain a cost element shall be submitted with a separate Cost Proposal.

Changes represented in the accepted Proposal Schedules shall be incorporated into the next Contract Progress Schedule. During the review of any Proposal Schedule, all Contract Progress Schedules shall continue to be required every month.

E. Disputes

All schedules shall be submitted, reviewed, dispositioned, and accepted in the timely manner specified herein so as to provide the greatest possible benefit to the execution of this Contract.

The Contractor may dispute a decision by the Engineer by filing a claim notice within seven (7) days after the Contractor's request for additional time has been denied or if the Contractor does not accept the number of days granted in a time extension. The Contractor's claim notice shall include a revised time entitlement analysis that sufficiently explains the basis of the time-related claim. Failure to submit the required time entitlement analysis with the claim notice shall result in denial of the Contractor's claim. A determination on the Contractor’s claim shall be in accordance with Subsection 7.16 Claims of Contractor for Compensation. Pending resolution of any dispute, the last schedule accepted by the Engineer will remain the Contract Schedule of Record.

SECTION 722 (Continued)

722.65 Schedule Type D Requirements

This section is to detail the requirements for Type D Schedules and is separate from the requirements listed above. These schedules are intended for a project in which a more formal schedule would not be practical.

Schedules for Type D projects shall be submitted for each work assignment. The Schedule Type D shall be submitted electronically in .XLS and .PDF format and meet the following requirements.

The schedule requirements for work assignments that are anticipated to last three weeks or less shall conform to the requirements for Short-term Construction Schedules below.

Work assignments that are anticipated to last longer than three weeks shall submit a bar chart baseline and provided update schedules upon request of the engineer as required under Bar Chart Schedule below in addition to meeting the Short-term Construction schedule requirements.

A. **Bar Chart Schedule**

A Bar Chart that shall include the following:

- Work Assignment start date.
- Activities to identify.
  - Major work operations broken down to be no longer than 14 days.
  - Procurement of fabricated materials and equipment with long lead times, including time for review and approval of submittals required before procuring and fabricating.
  - The preparation and submission of shop drawings, procedures, and other required submittals, with a planned duration that is to be demonstrated to the Engineer as reasonable.
  - The review and return of shop drawings, procedures, and other required submittals, approved or with comments, the duration of which shall be shown as thirty (30) Calendar Days,
  - Detailed activities to satisfy permit requirements.
  - Subcontractor approvals at fifteen (15) Calendar Days from submittal to response
  - Project Close out activities including a 21-calendar day creation of a punchlist activity and 30 calendar day minimum completion of punchlist activity.
- Interfaces with adjacent work, utility companies, other public agencies, sensitive abutters, and/or any other third-party work affecting the Contract.
- Access Restraints – restrictions on access to areas of the Work
- Traffic work zone set-up and removal, night work and phasing
- Contract Milestones including Full beneficial Use, Substantial Completion and Contractor Field Completion

The Bar Char Schedule shall be provided at the beginning of the project and updated with each work order created for the project.

SECTION 722 (Continued)

B. **Short-Term Construction Schedule**

The Contractor shall provide a Short-Term Construction Schedule that details daily work activities, including any multiple shift work that the Contractor intends to conduct, in a spreadsheet format. The daily activities shall directly correspond to the Contract Progress Schedule activities, with a matching reference to the activity identification number in the Contract Progress Schedule and may be at a greater level of detail. See schedule toolkit for suggested format.

The Short-Term Construction Schedule shall be submitted every two weeks. It shall display all work for a thirty-five (35) Calendar Day period consisting of completed work on the assignment for the two week period prior and all planned work for the following three week period. The initial submission shall be provided no later than thirty (30) Calendar Days after NTP or as required by the Engineer.

The Contractor shall be prepared to discuss the Short-Term Construction Schedule, in detail, with the Engineer in order to coordinate field inspection staff requirements, the schedule of work affecting abutters and any corresponding work with affected utilities.

C. **Project Spending Report (PSR)**

A Projected Spending Report (PSR) shall be prepared and submitted monthly. The PSR shall be for all active work assignments, broken down by work assignment. The PSR shall indicate the monthly spending (cash flow) projection for each month from NTP to Contractor Field Completion (CFC). Each month's actual spending shall be calculated using all CQEs paid during that month. The Projected Spending Report (PSR) shall be depicted in a tabular format and provided in both an .XLS and .PDF

SECTION 722 (Continued)

COMPENSATION

722.80 Method of Measurement

Schedule of Operations (Type A, B and C)

The project bid documents specify the fixed-price amounts to be paid to the Contractor for the Project Schedule requirements contained herein. Each bidder shall include this fixed price bid item amounts in their bid. Failure to do so may be grounds for the rejection of the bid.

This fixed price amount is for payment purposes only and is separate from what the Department considers to be the Contractor's General Condition costs. If the Contractor deems it necessary to include additional costs to provide all of the requirements of this section, these additional costs shall be included in the Contractor's overall bid price.

All required schedule-related work, including, but not limited to computers, computer software, the planning and coordination with utilities, training, schedule preparation and schedule submittals will be paid for under the fixed price amount.

Twenty percent (20%) of this pay item will be paid upon the Engineer's acceptance of the Contractor's Baseline Schedule, prepared and submitted in accordance with Subsection 722.63.A.

The remaining eighty percent (80%) of this pay item will be paid in equal monthly installments distributed across the Contract Duration from Notice to Proceed (NTP) to Contractor Field Completion (CFC), less the 2 months required for the submittal and review of the Baseline Schedule in accordance with the following formula:

$$\text{Monthly Payment} = \frac{\text{Remaining Fixed Price amount (80\% of the Item Cost.)}}{\text{Contract Duration in whole months} - 2 \text{ months}}$$

The Schedule of Operations pay item will be adjusted to pay for only the actual quantity of schedules that have been submitted in accordance with this section.

Should there be a Time Extension granted to the Contractor, the Engineer may provide an Equitable Adjustment for additional Contract Progress Schedule Updates at intervals directed by the Engineer. The monthly payment will be the basis for this Equitable Adjustment.

Schedule of Operations (Type D)

For projects assigned with Type D schedule requirements, all scheduling work shall be considered incidental to the project with no separate payment under this section.

SECTION 722 (Continued)

722.81 Basis of Payment

The timely and accurate submission of the Baseline Schedule is critical to the Contract and the Department's ability to make informed decisions. Only payments under Item 740 - Engineer's Field Office and Item 748 – Mobilization will be made until the Baseline Schedule is accepted by the Engineer.

All required schedule-related work, including, but not limited to computers, computer software, the planning and coordination with utilities, training, schedule preparation and schedule submittals (including monthly progress schedules, short-term schedules, project spending reports, TEAs, recovery schedules or impacted schedules) shall be included in this work.

No payment for any other pay item will be processed beyond seventy-five (75) Calendar Days from Notice to Proceed (NTP) until the Baseline Schedule is accepted by the Engineer. Until the Engineer's acceptance of the Baseline Schedule, the combined total of all payments made to the Contractor will be limited to an amount no greater than the total price for Item 748 - Mobilization or 3% of the contract price, whichever is less.

All Contract Progress Schedule Updates submitted later than ten (10) Calendar Days after the CQE (Contract Quantity Estimate) completion date, or greater than forty (40) Calendar Days from the Data Date of the previous submission, will be deemed to be no longer useful and will not qualify for payment. The late submission of Impacted schedules, including TEAs, recovery schedules and proposal schedules will result in the forfeiture of the monthly payment for the month in which they were due and subsequent months until the submission is made. Late submission of missed submittals will not result in recovery of the previously forfeited portion of the Schedule of Operations Fixed Price Payment Item.

Failure to submit schedules as and when required may result in the forfeiture of that portion of the Schedule of Operations Fixed Price Payment and/or the withholding of the full or partial CQE payments by the Engineer.

Failure to submit schedules that are acceptable to the Engineer may result in the forfeiture of that portion of the Schedule of Operations Fixed Price Payment and/or the withholding of the full or partial CQE payments by the Engineer.

The Schedule of Operations pay item will be adjusted to pay for only the actual quantity of schedules that have been submitted in accordance with this section.

The Contractor's failure or refusal to comply with the requirements of this Section shall be reasonable evidence that the Contractor is not prosecuting the Work with due diligence and may result in the Engineer withholding of full or partial payments of all work performed.

722.82 Payment Items

722.1	SCHEDULE OF OPERATIONS (TYPE A) - FIXED PRICE $_____	LUMP SUM
722.2	SCHEDULE OF OPERATIONS (TYPE B) - FIXED PRICE $_____	LUMP SUM
722.3	SCHEDULE OF OPERATIONS (TYPE C) - FIXED PRICE $_____	LUMP SUM

SCHEDULE OF OPERATIONS - SCHEDULE TYPE

The applicable schedule type for this project is Type D.

ITEM 102.001 LONG REACH EXCAVATOR HOUR

The work under this Item shall consist of furnishing a long reach hydraulic excavator with hydraulic thumb as directed by the Engineer. The excavator shall have a minimum 50' reach at ground level and be able to be transported in one piece.

Work under this item includes beaver dam removal, removing beaver debris from culverts, dredging of waterways, reshaping of banks, mucking out of channels and other related work in and along bodies of water as directed by the Engineer.

The minimum crew size shall consist of an operator and laborer and shall also have a utility truck.

The two-person crew shall also be equipped with waders, eight (8) 2'x8' sheets of ¾" plywood, 100' of ½" wire cable, clamps and 12" grapple hook attachment. The utility truck shall be equipped with a 20" chainsaw, power broom, leaf blower, 14" cutoff saw with concrete and metal cutting blades, shovels, picks, pry bars, and assorted chains.

The laborer shall support the excavator's operations by cutting vegetation, cleanup, moving plywood planks, fastening larger trees and debris with wire cable, and other work as directed by the Engineer. The use of waders may be required to navigate water areas.

Fuel for heavy equipment shall be considered incidental to this item.

Method of Measurement and Basis of Payment

Measurement and payment for the work done under Item 102.001 is by the Hour. Payment shall include full compensation for the operator, equipment, laborer, utility truck and tools, plywood, wire cable, grapple hook, fuel, and other incidental items. Minimum pay limits will be four (4) hours, decimal pay limits will be 0.5 hours thereafter. The compensation shall be for time spent at the job site and travel between job sites and shall not include travel to and from the Contractor's base of operations.

This item shall not be used for work included under any other pay items in this contract.

ITEM 102.002 LOWBED TRAILER HOUR

The work under this Item shall consist of furnishing a truck and lowbed trailer for use with Item 102.001. The trailer shall be capable of transporting the long reach excavator in one piece.

Item 102.002 shall be used for travel from jobsite to jobsite in the same work shift. It shall be required that the trailer be on-site for the entire day, unless otherwise directed by the Engineer. Fuel for heavy equipment shall be considered incidental to this item.

Method of Measurement and Basis of Payment

Measurement and payment for the work done under Item 102.002 is by the Hour. Payment shall include full compensation for the driver, equipment, fuel, and incidental items. Minimum pay limits will be four (4) hours, decimal pay limits will be 0.5 hours thereafter. The compensation shall be for time spent at the job site and travel between job sites and shall not include travel to and from the Contractor's base of operations.

ITEM 107.04 TEMPORARY STEEL PLATE(S) POUND

The work under this Item shall include the furnishing, placing and removing of a temporary steel plate or plates that will cover open trenches, voids on bridge decks or at locations directed by the Engineer. Each steel plate shall be capable of safely sustaining a thirty-six and one-half (36.5) ton truck load with impact.

Also included under this Item is the cost for placing hot mix asphalt at the edges of the steel plate to provide as smooth a transition as possible for the motoring public.

The Contractor's attention is directed to the following:

- The size of the steel plate(s) required for the task(s) shall be determined by the Engineer.
- Steel plate(s) are to become the property of the MassDOT upon completion of each plate's individual intended use.

Method of Measurement and Basis of Payment

Item 107.04 will be measured and paid for at the Contract unit price per Pound, which price shall include deployment of the plate(s) as described herein, removal of individual plate(s) when as directed, and delivery and careful stacking of said plates at the nearest MassDOT Maintenance Depot or as directed by the Engineer, all labor, materials, equipment, and all incidental costs required to complete the work.

No separate payment will be made for supply, installation, removal and disposal of hot mix asphalt transitions, but all costs in connection therewith shall be included in the Contract unit price bid.

ITEM 107.041 DEPLOYMENT OF TEMPORARY STEEL PLATES EACH

The work under this Item shall consist of loading, transporting, placing, returning to point of origin, and stacking steel plate(s) stored at MassDOT Maintenance areas at various locations throughout the area of responsibility of this Contract. Plates removed and reset at the work site will be reimbursed under Item 107.042, Remove and Reset Temporary Steel Plate(s).

Also included under this Item will be the cost for placing hot mix asphalt at the edges of the steel plate to provide a smooth transition for the motoring public.

Measurement and Payment

The work under Item 107.041 shall be measured and paid at the contract unit price per Each Deployment. Each payment will constitute full reimbursement per assignment, regardless of the number of plates deployed. The contract unit price shall include the cost of materials, equipment, tools and labor and incidentals necessary to complete the work to the satisfaction of the Engineer.

ITEM 107.042 REMOVE AND RESET TEMPORARY STEEL PLATES DAY

The work under this Item shall consist of removing and resetting steel plates deployed under Item 107.04, Item 107.041 or by MassDOT forces, during prosecution of work under other items of this Contract.

The plates shall be removed and reset as often as required for the duration of the day's work.

Also included under this Item will be the cost for placing and maintaining hot mix asphalt at the edges of the steel plate to provide a smooth transition for the motoring public.

Measurement and Payment

The work under Item 107.042 will be measured and paid for at the contract unit price per Day. All plates removed and reset at an assignment location will be considered as one unit for payment. The Day's payment will constitute full reimbursement regardless of the number times the plates are moved during the days work and the number of steel plates removed and reset. The contract unit price shall include the cost of materials, equipment, tools and labor and incidentals necessary to complete the work to the satisfaction of the Engineer.

ITEM 109.02	**2 INCH PUMP**	**DAY**
ITEM 109.06	**6 INCH PUMP**	**DAY**

The work under these Items will include providing and operating a two (2) inch de-watering pump or six (6) inch de-watering pump (mud sucker) and hoses for use in conjunction with, but not limited to, cleaning drainage structures or pipes, and as directed by the Engineer.

Method of Measurement and Basis of Payment

Item 109.02 and Item 109.06 will be measured and paid for at the Contract unit price per Day, which price shall include all labor, materials, equipment, fuel, operator, transportation, and all incidental costs required to complete the work.

ITEM 127.1 REINFORCED CONCRETE EXCAVATION CUBIC YARD

The work to be done under this Item shall conform to the relevant provisions of Section 120 of the Standard Specifications supplemented with the following:

Existing deteriorated concrete at the bottom of existing culvert walls or headwalls shall be removed to the limits of sound concrete as directed. If, after sound concrete has been reached, the existing reinforcing steel is fully exposed and less than one (1) inch clearance exists between the sound concrete and the surface of the exposed reinforcing steel, enough sound concrete as is necessary to achieve this one (1) inch minimum clearance shall be removed.

The removal of this sound concrete shall also be included for payment under this Item.

The Contractor shall use approved pneumatic or power hammers, with a maximum mass of (25 lbs), when removing concrete specified under this Item. During the prosecution of this work, the Engineer may reject the use of any prior approved method or equipment that causes excessive vibration or possible damage to the remaining structure.

Concrete shall be removed by an approved method. The Contractor shall take care not to damage exposed reinforcing steel, remaining concrete or any other part of the structure that is to remain. If parts of the structure designated to remain become damaged or otherwise made unusable by the Contractors operations, they shall be replaced by the Contractor at his own expense.

The edges of all areas where concrete is to be removed under this Item shall be saw-cut to a depth of (0.5) inches. All costs in connection with such work shall be considered as included under this Item.

ITEM 127.1 (Continued)

After the concrete has been removed, all exposed reinforcing steel shall be cleaned of all loose rust by wire brushing or other approved means prior to placing the proposed concrete. All costs in connection with such work shall be considered as included in the Contract unit bid price per cubic yard for this Item and no additional compensation to the Contractor will be made. Any loss in the diameter of existing reinforcing bars shall be reported to the Engineer and shall be repaired as directed.

The Contractor is responsible for preventing any debris resulting from demolition, excavation or construction from falling into the waterway beneath. All precautions and costs to install netting, shielding, etc., necessary to assure this shall be considered incidental to this Item. Any equipment, debris, or excavated material that falls into the waterway, due to the Contractor's activities, shall be promptly removed by the Contractor at the Contractor's expense.

Method of Measurement and Basis of Payment

Item 127.1 will be measured at the Contract unit price per Cubic Yard and the quantity paid for shall be the actual number of cubic yards of reinforced concrete excavated, removed and properly disposed. The Contract price shall include all labor, tools, equipment and materials required to complete the work to the satisfaction of the Engineer.

ITEM 141.1 TEST PIT FOR EXPLORATION CUBIC YARD

The work under this Item shall conform to the relevant provisions of Section 140 of the Standard Specifications and the following:

The Contractor shall be aware that Item 141.1 may be the only work scheduled on a particular workday.

ITEM 153. CONTROLLED DENSITY FILL – EXCAVATABLE CUBIC YARD

The work under this item shall conform to the relevant provisions of Section 100 ~~150~~ of the Standard Specifications and the following:

Control Density Fill-Excavatable shall conform to the requirements of Section M4.08.0, Type 2E.

Control Density Fill–Excavatable (CDF) shall be used to backfill excavations for concrete roadway base repair and for backfilling pipe culvert, drain, and water pipe trench excavations, as directed by the Engineer.

Method of Measurement and Basis of Payment

Controlled Density Fill–Excavatable will be measured by the cubic yard of material placed within the specified limits as directed (excluding the volume of the pipe barrel or structure.)

Item 153, Controlled Density Fill–Excavatable, will be paid for at the contract unit bid price per Cubic Yard of material measured as described herein. The Contract unit bid price per cubic yard shall be full compensation for all labor, tools, equipment and materials, including delivery to the site, necessary to complete the work to the satisfaction of the Engineer.

ITEM 201.1 CATCH BASIN (4-FOOT SUMP) EACH

The work under this item shall conform to the relevant Provisions of Section 201, Construction Standard Drawing E201.3 and E201.4.0 and the following:

Each Catch Basin shall be installed with a 4-foot-deep sump, unless directed by the Engineer.

All catch basins shall be placed on a bedding of 6 inches of crushed stone if necessary, to stabilize foundations in accordance with Subsection 150.68.

Where required, cone sections of manholes and catch basins structures shall be replaced with a flat top sections or eccentric sections at no additional cost.

Method of Measurement and Basis of Payment

Measurement for catch basin will be based on a standard unit having a depth of 7.5 feet as measured vertically at the center of structure from the top of grating to the top of floor. When the measured depth exceeds the standard, the number of units paid for will be in the proportion of the measured depth to the standard depth.

No separate payment will be made for excavation (regardless of depth) or bedding foundation, therefore all costs in connection therewith shall be included in the Contract unit price bid.

ITEM 201.11 CATCH BASIN (4-FOOT SUMP - INSTALLATION ONLY) EACH

The work under this item shall conform to the relevant sections of Item 201.1, and the following:

This item shall be used for the express purpose of installing pre-cast concrete catch basins that match the criteria proposed by Item 201.1 and are currently in the possession of Massachusetts DOT. These pre-cast concrete catch basin structures are owned by Mass DOT and stored at the Mass DOT Depot in Sterling, street address 14 Chocksett Road.

Said pre-cast catch basin structures shall be transported by Mass DOT staff to the necessary job site(s) as needed. Offloading of these structures shall be performed by the Contractor, as directed by the resident engineer.

Method of Measurement and Basis of Payment

Measurement for catch basin will be based on a standard unit having a depth of 7.5 feet as measured vertically at the center of structure from the top of grating to the top of floor. When the measured depth exceeds the standard, the number of units paid for will be in the proportion of the measured depth to the standard depth.

No separate payment will be made for excavation (regardless of depth) or bedding foundation, therefore all costs in connection therewith shall be included in the Contract unit price bid.

ITEM 209.3 DROP INLET CHANGE IN TYPE EACH

The work to be done under this item shall conform to all of the relevant provisions of Section 150, Section 201., Section 220., and supplemented with the following:

The work consists of reconstructing and change-in type use of existing Type A, B, C, D drop inlets to conform to Type "AF, BF, CF or DF" style drop inlets as shown on Construction Standard Plate Numbers E203.2.0, E203.4.0 and E203.6.0.

The work includes all excavation and restoration of the site.

Each drop inlet shall first be thoroughly cleaned.

The existing structure masonry within 18" as measured from the top of structure shall be removed to the level as required per referenced construction standard details to furnish and install new pre-cast concrete throat(s) and set the new top of the structure and casting at and parallel to the grade of the existing ditch line or as required by the Engineer.

If the Engineer determines that the masonry shows deterioration below the 18" as measured from the top of structure, the structure shall be rebuilt in accordance with Section 220.60.

Backfill placed around the structures shall consist of suitable material thoroughly compacted with mechanical devices.

Pre-cast concrete throats shall be furnished and installed to sit squarely on the inlet structure as shown in the standard drawings.

Method of Measurement and Basis of Payment

Item 209.3 will be paid for at the contract unit price per Each. The unit price shall include structure modification within 18" measured from the top of structure, removing and resetting the existing casting, new drop inlet pre-cast throat(s), necessary excavation, backfill and compaction and restoration to satisfactorily complete the work.

Installation of a drop inlet apron, when required by the Engineer, will be paid for under Item 451.

New frames and grates, if required as determined by the Engineer, will be paid for under the pertinent Item 222. or Item 222.1.

Drop inlets, if required to be rebuilt will be measured per Foot as specified under Item 220.2.

ITEM 220.	**DRAINAGE STRUCTURE ADJUSTED**	**EACH**
ITEM 220.2	**DRAINAGE STRUCTURE REBUILT**	**FOOT**
ITEM 220.21	**ADD PIE FLOOR TO CATCH BASIN**	**EACH**
ITEM 220.22	**REPAIR EXISTING INVERT SQUARE**	**FOOT**
ITEM 220.23	**ADD INVERT TO MANHOLE**	**EACH**
ITEM 221.	**FRAME AND COVER**	**EACH**
ITEM 222.	**FRAME AND GRATE – MASSDOT BAR TYPE**	**EACH**
ITEM 222.1	**FRAME AND GRATE - MASSDOT CASCADE TYPE**	**EACH**
ITEM 222.31	**RECTANGULAR FRAME WITH TWO 24-INCH GRATES**	**EACH**

The work under these Items shall conform to the applicable provisions of Section 220 and the following:

Any structure that is in the traveled way and is not at the point of being backfilled and the collar installed at the end of any work day shall be steel plated and backfilled with compacted gravel, level with the roadway. The plates, gravel, and re-excavation of the gravel to complete the drainage structure shall be included in the above item's unit price.

Should deterioration be found throughout the entire structure, including the existing sectional base plates (pies), the structure shall be completely rebuilt under Items 220.2 and 220.21 as directed by the Engineer. Brick and/or block masonry up to the bottom of the casting that indicates deterioration shall be removed and replaced in kind in accordance with Subsection 220. Item 220.21 shall be used on existing concrete block basins.

Concrete collars shall be at least 6 inches thick and shall be constructed of 4000 psi, 3/4 inch, 610 Lb. cement concrete (High Early Strength). Concrete for collars shall be brought up to a height that will allow the full depth of hot mix asphalt surface course pavement to be placed above the collar. All concrete collars will be completely coated with (RS-1H) Asphaltic Emulsion before placement of hot mix asphalt.

Method of Measurement and Basis of Payment

Removal and resetting of castings is considered incidental to these Items. The plates, gravel, and re-excavation of the gravel to complete the drainage structure shall be included in the above item's unit price.

Any substandard or damaged castings removed and discarded in conjunction with these items will not be measured but shall be considered incidental to the Contract Items of work. This does not relieve the Contractor of his/her responsibility pursuant to Subsection 220.61.

The method of payment for Drainage Structure Adjusted, Frame and Cover, Frame and Grate – MassDOT Bar Type, Frame and Grate MassDOT Cascade Type is as specified in Section 220.81. The Contract unit bid prices shall be full compensation for all labor, tools, equipment and materials, including the removal and resetting of the casting and installation of the concrete collars, necessary to complete the work.

ITEMS 220. thru 222.31 (Continued)

Item 222.31 shall include two grates per frame. The two grates and the frame will be measured and paid as one unit. Grate type for Item 222.31 shall be determined by the Engineer, either cascade type or bar type.

ITEM 220.01	**DRAINAGE STRUCTURE ADJUSTED TURNPIKE (2 FT X 4 FT)**	**EACH**
ITEM 220.02	**DRAINAGE STRUCTURE TOP REBUILT – TURNPIKE (2 FT X 4 FT)**	**FOOT**

The work under this Item shall conform to the relevant provisions of Section 220 of the Standard Specifications and the following:

General

The work shall consist of adjusting and rebuilding drop inlets.

All work involved in the modification and/or reconstruction of drop inlets shall be completed prior to any roadway resurfacing.

The Contractor shall, in the presence of the Engineer, remove the frames and grates from drop inlets in the scheduled work area for the purpose of inspection. The Engineer will note the condition of the frame at each inlet and determine whether it is suitable for re-use. All existing grates will be replaced and paid under Item 222.4. Existing grates and damaged frames will be removed under Item 223.2.

Each grate shall be replaced with a hook lock grate immediately after the inspection. The inspection shall be completed before any work begins on drop inlets in the particular work area.

During construction, the Contractor will be required to cover with a steel plate pinned by a method acceptable to the Engineer any inlet that will have its frame and grate off overnight. Frames stored in the median or on the shoulder shall lie flat on the ground. One (1) reflectorized drum is required when work of frame setting and backfilling is completed. Drop Inlets shall be adjusted, rebuilt and repaired in accordance with the details included in this Contract.

Construction Methods

Prior to performing any work, all sand, sediment, debris and foreign material shall be cleaned from the bottom of the drop inlet.

The Contractor will be responsible for the protection of the castings. Any frames damaged during the progress of the construction shall be replaced by the Contractor, at no additional cost to the Department.

220.01 and 220.02 (Continued)

Drainage Structure Adjusted

The work consists of removing and adjusting inlet frames and grates to accommodate the grade of the new pavement at the locations as directed.

The inlet frames and grates shall be thoroughly cleaned with chipping hammers, abrasive blasting and other means as necessary so that all surfaces are free of rust, chunks of concrete or other foreign materials to the satisfaction of the Engineer. The castings shall then be stored and protected from damage until required for reuse.

After the grate and frame have been removed, all existing concrete shall be removed from the top of the drop inlet and disposed as shown. All deteriorated concrete shall be removed from the top of the drop inlet. Any remaining smooth areas shall be thoroughly roughened with chipping hammers to provide a good bond. The newly exposed surfaces shall be moistened with water and coated with a neat grout composed of water and Portland Cement immediately prior to placing the new concrete. The forms shall be placed snugly against the surface of the old concrete and extend beyond the edges a minimum of three inches. They shall be held securely in place and shall not move under the placement of the fresh concrete. The top of the collars shall be set as directed by the Engineer to the proposed grade. The forms shall remain in place a minimum of 72 hours after which the forms shall be carefully removed and fins, spillage and irregularities of new concrete removed as required.

After the forms have been removed and the new concrete has been allowed to cure for a minimum of 14 days, the inlet frame shall be firmly set in a bed of mortar to an elevation parallel to the plane of the finished grade and 1/2 inch below it. Care shall be taken in order to minimize the required depth of the mortar bed which shall be 1/2 inch maximum. The use of excessive depths of mortar will not be permitted.

The area around the frame and beneath the roadway pavement shall be backfilled with 4,000 PSI, 1-1/2”, 565 cement concrete to an elevation equal to the bottom of the finish pavement unless otherwise shown on the Plans or directed by the Engineer. The minimum depth of the 4,000 PSI, 1-1/2”, 565 cement concrete backfill shall be 8 inches. Concrete shall be cured in accordance with Section 900.

Drainage Structure Top Rebuilt

When the deterioration extends more than 10 inches below the bottom of the casting the repair will be paid under item 220.02, Drop Inlet Top Rebuilt, instead of item 220.01.
The existing castings shall be removed, cleaned, stored, and reset as specified above.

Materials

Mortar for drainage structures shall be composed of equal parts of Portland cement and sand with sufficient water to form a workable mixture. The mixture shall be a stiff workable mixture without having to be re-tempered. Cement concrete shall be 4,000 PSI, 1-1/2”, 565.

ITEMS 220.01 and 220.02 (Continued)

Reinforcement for cement concrete masonry shall be epoxy coated reinforcing steel bars conforming to Section 900.

Method of Measurement

Drainage Structure Adjusted –Turnpike (2FT X 4 FT) will be measured by the actual number of drop inlets adjusted to grade, complete in-place and accepted.

Drainage Structure Top Rebuilt –Turnpike (2FT X 4 FT) will be measured by the foot of drop inlets rebuilt, complete in place and accepted.

Basis of Payment

Item 220.01 will be paid for at the Contract unit price for each 2 FT x 4 FT drainage structure adjusted which price shall constitute full compensation for removing, cleaning, storing, protecting, and resetting of frame and grate; all excavation; demolition; removal and disposal of material; construction of the reinforced 4,000 PSI, 1-1/2", 565 cement concrete collar furnishing and placing cement concrete backfill and for all materials, labor, tools, and equipment, and all incidentals necessary to complete the work.

Item 220.02 will be paid for at the Contract unit price per foot of 2-ft x 4-ft drainage structures rebuilt which price shall constitute full compensation for removing, cleaning, storing, protecting, and resetting of frame; excavation; demolition; removal and disposal of material; furnishing, placing, and curing 4,000 PSI, 1-1/2", 565 cement concrete and steel reinforcement; furnishing and placing cement concrete backfill and for all materials, labor, tools, and equipment, and all incidentals necessary to complete the work.

All grates to be replaced from age or damage shall be replaced under Item 222.4. If the Engineer determines that the existing frames are damaged and cannot be reused, furnishing and installing new frames will be paid for at the Contract unit price per each under Item 222.5. The resetting of existing castings will be considered incidental to the contract and no specific compensation will be made. The cost to remove and discard existing frames will be paid under Item 223.2.

Cleaning of the drop inlets prior to the repairs will be paid for under Item 227.3, Removal and Disposal of Drainage Structure Sediments. Any additional cleaning made necessary as a result of the Contractors work shall be done by the Contractor at no additional cost.

ITEM 221.1 FRAME AND COVER – SECURED EACH

The work under this Item shall conform to the relevant provisions of Section 201, 220 and the following:

The work to be done under this Item consists of the furnishing and delivering Frame and Cover – Secured to the site as shown on the Plans, and as directed by the Engineer.

Frame and Cover - Secured assemblies shall consist of covers and frames that conform to the nominal size, weight, material and load-carrying requirements in MassDOT Construction Standard Details E 202.6.0, E 202.7.0 and E 202.8.0, and are on the relevant MassDOT Qualified Construction Materials list. Some dimensions of secured manhole covers and frames may vary slightly from those shown on the standard details to account for necessary fastening components. The Contractor shall submit shop drawings of all drainage castings for approval prior to ordering.

Covers and frames shall be held securely together by bolting to threaded holes in the frame or to nuts or tumbler devices secured by the frame, by use of hooks attached to the cover or by any other means approved by MassDOT, to prevent being dislodged under traffic loading. Gaskets and other sealing devices will not be allowed.

Method of Measurement and Basis of Payment

Item 221.1 will be measured and paid at the contract unit bid price per Each Frame and Cover – Secured furnished and delivered to the site.

ITEM 222.4 LARGE HOOK EACH
LOCK BAR GRATE – FURNISHED AND INSTALLED

Work under this Item shall conform to the relevant provisions of Section 200 and the following:

The work consists of furnishing and installing large (2' x 4') hook lock bar grates on existing frames. The grate shall have a parallel bar configuration matching the style of the existing grates with two rows of parallel bars separated by a single bar running perpendicular to the long side of the grate.

The hook lock grates shall fit on frames originally installed as Massachusetts Turnpike Standard Inlet Grate and Frame – Type G1. See the accompanying drawing, "Large Frame and Hook Lock Bar Grate Details." Sample frames are available for viewing, inspection and test fits at I-90 Maintenance facilities in Chicopee (Mile 52.0) and Warren (Mile 69.9) upon request.

Each grate will have two lock hooks evenly spaced on the short side of the grate that shall hook under the existing frame. The opposite side from the lock hooks shall have one lock tumbler assembly and a lock stop lug centered along the edge of the grate. The lock hooks and lock tumbler assembly shall be as shown on MassDOT Construction Standard Details Drawings E 201.10.0 and E 201.10.1.

The lock tumbler assembly shall consist of a 5/8" x 7" stainless steel hex bolt, a 5/8" stainless steel flat washer, a cast iron tumbler with a 5/8" tapped hole and a stainless steel capture nut. All stainless steel shall be grade 304. The threads of the lock tumbler assembly shall be coated with a no-seize grease prior to installation. The grease shall be lead and copper free.

The grates shall be cast ductile iron conforming to ASTM A536 Grade 80-55-06, 55 + KSI yield strength. The grates shall meet AASHTO M306 requirements, including HS20 loading requirements, test bar testing and weigh at least 460 pounds. Proof-load testing will be performed by an independent nationally recognized testing laboratory approved by the Engineer.

Seat surfaces of the grate shall be machined and the grate shall not rock in the existing frame when installed.

The Contractor shall provide shop drawings to the Engineer for approval. Prior to final shop drawing approval the Contractor shall perform a test installation in the presence of the Engineer at a location to be determined. The Contractor shall also provide the manufacture's Certificate of Compliance which meets the requirements of Section 6.00.

Existing grates removed shall become the property of the Contractor for proper disposal.

ITEM 222.4 (Continued)

Installation

Removal of existing masonry in the throat of the drop inlets to accommodate the lock hooks and lock stop lugs will be included under this item. Pockets shall be created by sawcutting the sides and bottom with an approved masonry saw. Separate pockets shall be created for each of the two lock hooks and the tumbler assembly. The bottom of the pocket shall be sloped slightly so that water will not accumulate in the pocket. The remaining masonry shall be removed using a small pneumatic hammer to produce a neat, smooth surface. The pocket shall have 1 inch of clear space around and below the hooks and tumbler assembly. Excess masonry shall not be removed.

Before installation the sides and seat of the existing frame shall be cleaned of all debris so that the grate will fit flush and not rock in the frame.

Epoxy Coating

The completed pockets shall be thoroughly cleaned and then painted with 2 coats of an epoxy coating. The epoxy coating shall be a two-component, solvent-free, high-solids, moisture insensitive epoxy resin. It shall produce a high-build, protective, dampproofing, and waterproofing vapor-barrier system. It shall meet ASTM C 881, Type 1, Grade 2, epoxy resin coating and the following performance criteria:

A. Properties of the mixed epoxy resin coating:
   1. Pot Life at 70oF: 25-40 minutes
   2. Tack-Free Time to Touch (4-7 mils): 3-4.5 hours
   3. Initial Viscosity (Brookfield Viscometer, Spindle #3; Speed 100): 2200-3400 cps
   4. Solid: 100%

B. Properties of the cured epoxy resin coating:
   1. Total Water Absorption (ASTM D 570) at 7 days: 1.5% max. (2 hour boil)
   2. Elongation (ASTM D 522) at 14 days: 5% minimum
   3. Abrasion Resistance (ASTM D 968) at 14 days: 40l/mil min.
   4. Abrasion (Taber Abrader) at 14 days Weight Loss: 0.7 gm. max.
   5. Adhesion Classification (ASTM D 3359) at 14 days: 4A minimum

ITEM 222.4 (Continued)

6. Bond Strength (ASTM C 882)
   a. 2 day (dry cure): 2000 psi. min.
   b. 14 day (moist cure): 1500 psi. min.
7. Shrinkage (ASTM C 883): Passes test min.

Method Of Measurement

Measurement for this item shall be measured by the unit each installed in existing frames.

Basis Of Payment

Payment under this item will be at the contract unit price each, complete in place, which will be full compensation for all work, including design submittals, all testing requirements, furnishing the grates, test installation, grate installation, removal of existing masonry in the drop inlets throat, epoxy coating, and the removal and disposal of existing grates.

ITEM 222.5 LARGE FRAME – FURNISHED AND INSTALLED EACH

The work to be performed under these items shall conform to the relevant provisions of Section 200 of the Standard Specifications, Supplemental Specifications, Standard Special Provisions and the following:

Work under this item consists of replacing existing Massachusetts Turnpike Standard Inlet Frames - Type G1 (2'x4') that are found to be unusable.

Method of Measurement

Measurement for this item shall be measured by the unit each furnished and installed. The cost to remove and discard existing frames will be paid under Item 223.2.

Basis of Payment

Payment under this item will be at the contract unit price each, complete in place, which will be full compensation for all work, materials, and equipment to complete the work.

ITEM 223.2 FRAME AND GRATE (OR COVER) REMOVED AND DISCARDED EACH

The work performed under these items shall conform to the relevant provisions of Section 200 of the Standard Specifications and the following:

Existing grates, frames and/or covers from existing structures shown on the drawings to be abandoned or removed, shall be removed and discarded unless in the judgement of the Engineer, they are suitable for salvage.

Method of Measurement

Removing and discarding of grates will be measured as 1 unit EA and frames as 1 unit EA, therefore if a large frame and grate are both removed and discarded, it will be paid as 2 EA. Frames and covers for manholes will be paid as 1 unit EA for both as stated in the standard specification.

Measurement for item 223.2 will be made by the unit each.

ITEM 226.5 CLEANING WATERWAYS SQUARE YARD

The work under this Item will conform to the relevant provisions of Section 200 and Item 226. and consists of removal of all sand, gravel, spilled concrete, debris, muck, vegetation and all other foreign material from existing cement concrete, asphalt or earthen waterways.

The Contractor may use any method acceptable to the Engineer that will not damage the existing waterway surfaces. Waterways shall be cleaned to the satisfaction of the Engineer.

The provisions of this Item are not to be construed that all work be accomplished with equipment. Special conditions such as location, extraordinary shape due to conduits or public utility pipes, or off pavement work, etc., may require hand work.

Measurement and Payment

The work under Item 226.5 shall be measured and paid at the contract unit price per Square Yard. The contract unit price shall include all labor, equipment, water, and incidentals, including removal and transport of debris to an approved landfill, disposal facility, or recycling facility, and shall include the cost for approvals and permits, necessary to complete the work to the satisfaction of the Engineer.

ITEM 226.9 INTERNAL PIPE INSPECTION BY VIDEO CAMERA HOUR

Work under this Item shall conform to the relevant provisions of Section 200 of the Standard Specifications and consist of inspecting drainage pipes within the limits of the project extending to the discharge ends of each drainage system.

Inspections will be accomplished by use of a self-powered submersible camera system capable of traveling throughout various size and shape drainage systems within the project limits. This Item includes simultaneous use of a video monitor capable of providing full view of all areas and accurate measurements of distance throughout the drainage system.

Video recording of the inspection will be considered incidental to this Item.

The operator will provide to the Engineer a copy of the inspection on DVD or USB drive at no additional compensation.

Method of Measurement and Basis of Payment

Item 226.9 will be measured and paid at the Contract unit price per Hour for each unit ordered into operation by the Engineer. Decimal Pay Limits will be to the nearest 0.5 hour. The contract price shall constitute full compensation for operation, labor, materials, fuel, maintenance, and transportation required to inspect designated drainage systems. No compensation will be made for travel to and from the work site.

ITEM 228.024	**CURED-IN-PLACE PIPING (LESS THAN OR EQUAL TO 24 INCH)**	**FOOT**
ITEM 228.048	**CURED-IN-PLACE PIPING (MORE THAN 24 INCH TO 48 INCH)**	**FOOT**
ITEM 228.072	**CURED-IN-PLACE PIPING (MORE THAN 48 INCH TO 72 INCH)**	**FOOT**

PART 1: PRODUCTS

1.1 GENERAL

The work under these items is to provide for the reconstruction of existing stormwater drainage systems along state routes in various locations by the installation of a resin-impregnated flexible tube that is either inverted or pulled into the original pipeline and expanded to fit tightly against said pipeline by the use of water or air pressure. The resin system shall then be cured by elevating the temperature of the fluid (water/air) used for the inflation to a sufficient level for the initiators in the resin to effect a reaction. The finished pipe shall be such that when the thermosetting resin cures, the total wall thickness of the Cured-In-Place Pipe (CIPP) shall be a homogenous and monolithic felt and resin composite matrix, chemically resistant to withstand internal exposure to stormwater. The Contractor shall provide a one-year warranty period, during which any defects that will affect the integrity or strength of the liner shall be repaired at the expense of the Contractor.

1.2 QUALIFICATIONS

In order to minimize risk to municipalities near selected waterways, only proven products with substantial successful installations and experience will be approved. In order for the CIPP product and Installation Contractor to be deemed commercially acceptable and approved for this project, they must meet the following criteria:

A. CIPP Product

1. THE CIPP Product must have been installed in a minimum of 100,000 linear feet or 1,000 manhole to manhole line sections of successful wastewater or stormwater collection systems or in North America and must be documented to the satisfaction of the Engineer.
2. The CIPP product shall comply with the latest versions of ASTM F1216 or ASTM F1743, including appendices.
3. For the CIPP to be considered Commercially Proven, it shall have been successfully in service in an application similar to this project for a minimum of 4 years and documented to the satisfaction of the Engineer.
4. The lining tube manufacturer shall operate under a quality management system that is third party certified to ISO 9001 or other internationally recognized organization standards.
5. Third-party test results supporting the structural properties and long-term performance of the CIPP product shall be submitted for approval, and such data shall be satisfactory to the Owner. No CIPP product will be approved without independent third-party testing verification.

ITEM 228.024, 228.048, 228.072 (Continued)

B. Installation Contractor

1. The Installation Contractor shall be certified by the CIPP product manufacturer to have had at least 5 years active experience in the installation of the proposed CIP product.
2. The Installation Contractor shall have installed within the United States a minimum of 100,000 lineal feet of the same CIPP product to be used.
3. The Installation Contractor superintendent(s) designated for the project shall have installed a minimum of 100,000 lineal feet and shall have 5 years of installation experience of the same CIPP product to be used. This shall be documented to the Owner's satisfaction in the form of a resume of work experience detailing scope of work (linear footage and pipe diameters), location of work, and reference contact information for each project listed.

1.3 STRUCTURAL REQUIREMENTS

A. Each CIPP shall be designed to withstand internal and/or external loads as dictated by the site and pipe conditions. Unless specified differently by the Engineer in the contract documents, the design thickness of the CIPP shall be derived at using standard engineering methodology as found in ASTM F1216, Appendix X1. The long-term flexural modulus shall not exceed 50 percent of the short-term value for the CIPP resin system and shall be substantiated through third-party testing. The thickness calculations, signed and sealed by a registered professional engineer, shall be submitted to the Engineer prior to CIPP installation.

B. The layers of the finished CIPP shall be uniformly bonded. It shall not be possible to separate any two layers with a probe or point of a knife blade so that the layers separate cleanly or such that the knife blade moves freely between the layers. If separation of the layers occurs during testing of the field samples, new samples will be cut from the work. Any reoccurrence may be cause for rejection of the work.

C. The Enhancement Factor 'K' to be used in the CIPP design shall be assigned a value of 7.

D. Long-term testing in general accordance with ASTM D2990 must have been performed for flexural creep of the CIPP pipe material to be installed. Such testing results are to be used to determine the long-term, time dependent flexural modulus to be utilized in the product design. This is a performance test of the materials (CIPP Tube and Resin) and general workmanship of the installation and curing as defined within the relevant ASTM standard. A percentage of the instantaneous flexural modulus value (as measured by ASTM D790 testing) will be used in design calculations for external buckling. The percentage, or the long-term creep retention value utilized, will be verified by this testing. The materials utilized for the contracted project shall be of a quality equal to or better than the materials used in the long term test with respect to the initial flexural modulus used in the CIPP design.

E. The CIPP shall meet the following minimum strength requirements:

Property	ASTM Test Method	Polyester System (psi)	Filled Polyester System (psi)	Vinyl Ester System (psi)
Flexural Strength	D790	4,500	4,500	5,000
Flexural Modulus (initial)	D790	250,000	400,000	300,000
Flexural Modulus (50-year)	D790	125,000	250,000	150,000

F. The required CIPP wall thickness shall be based as a minimum on the physical properties in Section 1.3.E above, and in accordance with the design equations in the Appendix X1 of ASTM F1216, and the following design parameters:

Design Safety Factor (typically used value) = 2.0
Retention Factor for Long-Term Flexural Modulus to be used in Design = 50
% max (As determined by long-term tests described in Section 1.3.D and approved by the Owner)
Ovality* (calculated from (X1.1 of ASTM F1216) = % (1)
Enhancement Factor, K = 7.0
Groundwater Depth (above invert of pipe) = feet (1)
Soil Depth (above crown of pipe) = feet
Soil Modulus (only required for fully deteriorated design conditions) = psi (1)
Soil Density (only required for fully deteriorated design = lb/ft3(1)
Live Load (only required for fully deteriorated design = e.g. H20
Design Condition (partially or fully deteriorated)* = Hi *h

* Based on review of video logs, design conditions of pipeline can be fully or partially deteriorated (See ASTM F1216, Appendix X1). The Engineer will be solely responsible for determining pipe conditions and parameters utilized in design.

(1) In the absence of other information and to ensure uniformity in bidding, the following assumptions shall be used: **Ovality** = 2%; **Groundwater Depth** at one half soil depth to invert; **Soil Modulus** = 1000 psi; **Soil Density** = 120 lb/ft3.

1.4 MATERIALS

A. CIPP Tube

1. The CIPP tube shall consist of one or more layers of a flexible needled felt or an equivalent nonwoven or woven material, or a combination of nonwoven and woven materials, capable of carrying resin, withstanding installation pressures and curing temperatures. The CIPP tube should be compatible with the resin system to be used on this project. The material should be able to stretch to fit irregular pipe sections and negotiate bends.

ITEM 228.024, 228.048, 228.072 (Continued)

2. The CIPP tube should be fabricated under controlled conditions to a size that, when installed, will tightly fit the internal circumference and the length of the original conduit. Allowances should be made for the longitudinal and circumferential stretching that occurs during placement of the tube. Maximum stretching allowances shall be as defined in ASTM F1216 or ASTM F1743. The Installation Contractor shall verify the lengths in the field before cutting the liner to length. Continuous individual liners can be made over one or more manhole to manhole sections.

3. The CIPP tube shall be uniform in thickness and when subjected to the installation pressures shall meet or exceed the designed wall thickness.

4. Any plastic film applied to the tube on what will become the interior wall of the finished CIPP shall be compatible with the resin system used, translucent enough that the resin is clearly visible, and shall be firmly bonded to the felt material.

5. At time of manufacture, each lot of CIPP tube shall be inspected and certified to be free of defects. The tube shall be marked for distance at regular intervals along its entire length, not to exceed five feet. Such markings shall also include the CIPP tube Manufacturer's name or identifying symbol.

6. The CIPP tube may be made of single or multiple layer construction where any layer must not be less than 1.5 mm thick. A suitable mechanical strengthener membrane or strip may be placed in between layers where required to control longitudinal stretching.

B. Resin Components

1. The resin system shall be a corrosion resistant polyester or vinyl ester, along with a compatible catalyst system.

2. The resin used shall not contain non-strength enhancing fillers.

3. When combined with the CIPP tube, the resin system shall provide a CIPP that meets the structural requirements of ASTM F1216 or ASTM F1743, the minimum physical properties specified in Section 1.3.E, and those properties which are to be utilized in the design of the lining system for this project.

4. When combined with the CIPP tube, the resin system shall provide a CIPP that complies with the chemical resistance requirements specified in ASTM F1216 or ASTM F1743.

ITEM 228.024, 228.048, 228.072 (Continued)

PART 2: EXECUTION

2.1 GENERAL

A. The Installation Contractor shall deliver the resin impregnated CIPP tube to the site and provide all equipment required to insert and cure the CIPP within the host pipe. The Installation Contractor shall designate a location where the tube will be vacuum impregnated with the resin prior to installation. If requested by the Owner, the Installation Contractor shall notify the Engineer at least 48 hours prior to wet out to allow the Engineer to observe the materials and wet out procedure. All procedures to prepare the CIPP for installation shall be in strict accordance with the Manufacturer's recommendations.

B. The CIPP shall be vacuum impregnated with resin not more than 120 hours before the time of installation and stored out of direct sunlight at a temperature of less than 70° F.

2.2 BYPASS PUMPING

A. The Installation Contractor, when required, shall provide for the flow of stormwater around the section or sections of pipe designated for repair. When possible, the bypass shall be made by plugging the line at an existing upstream manhole and pumping the flow into a downstream manhole or adjacent system. The pump and bypass lines shall be of adequate capacity and size to handle the flow. The Installation Contractor shall furnish all necessary pumping equipment, conduit, etc. to adequately, safely, and environmentally divert stormwater flow around the work.

2.3 TELEVISION INSPECTION

A. The Installation Contractor shall provide video equipment capable of properly documenting the conditions as found within the pipe. Lighting for the video camera shall illuminate the entire periphery of the sewer. The camera shall be radial view type capable of viewing 360 degrees within the pipe and shall provide an unobstructed view of the full pipe.

B. The video shall begin with a clear identification of the pipeline location, upstream and downstream manhole designation, and pipe diameter. The video shall provide an accurate length measurement of the entire segment.

C. Reverse video set-ups shall be utilized when line obstructions prevent full segment televising from the initial set-up direction.

D. Both a pre-lining and post-lining video shall be submitted to the Engineer for approval. The discs shall be clearly and properly labeled.

ITEM 228.024, 228.048, 228.072 (Continued)

E. Should the television inspection reveal damaged sections of pipe that cannot be repaired with CIPP lining, the contractor shall replace the section of pipe through traditional "Dig and Replace" methods as outlined in Section 2.8. The CIPP Contractor shall provide an accurate measurement for determining the location of the damaged section.

2.4 INSTALLATION

A. The CIPP shall be installed in accordance with the practices given in ASTM F1216 (for direct inversion installations) or ASTM F1743 (for pulled-in-place installations). The quantity of resin used for the tube's impregnation shall be sufficient to fill the volume of air voids in the CIPP tube with additional allowances being made for polymerization shrinkage and the loss of any resin through cracks and irregularities in the original pipe wall. A vacuum impregnation process shall be used in conjunction with a roller system to achieve a uniform distribution of the resin throughout the CIPP tube.

B. The Installation Contractor, when required, shall remove and dispose of all internal debris out of the pipeline that will interfere with the installation of the CIPP.

C. The resin-impregnated CIPP tube shall be installed into the host pipe by methods specified in ASTM F1216 or ASTM F1743 and proven through previous successful installations. The insertion method shall not cause abrasion or scuffing of the CIPP tube. Hydrostatic or air pressure shall be used to inflate the CIPP tube and mold it against the walls of the host pipe. There will be no use of sewage in place of clean water for insertion of the tube, or for the curing of the liner.

D. Temperature gauges shall be placed between the CIPP tube and the host pipe's invert position to monitor the temperatures during the cure cycle.

2.5 CURING

A. After the CIPP tube installation is completed, the Installation Contractor shall supply a suitable heat source and recirculation equipment (if required). The equipment shall be capable of delivering hot water or steam throughout the section to uniformly raise the temperature above the temperature required to affect a cure of the resin.

B. The heat source shall be fitted with suitable monitors to gauge the temperature of the incoming and outgoing heat supply (for water cure) and outgoing heat supply (for steam cure). Water or air temperature in the pipe during the cure period shall be as recommended by the resin manufacturer.

ITEM 228.024, 228.048, 228.072 (Continued)

C. Initial cure shall be deemed to be completed when inspection of the exposed portions of the CIPP appears to be hard and sound and the remote temperature sensor(s) indicates that the temperature is of a magnitude to realize an exotherm. The cure period shall be of a duration recommended by the resin Manufacturer, as modified for the installation process, during which time the recirculation of the heat and/or cycling of the heat exchanger to maintain the temperature is continued.

2.6 COOL DOWN

A. Cool down may be accomplished by the introduction of cool water or air to replace water or pressurized air being relieved. Care shall be taken in the release of the hydrostatic head so that a vacuum will not be developed.

2.7 FINISH

A. The finished CIPP shall be continuous over the entire length of an insertion run and be as free as commercially practical from visual defects such as foreign inclusions, dry spots, pinholes, and delamination. The CIPP shall be homogeneous, and free of any leakage from the surrounding ground to the inside of the CIPP.

B. Where the CIPP is installed through a manhole uninterrupted, the invert shall be maintained smooth within the manhole, with approximately the bottom half of the CIPP continuous through the length of the manhole. The invert of the manhole shall be shaped and grouted as necessary to support the liner. The cost of this work shall be included in the CIPP unit price.

C. During the warranty period, any defects which will affect the integrity or strength of the CIPP, collect solids, or reduce hydraulic flow capabilities of the product shall be repaired at the Installation Contractor’s expense in a manner mutually agreed upon by the municipality and the Installation Contractor.

PART 3: PAYMENT

3.1 METHOD OF MEASUREMENT

Items 228.024, 228.048, and 228.072 will be measure for payment by the foot of CIPP furnished and installed and shall be the measured as a straight line from end to end of installed piping. Lengths proposed are for bidding purposes only.

Payment for unsound drainage structures rebuilt shall be paid for under Item 220.2 – Drainage Structure Rebuilt per vertical foot of structure rebuilt.

New pipe installed due to the Contractor damaging existing portions of pipe shall not be included.

ITEM 228.024, 228.048, 228.072 (Continued)

3.2 BASIS OF PAYMENT

Items 228.024, 228.048 and 228.072 will be paid for at the contract unit price per foot which shall be considered full compensation for mobilization, TV inspection, pipe cleaning, bypass pumping, furnishing and installing the CIPP, and all labor, materials, equipment, and other incidental costs necessary to complete the work.

No separate payment will be made for sawcutting, excavation, removal and disposing of existing drainage pipe, and couplings, but all costs in connection therewith shall be included in the Contract unit price bid.

Payment for rebuilding of existing drainage structures shall be paid for at the contract unit price for Item 220.2.

No additional payment will be made for sawcutting, excavation, removal and disposing of existing drainage pipe, and couplings.

ITEM 235.12	**12 INCH DRAINAGE PIPE FLARED END - OPTION**	**EACH**
ITEM 235.15	**15 INCH DRAINAGE PIPE FLARED END - OPTION**	**EACH**
ITEM 235.18	**18 INCH DRAINAGE PIPE FLARED END - OPTION**	**EACH**
ITEM 235.24	**24 INCH DRAINAGE PIPE FLARED END - OPTION**	**EACH**
ITEM 235.30	**30 INCH DRAINAGE PIPE FLARED END - OPTION**	**EACH**
ITEM 235.36	**36 INCH DRAINAGE PIPE FLARED END - OPTION**	**EACH**

Work under these items shall conform to Section 230 of the *Standard Specifications*, and as directed by the Engineer.

The material shall be Corrugated Plastic or Reinforced Cement Concrete, and shall meet the following requirements:

Corrugated Plastic (Polyethylene) Pipe or Flared Ends	M5.03.10
Reinforced Concrete Pipe or Flared Ends	M5.02.2

Measurement and Payment

Items 235.12, 235.15, 235.18, 235.24, 235.30 and 235.36 will be measured and paid for at the Contract unit Each for each Flared End pipe furnished and installed complete in place.

The Contract price for all above Items shall include all labor, materials, equipment, fittings, couplings, stainless steel rods and nuts and incidental costs required to complete the work.

ITEM 238.08	**8-INCH DUCTILE IRON PIPE**	**FOOT**
ITEM 238.12	**12-INCH DUCTILE IRON PIPE**	**FOOT**
ITEM 238.16	**16-INCH DUCTILE IRON PIPE**	**FOOT**

The work under this Item shall conform to the relevant provisions of Subsection 230. of the *Standard Specifications*, and as directed by the Engineer.

Method of Measurement and Basis of Payment

Items 238.08, 238.12 and 238.16 will be measured and paid for at the Contract unit price per foot of pipe furnished and installed, complete in place.

The Contract unit price for the above Item shall include all labor, materials, equipment, fittings, couplings, stainless steel rods, nuts, and incidental costs required to complete the work.

ITEM 482.33 SAWING ASPHALT PAVEMENT LESS THAN 7-INCH FOOT
ITEM 482.34 SAWING ASPHALT PAVEMENT EQUAL TO EQUAL TO OR GREATER THAN 7-INCH FOOT

The work to be done under these Items shall conform to the relevant provisions of Section 120 of the Standard Specifications and the following:

Saw-cuts shall be made in the existing pavement around drainage structures and where directed by the Engineer.

The existing asphalt shall be saw-cut through its full depth where required by the Engineer.

Saw-cut edges which become broken, ragged, or undermined as a result of the Contractor's operations shall be re-saw-cut prior to the placement of abutting proposed pavement at no additional cost.

The edges of saw-cut pavements shall be sprayed or painted (at a rate of 0.05 gallons per square yard) with a uniform, thin coat of RS-1 asphalt emulsion immediately before placement of asphalt material.

Measurement and Payment

The work under Items 482.33 and 482.34 shall be measured and paid at the contract unit price per Foot, complete in place on the pavement surface. The contract unit price shall include the cost of materials, equipment, tools and labor and incidentals necessary to complete the work to the satisfaction of the Engineer.

ITEM 503.1 GRANITE CURB TYPE VA3 – STRAIGHT (MONOLITHIC SLABS) FOOT

The work to be done under these Items shall conform to the relevant provisions of Section 500 of the Standard Specifications and the following:

Materials and Construction

This work consists of the installation of two monolithic granite slabs as part of a combined drainage structure located off of Rt. 20 in Sturbridge, as directed by the Engineer. Both slabs shall be placed in a proposed stilling basin located at the drainage end of a proposed headwall, acting as both check dams to dampen flow speed of drainage discharge into the basin and as structural support for the crushed stone within the basin.

Both slabs shall be 6 inches wide and 24 inches tall, buried into the crushed stone bedding of the stilling basin and secured with cast-in-place concrete cradles. One slab shall be 12 feet in length, and the other shall be 15 feet in length. Refer to included Sturbridge Rt 20 Drainage Repair Design Plan, Project File No. 612991, pgs. 13 through 15 for more details.

Method of Measurement and Basis of Payment

The work under 503.1 shall be measured and paid at the contract unit price per linear foot of length, complete in place within the stilling basins. The contract unit price shall include the cost of materials, equipment, tools and labor and incidentals necessary to complete the work to the satisfaction of the Engineer.

ITEM 570. HOT MIX ASPHALT CURB - OPTION FOOT

The work under this Item shall conform to the relevant provisions of Subsection 501. of the *Standard Specifications*, and as directed by the Engineer.

The Engineer shall direct the Contractor which type of curb to install. Options can be found in the MassDOT Construction Standard Details, Drawing Number E106.2.0. Typical installations shown are Type-1, Type-2, Type-3, and as directed by the Engineer.

Method of Measurement and Basis of Payment

Item 570. will be measured and paid for at the Contract unit price per foot, complete in place.

The Contract unit price for the above Item shall include all labor, materials, equipment, and incidental costs required to complete the work.

ITEM 697.1 SILT SACK EACH

Work under this item shall conform to the relevant provisions of Subsections 227 and 670 of the Standard Specifications and the following:

The work under this item includes the furnishing, installation, maintenance and removal of a reusable fabric sack to be installed in drainage structures for the protection of wetlands and other resource areas and the prevention of silt and sediment from the construction site from entering the storm water collection system. Devices shall be ACF Environmental (800)-448-3636; Reed & Graham, Inc. Geosynthetics (888)-381-0800; The BMP Store (800)-644-9223; or approved equal.

Construction

Silt sacks shall be installed in retained existing and proposed catch basins and drop inlets within the project limits and as required by the Resident Engineer.

The silt sack shall be as manufactured to fit the opening of the drainage structure under regular flow conditions, and shall be mounted under the grate. The insert shall be secured from the surface such that the grate can be removed without the insert discharging into the structure. The filter material shall be installed and maintained in accordance with the manufacturer's written literature and as directed by the Engineer.

Silt sacks shall remain in place until the placement of the pavement overlay or top course and the graded areas have become permanently stabilized by vegetative growth. All materials used for the filter fabric will become the property of the Contractor and shall be removed from the site.

The Contractor shall inspect the condition of silt sacks after each rainstorm and during major rain events. Silt sacks shall be cleaned periodically to remove and disposed of accumulated debris as required. Silt sacks, which become damaged during construction operations, shall be repaired or replaced immediately at no additional cost to the Department.

When emptying the silt sack, the contractor shall take all due care to prevent sediment from entering the structure. Any silt or other debris found in the drainage system at the end of construction shall be removed at the Contractors expense. The silt and sediment from the silt sack shall be legally disposed of offsite. Under no condition shall silt and sediment from the insert be deposited on site and used in construction.

All curb openings shall be blocked to prevent stormwater from bypassing the device.

All debris accumulated in silt sacks shall be handled and disposed of as specified in Section 227 of the Standard Specifications

ITEM 697.1 (Continued)

Method of Measurement and Basis of Payment

Silt sacks will be measured and paid at the Contract unit price per each, complete in place, which price shall include all labor, materials, equipment and incidental costs required to complete the work. No separate payment will be made for removal and disposal of the sediment from the insert, but all costs in connection therewith shall be included in the Contract unit price bid.

ITEM 698.4 GEOTEXTILE FABRIC FOR PERMANENT EROSION CONTROL SQUARE YARD

The work to be done under this Item consists of installation of erosion control materials as directed by the Engineer.

The material to be supplied under this Item shall conform to the relevant provisions of Section M9.50.0.

The fabric shall be used for slope protection, where dumped rip rap is being used at drainage outlet and retention areas and where directed by the Engineer.

Measurement and Payment

The work Item 698.4 shall be measured and paid at the contract unit price per Square Yard, complete in place. The contract unit price shall include the cost of materials, equipment, tools and labor and incidentals necessary to complete the work to the satisfaction of the Engineer.

ITEM 748.1 EMERGENCY RESPONSE EACH

Work under this Item shall conform to the relevant provisions of Section 748. of the Standard Specifications, and the following:

Work consists of the movement of personnel, materials, equipment, and incidentals to the project site within a 4 hour period after notification by the Engineer ready to commence work to address the emergency situation.

This Item is to be used as a means of providing compensation to the Contractor for the costs associated with providing prompt response to emergency situations. Emergency situations, if and when the designation is necessary, will be determined solely by the Engineer.

Method of Measurement and Basis of Payment

Item 748.1 will be measured and paid for at the contract unit price per EACH, which price shall be for each emergency work notification that requires immediate attention. Payment for emergency response shall for emergency response only and is in addition to any other items that may apply toward the completion of each emergency work order. All labor, material and equipment to perform the emergency work will be paid for under the appropriate pay items.

In the event that another emergency occurs at a different location during the period which the contractor's forces have been mobilized these forces shall be redeployed at no additional compensation. The Engineer shall determine if conditions require another crew to be mobilized as a separate emergency response.

In the event that the Contractor does not satisfy the 4 hour response time, payment for Emergency Response will not be made and the Contractor will be subjected to the Non - Response Damages outlined in this contract.

ITEM 767.121 SEDIMENT CONTROL BARRIER FOOT

The work under this item shall conform to the relevant provisions of Subsections 670, 751 and 767 of the Standard Specifications and shall include the furnishing and placement of a sediment control barrier. Sediment control barrier shall be installed prior to disturbing upslope soil.

The purpose of the sediment control barrier is to slow runoff velocity and filter suspended sediments from storm water flow. Sediment barrier may be used to contain stockpile sediments, to break slope length, and to slow or prevent upgradient water or water off road surfaces from flowing into a work zone. Contractor shall be responsible for ensuring that barriers fulfill the intent of adequately controlling siltation and runoff.

Twelve-inch diameter (after installation) compost filter tubes with biodegradable natural fabric (i.e., cotton, jute, burlap) are intended to be the primary sedimentation control barrier.

For small areas of disturbance with minimal slope and slope length, the Engineer may approve the following sediment control methods:

- 9-inch compost filter tubes
- Straw bales which shall be trenched

No straw wattles may be used. Additional compost filter tubes (adding depth or height) shall be used at specific locations of concentrated flow such as at gully points, steep slopes, or identified failure points in the sediment capture line.

When required by permits, additional sediment barrier shall be stored on-site for emergency use and replacement for the duration of the contract.

Where shown on the plans or when required by permits, silt fence shall be used in addition to compost filter tubes and straw bales and shall be incidental to the item.

Sediment control barriers shall be installed in the approximate location as shown on the plans and as required so that no excavated or disturbed soil can enter mitigation areas or adjacent wetlands or waterways. Barriers shall be in place prior to excavation work. No work shall take place outside the barriers.

Materials And Construction

Prior to initial placement of barriers, the Contractor and the Engineer shall review locations specified on the plans and adjust placement to ensure that the placement will provide maximum effectiveness.

Barriers shall be staked, trenched, and/or wedged as specified herein and according to the Manufacturer’s instructions. Barriers shall be securely in contact with existing soil such that there is no flow beneath the barrier.

ITEM 767.121 (Continued)

Compost Filter Tube

Compost material inside the filter tube shall meet M1.06.0, except for the following: no peat, manure or bio-solids shall be used; no kiln-dried wood or construction debris shall be allowed; material shall pass through a 2-inch sieve; and the C:N ratio shall be disregarded.

Outer tube fabric shall be made of 100% biodegradable materials (i.e., cotton, hemp or jute) and shall have a knitted mesh with openings that allow for sufficient water flow and effective sediment capture.

Tubes shall be tamped, but not trenched, to ensure good contact with soil. When reinforcement is necessary, tubes shall be stacked as shown on the detail plans.

Straw Bales

Straw bales shall be used if shown on the plans or when specified by Orders of Condition or other permit requirements.

Bales should be placed in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another. All bales should be either wire-bound or string-tied. Straw bales should be installed so that bindings are oriented around the sides (rather than along the tops and bottoms) of the bales in order to prevent deterioration of the bindings.

The barrier should be entrenched and backfilled. A trench should be excavated the width of a bale and the length of the proposed barrier to a minimum depth of 4 inches. The trench must be deep enough to remove all grass and other material which might allow underflow. After the bales are staked and chinked (filled by wedging), the excavated soil should be backfilled against the barrier. Backfill soil should conform to the ground level on the downhill side and should be built up to 4 inches against the uphill side of the barrier.

Each bale should be securely anchored by at least 2 stakes or re-bars driven through the bale. The first stake in each bale should be driven toward the previously laid bale to force the bales together. Stakes or re-bars should be driven deep enough into the ground to securely anchor the bales. For safety reasons, stakes should not extend above the bales but should be driven in flush with the top of the bale.

The gaps between the bales should be chinked (filled by wedging) with straw to prevent water from escaping between the bales. Loose straw scattered over the area immediately uphill from a straw bale barrier tends to increase barrier efficiency. Wedging must be done carefully in order not to separate the bales.

When used in a swale, the barrier should be extended to such a length that the bottoms of the end bales are higher in elevation than the top of the lowest middle bale to assure that sediment-laden runoff will flow either through or over the barrier but not around it.

ITEM 767.121 (Continued)

Silt Fence

Materials and Installation shall be per Subsection 670.40 and 670.60 of the Standard Specifications and the following:

Silt fence shall only be used if shown on the plans or when specified by Orders of Condition or other permit requirements.

When used with compost filter tubes, the tube shall be placed on a minimum of 8 inches of folded fabric on the upslope side of the fence. Fabric does not need to be trenched.

When used with straw bales, an 8-inch deep and 4-inch wide trench or V-trench shall be dug on the upslope side of the fence line. One foot of fabric shall be placed in the bottom of the trench followed by backfilling with compacted earth or gravel. Stakes shall be on the down slope side of the trench and shall be spaced such that the fence remains vertical and effective.

Width of fabric shall be sufficient to provide a 36-inch high barrier after fabric is folded or trenched. Sagging fabric will require additional staking or other anchoring.

Maintenance

Maintenance of the sediment control barrier shall be per Subsection 670.60 of the Standard Specifications or per the Stormwater Pollution Prevention Plan (SWPPP), whichever is more restrictive.

The contractor shall inspect the sediment barrier in accordance with relevant permits. At a minimum, barriers shall be inspected at least once every 7 calendar days and after a rain event resulting in 0.25 inches or more of rainfall. Contractor shall be responsible for ensuring that an effective barrier is in place and working effectively for all phases of the Contract.

Barriers that decompose such that they no longer provide the function required shall be repaired or replaced as directed. If the resulting berm of compost within the fabric tube is sufficiently intact and continues to provide effective water and sediment control, barrier does not necessarily require replacement.

Dismantling & Removing

Barriers shall be dismantled and/or removed, as required, when construction work is complete and upslope areas have been permanently stabilized and after receiving permission to do so from the Engineer.

Regardless of site context, nonbiodegradable material and components of the sediment barriers, including photo-biodegradable fabric, plastic netting, nylon twine, and silt fence, shall be removed and disposed off-site by the Contractor.

ITEM 767.121 (Continued)

For naturalized areas, biodegradable, natural fabric and material may be left in place to decompose on-site. In urban, residential, or other locations where aesthetics is a concern, the following shall apply:

- Compost filter tube fabric shall be cut and removed, and compost shall be raked to blend evenly (as would be done with a soil amendment or mulch). No more than a 2-inch depth shall be left on soil substrate.
- Straw bales shall be removed and disposed off-site by the Contractor. Areas of trenching shall be raked smooth and disturbed soils stabilized with a seed mix matching adjacent seeding or existing grasses (i.e., lawn or native grass mix).
- Silt fence, stakes, and other debris shall be removed and disposed off-site. Site shall be restored to a neat and clean condition.

Method of Measurement and Basis of Payment

Item 767.121 will be measured and paid for at the contract unit price per foot of sediment control barrier which price shall include all labor, equipment, materials, maintenance, dismantling, removal, restoration of soil, and all incidental costs required to complete the work.

Silt fence, when used in conjunction with compost filter tubes or straw bales, will be incidental to this item.

Additional barrier, such as double or triple stacking of compost filter tubes, will be paid for per foot of tube installed.

Barriers that have been driven over or otherwise damage by construction activities shall be repaired or replaced as directed by the Engineer at the Contractors expense.

ITEM 767.9 JUTE MESH SQUARE YARD

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

The work under this item consists of furnishing and installing jute mesh fabric to prevent soil erosion. Jute mesh shall be placed over all areas of exposed soil in locations shown on the plans or as required by the Engineer.

MATERIALS

Fabric shall be 100% biodegradeable woven jute mesh with minimum ¼" openings.

Anchoring devices shall consist of minimum 8" bio-degradable stakes. Longer stakes shall be used where loose soils or other conditions obligate, as required by the Engineer.

ITEM 767.9 (Continued)

CONSTRUCTION METHODS

Area shall be seeded prior to installation of mesh.

Contractor shall bury ends of fabric in anchor trenches at top and bottom of slopes.

Installation of jute mesh shall be such as to ensure continuous contact with soil without folds or wrinkles. Jute mesh fabric may be joined by overlapping with a minimum 6 inch overlap. Overlap shall be such that upslope fabric is placed over lower slope fabric.

The mesh shall be anchored in place with vertically driven spikes. The spikes shall be driven until their tops are flush with the soil. Spikes shall be placed at 12 inch intervals along the top of a slope and in staggered courses along the face of the slope to achieve a minimum of 3 spikes per square yard, or as manufacturer's recommendations for given site conditions.

Reseed all trenched and otherwise disturbed areas with specified slope seed mix. The Contractor shall maintain the jute mesh and make satisfactory repairs of any areas damaged until acceptance of seed establishment.

Method of Measurement

Item 767.9 will be measured for payment by the Square Yard, complete in place as measured across the surface of grade and does not include buried or overlapped portions.

Basis of Payment

Item 767.9 will be paid for at the contract unit price per Square Yard, which price shall include all labor, materials, equipment, trenching, placing and stapling of jute fabric, reseeding of trenched and disturbed areas, and all incidental costs required to complete the work.

ITEM 853.8 TEMPORARY ILLUMINATION FOR WORK ZONE DAY

The work under this Item shall conform to the relevant provisions of Section 850 of the Standard Specification and the following:

The work under this Item shall include furnishing, deploying and maintaining in proper operating condition a LED balloon diffuser lighting system. These portable light towers shall be used throughout the project area for temporary work zone lighting. The use of unshielded high wattage flood lights shall not be permitted. These towers shall be used, relocated and adjusted to meet the criteria in Section 850 of the Standard Specifications and the following:

The Contractor shall illuminate the following work zone areas:

- Change in direction (i.e., work zone entrances and exits, crossovers, etc.)
- Tapered areas
- Actual area where the construction is being performed

Light measurement shall be based on the illuminance method and the lighting levels shall be based on the classification of construction activity that is taking place. At no time shall the light level be below 5 fc and the uniformity shall not exceed 6:1. Task Classifications and recommended illumination levels is shown in Table 1.

Task Classifications	Illumination Level	Average Minimum Maintained Illuminance
All work operations areas, setup of lane or road closures, lane closure tapers, and flagging stations, such as: Excavation (all types), Embankment Fill and Compaction, Reworking Shoulders, Asphalt Pavement Rolling, Subgrade, Stabilization and Construction, Base Course Rolling, Sweeping, Cleaning and Landscaping.	Level I	5 foot-candles
Areas on or around construction equipment; asphalt paving, milling, and concrete placement and/or removal, such as, Milling, Removal of Pavement, Asphalt Paving and Resurfacing, Concrete Pavement, Waterproofing and Sealing, Sidewalk Construction, Base Course Grading and Shaping, Surface Treatment, Bridge Decks, Drainage Structures and Drainage Piping, Other Concrete Structures, Barrier Wall and Traffic Separators, Guardrails and Fencing, Striping and Pavement Markings, Repair of Concrete Pavement, Highway Signs, Hole Filling and Repair of Guardrails and Fencing.	Level II	10 foot-candles
Pavement or structural crack/ pothole filling; joint repair, pavement patching and/or repairs, installation of signal/electrical/mechanical equipment, such as, Traffic Signals, Highway Lighting Systems and Crack Filling	Level III	20 foot-candles

TABLE 1
TASK CLASSIFICATIONS AND ILLUMINATION LEVELS

ITEM 853.8 (Continued)

Prior to commencement of work the Contractor shall submit to MassDOT for approval a description of illumination equipment that is proposed to be used on this project, and shall include photometrics that detail the light levels that are to be provided for the particular operation for the type of equipment, level of luminance and height to be installed.

Any potential glare from the lighting system should be considered from each direction and on all approaching roadways and opposing lanes of traffic. Glare from the illumination system should be minimized as much as possible for both workers and motorists in adjacent active travel lanes. If necessary, the Contractor shall provide supplemental hardware, such as, visors, louvers, shields, glare screen and barrier to reduce glare in adjacent active travel lanes.

Equipment mounted lighting may be used to supplement light towers to achieve the required lighting levels for the activity involved per Table 1.

Method of Measurementa Basis of Payment

Item 853.8 will be measured and paid for at the contract unit price per DAY. The cost shall include all labor, materials, equipment, tools and all incidentals required for the design and installation of the work zone lighting system. This shall include, but not be limited to lighting submission preparation, wiring connections, equipment relocations, and include all material and labor incidental for a complete, functional and operational work zone illumination system.

The price of this item shall include the material and labor necessary to install any supplemental hardware required to reduce glare on all adjacent active travel lanes.

The per day price shall be full compensation for all “Temporary Illumination for Work Zone” regardless of the number of concurrent work areas, amount of equipment concurrently in use or the durations of or changes of the work shifts per day. Furnishing, Installing, resetting, modifying and removing equipment for work zone illumination shall be incidental to Item 853.8

ITEM 859.1 REFLECTORIZED DRUMS WITH SEQUENTIAL WARNING LIGHTS DAY

Description

Work under this Section consists of furnishing, installing, maintaining in proper operating conditions, and removing reflectorized drums, and any necessary ballast, equipped with sequential flashing warning lights.

Materials

Reflectorized drums shall be listed on the MassDOT Qualified Traffic Control Equipment List.

Reflective sheeting on drums shall meet or exceed ASTM D4956 Type VIII. All drums shall be maintained in a satisfactory manner including the removal of oils, dirt, and debris that may cause reduced retroreflectivity.

The Contractor shall use one of the following sequential flashing warning light systems unless otherwise approved by the Engineer:

1. Empco-Lite LWCSD.
2. pi-Lit® Sequential Barricade-Style Lamp; or
3. Unipart Dorman SynchroGUIDE.

Sequential flashing warning lights shall be secured to reflectorized drums per the light manufacturer's specifications.

Construction Methods

The first ten drums in any merging or shifting taper as designated in the Temporary Traffic Control Plan shall be equipped with sequential flashing warning lights. These lights shall be operating, at a minimum, between dusk and dawn when the taper is deployed.

The successive flashing of the sequential warning lights shall occur from the upstream end of the merging or shifting taper to the downstream end of the taper in order to identify the desired vehicle path. Each warning light in the sequence shall be flashed at a rate of not less than 55, nor more than 75 times per minute.

Warning lights shall be powered off when drums are not deployed in a taper.

Method of Measurement

A group of ten (10) reflectorized drums with sequential flashing warning lights is considered one (1) unit and will be measured by the day. Each period of up to 24 hours during which this unit is in use will be measured as one day regardless of the number of times that the drums are positioned, repositioned, removed, or returned to service.

ITEM 983.601 DUMPED STONE FOR EROSION CONTROL TON

Work under this Item shall conform to the relevant provisions of Section 983 and the following:

Work under this Item shall include the furnishing and placing of stone, as directed by the Engineer. Placement and distribution of stones shall be done in a manner that inserts the smaller stones amongst the larger stones to achieve a compact interlocking mass with a minimum number of voids.

Measurement and Payment

The work under Item 984.601 shall be compensated at the contract unit price per Ton complete in place. The contract unit price shall include the cost of materials, equipment, tools and labor and incidentals necessary to complete the work to the satisfaction of the Engineer.

ITEM 995.045 PRECAST CONCRETE BOX CULVERT UNDER 25 SQUARE FEET FOOT

ITEM 995.046 PRECAST CONCRETE BOX CULVERT 25 SQUARE FEET TO 50 SQUARE FEET FOOT

ITEM 995.047 PRECAST CONCRETE BOX CULVERT OVER 50 SQUARE FEET TO 90 SQUARE FEET FOOT

Work under this Item shall conform to the relevant provisions of Section 900 and the following:

Description

Work under this Item shall consist of furnishing and installing box culverts constructed of four-sided, steel reinforced, monolithically cast concrete sections with open ends of the size and length as directed by the Engineer. Reinforcing, threaded inserts, lifting and seating fixtures, non-shrink grout, and all other necessary materials and equipment to complete the work shall also be included.

- Item 995.045 shall include culverts with an inside opening area less than 25 square feet.
- Item 995.046 shall include culverts with an inside opening area of 25 square feet up to and including 50 square feet.
- Item 995.047 shall include culverts with an inside opening area greater than 50 square feet up to and including 90 square feet.

Materials

CONCRETE: The concrete shall conform to the requirements of Section 901 of the Standard Specifications. The minimum concrete compressive strength shall be 5000 psi at 28 days.

REINFORCEMENT: Welded wire fabric shall be uncoated and conform to the requirements of ASTM A185, Grade 65. Deformed steel bars shall be uncoated and conform to the requirements of ASTM A615, Grade 60.

ITEMS 995.045-995.047 (Continued)

THREADED INSERTS, LIFTING FIXTURES AND MISCELLANEOUS HARDWARE: All inserts, fixtures and hardware cast into precast concrete components shall have a corrosion resistant coating or be fabricated from a non-corrosive material suitable for the intended use. The coating shall be either an epoxy material or galvanization, applied mechanically or by the hot-dip process. All hardware shall be specified on the fabricator's drawings.

GASKETS: Gaskets shall be flexible, closed cell rubber cemented to the joint surface.

GEOTEXTILE: Shall be in conformance with Material Specification M9.50.0. Torn or punctured geotextiles shall not be used.

Construction

The design and manufacture of the precast concrete box culvert shall conform to the requirements of the AASHTO Standard Specifications for Highway Bridges.

1. Working Drawings: Before fabrication, the Contractor shall submit working drawings to the Engineer for review.

Working drawings for all box culverts shall include but not be limited to the following:

- Layout plan of box culvert.
- Plans and cross-sections showing length, width, height and thickness of walls and slabs.
- Type, size, location and spacing of steel reinforcing and inserts for anchoring threaded deformed steel bars. Bending diagrams, material lists and catalog cuts for inserts shall be provided.
- Type, size and location of lifting holes and seating fixtures. No more than four lifting holes or fixtures shall be located in each box section.
- Location and size of all holes cast for grouting deformed steel bars or other reasons as noted on the plans.
- Complete details of the lap joints at the end of the box sections, which shall include the type, size and location of gaskets and additional steel reinforcement. Each joint shall be provided with a preplaced gasket. Working drawings for all box sections shall be stamped by a Professional Engineer licensed in the State of Massachusetts.

Each sheet of the working drawings shall be stamped. Erection Plan shall also be prepared and submitted for review by the MassDOT.

ITEMS 995.045-995.047 (Continued)

2. Length of Sections and Layout of Structures: The length of each precast box section shall be determined by the Contractor. When laid together, the culvert sections shall satisfy the total length of the box culvert shown on the plans.

Contractor is advised that precast box culvert sections may have drilled, regular holes present when inspected, for facilitation of casting or tie in installation.

Additionally, the positions of all associated structures, as laid out on the culvert design plan, shall be reviewed and located in the field jointly by the Contractor and Resident Engineer. Associated structures shall include manholes, catch basins and pipes, as well as any other structures that divert drainage discharge into the culvert area or allow service access to different portions of the culvert or surrounding structures.

All forming materials used for casting cylindrical openings for lifting holes or holes for grouting deformed steel bars shall be removed. All non-plastic material used as forms for casting weepholes shall also be removed.

3. Repairs: The Engineer shall evaluate the acceptability and the cause of the defects and the service condition of the culvert section. No repairs shall be done by the Contractor unless permission has been granted by the Engineer. The Contractor shall submit to the Engineer, for review, the proposed methods and materials to be used in the repair operation. All repairs shall be sound and properly finished and cured before the box section is delivered to the job site. The Contractor shall bear the costs of all repair work.

4. Finishing: All exposed, outside surfaces of end sections shall be given a grout clean-down finish. All fins, runs, or mortar shall be removed from surfaces that will remain exposed. Form marks on exposed surfaces shall be smoothed by grinding.

5. Handling and Storage: Care shall be taken during storage, transporting, hoisting and handling of all box sections to prevent damage. Sections damaged by improper storing, transporting or handling shall be repaired or replaced by the Contractor, as directed by the Engineer and at no cost to the MassDOT. All storage and handling operations shall be as directed by the Engineer.

The culvert sections shall not be removed from their casting beds until the concrete has attained a minimum compressive strength of 75% of the 28-day strength. The box sections shall not be shipped to the job site until the 28-day strength (f'c) has been attained.

7. Installation: The installation of the precast concrete box culvert shall conform to the following requirements:

The culvert sections shall be placed in a manner to best accommodate and facilitate the construction of any cast-in-place concrete headwalls or wing-walls. No box sections shall be set on cast-in-place concrete without the approval of the Engineer.

ITEMS 995.045-995.047 (Continued)

The culvert sections shall be set to the line and grade indicated on the plans or as directed by the Engineer. Placement of the sections shall not start until the Engineer has approved the depth of excavation and the suitability of the foundation material.

The lap joints shall be securely seated together to achieve a silt-tight joint all around. A silt-tight joint is defined as a joint in which the gasket is compressed to a minimum of one half of its uncompressed width. The gasket shall be uniformly compressed along all vertical and horizontal surfaces. A positive means, through the use of seating devices, shall be used for pulling one section against another to assure an adequate silt-tight joint.

Details for the seating method shall be submitted to the Engineer for review. The lap joints shall be seated such that they make a continuous line of sections with a smooth interior free from irregularities in the invert line.

The top portions of the horizontal lap joints for the roof and floor slabs and the outside face of the vertical lap joints (full height on each side) shall be neatly filled with non-shrink grout after seating the sections. The exposed portions of the lap joints within the haunches or fillets shall also be neatly filled with non-shrink grout. The finished surface shall be flush and smooth with the adjacent concrete.

Geotextile shall be placed over all vertical joints. Geotextile shall also be placed over the roof joints of culverts not receiving woven glass fabric. The geotextile shall extend 6 inches to each side of the joint and be attached to the culvert using silicone caulk.

After its installation, any culvert section or joint that is, as determined by the Engineer, not acceptable in vertical or horizontal alignment for any reason, including but not limited to settlement, displacement, excess camber, or misfit, shall be removed by the Contractor and correctly installed, as directed by the Engineer and at no additional cost to the State.

All fixtures or holes cast into the sections for lifting or seating shall be neatly filled with non-shrink grout. The finished surface shall be smooth and level with the adjacent concrete.
The surface preparation, mixing, placing, curing, and finishing of the non-shrink grout shall conform to the written instructions provided by the manufacturer of the grout. The Contractor shall furnish the Engineer with copies of the instructions. The grout shall be cured at least 3 days unless approved otherwise by the Engineer.

Measurement and Payment

The work under Items 995.045, 995.046, and 995.047 shall be compensated at the contract unit price per Foot of precast concrete box culvert complete in place and accepted. The contract unit price shall include threaded inserts, non-shrink grout, geotextile, gaskets, and all other materials, equipment, tools and labor and incidentals necessary to complete the work to the satisfaction of the Engineer.

ITEM 996.03 HEADWALL REBUILD – CONCRETE BLOCK EACH

Work under this item shall include the furnishing and installation of concrete block sections for the purpose of replacing existing drainage structure headwalls that have failed or are otherwise too damaged or degraded to be repaired conventionally, as directed by the Engineer. The work shall also include excavation of the site to remove existing headwall debris and clear waterways impacted by headwall collapse.

Said blocks shall measure either 2' x 2' x 6', or 2' x 2' x 3'. Blocks shall be placed such that they replace the full length and height of the previously existing headwall, and shall be fully reinforced with steel rebar and concrete cement where necessary, as directed by the Engineer.

Measurement and Payment

The work under Item 996.03 shall be compensated at the contract unit price per Each concrete block in place and complete, to the satisfaction of the Engineer. The contract unit price shall include excavation of headwall site, regrading of the back slope and other earthwork, purchase of the blocks, concrete mortar, ties or steel rebar and all other materials required, as well as all equipment, tools, labor and other incidentals necessary to complete the work to the satisfaction of the Engineer. 2' x 2' x 3' blocks complete and in place shall be measured as .5 in terms of payment quantity.

ITEM 996.03 CONCRETE HEADWALL REINFORCMENT HEIGHT ADJUSTMENT CUBIC YARD

Work under this item shall adhere to the relevant provisions of Section 901 and the following:

Construction and Materials

Work under this item shall consist of extending the height of existing headwalls at risk of failure due to backslope overrun at various locations throughout the District, as directed by the Engineer. Construction shall consist of drilling holes in the top of each headwall at regular intervals to install steel rebar reinforcement, then pouring concrete to a specified height above the reinforcement, as directed by the Engineer. Forms shall be used to hold the concrete in place while setting, to prevent slumping and concrete runoff into nearby wetlands or waterways.

Before work proceeds, the Engineer shall examine the existing headwall and its surroundings, to determine if damage, erosion or other site conditions would prevent the wall in question from supporting the new load the headwall extension would place on the existing foundational wall.

Measurement and Payment

The work under Item 996.03 shall be compensated at the contract unit price per Cubic Yard of headwall reinforced, complete and in place to the satisfaction of the Engineer. The contract unit price shall include the cost of concrete, steel rebar reinforcement rods, pouring forms and any other materials needed for the extension, as well as all equipment, tools, labor and other incidentals necessary to complete the work to the satisfaction of the Engineer.

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DRAWINGS AND SKETCHES

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MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

PLAN OF

STURBRIDGE ROUTE 20 DRAINAGE REPAIR

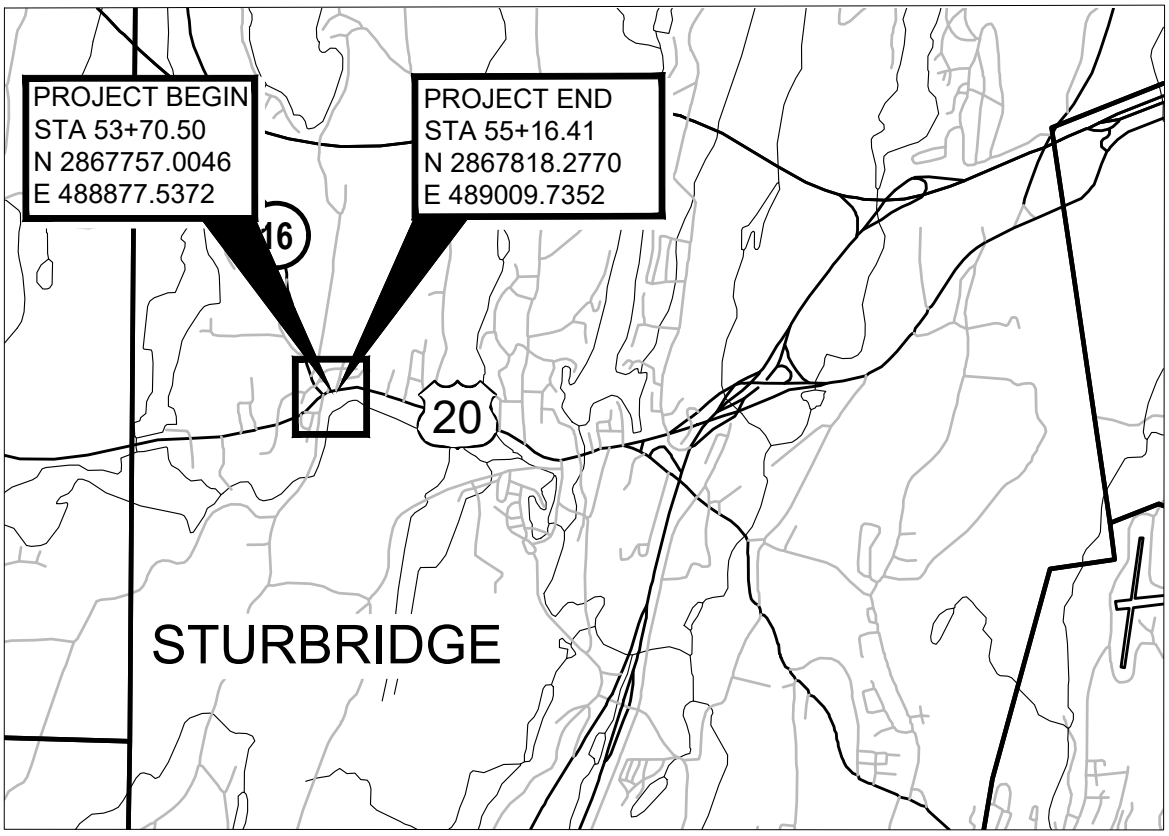
100% DESIGN SUBMISSION

IN THE TOWN OF

STURBRIDGE

WORCESTER COUNTY

FEDERAL AID PROJECT NO. N/A



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SCALE IN FEET

INDEX

DATE	DESCRIPTION	REV #

massDOT Massachusetts Department of Transportation Highway Division

RECOMMENDED FOR APPROVAL

CHIEF ENGINEER **DATE**

APPROVED

HIGHWAY ADMINISTRATOR **DATE**

THESE PLANS ARE SUPPLEMENTED BY THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.

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ABBREVIATIONS	
GENERAL	
ABAN	ABANDON
APPROX	APPROXIMATE
BF	BANK FLAG
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CEM	CEMENT
CIP	CAST IRON PIPE
CLF	CHAIN LINK FENCE
CMP	CORRUGATED METAL PIPE
CONST	CONSTRUCTION
CONT	CONTINUOUS
CPP	CORRUGATED PLASTIC PIPE
DBHW	DOUBLE BARREL HEADWALL
DEC	DECIDUOUS TREE
DGCB	DOUBLE GRATE CATCH BASIN
DGCBCI	DOUBLE GRATE CATCH BASIN WITH CURB INLET
DIP	DUCTILE IRON PIPE
DMH	DRAIN MANHOLE
ELEV (OR EL)	ELEVATION
EXC	EXCAVATION
EXIST (OR EX)	EXISTING
FES	FLARED END SECTION
GD	GROUND
HDPE	HIGH-DENSITY POLYETHYLENE PIPE
HMA	HOT MIX ASPHALT
HWY	HIGHWAY
HYD	HYDRANT
IC	IMPERVIOUS COVER
INFIL	INFILTRATION
INV	INVERT
MAX	MAXIMUM
MIN	MINIMUM
MUNI	MUNICIPAL
NO.	NUMBER
OC	ON CENTER
OHW	OVERHEAD WIRES
OT	OTHER
PB	PULL BOX
PROJ	PROJECT

PROP	PROPOSED
PVC	POLYVINYL CHLORIDE
PWW	PAVED WATERWAY
R&R	REMOVE AND RESET
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REM	REMOVE
RET	RETAIN
ROW	RIGHT OF WAY
RR	RAILROAD
SHLO	STATE HIGHWAY LAYOUT LINE
ST	STREET
STA	STATION
STD	STANDARD
SWL	SOLID WHITE LINE
TEMP	TEMPORARY
TP	TEST PIT
TS	TRAFFIC SIGNAL
TYP	TYPICAL
UPL (OR UP)	UTILITY POLE
VAR	VARIES
VCP	VITRIFIED CLAY PIPE
WF	WETLAND FLAG
WG	WATER GATE VALVE
X-SECT	CROSS SECTION

MassDOT Massachusetts Department of Transportation Highway Division

STURBRIDGE
STURBRIDGE ROUTE 20 DRAINAGE REPAIR
100% DESIGN SUBMISSION

LEGEND

SHEET NO.	TOTAL SHEETS
2	18
PROJECT FILE NO. 612991	

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GENERAL SYMBOLS

DESCRIPTION
EXISTING CONTOUR
PROPOSED MINOR CONTOUR
PROPOSED MAJOR CONTOUR
EXISTING HEADWALL
EXISTING WETLAND BOUNDARY
EXISTING WETLAND FLAG
25-FOOT NO DISTURB ZONE
50-FOOT NO STRUCTURE BUFFER
100-FOOT WETLAND BUFFER
200-FOOT RIVERFRONT AREA
APPROXIMATE PROPERTY BOUNDARY
PROPOSED SEDIMENT CONTROL BARRIER
PROPOSED DRAINAGE PIPE
PROPOSED DMH
PROPOSED CB
PROPOSED FLARED END SECTION
PROPOSED SILT SACK
PROPOSED RIPRAP
PROPOSED LIMIT OF WORK
PROPOSED STONE SLOPE PROTECTION
PROPOSED SAWCUT

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LEGEND - SYMBOLS

SHEET NO.	TOTAL SHEETS
3	18
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GENERAL NOTES

1. THE EXISTING CONDITIONS AND TOPOGRAPHICAL INFORMATION WERE COMPILED FROM AN ACTUAL FIELD SURVEY CONDUCTED BY VHB (NAD83 HORIZONTAL DATUM, NAVD88 VERTICAL DATUM) IN DECEMBER OF 2020.
2. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES WITH THE UTILITY COMPANIES. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. CONTRACTOR SHALL NOTIFY "DIG-SAFE" (1-888-344-7233) AT LEAST 72 HOURS BEFORE EXCAVATING.
3. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT. IF NECESSARY, ALL PRIVATE UTILITIES WILL BE ADJUSTED BY OTHERS, SUCH AS CABLE, ELECTRIC, GAS, AND TELEPHONE.
4. THE RIGHT-OF-WAY LINES AND BASELINES SHOWN ON THIS PLAN ARE BASED ON STATE HIGHWAY LAYOUT 2274 DATED 1925, LAYOUT 2348 DATED 1926, AND LAYOUT 6694 DATED 1989. THE MONUMENTS FOUND ON THIS PLAN WERE FIELD LOCATED AND USED TO ESTABLISH THE RIGHT-OF-WAY LINES. THE PROPERTY LINES OF INDIVIDUAL OWNERS ALONG THE RIGHT-OF-WAY SHOWN ON THIS PLAN ARE FROM RECORD DEEDS AND PLANS, INDIVIDUAL ABUTTERS PROPERTIES WERE NOT FIELD SURVEYED.
5. THE CONTRACTOR SHALL ALTER THE MASONRY OF THE TOP SECTION OF ALL EXISTING DRAINAGE STRUCTURES AS NECESSARY FOR CHANGES IN GRADE, AND RESET ALL FRAMES, GRATES AND BOXES FOR ALL PUBLIC UTILITIES TO THE PROPOSED FINISH SURFACE GRADE. REQUIRED NEW MASONRY SHALL BE CLAY BRICK CONFORMING TO M4.05.2.
6. TREES AND SHRUBS WITHIN THE LIMITS OF GRADING SHALL BE REMOVED ONLY UPON APPROVAL OF THE ENGINEER.
7. ALL AREA WITHIN THE LIMITS OF GRADING AND LIMITS OF WORK THAT DOES NOT INCLUDE PROPOSED GRADING SHALL BE RESTORED TO MATCH EXISTING ELEVATIONS
8. ALL AREA WITHIN LIMITS OF GRADING AND LIMITS OF WORK SHALL INCLUDE AT A MINIMUM 4 INCHES OF ITEM 751. LOAM BORROW FOR ROADSIDES.
9. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT NO EXPENSE TO THE OWNER.
10. THE TERM "PROPOSED" (PROP) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET" (R&R).
11. ALL LATERAL DRAIN PIPES SHALL BE INSTALLED WITH A PITCH OF 0.01 FOOT PER FOOT (MINIMUM) UNLESS NOTED OTHERWISE ON THE DRAWINGS.
12. DRAINAGE ELEVATIONS ARE PROVIDED FOR DESIGN PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY BY TEST PIT, THE LOCATIONS OF EXISTING UTILITIES WHICH MAY CONFLICT WITH THE PROPOSED DRAINAGE DESIGN. ANY FIELD ADJUSTMENTS REQUIRED WILL BE MADE AS APPROVED OR DIRECTED BY THE ENGINEER. ONLY AFTER THE CONTRACTOR VERIFIES ELEVATIONS FOR THE CONSTRUCTABILITY OF THE DRAINAGE SYSTEM SHALL ANY STRUCTURES BE ORDERED. ANY FIELD ADJUSTMENTS TO LINE & GRADE UP TO A DEPTH OF 5' SHALL BE INCLUDED IN THE COST OF THE PIPE. PIPE EXCAVATION GREATER THAN 5' WILL BE PAID FOR UNDER CLASS B TRENCH EXCAVATION.
13. ALL EXISTING STATE, COUNTY, CITY, AND TOWN LOCATION LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATION ARE NOT GUARANTEED.
14. WETLAND BOUNDARIES ARE BASED ON WETLANDS FLAGS THAT WERE FLAGGED BY A VHB ENVIRONMENTAL SCIENTIST IN DECEMBER 2020. THE JURISDICTIONAL STATUS OF THE WETLAND RESOURCE AREAS WAS DETERMINED DURING THE FIELD INVESTIGATION.
15. ALL SAWCUTTING COSTS ARE INCIDENTAL AND ASSOCIATED WITH THEIR RESPECTIVE WORK.
16. ALL CATCH BASINS WITHIN THE LIMIT OF WORK SHALL HAVE SILT SACKS INSTALLED TO PREVENT SEDIMENT INFLOW.
17. ALL NON-PRECAST CEMENT CONCRETE USED ON THIS PROJECT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI OR AS OTHERWISE SPECIFIED ON THE PLANS OR IN THE SPECIAL PROVISIONS.
18. FOR A LIST OF INVASIVE AND OTHER UNACCEPTABLE PLANT SPECIES REFER TO THE MASSACHUSETTS INVASIVE PLANT ADVISORY GROUP (MIPAG) EVALUATION OF NON-NATIVE PLACE SPECIES FOR INVASIVENESS IN MASSACHUSETTS (APRIL 1, 2005). PLANT MATERIALS LISTED AS AN INVASIVE SPECIES OR UNACCEPTABLE PLANT SPECIES SHOULD NOT BE USED ON THIS PROJECT. SEE ITEM 102.3 IN THE SPECIAL PROVISIONS FOR MORE DETAILS.
19. DOWN GRADIENT SEDIMENT CONTROL PRACTICES SHALL BE MAINTAINED TO PREVENT SEEDS OF INVASIVE SPECIES FROM LEAVING THE SITE. SOIL MATERIAL BROUGHT TO THE SITE SHALL NOT BE FROM SOURCES KNOWN TO CONTAIN INVASIVE SPECIES.
20. TO THE EXTENT POSSIBLE, ALL TREES AND BRUSH SHALL BE DISPOSED OF ON SITE, TYPICALLY CHIPPED AND SPREAD IN PLACE.
21. CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL EXPOSED SOIL IS STABILIZED AT THE END OF THE GROWING SEASON. IF SOIL IS NOT COVERED, OR GRASS/GROUND COVER IS NOT ESTABLISHED AT THE ONSET OF WINTER SHUT DOWN OF CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL TAKE MEASURES TO TEMPORARILY STABILIZE EXPOSED SOIL AT THE CONTRACTOR'S EXPENSE. MEASURES SHALL BE APPROVED BY MASSDOT ENGINEER.
22. CONTRACTOR SHALL PROTECT THE EXISTING PAVEMENT MARKINGS. ANY DAMAGE TO EXISTING PAVEMENT MARKINGS SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE.

MassDOT
Massachusetts Department of Transportation
Highway Division

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GENERAL NOTES

SHEET NO.	TOTAL SHEETS
4	18
PROJECT FILE NO. 612991	

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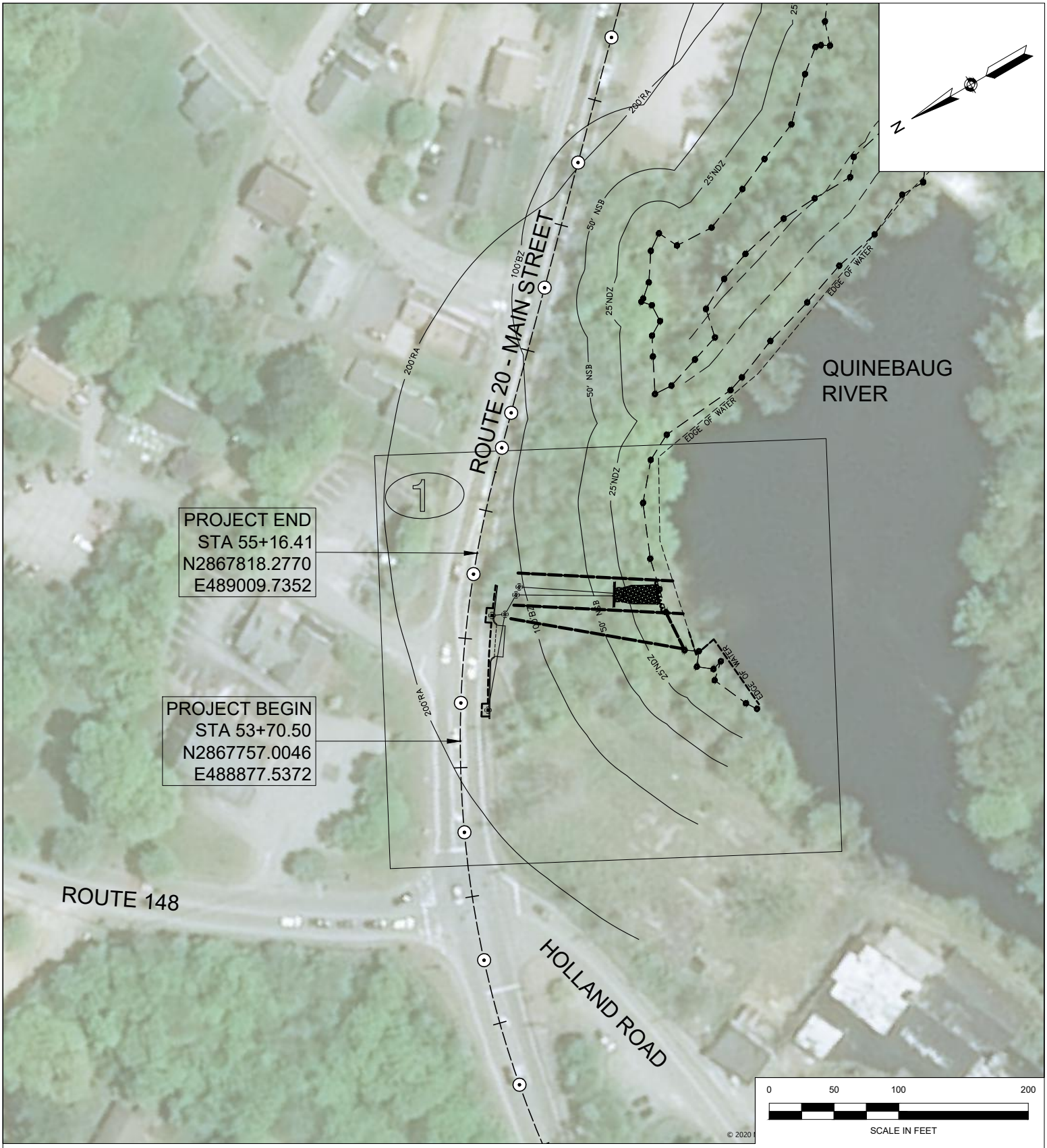

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Highway Division

STURBRIDGE
STURBRIDGE ROUTE 20 DRAINAGE REPAIR
100% DESIGN SUBMISSION

KEY PLAN

SHEET NO.	TOTAL SHEETS
5	18
PROJECT FILE NO. 612991	

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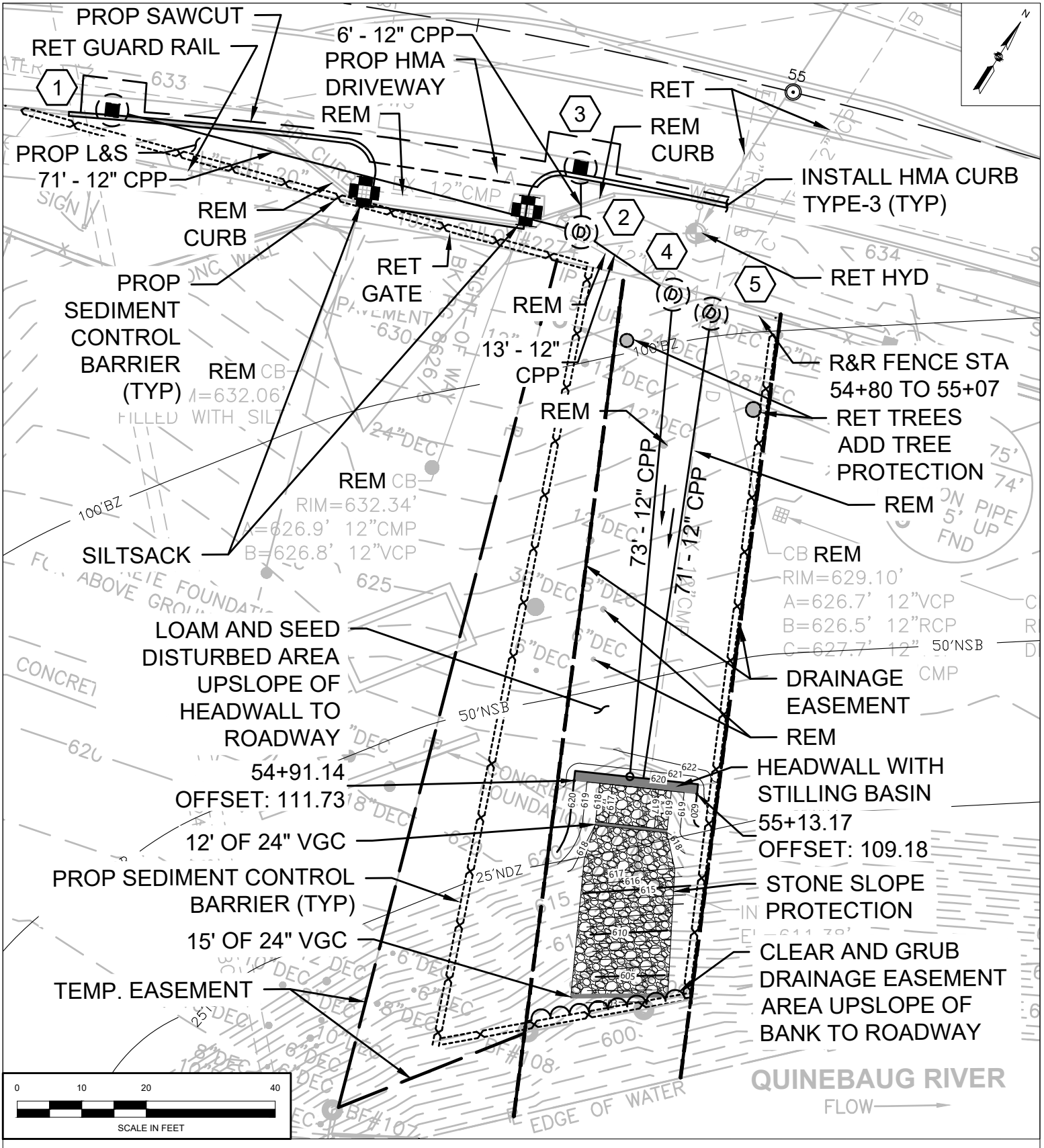

massDOT
Massachusetts Department of Transportation
Highway Division

STURBRIDGE
STURBRIDGE ROUTE 20 DRAINAGE REPAIR
100% DESIGN SUBMISSION

CONSTRUCTION PLAN

SHEET NO.	TOTAL SHEETS
6	18
PROJECT FILE NO. 612991	

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DRAINAGE STRUCTURE DATA

NO.	TYPE	RIM ELEV.	INV. IN	INV. OUT	REMARKS
1	CBCI	632.69		629.20	CATCH BASIN WITH CURB INLET
2	DMH	632.49	(1) 628.50 (3) 628.50	628.40	WITH SUMP
3	GI	633.20		628.60	GUTTER INLET
4	DMH	630.27	(2) 626.80	624.10	
5	DMH	629.08	EXIST	625.30	
6	DBHW			(4) 618.50 (5) 618.50	DOUBLE BARREL HEADWALL

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STURBRIDGE
STURBRIDGE ROUTE 20 DRAINAGE REPAIR
NOTICE OF INTENT SUBMISSION

DRAINAGE TABLE

SHEET NO.	TOTAL SHEETS
7	17
PROJECT FILE NO. N/A	

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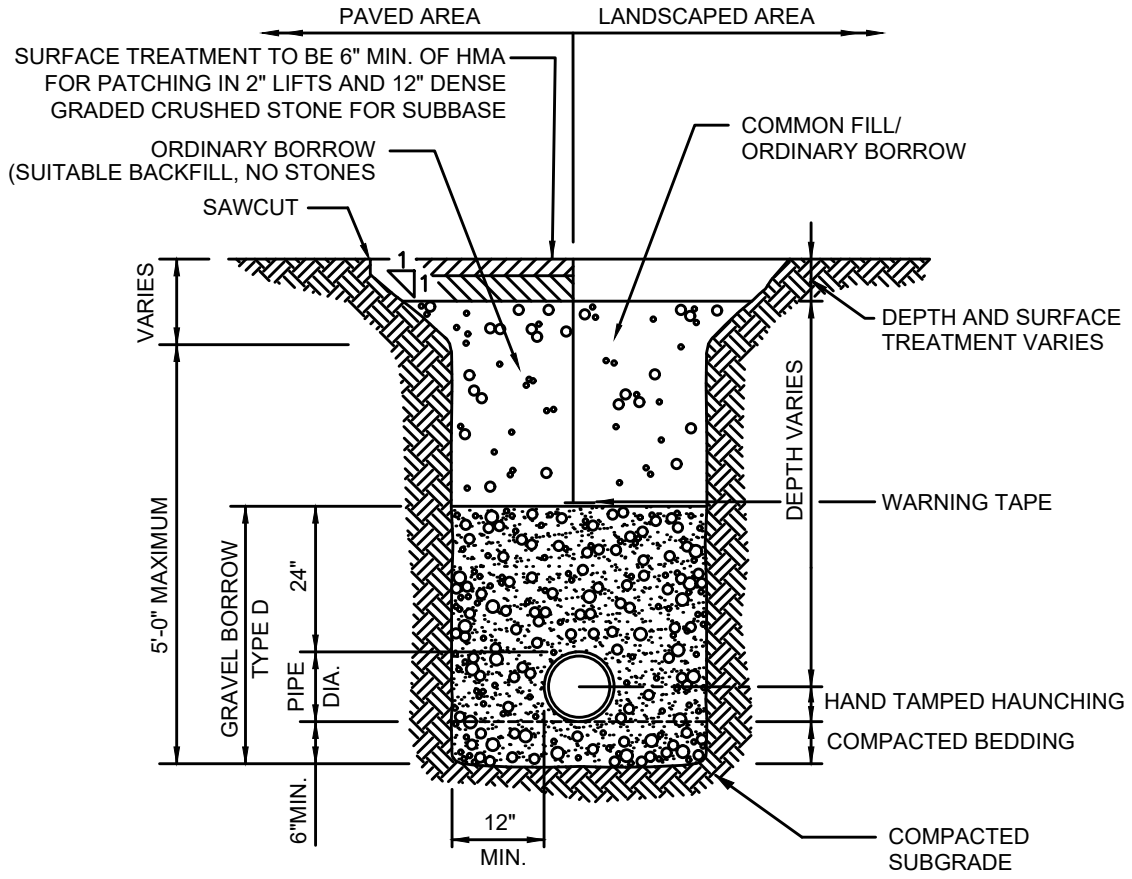

Notes:

1. USE METALLIC TRACING/WARNING TAPE OVER ALL PIPES.

TRENCH DETAIL

NOT TO SCALE

20160320_MassDOT

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STURBRIDGE STURBRIDGE ROUTE 20 DRAINAGE REPAIR 100% DESIGN SUBMISSION CONSTRUCTION DETAILS	SHEET NO.	TOTAL SHEETS
	8	18
	PROJECT FILE NO. 612991	

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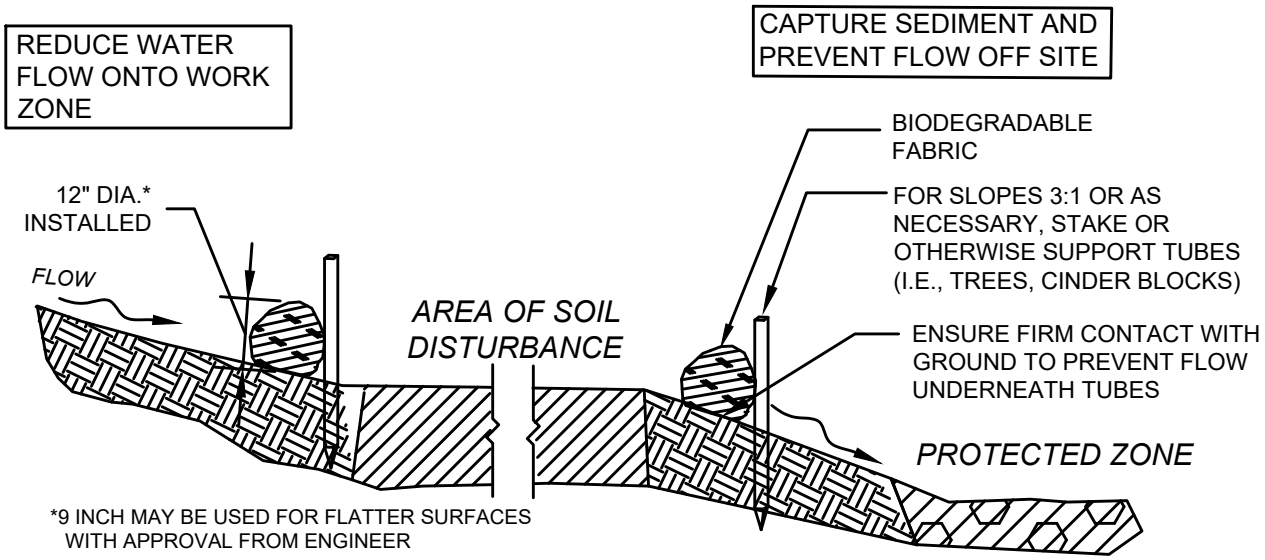

SECTION

SEDIMENT BARRIERS - COMPOST FILTER TUBES (SECTION 1 OF 2)

NOT TO SCALE

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STURBRIDGE STURBRIDGE ROUTE 20 DRAINAGE REPAIR 100% DESIGN SUBMISSION CONSTRUCTION DETAILS	SHEET NO.	TOTAL SHEETS
	9	18
	PROJECT FILE NO. 612991	

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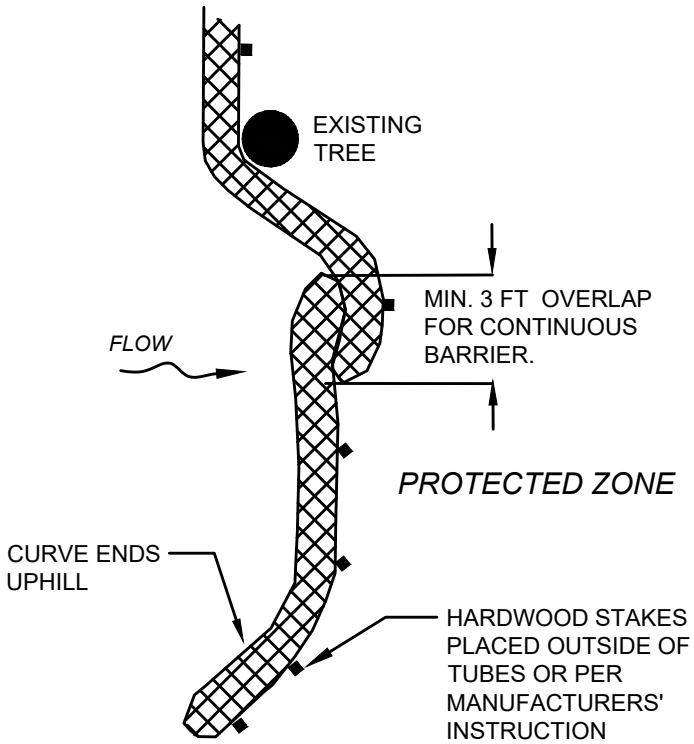

PLACE TUBE ALONG CONTOURS AND PERPENDICULAR TO FLOW.

PLACE AS CLOSE TO LIMIT OF SOIL DISTURBANCE AS POSSIBLE

ADJUST LOCATION AS REQUIRED FOR OPTIMUM EFFECTIVENESS. DO NOT INSTALL IN WATERWAYS.

PLACE STAKES AS NEEDED TO SECURE TUBES IN PLACE.

PLAN VIEW

SEDIMENT BARRIERS (SECTION 2 OF 2)

NOT TO SCALE

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STURBRIDGE STURBRIDGE ROUTE 20 DRAINAGE REPAIR 100% DESIGN SUBMISSION CONSTRUCTION DETAILS	SHEET NO.	TOTAL SHEETS
	10	18
	PROJECT FILE NO. 612991	

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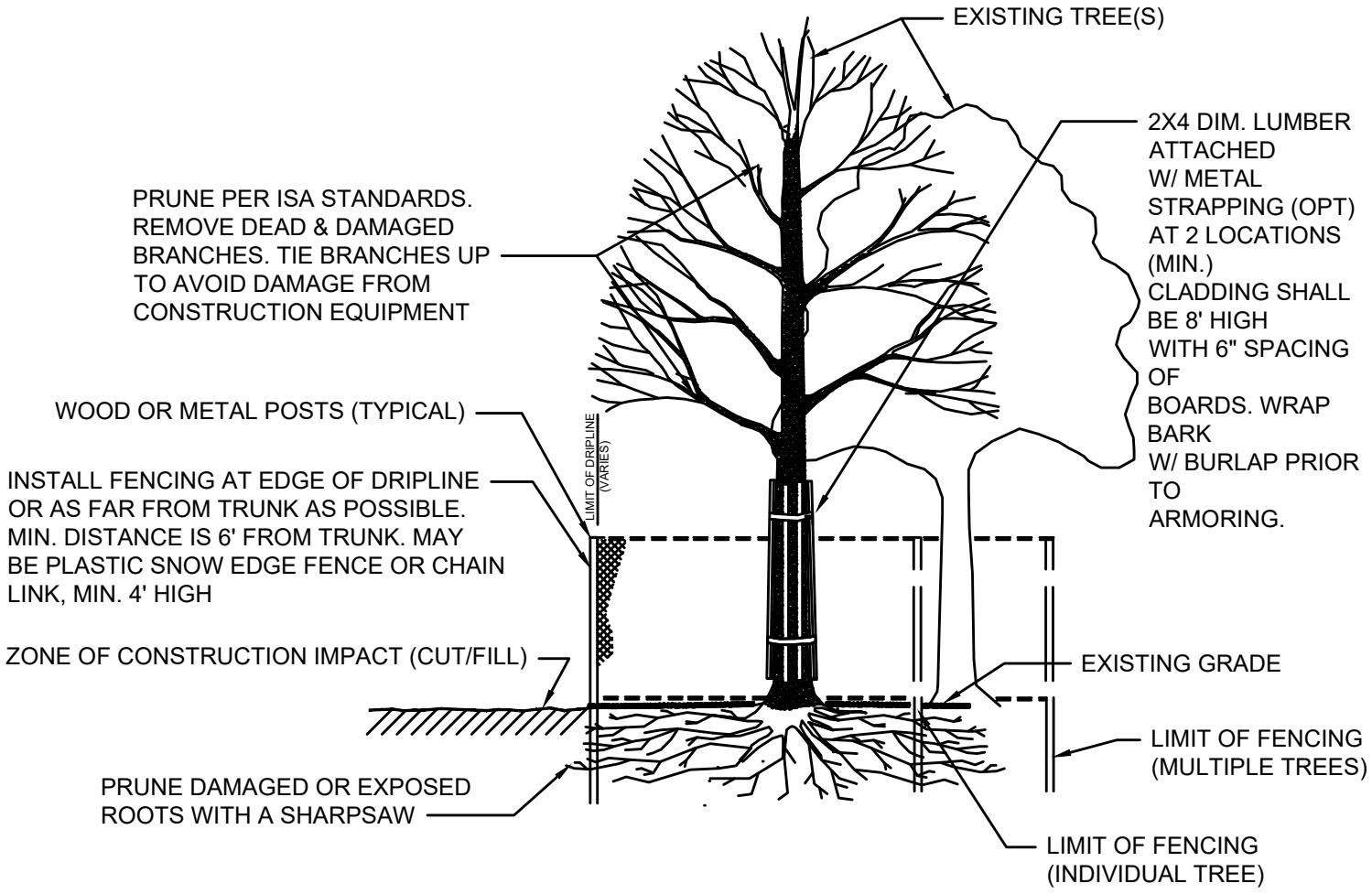

TREE PROTECTION OF EXISTING TREE(S) (SECTION 1 OF 2)

NOT TO SCALE

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STURBRIDGE STURBRIDGE ROUTE 20 DRAINAGE REPAIR 100% DESIGN SUBMISSION CONSTRUCTION DETAILS	SHEET NO.	TOTAL SHEETS
	11	18
	PROJECT FILE NO. 612991	

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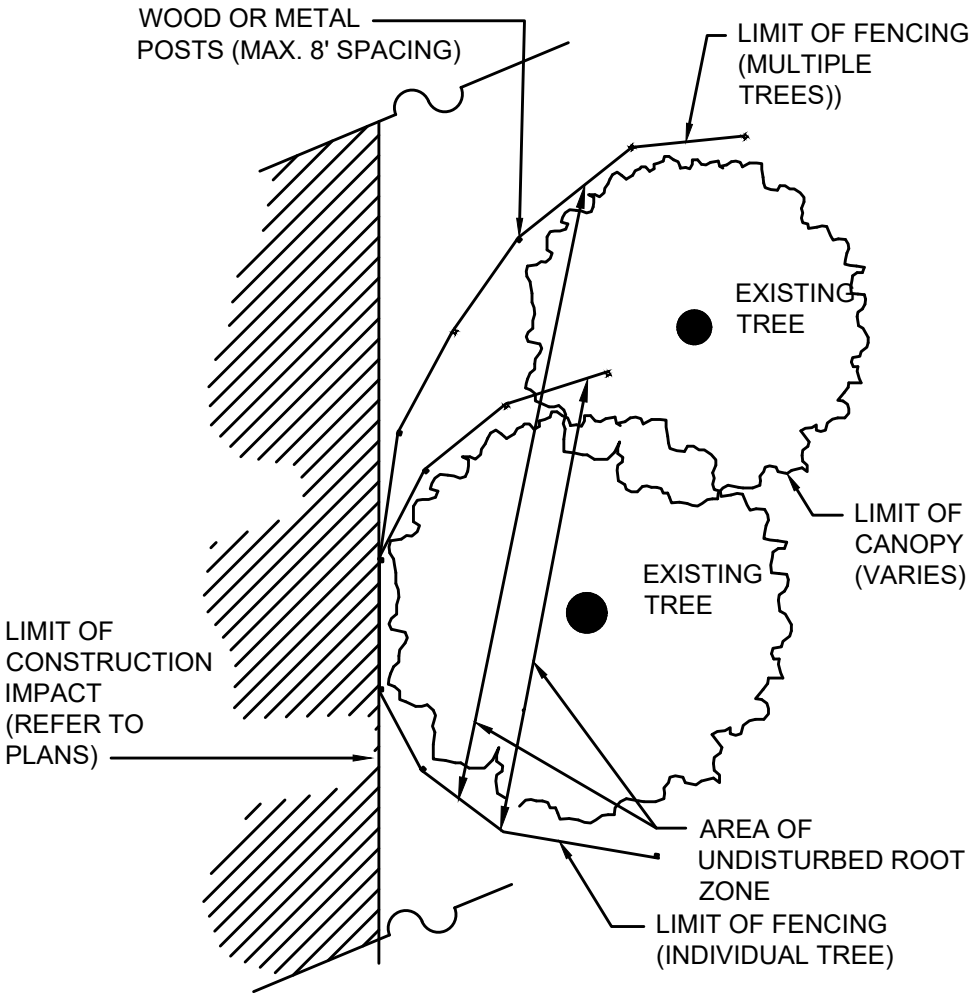

PLAN VIEW

TREE PROTECTION OF EXISTING TREE(S) (SECTION 2 OF 2)

NOT TO SCALE

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STURBRIDGE STURBRIDGE ROUTE 20 DRAINAGE REPAIR 100% DESIGN SUBMISSION CONSTRUCTION DETAILS	SHEET NO.	TOTAL SHEETS
	12	18
	PROJECT FILE NO. 612991	

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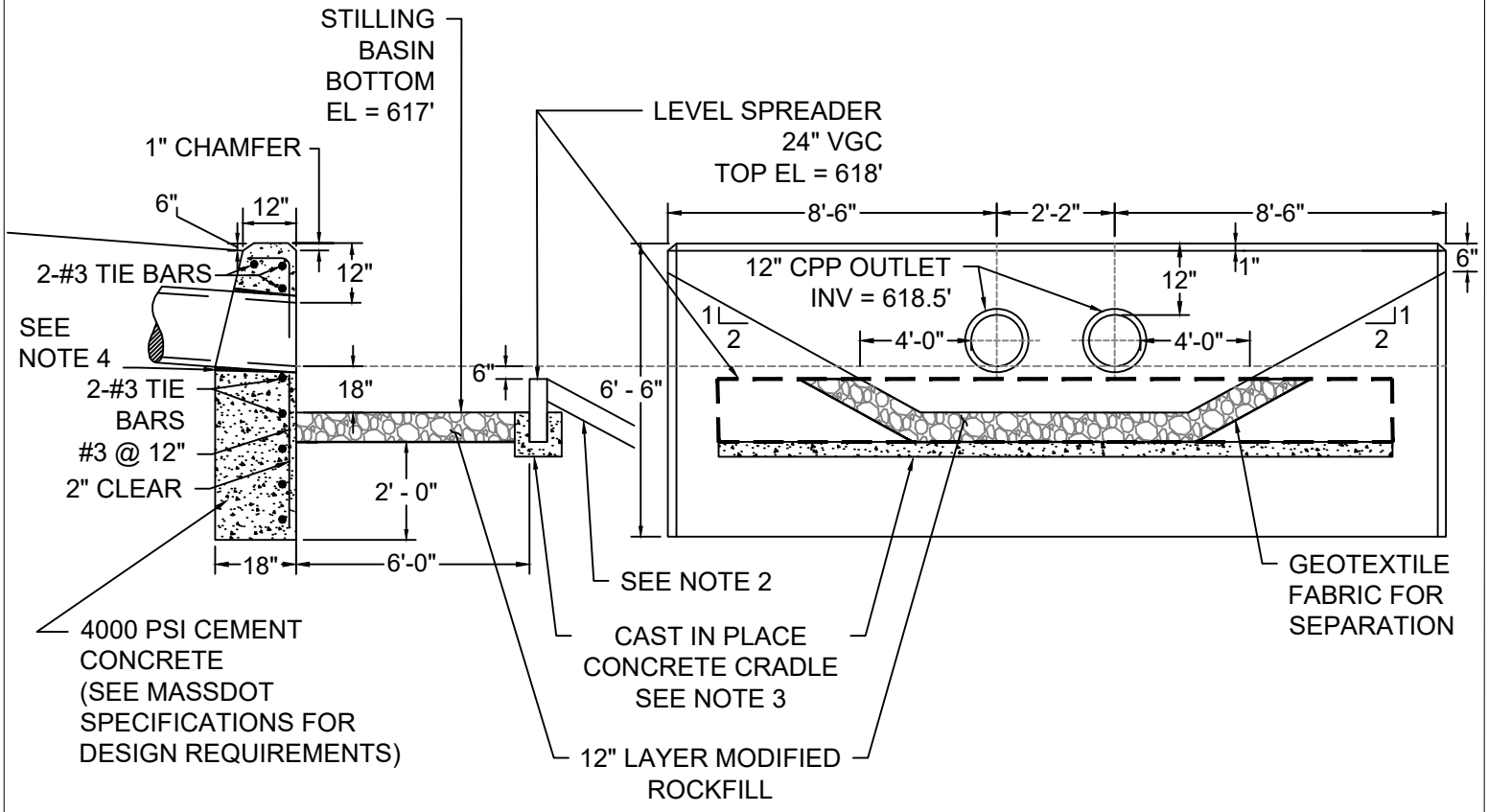

END ELEVATION

FRONT ELEVATION

NOTE:

1. FOR DESCRIPTIONS, MATERIALS, AND CONSTRUCTION METHODS, SEE STANDARD SPECIFICATIONS
2. STONE SLOPE PROTECTION. SEE DETAIL ON SHEET 14 FOR CONTINUATION.
3. INSTALL TOP OF CAST IN PLACE CONCRETE CRADLE FLUSH WITH TOP OF MODIFIED ROCKFILL LAYER. SEE SHEET 15.
4. PROVIDE OPENINGS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.

DOUBLE BARREL HEADWALL WITH STILLING BASIN

NOT TO SCALE

MassDOT Massachusetts Department of Transportation Highway Division

STURBRIDGE STURBRIDGE ROUTE 20 DRAINAGE REPAIR 100% DESIGN SUBMISSION CONSTRUCTION DETAILS	SHEET NO.	TOTAL SHEETS
	13	18
	PROJECT FILE NO. 612991	

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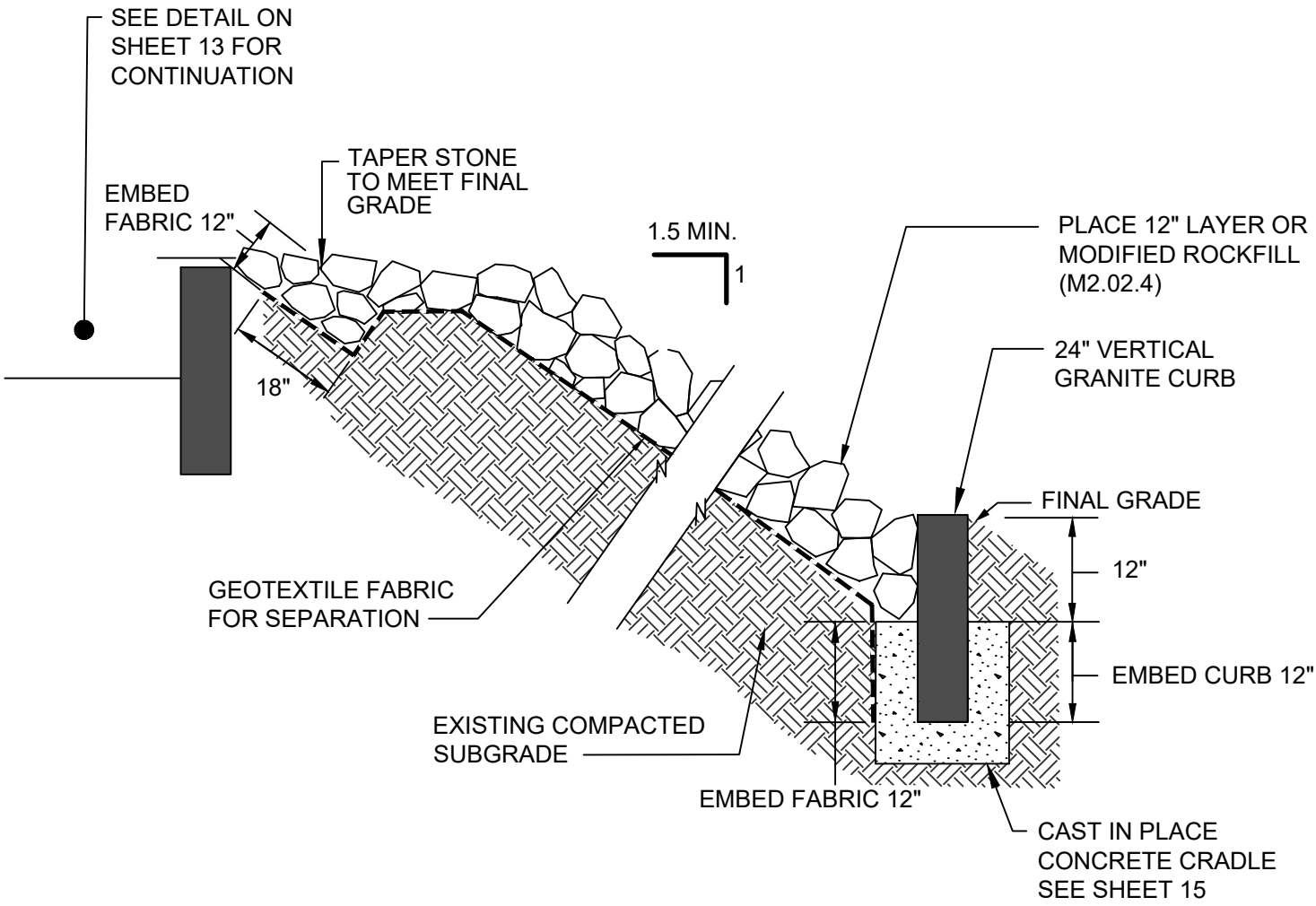

STONE SLOPE PROTECTION

NOT TO SCALE

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STURBRIDGE STURBRIDGE ROUTE 20 DRAINAGE REPAIR 100% DESIGN SUBMISSION CONSTRUCTION DETAILS	SHEET NO.	TOTAL SHEETS
	14	18
	PROJECT FILE NO. 612991	

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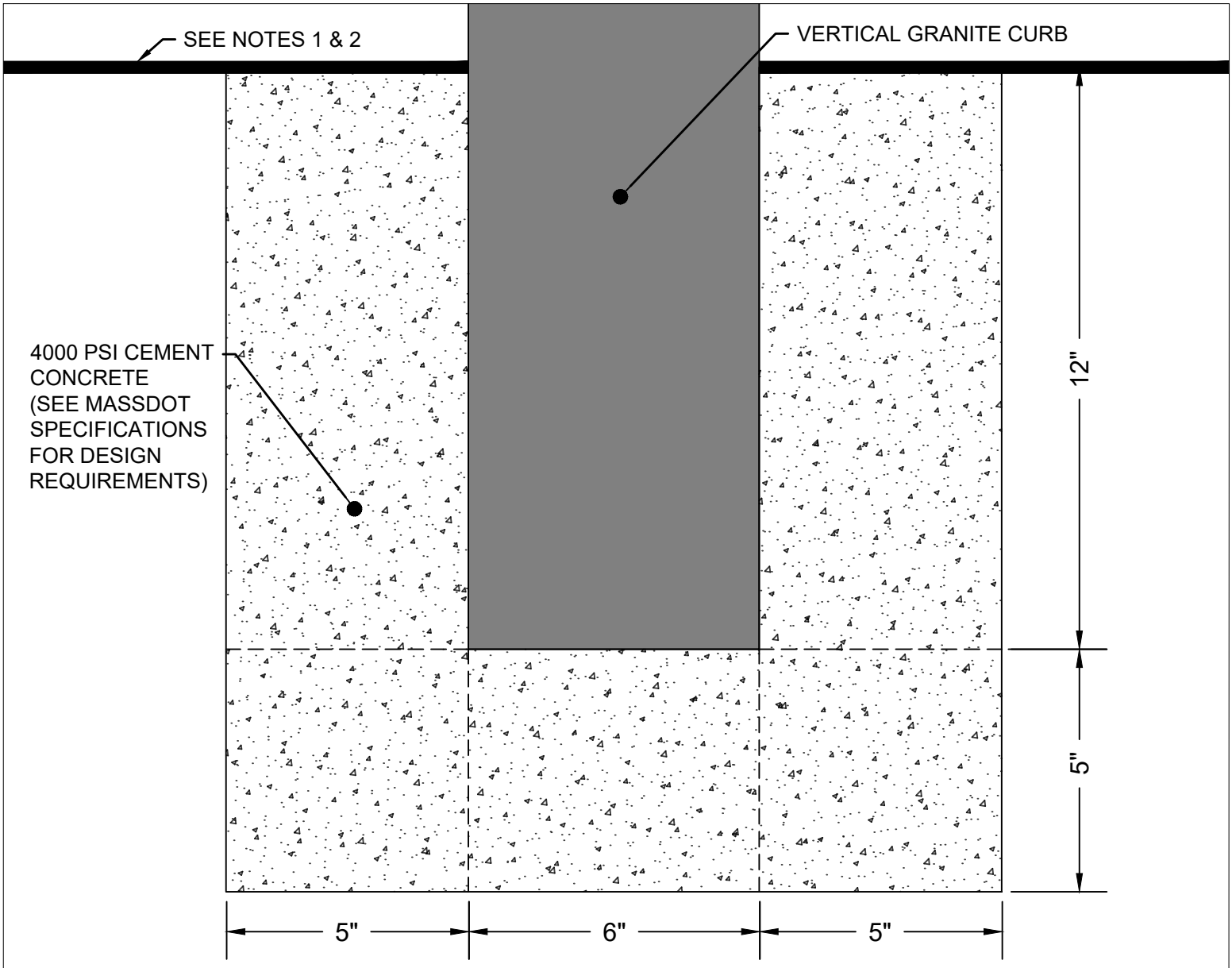

NOTES:

1. INSTALL TOP OF CAST IN PLACE CONCRETE CRADLE FLUSH WITH TOP OF MODIFIED ROCKFILL LAYER FOR STILLING BASIN WITH LEVEL SPREADER. SEE SHEET 13.

2. INSTALL TOP OF CAST IN PLACE CONCRETE CRADLE FLUSH WITH BOTTOM OF MODIFIED ROCKFILL LAYER FOR STONE SLOPE PROTECTION. SEE SHEET 14.

CAST IN PLACE CONCRETE CRADLE

NOT TO SCALE

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STURBRIDGE STURBRIDGE ROUTE 20 DRAINAGE REPAIR 100% DESIGN SUBMISSION CONSTRUCTION DETAILS	SHEET NO.	TOTAL SHEETS
	15	18
	PROJECT FILE NO. 612991	

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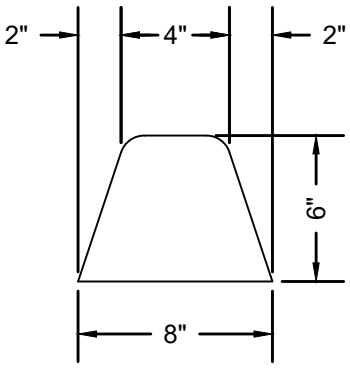

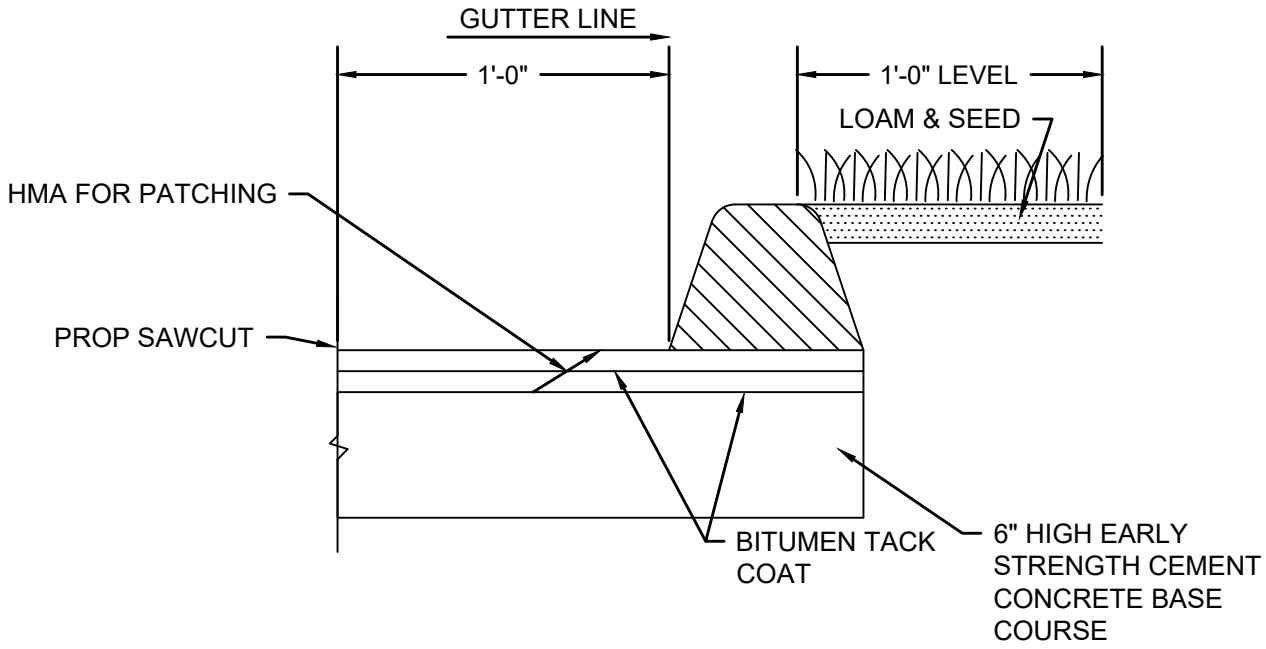

HMA CURB TYPE-3 WITH CEMENT CONCRETE BASE COURSE

NOT TO SCALE

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STURBRIDGE STURBRIDGE ROUTE 20 DRAINAGE REPAIR 100% DESIGN SUBMISSION CONSTRUCTION DETAILS	SHEET NO.	TOTAL SHEETS
	16	18
	PROJECT FILE NO. 612991	

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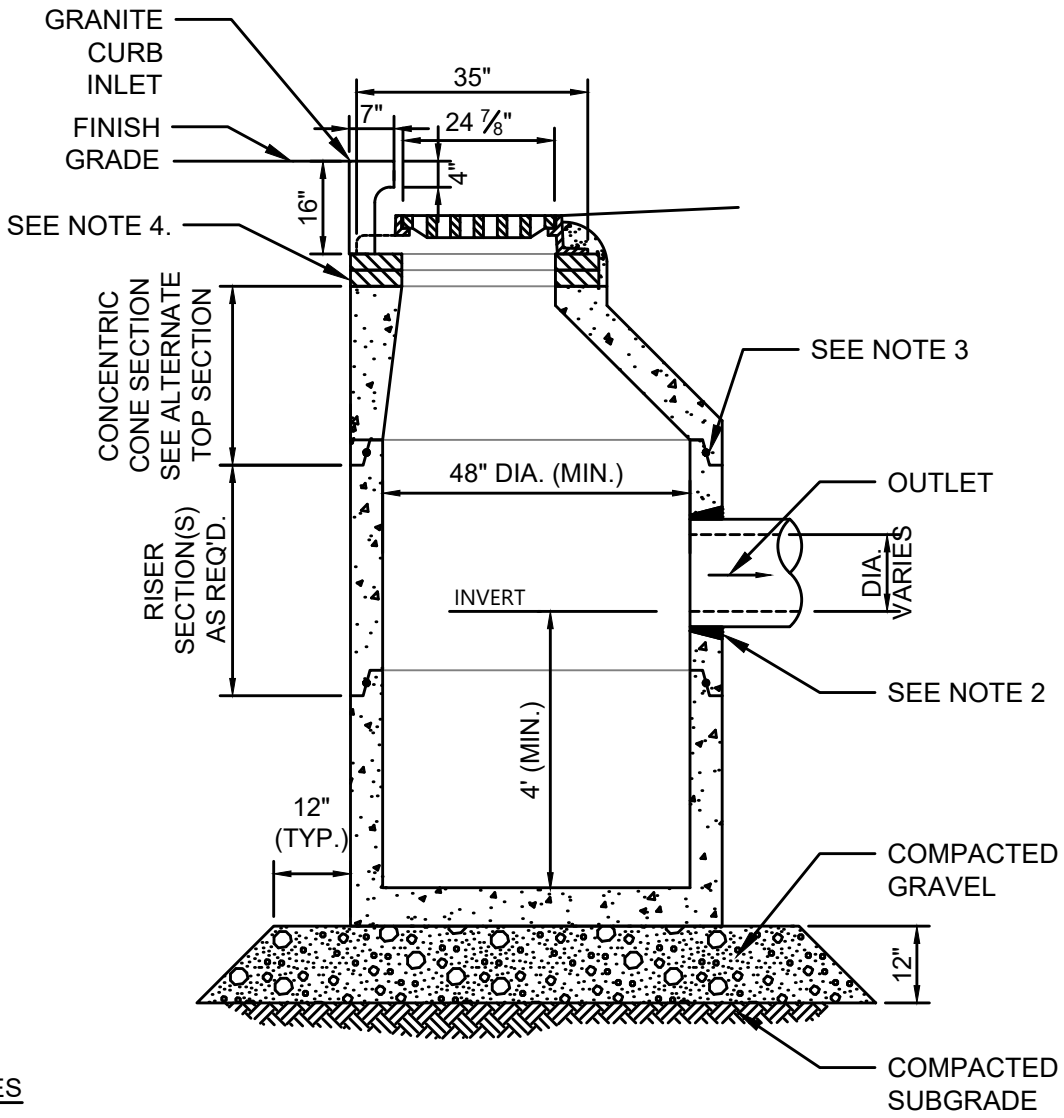

NOTES

1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
2. FOR HDPE, PVC, AND DI PIPE, PROVIDE FLEXIBLE BOOT CONNECTION INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. FOR RCP, PROVIDE OPENINGS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE AND MORTAR CONNECTIONS.
3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
4. CATCH BASIN FRAME AND GRATE SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM).

CATCH BASIN WITH CURB INLET

NOT TO SCALE

massDOT Massachusetts Department of Transportation Highway Division

STURBRIDGE STURBRIDGE ROUTE 20 DRAINAGE REPAIR 100% DESIGN SUBMISSION CONSTRUCTION DETAILS	SHEET NO.	TOTAL SHEETS
	17	18
	PROJECT FILE NO. 612991	

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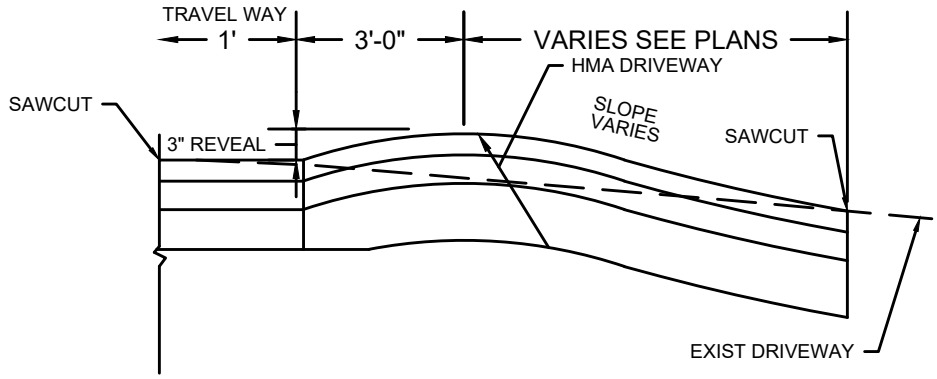
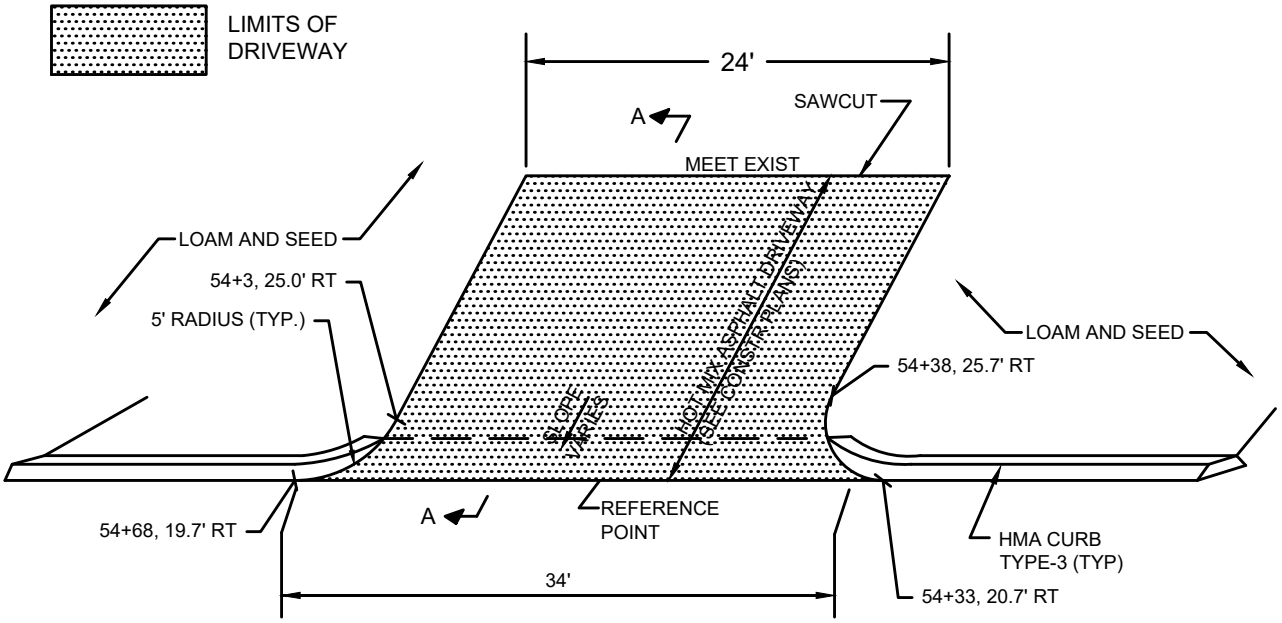


SECTION A-A



TOLERANCE FOR CONSTRUCTION ±0.5%
*

OBLIQUE VIEW

PROPOSED HOT MIX ASPHALT DRIVEWAY

SURFACE: 1.5" SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) OVER
2.5" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5) OVER

SUBBASE: 8" GRAVEL BORROW, TYPE B

TYPICAL HOT MIX ASPHALT DRIVEWAY WITH HMA BERM & WITHOUT SIDEWALK

NOT TO SCALE

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Highway Division

STURBRIDGE STURBRIDGE ROUTE 20 DRAINAGE REPAIR 100% DESIGN SUBMISSION CONSTRUCTION DETAILS	SHEET NO.	TOTAL SHEETS
	18	18
	PROJECT FILE NO. 612991	

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LARGE FRAME AND HOOK LOCK BAR GRATE DETAILS

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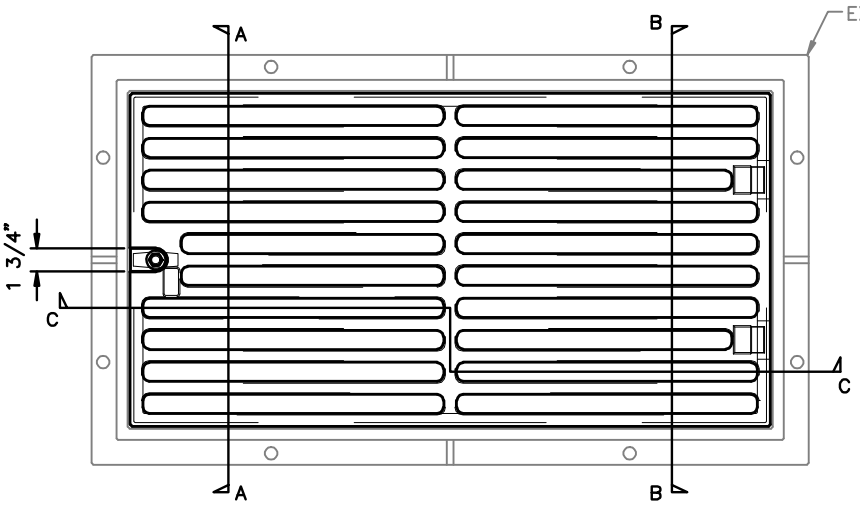
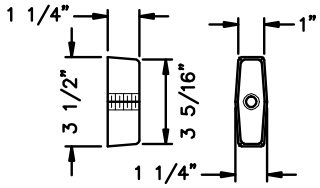
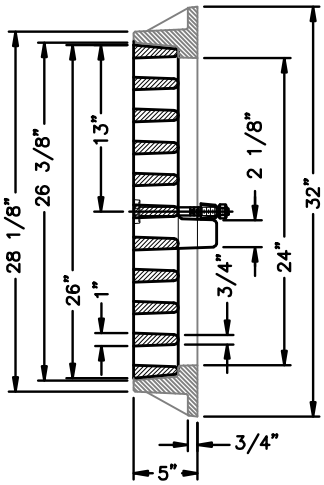
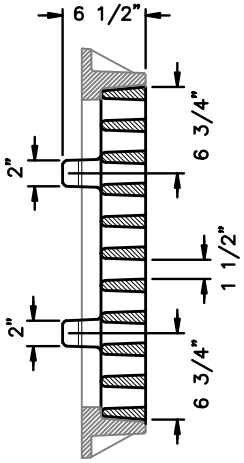




TUMBLER DETAIL



SECTION A–A



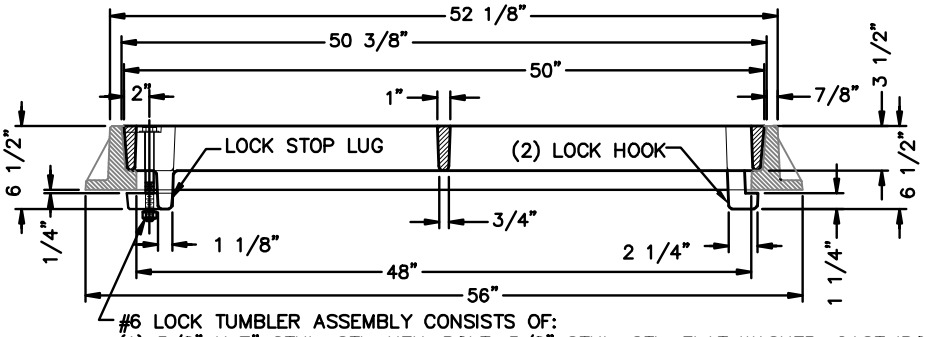
SECTION B–B

CASTING TOLERANCES:
SHALL CONFORM TO AASHTO M306

CLASSIFICATION:
GRATE–CAST DUCTILE IRON ASTM A536
55 + KSI YIELD
FINISH: NO PAINT

WEIGHT:
GRATE 460 LBS MINIMUM

AASHTO HS 20 PROOF LOAD
TEST BARS REQUIRED



#6 LOCK TUMBLER ASSEMBLY CONSISTS OF:
(1) 5/8" X 7" STNL. STL. HEX. BOLT, 5/8" STNL. STL. FLAT WASHER, CAST IRON TUMBLER WITH 5/8" TAPPED HOLE AND STLS. STL. CAPTURE NUT. GRADE 304 STAINLESS STEEL. TUMBLER SHOULD BE SET AT 1 3/4" BELOW THE GRATE SEAT FOR INSTALLATION. ONCE GRATE IS SET IN FRAME, TORQUE BOLT 1/4 TURN PAST HAND SNUG.

SECTION C–C

MassDOT Massachusetts Department of Transportation Highway Division

LARGE FRAME AND HOOK LOCK BAR GRATE DETAILS

DATE OF ISSUE

DRAWING NUMBER

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Temporary Traffic Control

Typical Details and
Massachusetts Guidelines
for MassDOT, Municipalities,
Utilities, and Contractors

SHEET INDEX (1 OF 3)

SHEET INDEX (2 OF 3)

STATIONARY OPERATIONS (CONT.) **PAGE**

MOBILE OPERATIONS

SHEET INDEX (3 OF 3)

INTRODUCTION

This guide has been prepared to assist in the planning and installing of temporary traffic controls in maintenance, utility, or short-term construction work areas (work lasting 10 hours or less). This guide serves to assist with the many decisions that must be made for each work site. Special planning for traffic control is necessary on a case by case basis because conditions can vary widely among work locations. **Since this guide cannot cover every situation, representative illustrations covering typical short-term construction, maintenance, and utility operations are presented**.

All typical traffic control device setups illustrated should be considered as guides. The traffic control devices that are shown, the arrangement or position of the devices, and the distances prescribed in the tables are based on the Federal Highway Administration's (FHWA) Manual on Uniform Traffic Control Devices (MUTCD) and the Massachusetts Amendments to the MUTCD (MA Amendments), but these illustrations only present minimum standards. The provision of safe work zones for all roadway users and roadway workers affected by these activities is paramount. Traffic controls may be expanded or improved upon whenever deemed necessary. Traffic movement through the work site all traffic control devices shall be periodically observed and inspected at all locations.

If necessary, Part 6 of the MUTCD and the MA Amendments, Chapter 17 (Work Zone Management) of MassDOT's Project Development & Design Guide, and the “Traffic Engineering and Safety Section” of the MassDOT web site: (https://www.massdot.state.ma.us/highway/Departments/TrafficandSafetyEngineering.aspx), as well as MassDOT District offices can provide additional guidance, information, and suggestions for work zone setups.

RESPONSIBILITIES FOR TRAFFIC CONTROL

Short-term construction, maintenance, and utility work on or near the roadway creates a potentially hazardous situation, typically requiring the use of temporary traffic controls. These controls are important to protect both work crews and the road users. It is the responsibility of each maintenance foreman to establish and maintain safe and effective controls.

Usually the supervisor, working with the crew, plans the traffic control procedures for proposed work sites. The foreman is responsible for re-questing, storing, and maintaining all traffic control devices necessary for their crews.

The foreman is responsible for placing the devices according to these guidelines. They must inspect each installation and observe traffic flow through the area. The foreman is generally authorized to make adjustments to the original installations that, in their judgment, are necessary to improve the control of traffic and establish greater safety.

All necessary traffic control devices must be installed before work begins and properly maintained during the work period. They must also be removed as soon as they are no longer relevant to the roadway conditions.

In situations such as night time road or lane closures, detours, or other unusual conditions on state highways, the District Traffic Maintenance Engineer (DTME) should be advised. If the DTME is absent, the section foreman shall follow the instructions of the District Maintenance Engineer.

TRAFFIC CONTROL DEVICES

Traffic control devices regulate the movement of road users, warn of unexpected or unusual roadway conditions, and inform them how to maneuver safely through or around the work area. All signs, channelizing devices, barricades, and other miscellaneous traffic control devices should work together to guide traffic safely and efficiently. Common temporary traffic control devices are outlined and described below.

Signs

Temporary traffic control zone (TTCZ) signs are the primary means of providing information and directions to roadway users. All signs must be retroreflective per MassDOT's latest standard.

Warning signs call attention to unexpected conditions and to situations that might not be readily apparent to road users on or adjacent to a roadway. Warning signs alert road users to conditions that might call for a reduction of speed or an action in the interest of safety and efficient traffic operations. Nearly all warning signs for construction and work areas have black legends and borders on a fluorescent orange background.

Regulatory signs shall be used to inform road users of selected traffic laws or regulations and indicate the applicability of the legal requirements. Regulatory signs typically have black legends and borders on a white background.

Channelizing Devices

When used properly, traffic cones, reflectorized plastic drums, and barricades guide traffic through the work area along an appropriate travel path. It takes roadway users a certain distance along the roadway to safely move away from the upcoming active work site. These transition distances are based on the following taper length (L) formulas:

$L = WS^2/60$ for speeds of 40 mph or less; or

$L = WS$ for speeds of 45 mph or more; where

- L = minimum length of taper in feet,
- S = posted speed limit or typical travel speed in miles per hour prior to the work, and
- W = width of lane closure in feet.

The spacing of channelizing devices (in feet) is approximately equal to the existing speed of traffic (in mph).

Warning Lights

Rotating beacons and other flashing lights mounted on work vehicles, signs, or channelizing devices help alert roadway users to the work area. They may also be used to warn roadway users of hazards within the work area. The first 10 drums in any taper shall be equipped with sequential flashing lights.

Arrow Boards

Arrow boards are a special type of sign that are highly visible work zone warning devices. They are particularly effective on highways, where both speed and volume are high. Arrow boards in the non-directional, CAUTION, mode (four corner flashing) may be used to indicate that a shoulder is closed. Arrow boards in the arrow mode shall only be used when a travel lane is dropped on a multi-lane road and one lane of traffic must merge with another. All arrow boards should be located at the beginning of each lane or shoulder closure taper without extending outside of it. Arrow boards shall flash at a rate of 25 to 40 flashes per minute. Arrow boards shall not be used to indicate a lane shift.

BASIC REQUIREMENTS

In every work situation, the temporary traffic control setup must: Give roadway users sufficient advance warning of the work area; advise roadway users of the proper actions to take and travel paths to follow; and provide protection to roadway users, workers, and the work area. These three general requirements can be met as outlined below.

Provide Advance Warning

Warning devices along the approaches to a work area alert roadway Users to changes to road and operating conditions. Roadway users are usually alerted to these dangers via a sign or series of signs installed in the same order as the roadway user generally would expect to see them on long-term construction projects.

The initial project limit sign is usually a general warning such as “ROAD WORK 1500 FT”. Other operational warning signs then provide the roadway user with more specific information about the situation. A minimum of three advance warning signs (the initial project limit sign and two operational warning signs) is recommended when work is located on the traveled way. Warning lights and flags can be used to attract attention to the signs. A highly visible work area helps reinforce the advance warnings.

Advise and Direct Travelers

Operational warning signs provide information to the road-way user such as the type of work being performed, special conditions to watch for, or actions to take. These include signs such as, SHOULDER WORK, RIGHT LANE CLOSED, DETOUR 500 FT, ROAD CLOSED to THRU TRAFFIC, POLICE OFFICER AHEAD, etc. All of these signs must be located far enough in advance of the work area that the roadway user has sufficient time to react to them appropriately. For projects in Urban Areas, see detail: Typical Device Spacing for minimum sign spacing.

Protect Travelers, Workers, and the Work Area

The primary protection of any work area is its own visibility. Traffic cones, reflectorized plastic drums, portable breakaway barricades, etc. are used to make the work area visible and separate workers from traffic.

Other devices, such as flashing lights, flags, delineators, temporary lighting, and portable changeable message signs (PCMS) can be used to provide additional emphasis and visibility.

Workers must protect themselves by being alert to their work situation, wearing safety vests and hard hats, and by facing traffic whenever possible.

Work vehicles can also add protection when they are equipped with truck mounted attenuators, rotating beacons, flashing lights, flashing arrow boards, etc. and are parked between workers and oncoming traffic. However, workers should not position themselves between two closely parked vehicles. No private personal vehicles are allowed within the work site.

PLANNING GUIDELINES

Decisions regarding selection of work area traffic control devices require a knowledge and understanding of the specifics of each work zone. As there may be vast differences between situations, three main variables need to be considered prior to determining the need for, or the selection of, traffic control devices: 1) location of work, 2) type of roadway, and 3) speed of traffic.

Compiling information about these variables will help with planning a safe work area control. Each of these variables is explained below.

Location of Work

The choice of traffic controls needed for a short-term construction, maintenance, or utility operation depends upon the work zone's location. As a general rule, the closer the active work site is to the roadway, the more control devices are needed. Work can take place:

- Away from the shoulder or edge of pavement. No special devices are needed if work is confined to an area 15 or more feet from the edge of the shoulder. A general warning sign, such as ROAD WORK AHEAD, should be used if workers and equipment must occasionally move closer to the roadway.
- On or near the shoulder/ edge of pavement. This area should be signed as if work were on the road itself, since it is part of the roadway users' recovery area. Advance warning and operational signs are needed, as well as channelization devices to direct traffic and keep the work area visible to roadway users.
- On the median of a divided highway. Work in this location may require traffic control in both directions of traffic. Advance warning and channelization devices should be used if the median is narrow.
- On the roadway. This condition requires detailed protection for workers and sufficient warning to roadway users. Advance warning must provide a general message that work is taking place as well as information about specific hazards and specific actions the roadway user must take.

TYPE OF ROADWAY

The characteristics of the roadway also have an important influence on the selection of work area traffic control. The roadway, itself, may present special hazards. You should plan for maximum protection, using the worst hazard present as your guide to signing the work area. Some general considerations are described below for road conditions.

One-way roads: A one-way road requires signage on both sides of the road if it carries two or more lanes in one direction, ensuring roadway users in all lanes are alerted and informed.

Two-way roads:

- **Undivided:** Two-way, undivided roads will usually require controls for both directions of traffic. When the active work site is well off the roadway, controls for the opposite lane may be eliminated.
- **Divided:** Work on divided multi-lane roadways can often be handled as work along a one-way road (i.e. signs are provided along both sides of the roadway along the direction affected). If the work is in the median, both directions of traffic must be controlled, and both approaches should be double signed (i.e. have all 3 advance warning signs on both sides of each direction).

EFFECTS OF SPEED ON WORK ZONES

Speed is an important consideration in the use of work area traffic control devices. As a general rule, the greater the speed of traffic approaching a work area, the greater the size, number, and spacing of control devices.

Size. The standard size for most warning signs is 36 x 36 inches on conventional roadways and 48 x 48 inches on freeways and expressways. Signs larger than the standard 36 x 36 inches may be desirable on high-speed conventional roads.

Position. Install signs far enough in advance of the work area so the roadway users have time to react to them (see charts associated with diagrams for spacing).

OTHER FACTORS

Sight Obstructions. To ensure safety, work areas must be visible. Assess the placement of the temporary traffic control devices by driving through the area, and determine if the devices can be easily seen and provide sufficient time for roadway users to react in a safe manner. Extra precaution should be enacted in areas where horizontal or vertical curves may obstruct a roadway user's clear view of road activities ahead.

Police/Flaggers. It should be noted that the MUTCD does not require police/flaggers for stationary setups. If police/flaggers are used, a police/flagger ahead sign should be used in advance of any point where the police/flagger is stationed to control road users.

PROCEDURES FOR WORK AREA TRAFFIC CONTROL

1. PLAN YOUR WORK

Inspect location of work area and its surroundings.

Analyze:

- Location of work in relation to the traveled way, intersecting road-ways, driveways, and sight distances;
- Type of roadway and traffic involved; and
- Volume and speed of traffic.

Meet and discuss the work and necessary traffic control with the crew.

Study representative illustrations in this guide to develop a temporary traffic control plan (TTCP).

Other Considerations:

- Base your traffic control plan on the premise that all roadway users are unfamiliar with the area.
- The closer the work area location is to traffic, the more controls are needed.
- Plan for maximum protection.
- Select and inspect the temporary control devices needed (including all warning signs), if they are not in good condition, REPLACE THEM!
- Then collect and transport them to the work site.
- Determine their proper placement.
- Install signs and other traffic control devices prior to allowing personnel or equipment onto the roadway.
- Make sure signs are reflective, accurate, clean, and meet specifications. Completely cover any existing permanent signs that will conflict with the messages of the new work area control signs.

2. INSTALLING/REMOVING TEMP. TRAFFIC CONTROL DEVICES

Care must be exercised when installing and removing temporary traffic control (TTC) devices. The traffic control needed to perform the operation safely is dictated by the location on the roadway the operation will occur: in a shoulder or a lane, in the left lane or right, etc. In all cases, installing TTC begins and ends as a mobile operation.

A shadow vehicle with a truck mounted attenuator (TMA) shall be used to protect workers installing and removing TTC devices on all roadways with a posted speed limit of 45 MPH or greater as directed by the engineer. TTC devices shall not be installed or removed from a shadow vehicle with a TMA. TTC devices shall be installed or removed from a work operation vehicle only and a shadow vehicle with a TMA shall be used to protect the workers installing or removing the devices.

PROCEDURES FOR WORK AREA TRAFFIC CONTROL (CONT.)

3. INSTALL TRAFFIC CONTROL DEVICES AT WORK SITE

FOR LOWER SPEED (≤ 40 MPH) ROADWAYS:

1) All devices shall be installed in order with the flow of traffic.

2) Where one direction of traffic is being affected, the first sign installed should be the sign farthest from the work site, and on the same side as the work.

3) Where two directions of traffic are affected, install signs for opposing traffic first, starting with the sign farthest from the work area. When signs for opposing traffic have been installed, install signs on the same side as the work area, again beginning with the sign farthest from the active work site.

4) Once signs are in place, other traffic control devices shall be installed in the same manner as the signs.

FOR HIGHER SPEED (≥ 45 MPH) ROADWAYS:

1) All devices shall be installed in order with the flow of traffic.

2) Install all advance warning signs, beginning with the ROAD WORK XXX (W20-1) sign and ending with the END ROAD WORK/DOUBLE FINES END (MA-R2-10E) sign.

3) Install all signs beginning with the opposite side which will be closed (for a right lane closure; first, install all signs on the left side (shoulder) and then install all signs on the right side (shoulder). No signs shall be erected on the roadway unless delineated by traffic control devices.

4) If required, install shoulder taper as the mobile operation advances.

5) Install arrow board on the shoulder prior to the merging taper or as close to the beginning of the merging taper as possible.

6) Install channelizing devices to form a merging taper. Use of a shadow vehicle with a TMA during installation is required on roads with speed limits of 45 MPH or greater or as directed by the Engineer.

7) Install traffic control devices along the buffer space at the appropriate spacing.

8) Continue placing devices along the work space at the appropriate spacing.

9) Install devices for the termination area as necessary.

10) Place the shadow vehicle with a TMA in advance of the first work crew or hazard approached by motorists. Multiple shadow vehicles may be required based on the number of lane and shoulder closures implemented.

4. INSPECT WORK AREA SIGNING AND CONTROL DEVICES

1) Assess the placement of the temporary traffic control devices by driving through the work area. All approaches to the work zone should be checked.

2) Ensure roadway users will have sufficient time to read signs and react in a safe manner.

PROCEDURES FOR WORK AREA TRAFFIC CONTROL (CONT.)

3) Check visibility of entire work area. If approaching roadway users can't see the work area well, or if they can't see ahead to traffic that may already be queued on the approach because of the work, additional traffic control devices should be deployed.

4) Check to ensure the proper temporary traffic control devices are positioned to protect workers from traffic (where possible).

5) Ensure all workers wear safety vests, hard hats, and all other necessary safety equipment. All worker safety gear should be in good condition. All reflective gear should be clean and highly visible in the dark.

6) Record in the log book the number and location of all signs and devices.

Considerations:

- Work area signs should never be blocked from view or obscured by vegetation, existing signs, or other obstructions.
- Flags, flashing lights, and edge line traffic cones can be used to improve visibility.

5. REMOVE TRAFFIC CONTROL DEVICES AT WORK SITE

All workers and equipment should be clear from work site BEFORE removing signs and other devices.

FOR LOWER SPEED (≤ 40 MPH) ROADWAYS:

1) Remove signs and other devices within the delineated area when work is complete.

2) Remove other traffic control devices in the reverse order in which they were installed

3) Remove signs in the reverse order in which they were installed (i.e. sign closest to the work area to be removed first).

4) When the operation is complete, uncover any existing permanent signs covered in Step 2.

5) Record in the log book the time at which the signs were removed.

FOR HIGHER SPEED (≥ 45 MPH) ROADWAYS:

All TTC devices for a stationary lane closure on a multi-lane roadway, except advance warning signs, should be removed against the flow of traffic in the following sequence:

1) Remove the channelizing devices starting from the end of the activity area working back to the widest part of the merging taper.

2) A shadow vehicle with TMA shall be positioned to protect workers removing devices and work backwards as the setup is removed from the roadway.

PROCEDURES FOR WORK AREA TRAFFIC CONTROL (CONT.)

3) Place the removal vehicle on the shoulder, and remove the channelizing devices from the merging taper by hand onto the work vehicle.

4) Remove the arrow board once traffic is clear and it is safe to do so.

5) Circle back and moving with the flow of traffic, remove the advance warning signs starting with the opposite side from previous lane closure first.

6) At no time shall workers run across the multilane roadway to remove signs on both sides of the road simultaneously.

7) Record in the log book the time at which the signs were removed

RAMP FACILITIES

At all times it is necessary to control the on and off-ramp traffic during the installation and breakdown of traffic control devices. Use of temporary traffic slow-downs or rolling roadblocks is recommended to allow for the safety of workers handing temporary traffic control devices on ramp facilities. A shadow vehicle with a TMA shall be used to protect the workers installing or removing the devices. At no time shall the work operation vehicle be used as the shadow vehicle with the TMA.

USE OF THIS GUIDE

Illustrations showing minimum standards for short-term construction, maintenance, and utility operations are arranged in this guide by type of operation. The users of this guide should compare all illustrated examples and examine their differences. After gathering information about the work zones using the general guidelines as outlined, proceed as follows:

1) Turn to the Index. Consider the type of operations and the type of roadway upon which work will occur.

2) Select the figure that most closely matches the conditions where you plan to work. Remember that all diagrams represent minimum standards.

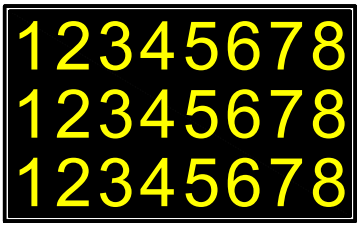
3) Read the title of the illustration to ensure that it is appropriate to your location. Study the layout of traffic control devices and read all notes.

4) Consult the appropriate tables, as directed on each illustration to determine taper length and proper spacing of signs. Notice that distances change when speeds change. Also note that these are guidelines, only, and they must be adapted to your specific work area.

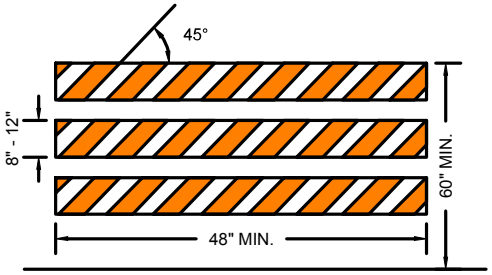
5) Use the **"PROCEDURES FOR WORK AREA TRAFFIC CONTROL"** for assistance in completing all necessary steps to provide effective and safe work area traffic control.

massDOT Massachusetts Department of Transportation Highway Division PAGE 10	Work Zone Safety Standard Details and Drawings	FIGURE 1 TYPICAL TRAFFIC CONTROL DEVICES NOT TO SCALE

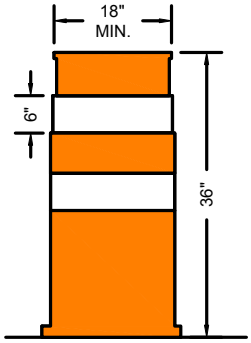
SIGN



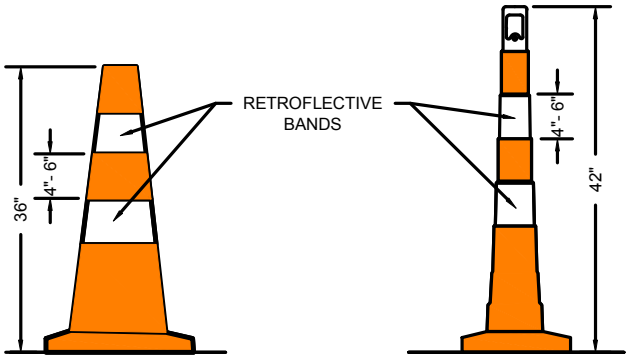
PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)



TYPE III BARRICADE

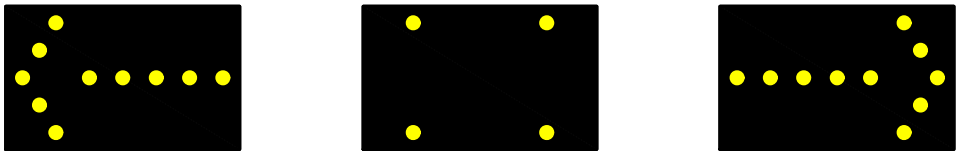


DRUM



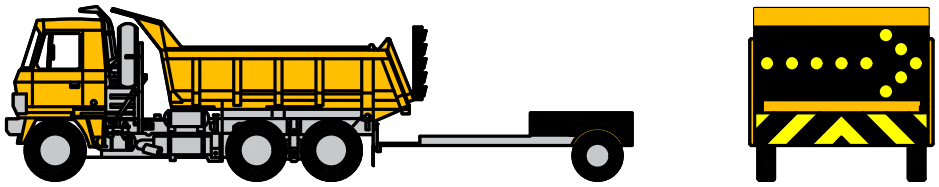
CONES

Cones may be used for all daytime operations. For night work, drums should be used to form the taper(s) and cones can be used along the tangent section of the work setup.



LEFT CAUTION RIGHT

ARROW BOARD (WITH MODE)



TRUCK MOUNTED ATTENUATORS

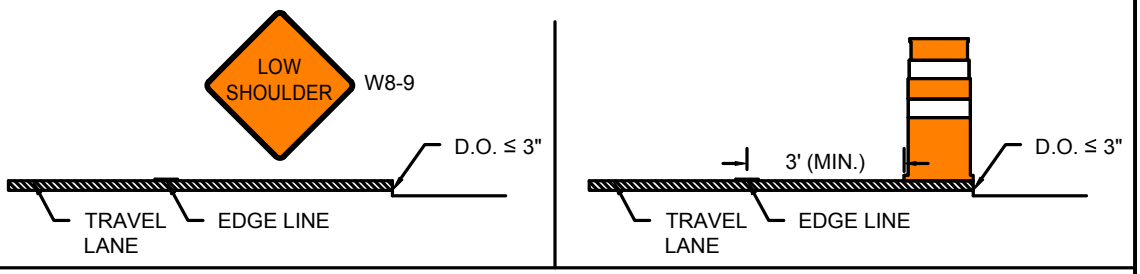
Truck Mounted Attenuators (TMA) shall be positioned between the start of the work area and the end of the designated buffer zone. The TMAs are to be positioned in each temporarily closed lane. This includes shoulders (≥8 feet) whether combined with a travel lane closure or being closed alone. These TMA conditions are required on roadways with speeds of 45 MPH or greater. TMAs can be used on other roadways at the discretion of the engineer. TMAs shall be used for the deployment and removal of all traffic control devices, including all advance warning signs.

SHORT-TERM PAVEMENT EDGE DROP-OFFS

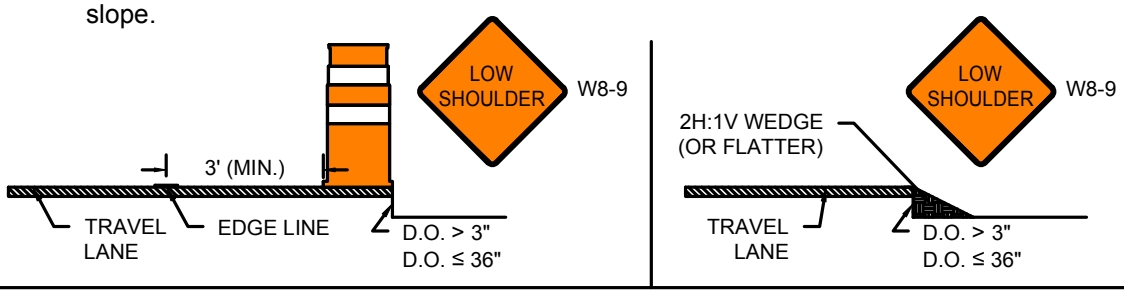
Note that this guidance is adopted from the Roadside Design Guide*, 4th Edition.*

Pavement drop-offs may occur during paving, excavation, and other construction activities. Drop-offs create hazards for vehicles if not properly mitigated. The following applies for all roads with speed limits greater than 30 mph; for roads with speed limits of 30 mph or less, treatments for pavement edge drop-offs are at the discretion of the Engineer. Drop-offs between adjacent, open travel lanes should not exceed 2", and any drop-off in excess of 3" should not be left unattended without one of these mitigation measures applied.

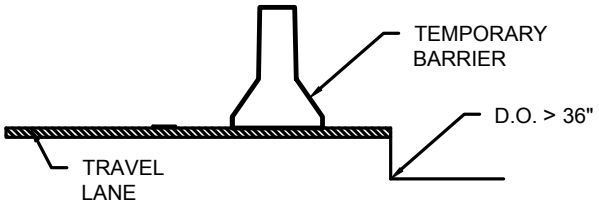
- Shoulder drop-offs 3" or less adjacent to a shoulder or active travel lane should be mitigated by:
  - ✓ A W8-9 (LOW SHOULDER) sign in advance of and at regular intervals throughout the treatment; or
  - ✓ The placement of drums on the traffic side of the drop-off.



- Shoulder drop-offs greater than 3" but less than or equal to 36" should be mitigated by:
  - ✓ A W8-9 (LOW SHOULDER) sign in advance of and at regular intervals throughout the treatment and the placement of drums on the traffic side off the drop-off, offset at least 3' from the travel lane; or
  - ✓ A W8-9 (LOW SHOULDER) sign in advance of and at regular intervals throughout the treatment and the placement of a temporary wedge of material along the face of the drop-off. The wedge should consist of stable material placed on a 2H:1V or flatter slope.



- Shoulder drop-offs greater than 36" must be protected by temporary barrier.



massDOT Massachusetts Department of Transportation Highway Division

PAGE 11

Work Zone Safety Standard Details and Drawings

FIGURE 2
PAVEMENT EDGE
DROP-OFF GUIDANCE
NOT TO SCALE

massDOT Massachusetts Department of Transportation Highway Division PAGE 12	Work Zone Safety Standard Details and Drawings	TYPICAL DEVICE SPACING

POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)	CHANNELIZATION DEVICES (DRUMS OR CONES)			
		TRAVEL LANE CLOSURE LENGTH (L) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	500 / 500 / 500	320	305	20	55
45-55	500 / 1000 / 1000	660	495	40	40
60-65	1000 / 1600 / 2600	780	645	40	50

* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

MINIMUM SPACING OF ADVANCE WARNING SIGNS FOR URBAN ROADWAYS	
ROAD TYPE	DISTANCE BETWEEN SIGNS
URBAN (LOW SPEED)	100 FT
URBAN (HIGH SPEED)	350 FT

NOTES

1. 40 FT = 10 FT PAVEMENT MARKING + 30 FT SKIP

LEGEND


WORK ZONE


CHANNELIZATION DEVICE

FLASHING ARROW BOARD


PORTABLE CHANGEABLE MESSAGE SIGN


TRUCK MOUNTED ATTENUATOR

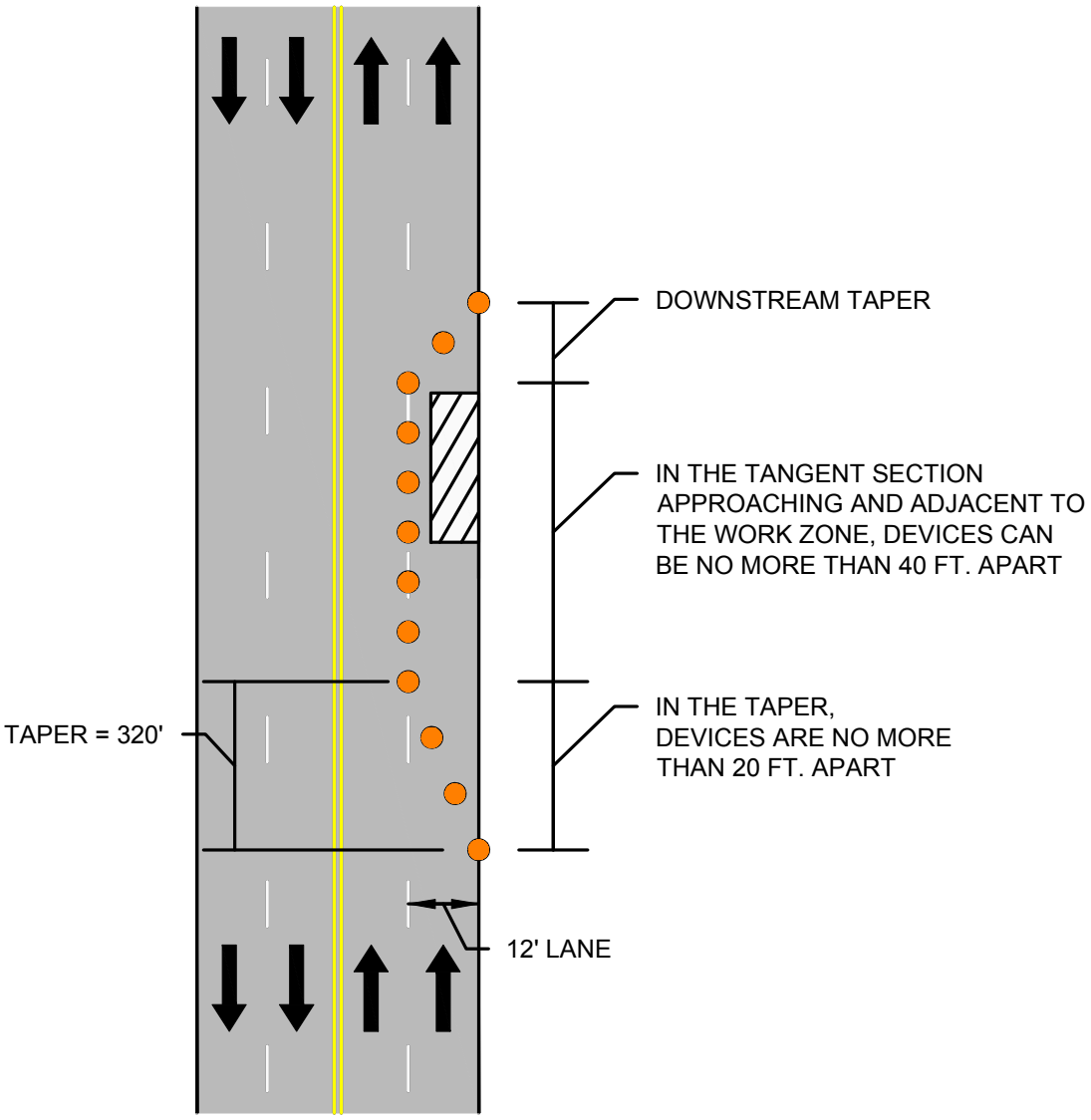
RADAR SPEED FEEDBACK BOARD

POLICE DETAIL OR UNIFORMED FLAGGER

TEMPORARY PORTABLE RUMBLE STRIP

TYPE III BARRICADE

NOT TO SCALE



massDOT Massachusetts Department of Transportation Highway Division PAGE 13	Work Zone Safety Standard Details and Drawings	FIGURE 3 TYPICAL DEVICE SPACING (AT 30 MPH)

Guidance for Flagging Operations

NOTE:
A flagger shall always be aware of their surroundings and have a good escape route. A flagger shall never be positioned directly beside or against construction equipment. When a flagger is required to direct traffic in an area where the escape route is partially blocked by a traversable obstruction such as a guardrail, the flagger shall be physically capable of traversing that obstruction. Prior to commencing a project, the supervisor in charge shall review the project, including guardrail areas, for safe flagging stations. The supervisor in charge shall clearly communicate with the flagger(s), indicating any locations where they cannot safely perform their duties.

Each flagger shall be equipped with the following high visibility clothing, signaling, and safety devices:

1) A white protective hard hat with a minimum level of reflectivity per the requirements of ANSI, Type I, Class E&G;
2) A clean, unfaded, untorn lime/yellow reflective safety vest and pants meeting the requirements of ANSI 107 Class 3 with the words "Traffic Control" on the front and rear panels in minimum two (2) inch (50 millimeter) high letters;
3) A 24 inch "STOP/SLOW" traffic paddle conforming to the requirements of Part 6E.03 of the Manual on Uniform Traffic Control Devices (MUTCD), a weighted, reflectorized red flag, flagger station advance warning signage, and two-way radios capable of providing clear communication within the work zone between flaggers, the Contractor, and the Engineer. The traffic paddle shall be mounted on a pole of sufficient length to be seven feet above the ground as measured from the bottom of the paddle;
4) A working flashlight with a minimum of 15,000 candlepower and a six inch red attachable wand, a whistle with a working lanyard, and a First Aid kit that complies with the requirements of ANSI Z308.1; and
5) An industrial/safety type portable air horn that complies with the requirements of the U.S. Coast Guard.

A "STOP/SLOW" paddle should be the primary hand-signaling device. It shall have an octagonal shape on a rigid handle. Flag use should be limited to emergency situations.

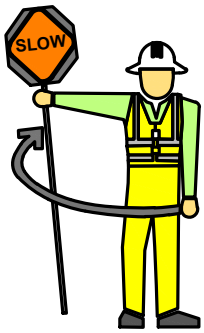
TO STOP TRAFFIC

Properly Trained Flaggers

- Give clear messages to drivers.
- Allow distance for drivers to react.
- Coordinate with other flaggers.
- Use standard signaling methods.

Properly Equipped Flaggers

- Use approved stop/slow paddles.
- Use approved safety apparel.
- Use retroreflective equipment.
- Use hand held radios, as needed.
- All flaggers shall wear safety apparel that meets ANSI Class 3 requirements. The combination of vest and pants is required.



TO LET TRAFFIC PROCEED

Proper Flagging Stations

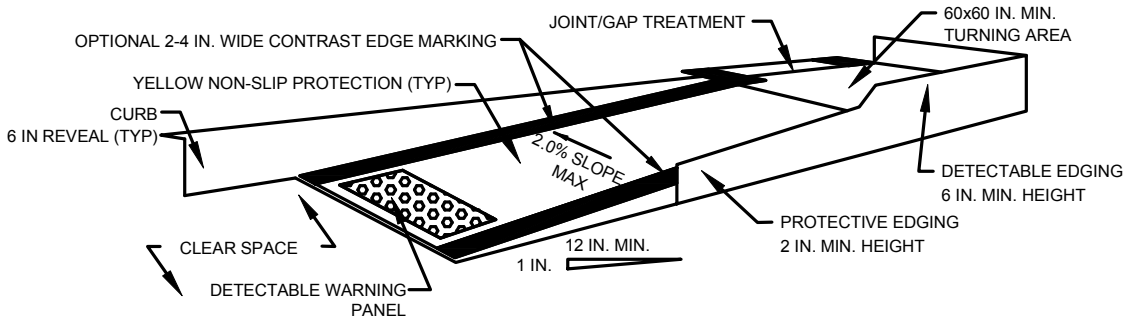
- Good approach sight distance.
- Highly visible to traffic.
- Stand alone away from other machinery and people.
- Stand on right edge of pavement or shoulder- proceed to centerline only when first vehicle has come to stop.
- Have a good escape route.

TO ALERT AND SLOW TRAFFIC

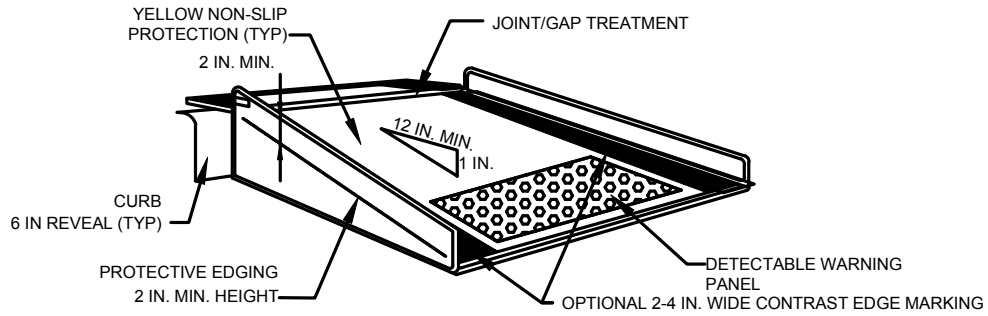
Proper Advance Warning Signs

- Always use warning signs.
- Allow for reaction distance from signs.
- Remove signs if no longer necessary or not flagging.
- Use free hand in up-and-down motion to help slow traffic.

massDOT Massachusetts Department of Transportation Highway Division PAGE 16	Work Zone Safety Standard Details and Drawings	FIGURE 4 TYPICAL PEDESTRIAN DEVICES (1 OF 2) NOT TO SCALE



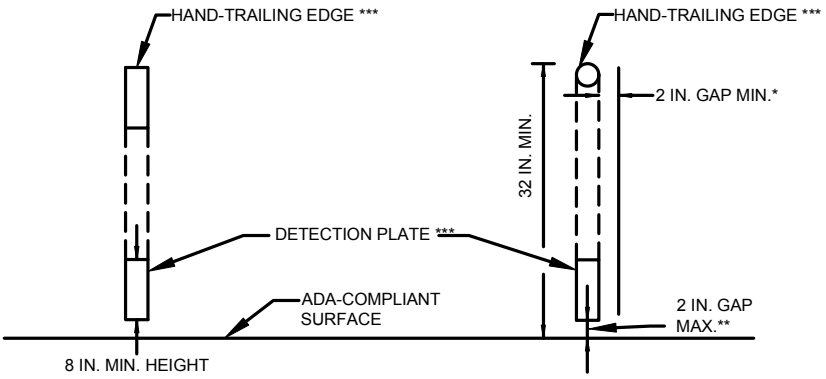
TEMPORARY CURB RAMP-PARALLEL TO CURB



TEMPORARY CURB RAMP-PERPENDICULAR TO CURB

NOTES:

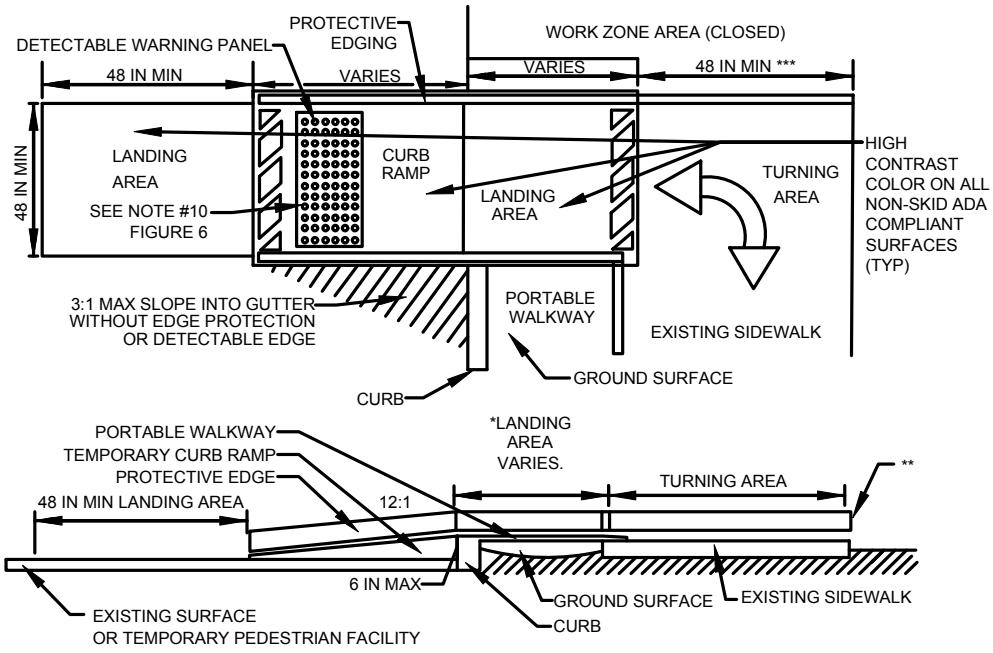
1. CURB RAMPS SHALL BE 60 IN. MINIMUM WIDTH WITH A FIRM, STABLE, AND NON-SLIP SURFACE.
2. PROTECTIVE EDGING WITH A 2 IN. MINIMUM HEIGHT SHALL BE INSTALLED WHEN THE CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6 IN. OR GREATER OR HAS A SIDE APRON SLOP STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN THE CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3 IN. OR MORE.
3. PROTECTABLE EDGING WITH 6 IN. MINIMUM HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
4. THE CURB RAMP WALKWAY AND LANDING AREA SURFACE SHALL BE OF A SOLID CONTINUOUS CONTRASTING COLOR ABUTTING UP TO THE EXISTING SIDEWALK.
5. CURB RAMPS AND LANDINGS SHOULD HAVE A 1:50 (2%) MAX CROSS-SLOPE.
6. CLEAR SPACE OF 48x48 IN. MINIMUM SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.
7. WATER FLOW IN THE GUTTER SYSTEM SHALL HAVE MINIMAL RESTRICTION.
8. LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 0.5 IN. WIDTH.
9. CHANGES BETWEEN SURFACE HEIGHTS SHOULD NOT EXCEED 0.5 IN. LATERAL EDGES SHOULD BE VERTICAL UP TO 0.25 IN. HIGH, AND BEVELED AT 1:2 BETWEEN 0.25 IN. AND 0.5 IN. HEIGHT.
10. IF A TEMPORARY PEDESTRIAN RAMP LEADS TO A CROSSWALK, THEN A DETECTABLE WARNING PAD MUST BE ADHERED TO THE BASE OF THE RAMP. IF IT LEADS TO A PROTECTED PEDESTRIAN BYPASS THAT DOES NOT CONFLICT WITH VEHICULAR TRAFFIC, THEN A PAD SHALL NOT BE INSTALLED ON THE RAMP.



CROSS SECTION VIEW

PEDESTRIAN CHANNELIZING DEVICE

* THERE SHALL BE A 2 INCH GAP BETWEEN THE HAND-TRAILING EDGE AND ITS SUPPORT.
** A MAXIMUM 2 INCH GAP BETWEEN THE BOTTOM OF THE BOTTOM RAIL AND THE SURFACE MAY BE USED TO PROVIDE DRAINAGE.
*** THE HAND-TRAILING EDGE AND DETECTION PLATE SHALL BE CONTINUOUS THROUGHOUT THE LENGTH OF THE PATH SUCH THAT A PEDESTRIAN USER WITH A LONG CANE CAN FOLLOW IT.



TEMPORARY CURB RAMP

* LANDING AREA USED TO OVERLAP NON-ADA COMPLIANT SURFACES.
** DETECTABLE EDGE REMOVED IF A CONTINUOUS SIDEWALK.
*** 60 IN. IF AN OBSTRUCTION IS AT BACK OF SIDEWALK.

massDOT Massachusetts Department of Transportation Highway Division PAGE 18	Work Zone Safety Standard Details and Drawings	STATIONARY OPERATIONS TWO LANE UNDIVIDED ROADWAY HALF OF ROADWAY CLOSED WORK NEAR CURVE

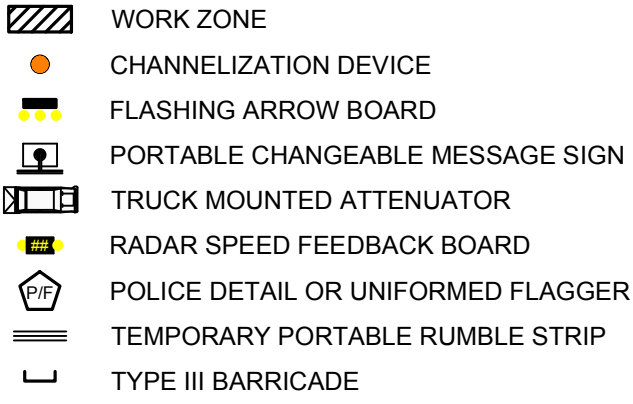
POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)	CHANNELIZATION DEVICES (DRUMS OR CONES)			
		TRAVEL LANE CLOSURE LENGTH (L) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	500 / 500 / 500	50	100	20	30
45-55	500 / 1000 / 1000	100	150	40	20

* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

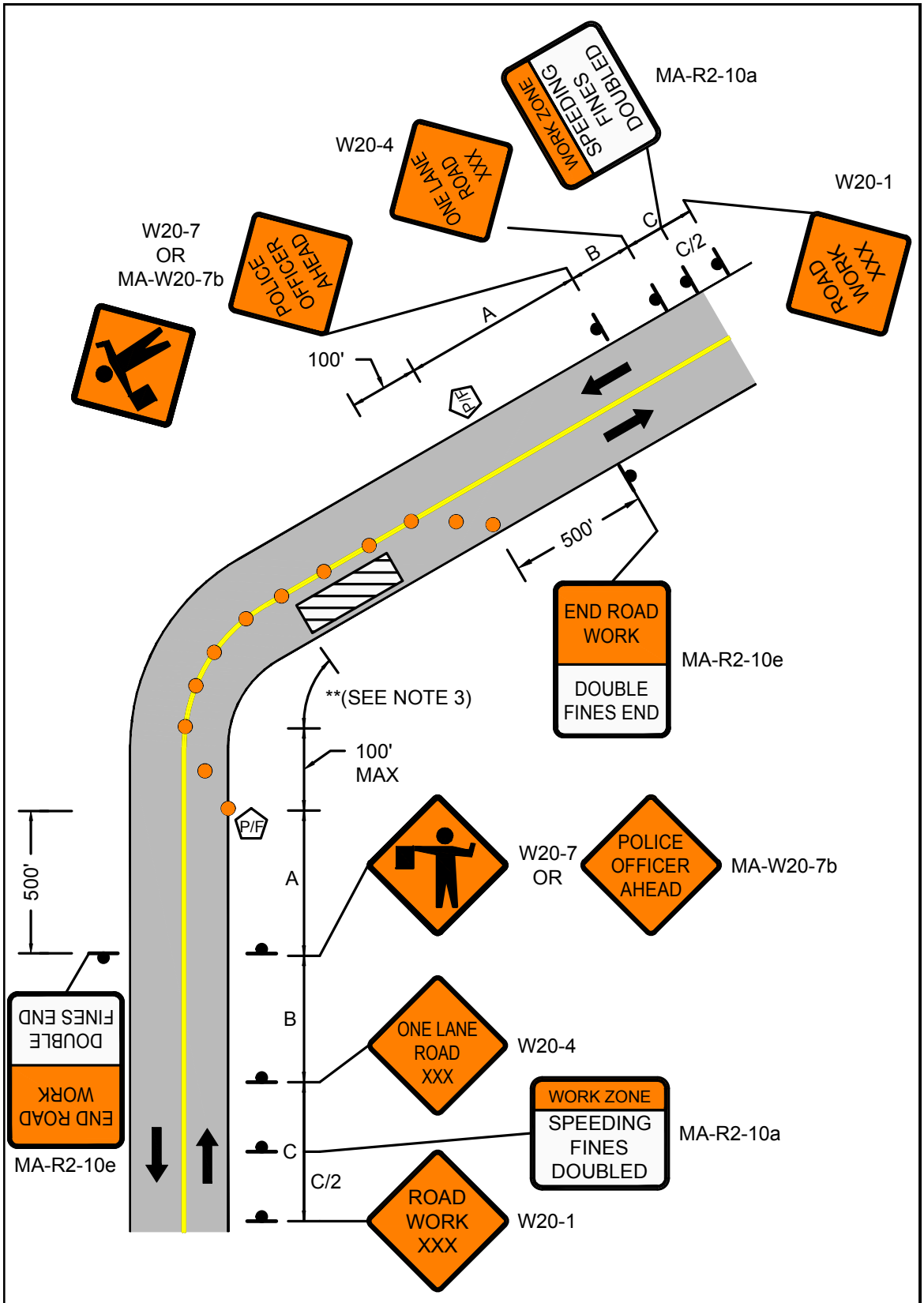
NOTES

1. IF POLICE DETAIL/UNIFORMED FLAGGER SUPPORT IS REQUIRED, PROVIDE TWO UNITS.
2. MA-R2-10a LOCATED AT C/2.
3. ** = EXTEND ENOUGH SO TAPER IS BEFORE CURVE

LEGEND



NOT TO SCALE



massDOT Massachusetts Department of Transportation Highway Division PAGE 19	Work Zone Safety Standard Details and Drawings	FIGURE 6 STATIONARY OPERATIONS TWO LANE UNDIVIDED ROADWAY HALF OF ROADWAY CLOSED WORK NEAR CURVE

massDOT Massachusetts Department of Transportation Highway Division PAGE 20	Work Zone Safety Standard Details and Drawings	STATIONARY OPERATIONS TWO LANE UNDIVIDED ROADWAY HALF OF ROADWAY CLOSED

POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)	CHANNELIZATION DEVICES (DRUMS OR CONES)			
		TRAVEL LANE CLOSURE LENGTH (L) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	500 / 500 / 500	50	100	20	30
45-55	500 / 1000 / 1000	100	150	40	20

* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

POSTED REGULATORY OR WORK ZONE SPEED	SEPARATION BETWEEN RUMBLE STRIPS
36-mph to 55-mph	15-feet
35-mph and under	10-feet

NOTES

1. IF POLICE DETAIL/UNIFORMED FLAGGER SUPPORT IS REQUIRED, PROVIDE TWO UNITS.
2. MA-R2-10a LOCATED AT C/2.
3. ** OPTIONAL AT THE ENGINEER'S DISCRETION.
4. *** SHALL BE DEPLOYED IF RUMBLE STRIPS ARE PRESENT.

LEGEND


WORK ZONE


CHANNELIZATION DEVICE

FLASHING ARROW BOARD


PORTABLE CHANGEABLE MESSAGE SIGN


TRUCK MOUNTED ATTENUATOR

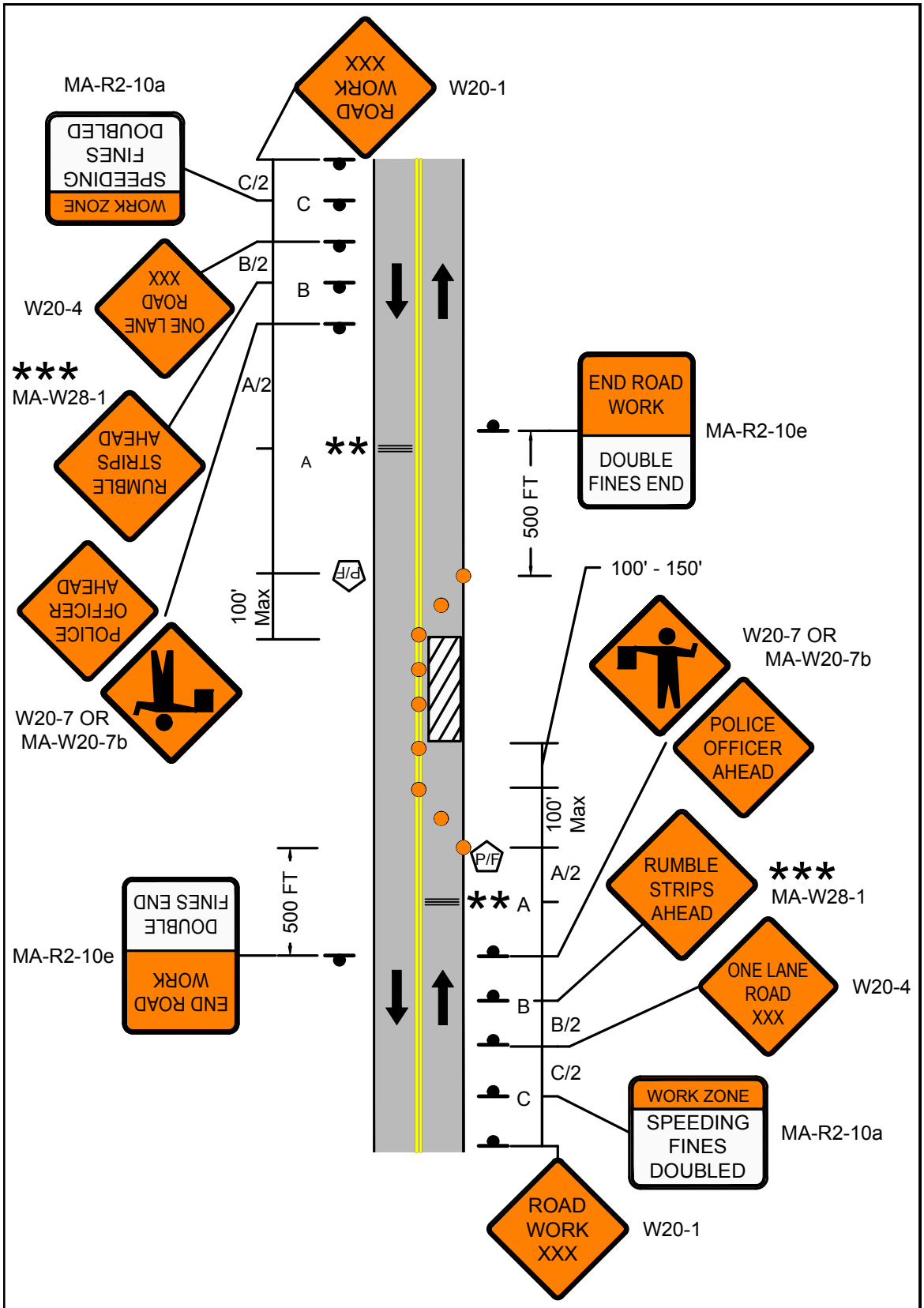
RADAR SPEED FEEDBACK BOARD

POLICE DETAIL OR UNIFORMED FLAGGER

TEMPORARY PORTABLE RUMBLE STRIP

TYPE III BARRICADE

NOT TO SCALE



massDOT Massachusetts Department of Transportation Highway Division PAGE 21	Work Zone Safety Standard Details and Drawings	FIGURE 7 STATIONARY OPERATIONS TWO LANE UNDIVIDED ROADWAY HALF OF ROADWAY CLOSED

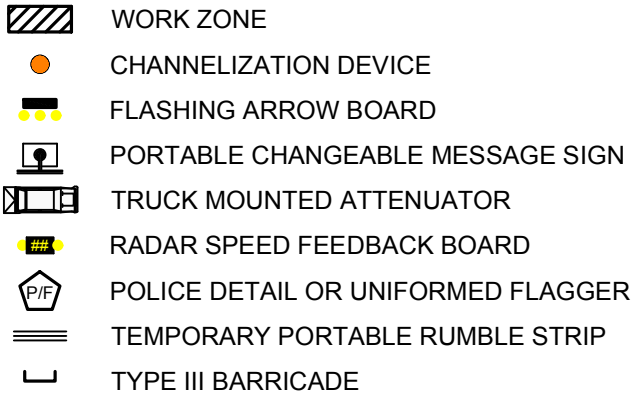
massDOT Massachusetts Department of Transportation Highway Division PAGE 22	Work Zone Safety Standard Details and Drawings	STATIONARY OPERATIONS TWO LANE UNDIVIDED ROADWAY SHOULDER CLOSED

POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)	CHANNELIZATION DEVICES (DRUMS OR CONES)			
		SHOULDER TAPER LENGTH (L/3) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	500 / 500 / 500	110	305	20	45
45-55	500 / 1000 / 1000	220	495	40	30
60-65	1000 / 1600 / 2600	260	645	40	35

* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

NOTES
1. MA-R2-10a at C/2 and A/2.

LEGEND



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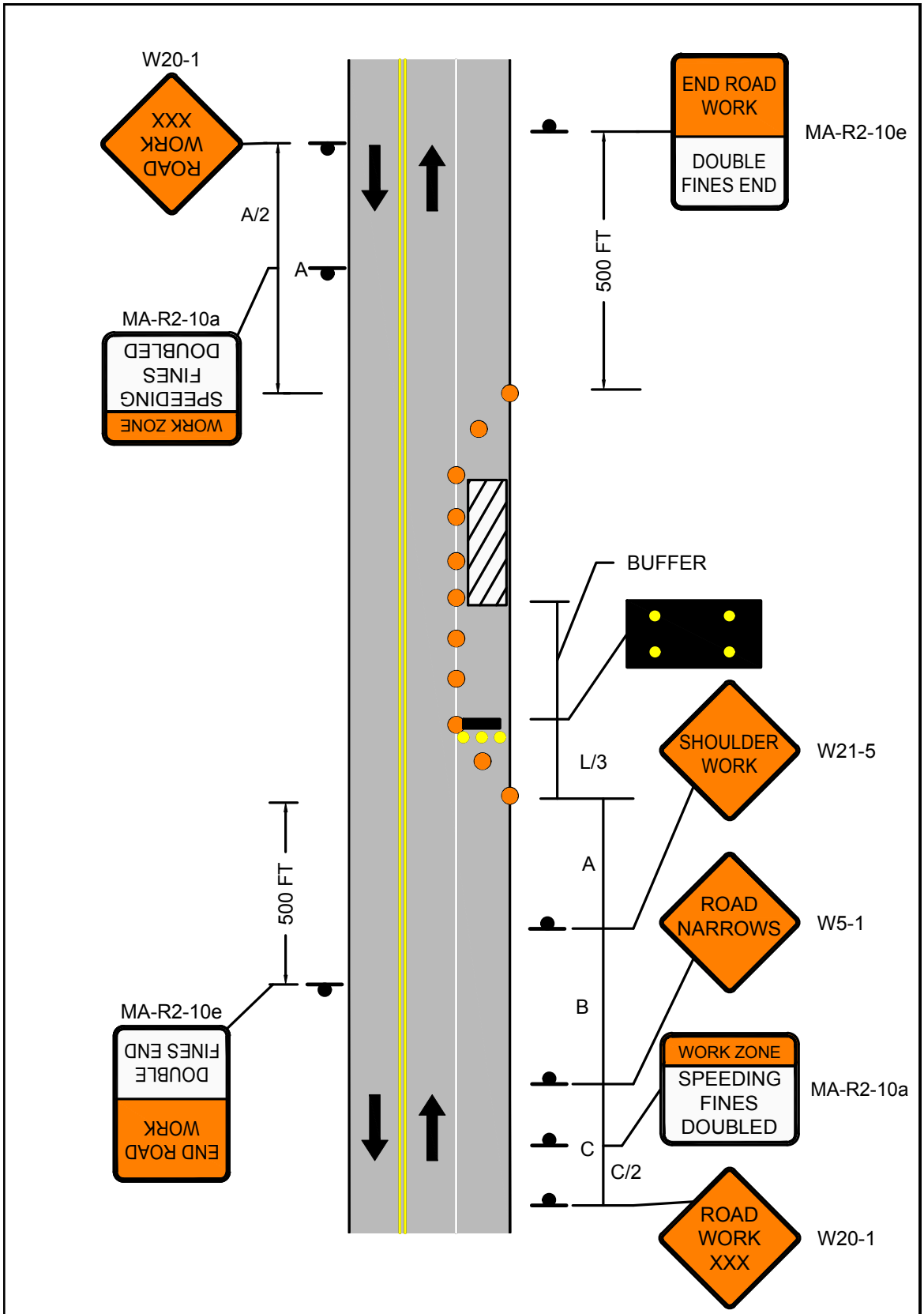


massDOT Massachusetts Department of Transportation Highway Division

PAGE 23

Work Zone Safety Standard Details and Drawings

FIGURE 8
STATIONARY OPERATIONS
TWO LANE UNDIVIDED ROADWAY
SHOULDER CLOSED

massDOT Massachusetts Department of Transportation Highway Division PAGE 24	Work Zone Safety Standard Details and Drawings	STATIONARY OPERATIONS TWO LANE UNDIVIDED ROADWAY WITH TRAVERSABLE SHOULDER HALF OF ROADWAY CLOSED MAINTAIN TWO-WAY TRAFFIC

POSTED SPEED LIMIT (MPH)	CHANNELIZATION DEVICES (DRUMS OR CONES)				
	SHOULDER TAPER LENGTH (L/3) (FT)	TRAVEL LANE SHIFT LENGTH (L/2) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	110	160	305	20	125
45-55	220	330	495	40	100
60-65	260	390	645	40	115

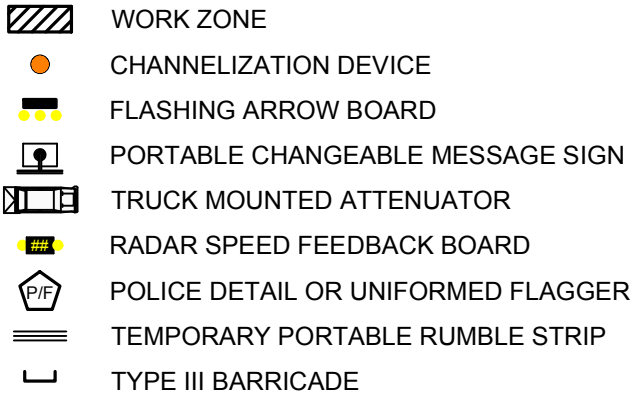
* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)
25-40	500 / 500 / 500
45-55	500 / 1000 / 1000
60-65	1000 / 1600 / 2600

NOTES

1. MA-R2-10a LOCATED AT C/2.

LEGEND



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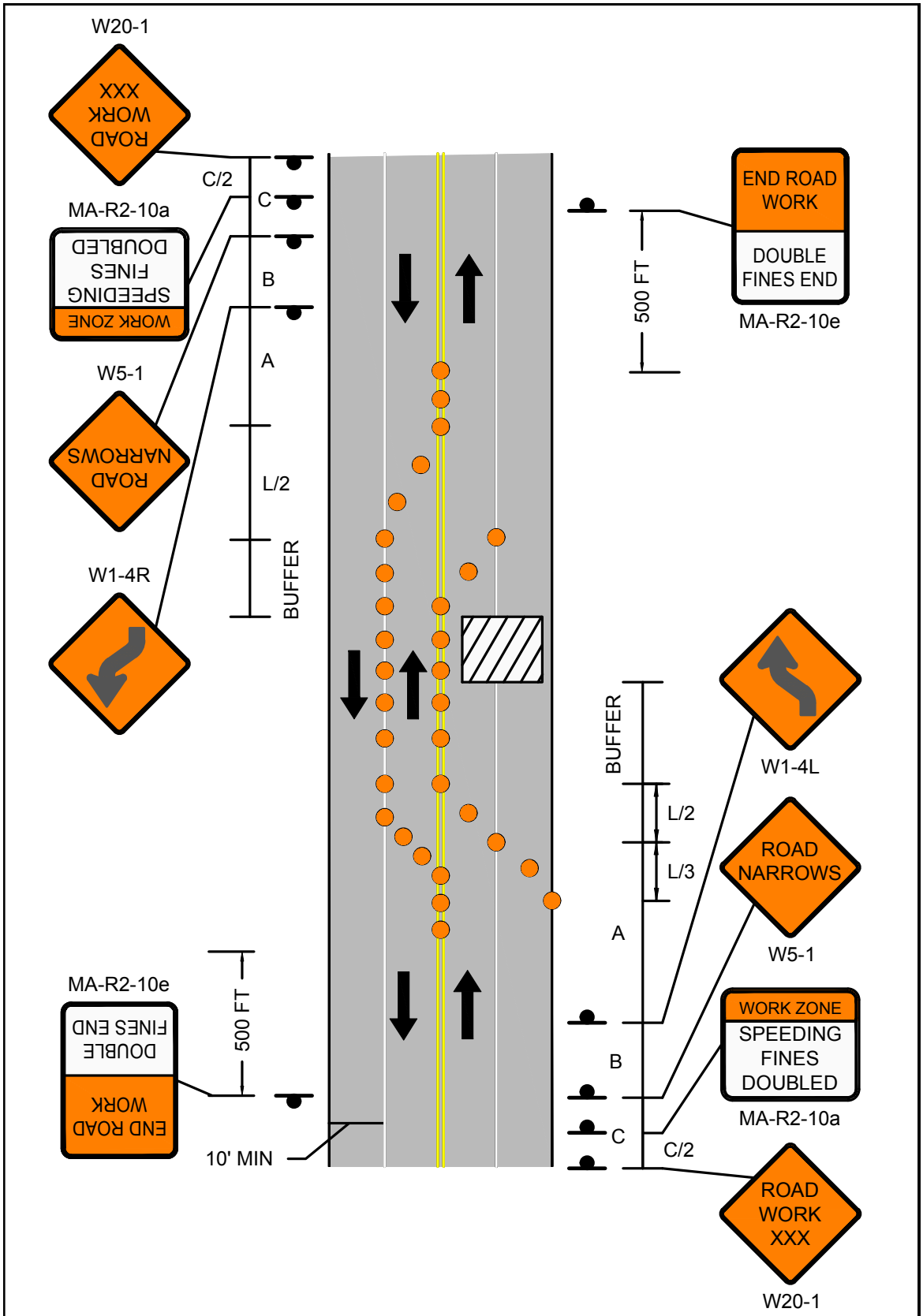


massDOT Massachusetts Department of Transportation Highway Division PAGE 25	Work Zone Safety Standard Details and Drawings	FIGURE 9 STATIONARY OPERATIONS TWO LANE UNDIVIDED ROADWAY WITH TRAVERSABLE SHOULDER HALF OF ROADWAY CLOSED MAINTAIN TWO-WAY TRAFFIC

massDOT Massachusetts Department of Transportation Highway Division PAGE 26	Work Zone Safety Standard Details and Drawings	STATIONARY OPERATIONS FOUR LANE UNDIVIDED ROADWAY RIGHT LANE CLOSED

POSTED SPEED LIMIT (MPH)	CHANNELATION DEVICES (DRUMS OR CONES)				
	SHOULDER TAPER LENGTH (L/3) (FT)	TRAVEL LANE CLOSURE LENGTH (L) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	110	320	305	20	60
45-55	220	660	495	40	50
60-65	260	780	645	40	55

* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)
25-40	500 / 500 / 500
45-55	500 / 1000 / 1000
60-65	1000 / 1600 / 2600

NOTES

1. MA-R2-10a LOCATED AT A/2 AND C/2.
2. ** OPTIONAL AT THE ENGINEER'S DISCRETION.

LEGEND


WORK ZONE


CHANNELIZATION DEVICE

FLASHING ARROW BOARD


PORTABLE CHANGEABLE MESSAGE SIGN


TRUCK MOUNTED ATTENUATOR

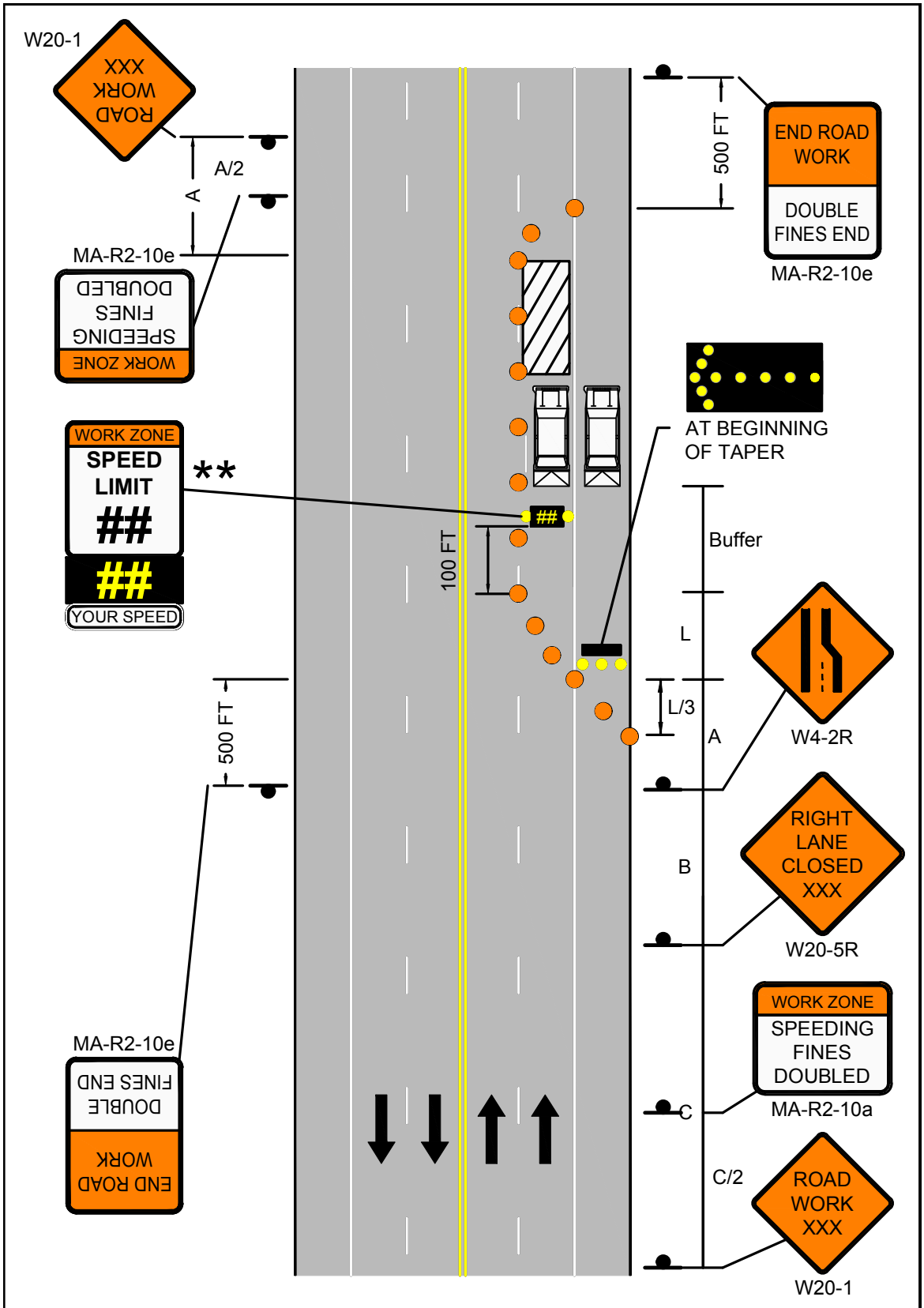
RADAR SPEED FEEDBACK BOARD

POLICE DETAIL OR UNIFORMED FLAGGER

TEMPORARY PORTABLE RUMBLE STRIP

TYPE III BARRICADE

NOT TO SCALE



massDOT Massachusetts Department of Transportation Highway Division PAGE 27	Work Zone Safety Standard Details and Drawings	FIGURE 10 STATIONARY OPERATIONS FOUR LANE UNDIVIDED ROADWAY RIGHT LANE CLOSED

massDOT Massachusetts Department of Transportation Highway Division PAGE 28	Work Zone Safety Standard Details and Drawings	STATIONARY OPERATIONS FOUR LANE UNDIVIDED ROADWAY LEFT LANE CLOSED

POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)	CHANNELIZATION DEVICES (DRUMS OR CONES)			
		TRAVEL LANE CLOSURE LENGTH (L) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	500 / 500 / 500	320	305	20	105
45-55	500 / 1000 / 1000	660	495	40	80
60-65	1000 / 1600 / 2600	780	645	40	100

* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

NOTES

1. MA-R2-10a LOCATED AT A/2 AND C/2.
2. ** OPTIONAL AT THE ENGINEER'S DISCRETION. 2' OFFSET FROM EDGE OF TRAVEL LANE TO RADAR SPEED FEEDBACK BOARD IS REQUIRED. BOARD MAY BE MOVED FULLY OR PARTIALLY OFF PAVED SHOULDER, IF REQUIRED.

LEGEND


WORK ZONE


CHANNELIZATION DEVICE

FLASHING ARROW BOARD


PORTABLE CHANGEABLE MESSAGE SIGN


TRUCK MOUNTED ATTENUATOR

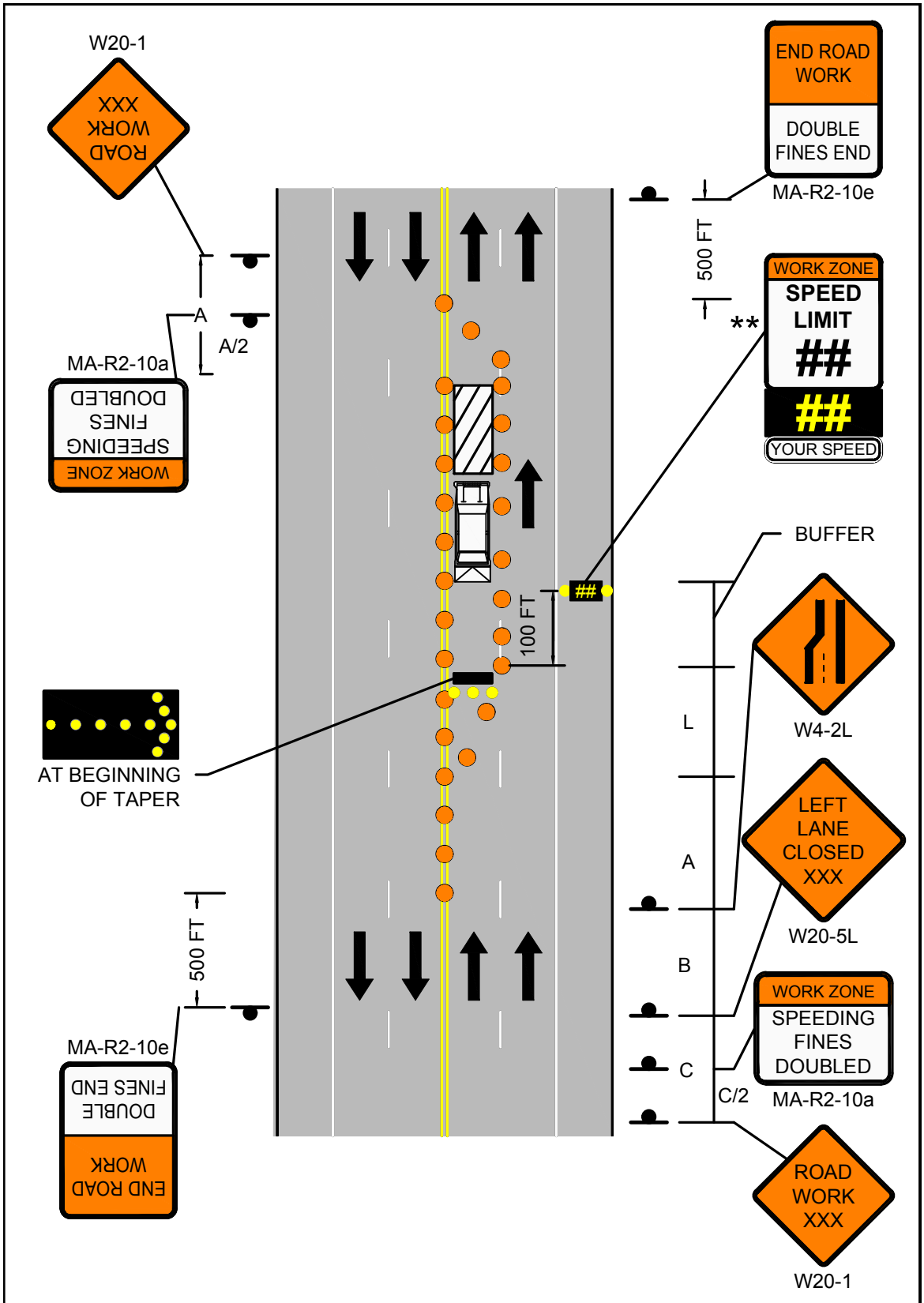
RADAR SPEED FEEDBACK BOARD

POLICE DETAIL OR UNIFORMED FLAGGER

TEMPORARY PORTABLE RUMBLE STRIP

TYPE III BARRICADE

NOT TO SCALE



massDOT Massachusetts Department of Transportation Highway Division

PAGE 29

Work Zone Safety Standard Details and Drawings

FIGURE 11
STATIONARY OPERATIONS
FOUR LANE UNDIVIDED ROADWAY
LEFT LANE CLOSED

massDOT Massachusetts Department of Transportation Highway Division PAGE 30	Work Zone Safety Standard Details and Drawings	STATIONARY OPERATIONS FOUR LANE UNDIVIDED ROADWAY HALF OF ROADWAY CLOSED

POSTED SPEED LIMIT (MPH)	CHANNELIZATION DEVICES (DRUMS OR CONES)					
	SHOULDER TAPER LENGTH (L/3) (FT)	TRAVEL LANE CLOSURE LENGTH (L) (FT)	TRAVEL LANE SHIFT LENGTH (L/2) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	110	320	160	305	20	140
45-55	220	660	330	495	40	120
60-65	260	780	390	645	40	140

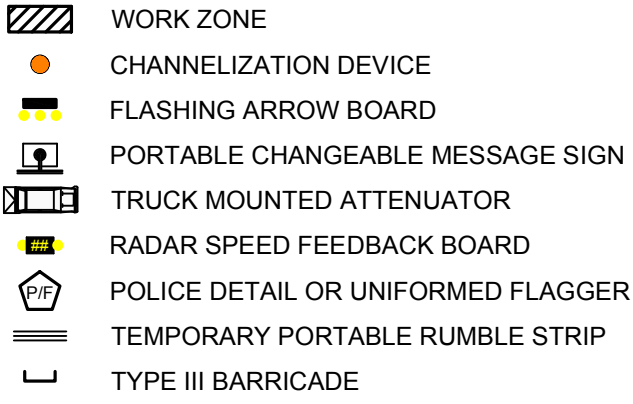
* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)
25-40	500 / 500 / 500
45-55	500 / 1000 / 1000
60-65	1000 / 1600 / 2600

NOTES

1. MA-R2-10a LOCATED AT C/2.
2. ** OPTIONAL AT THE ENGINEER'S DISCRETION.
3. W1-4L SHALL BE PLACED AT THE MIDDLE OF THE TANGENT.

LEGEND



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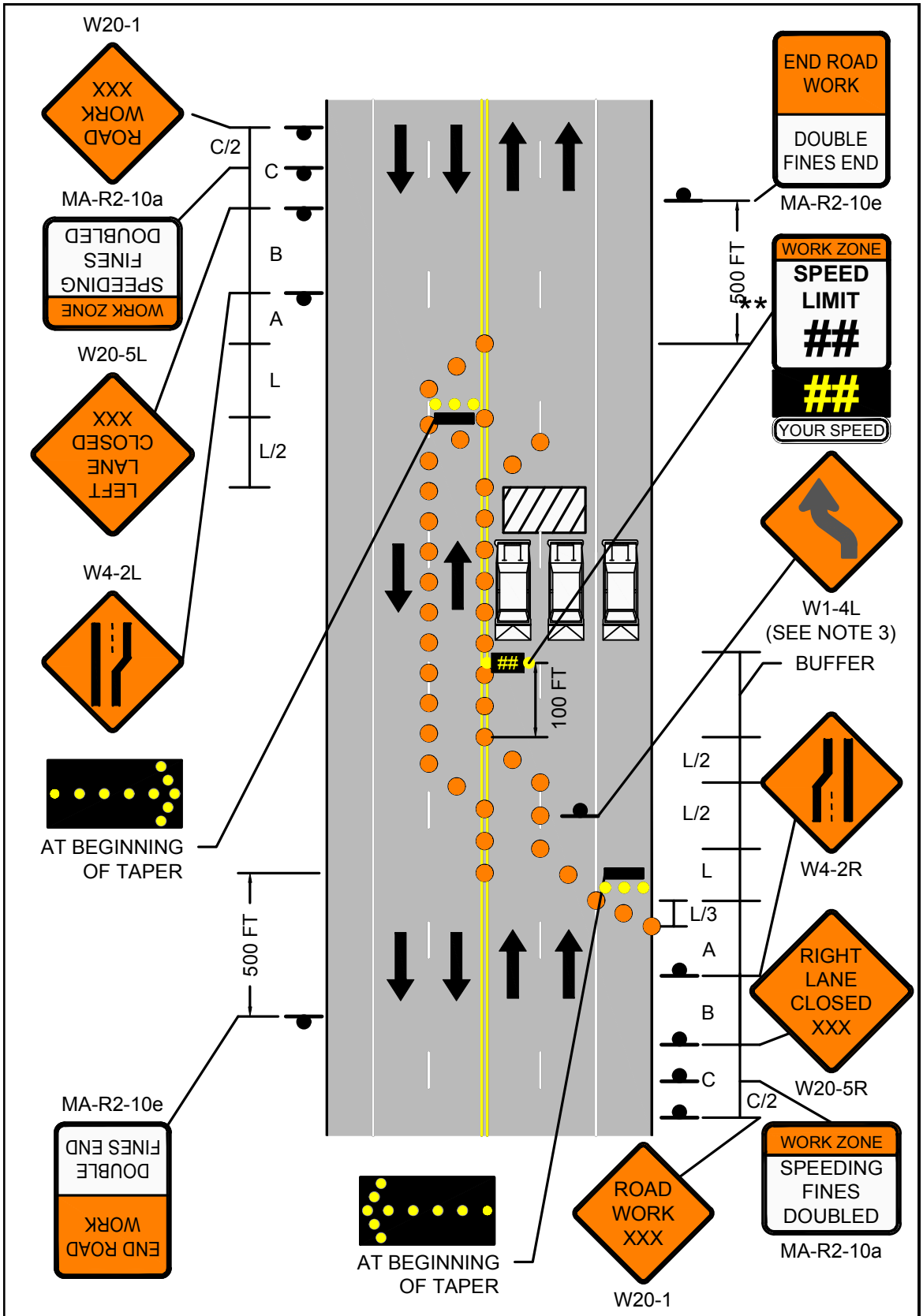


massDOT Massachusetts Department of Transportation Highway Division PAGE 31	Work Zone Safety Standard Details and Drawings	FIGURE 12 STATIONARY OPERATIONS FOUR LANE UNDIVIDED ROADWAY HALF OF ROADWAY CLOSED

massDOT Massachusetts Department of Transportation Highway Division PAGE 32	Work Zone Safety Standard Details and Drawings	STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY RIGHT LANE CLOSED

POSTED SPEED LIMIT (MPH)	CHANNELIZATION DEVICES (DRUMS OR CONES)				
	SHOULDER TAPER LENGTH (L/3) (FT)	TRAVEL LANE CLOSURE LENGTH (L) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	110	320	305	20	60
45-55	220	660	495	40	50
60-65	260	780	645	40	55

* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)
25-40	500 / 500 / 500
45-55	500 / 1000 / 1000
60-65	1000 / 1600 / 2600

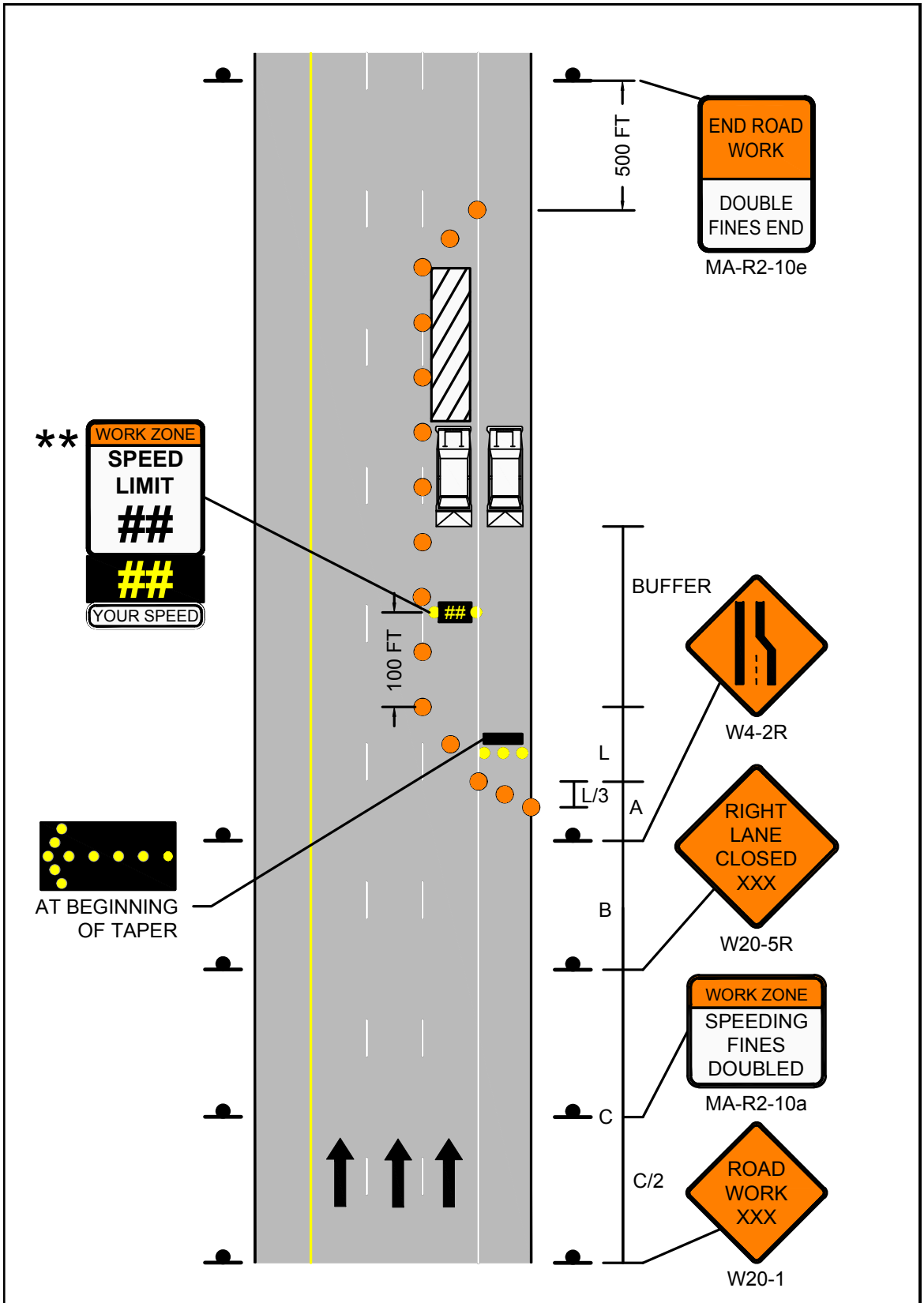
NOTES

1. MA-R2-10a LOCATED AT C/2.
2. ** OPTIONAL AT THE ENGINEER'S DISCRETION.

LEGEND

- WORK ZONE
- CHANNELIZATION DEVICE
- FLASHING ARROW BOARD
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRUCK MOUNTED ATTENUATOR
- RADAR SPEED FEEDBACK BOARD
- POLICE DETAIL OR UNIFORMED FLAGGER
- TEMPORARY PORTABLE RUMBLE STRIP
- TYPE III BARRICADE

NOT TO SCALE



massDOT Massachusetts Department of Transportation Highway Division PAGE 33	Work Zone Safety Standard Details and Drawings	FIGURE 13 STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY RIGHT LANE CLOSED

massDOT Massachusetts Department of Transportation Highway Division PAGE 34	Work Zone Safety Standard Details and Drawings	STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY LEFT LANE CLOSED

POSTED SPEED LIMIT (MPH)	CHANNELIZATION DEVICES (DRUMS OR CONES)				
	SHOULDER TAPER LENGTH (L/3) (FT)	TRAVEL LANE CLOSURE LENGTH (L) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	110	320	305	20	60
45-55	220	660	495	40	50
60-65	260	780	645	40	55

* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)
25-40	500 / 500 / 500
45-55	500 / 1000 / 1000
60-65	1000 / 1600 / 2600

NOTES

1. MA-R2-10a LOCATED AT C/2.
2. ** OPTIONAL AT THE ENGINEER'S DISCRETION.

LEGEND


WORK ZONE


CHANNELIZATION DEVICE

FLASHING ARROW BOARD


PORTABLE CHANGEABLE MESSAGE SIGN


TRUCK MOUNTED ATTENUATOR

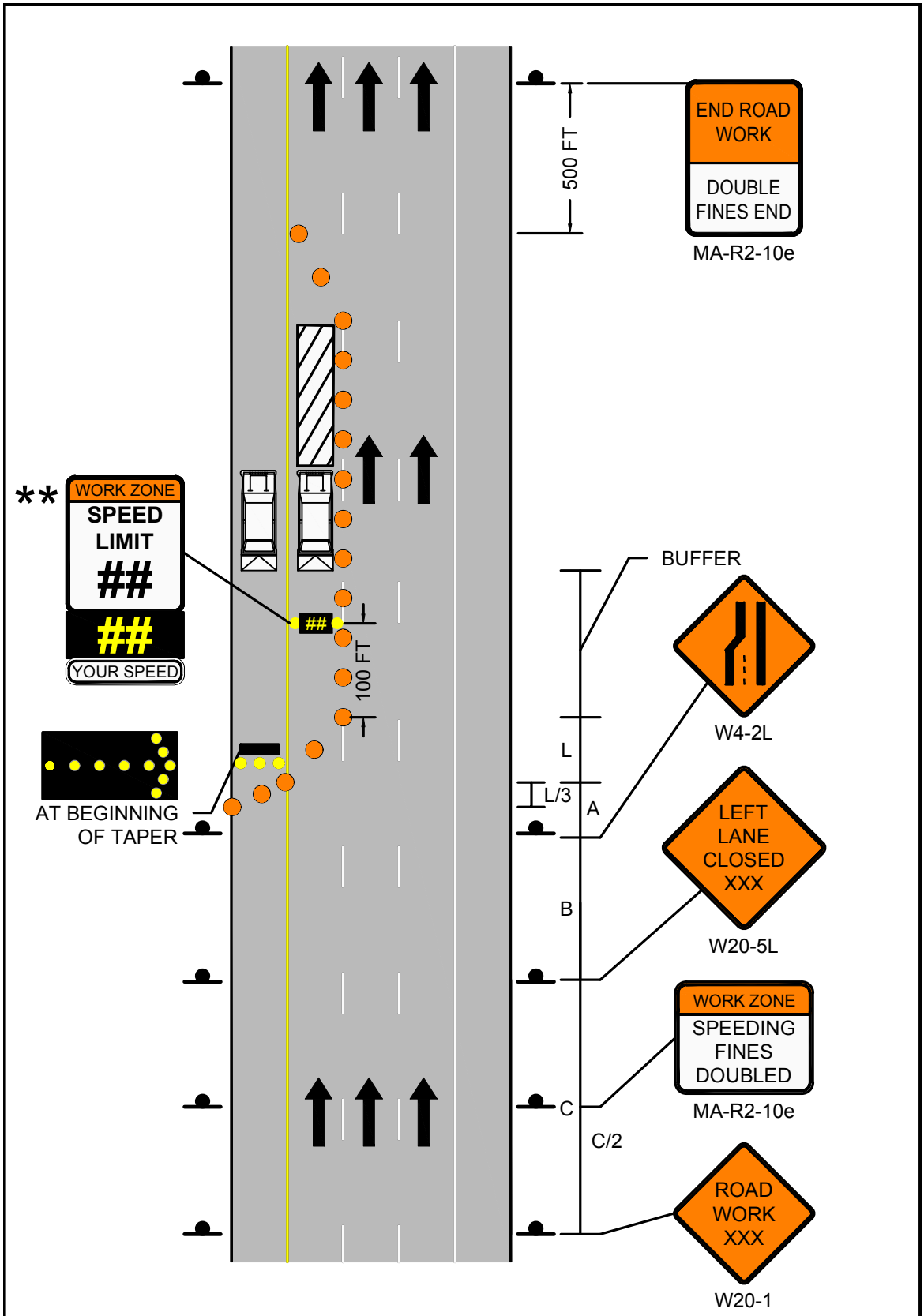
RADAR SPEED FEEDBACK BOARD

POLICE DETAIL OR UNIFORMED FLAGGER

TEMPORARY PORTABLE RUMBLE STRIP

TYPE III BARRICADE

NOT TO SCALE



massDOT Massachusetts Department of Transportation Highway Division PAGE 35	Work Zone Safety Standard Details and Drawings	FIGURE 14 STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY LEFT LANE CLOSED

massDOT Massachusetts Department of Transportation Highway Division PAGE 36	Work Zone Safety Standard Details and Drawings	STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY CENTER LANE OR RIGHT/CENTER LANES CLOSED

POSTED SPEED LIMIT (MPH)	CHANNELIZATION DEVICES (DRUMS OR CONES)					
	SHOULDER TAPER LENGTH (L/3) (FT)	TRAVEL LANE CLOSURE LENGTH (L) (FT)	TANGENT LENGTH BETWEEN TAPERS T (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	110	320	640	305	20	110
45-55	220	660	1320	495	40	100
60-65	260	780	1560	645	40	115

* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)
25-40	500 / 500 / 500
45-55	500 / 1000 / 1000
60-65	1000 / 1600 / 2600

NOTES

1. MA-R2-10a LOCATED AT C/2.
2. ** OPTIONAL AT THE ENGINEER'S DISCRETION.
3. *** THIS SET OF SIGNS SHALL BE LOCATED AT T/2.

LEGEND


WORK ZONE


CHANNELIZATION DEVICE

FLASHING ARROW BOARD


PORTABLE CHANGEABLE MESSAGE SIGN


TRUCK MOUNTED ATTENUATOR

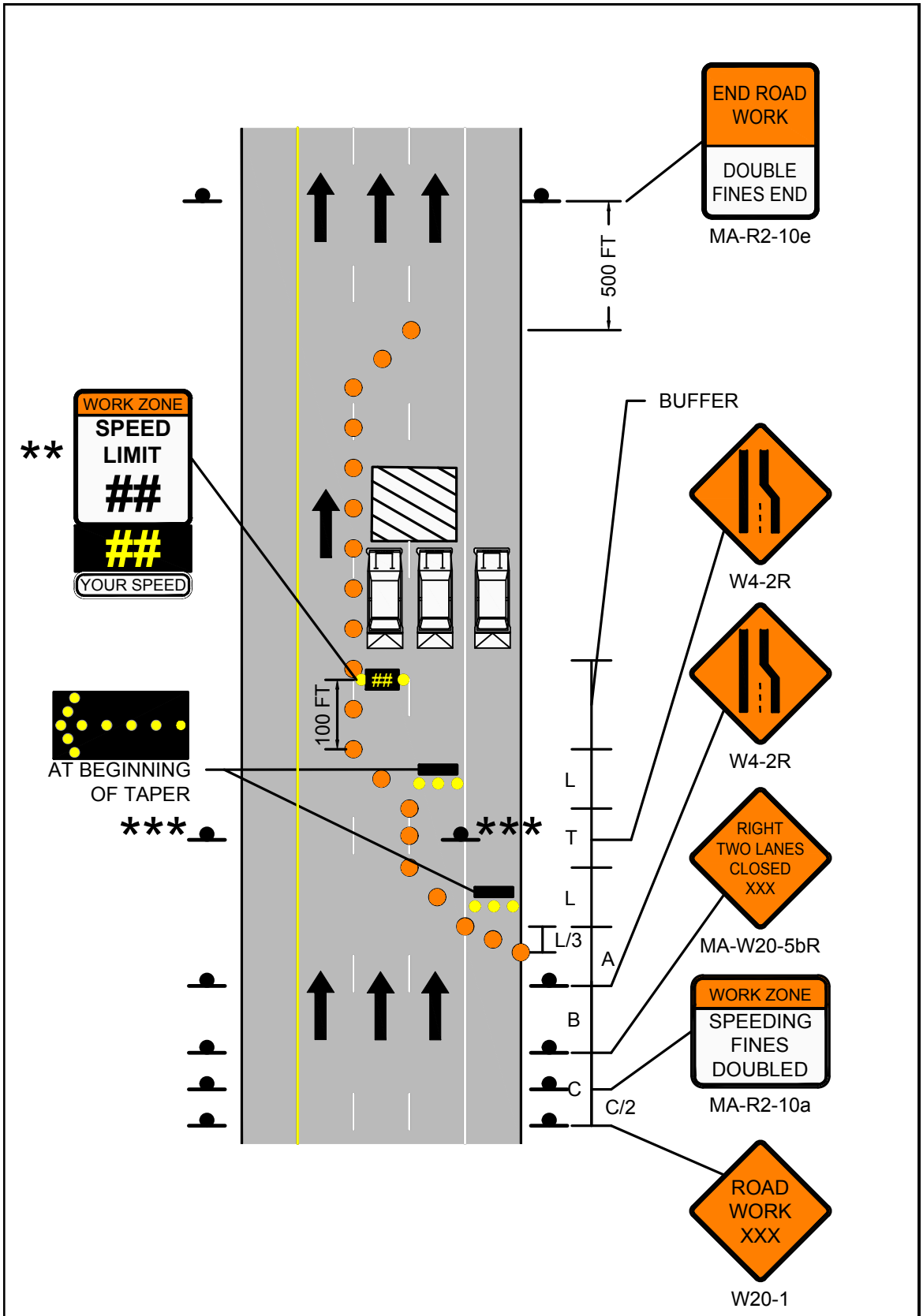
RADAR SPEED FEEDBACK BOARD

POLICE DETAIL OR UNIFORMED FLAGGER

TEMPORARY PORTABLE RUMBLE STRIP

TYPE III BARRICADE

NOT TO SCALE



massDOT Massachusetts Department of Transportation Highway Division PAGE 37	Work Zone Safety Standard Details and Drawings	FIGURE 15 STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY CENTER LANE OR RIGHT/CENTER LANES CLOSED

massDOT Massachusetts Department of Transportation Highway Division PAGE 38	Work Zone Safety Standard Details and Drawings	STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY CENTER LANE OR LEFT/CENTER LANES CLOSED

POSTED SPEED LIMIT (MPH)	CHANNELIZATION DEVICES (DRUMS OR CONES)					
	SHOULDER TAPER LENGTH (L/3) (FT)	TRAVEL LANE CLOSURE LENGTH (L) (FT)	TANGENT LENGTH BETWEEN TAPERS T (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	110	320	640	305	20	110
45-55	220	660	1320	495	40	100
60-65	260	780	1560	645	40	115

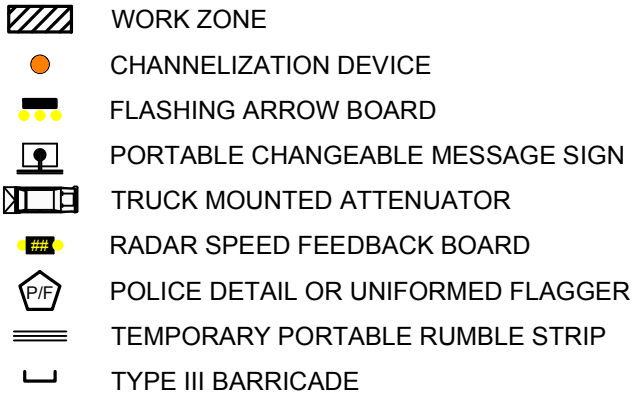
* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)
25-40	500 / 500 / 500
45-55	500 / 1000 / 1000
60-65	1000 / 1600 / 2600

NOTES

1. MA-R2-10a LOCATED AT C/2.
2. ** OPTIONAL AT THE ENGINEER'S DISCRETION.
3. *** THIS SET OF SIGNS SHALL BE LOCATED AT T/2.

LEGEND



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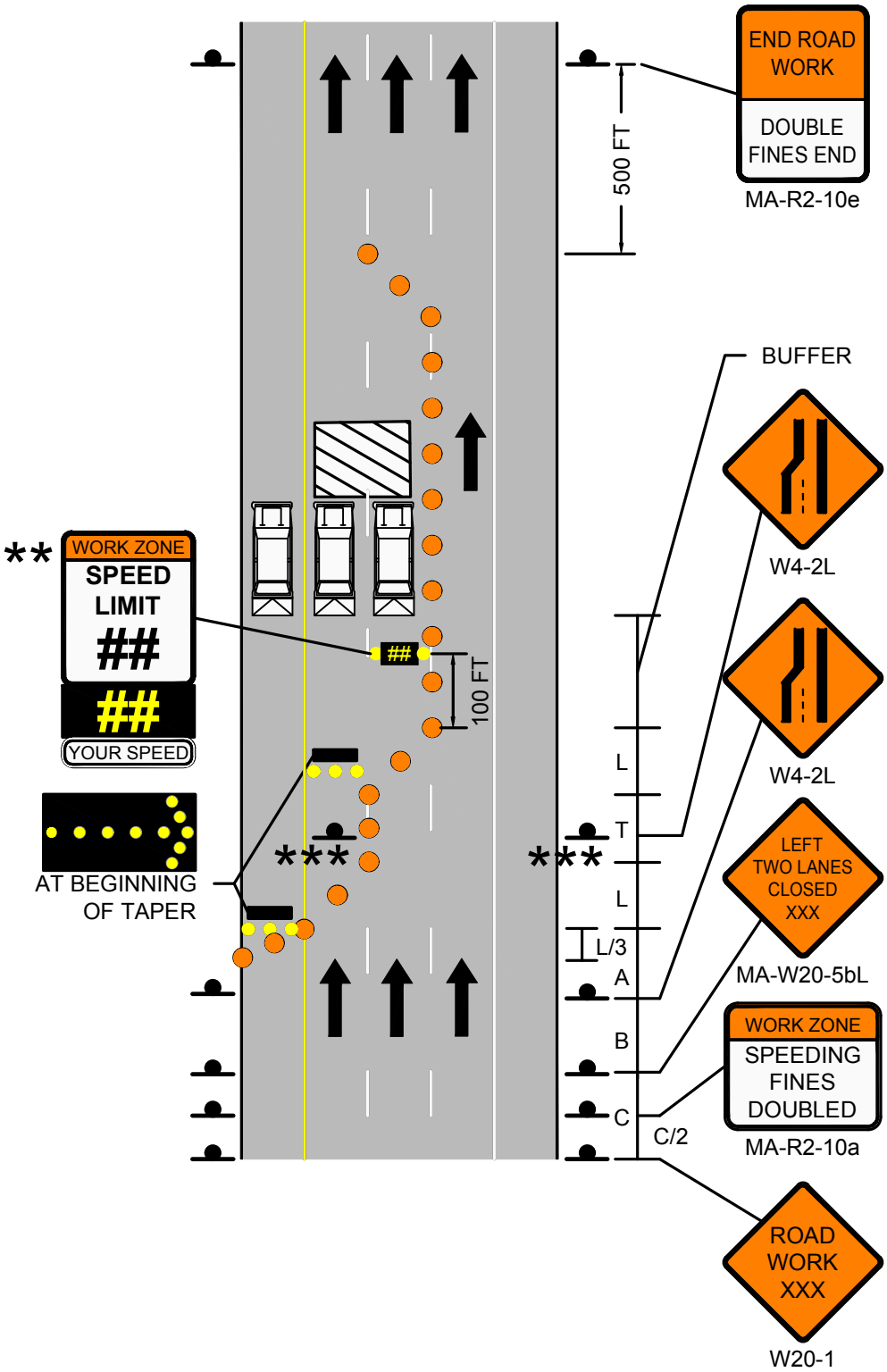


massDOT Massachusetts Department of Transportation Highway Division PAGE 39	Work Zone Safety Standard Details and Drawings	FIGURE 16 STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY CENTER LANE OR LEFT/CENTER LANES CLOSED

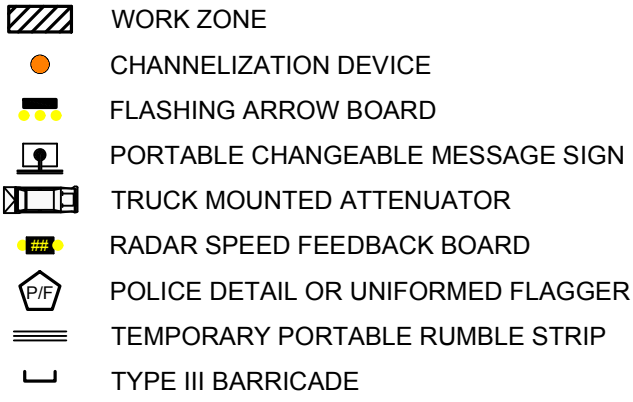
massDOT Massachusetts Department of Transportation Highway Division PAGE 40	Work Zone Safety Standard Details and Drawings	STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY RIGHT SIDE OF OFF RAMP CLOSED

POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)	CHANNELIZATION DEVICES (DRUMS OR CONES)			
		TRAVEL LANE SHIFT LENGTH (L/2) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	500 / 500 / 500	160	305	20	45
45-55	500 / 1000 / 1000	330	495	40	35

* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

NOTES
1. MA-R2-10a LOCATED AT C/2.

LEGEND



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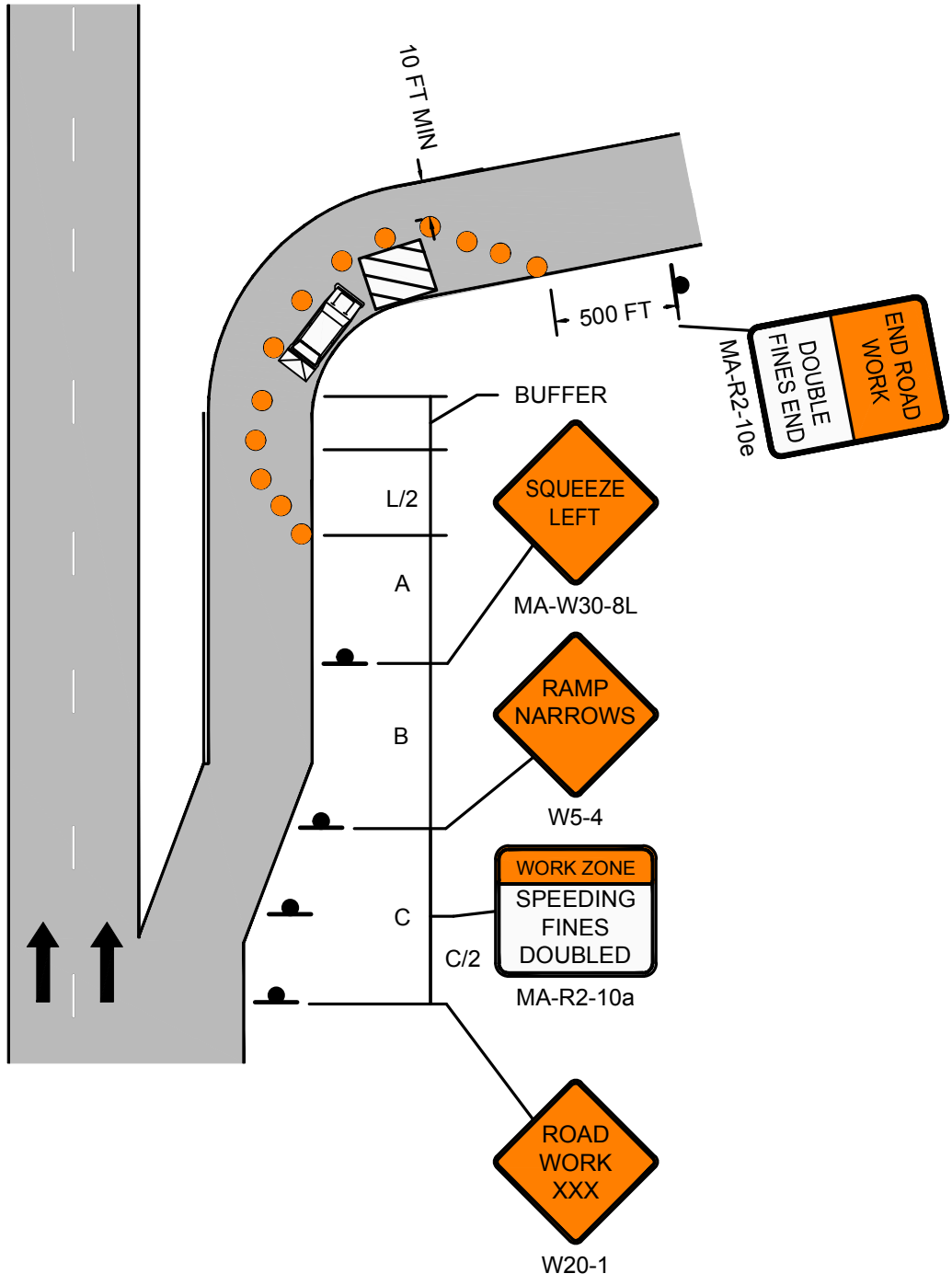


massDOT Massachusetts Department of Transportation Highway Division PAGE 41	Work Zone Safety Standard Details and Drawings	FIGURE 17 STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY RIGHT SIDE OF OFF RAMP CLOSED

massDOT Massachusetts Department of Transportation Highway Division PAGE 42	Work Zone Safety Standard Details and Drawings	STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY LEFT SIDE OF OFF RAMP CLOSED

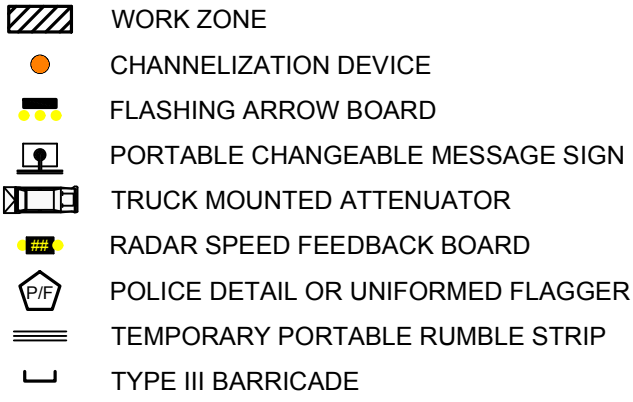
POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)	CHANNELIZATION DEVICES (DRUMS OR CONES)			
		TRAVEL LANE SHIFT LENGTH (L/2) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	500 / 500 / 500	160	305	20	45
45-55	500 / 1000 / 1000	330	495	40	35

* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

NOTES

1. MA-R2-10a LOCATED AT C/2.

LEGEND



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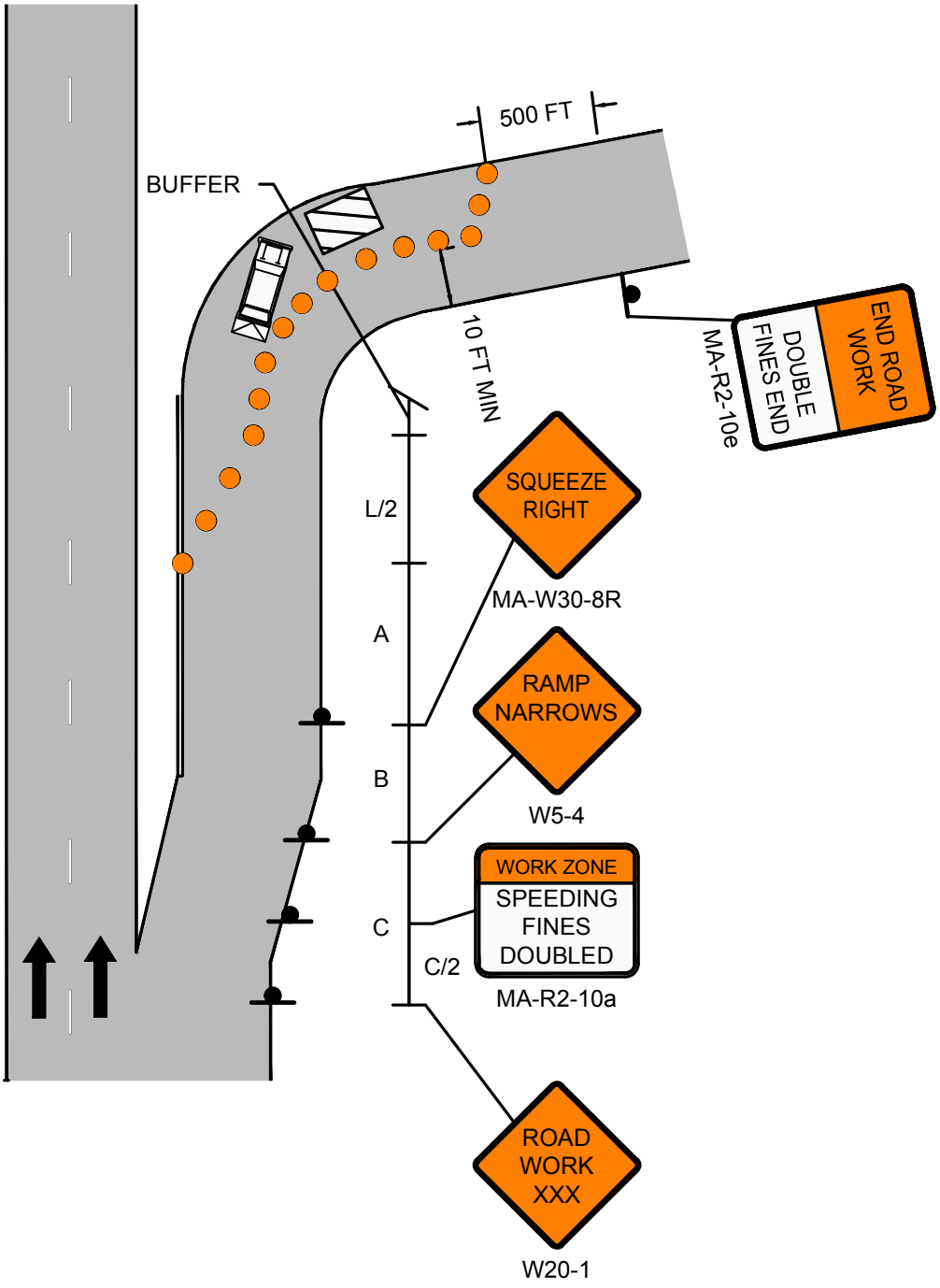


massDOT Massachusetts Department of Transportation Highway Division	Work Zone Safety Standard Details and Drawings	FIGURE 18 STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY LEFT SIDE OF OFF RAMP CLOSED PAGE 43

massDOT Massachusetts Department of Transportation Highway Division PAGE 44	Work Zone Safety Standard Details and Drawings	STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY ROADWORK BEYOND ON RAMP

POSTED SPEED LIMIT (MPH)	CHANNELIZATION DEVICES (DRUMS OR CONES)				
	SHOULDER TAPER LENGTH (L/3) (FT)	TRAVEL LANE CLOSURE LENGTH (L) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	110	320	305	20	175
45-55	220	660	495	40	135
60-65	260	780	645	40	155

* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)
25-40	500 / 500 / 500
45-55	500 / 1000 / 1000
60-65	1000 / 1600 / 2600

NOTES

1. MA-R2-10a LOCATED AT C/2.

LEGEND


WORK ZONE


CHANNELIZATION DEVICE

FLASHING ARROW BOARD


PORTABLE CHANGEABLE MESSAGE SIGN


TRUCK MOUNTED ATTENUATOR

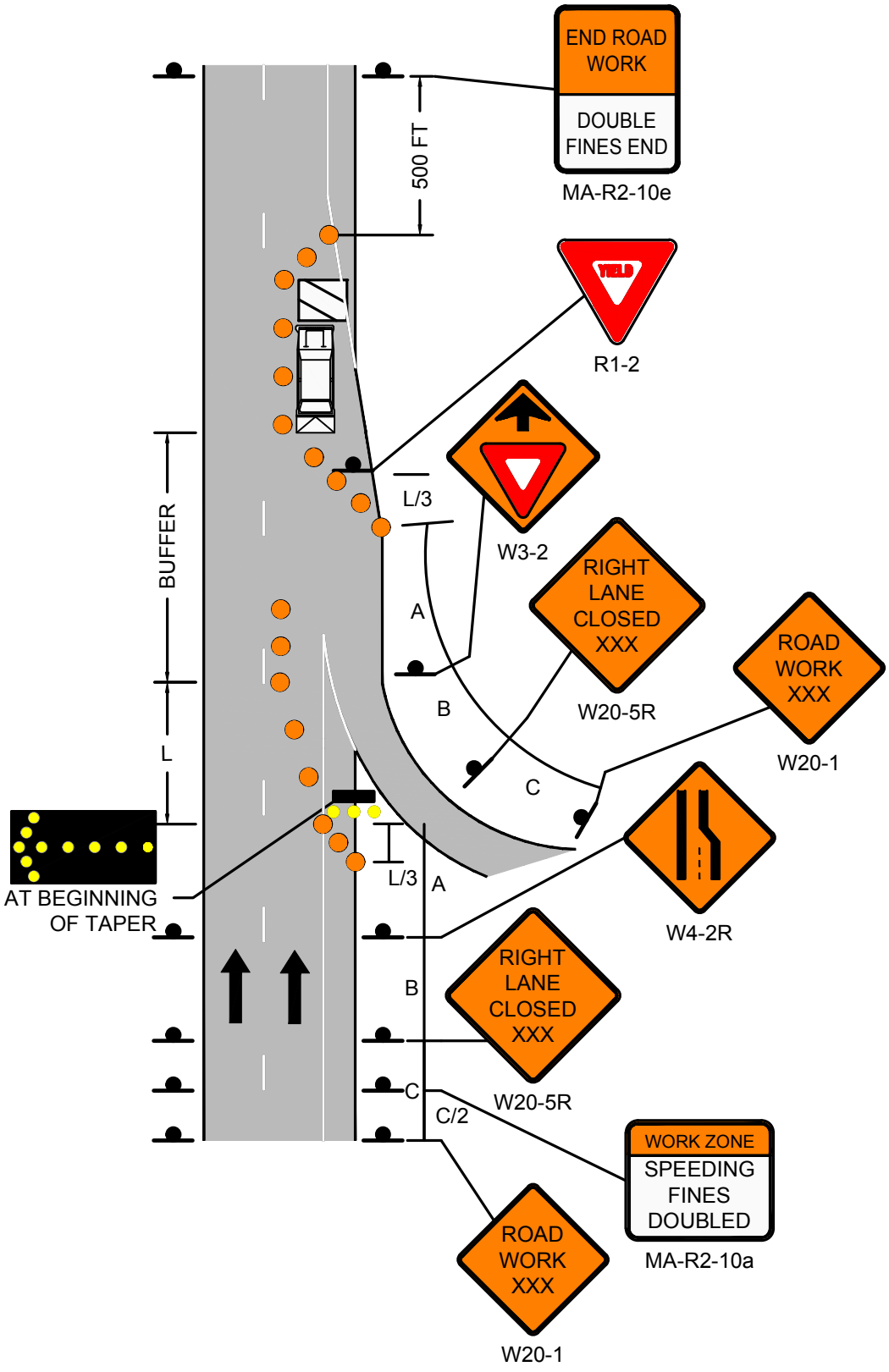
RADAR SPEED FEEDBACK BOARD

POLICE DETAIL OR UNIFORMED FLAGGER

TEMPORARY PORTABLE RUMBLE STRIP

TYPE III BARRICADE

NOT TO SCALE



massDOT Massachusetts Department of Transportation Highway Division PAGE 45	Work Zone Safety Standard Details and Drawings	FIGURE 19 STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY ROADWORK BEYOND ON RAMP

massDOT Massachusetts Department of Transportation Highway Division PAGE 46	Work Zone Safety Standard Details and Drawings	STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY ROADWORK BEYOND OFF RAMP

POSTED SPEED LIMIT (MPH)	CHANNELIZATION DEVICES (DRUMS OR CONES)					
	SHOULDER TAPER LENGTH (L/3) (FT)	TRAVEL LANE CLOSURE LENGTH (L) (FT)	TRAVEL LANE SHIFT LENGTH (L/2) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	110	320	160	305	20	70
45-55	220	660	330	495	40	55
60-65	260	780	390	645	40	65

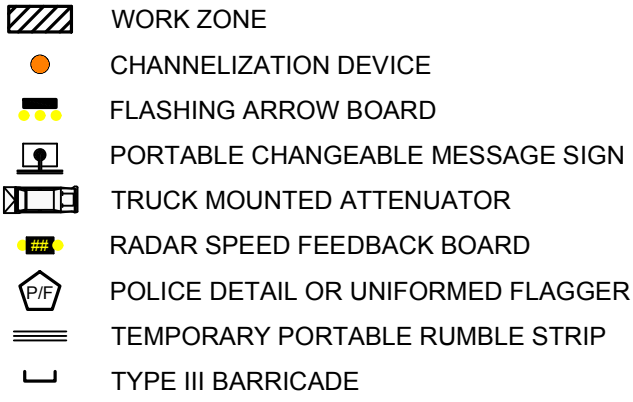
* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)
25-40	500 / 500 / 500
45-55	500 / 1000 / 1000
60-65	1000 / 1600 / 2600

NOTES

1. MA-R2-10a LOCATED AT C/2.

LEGEND



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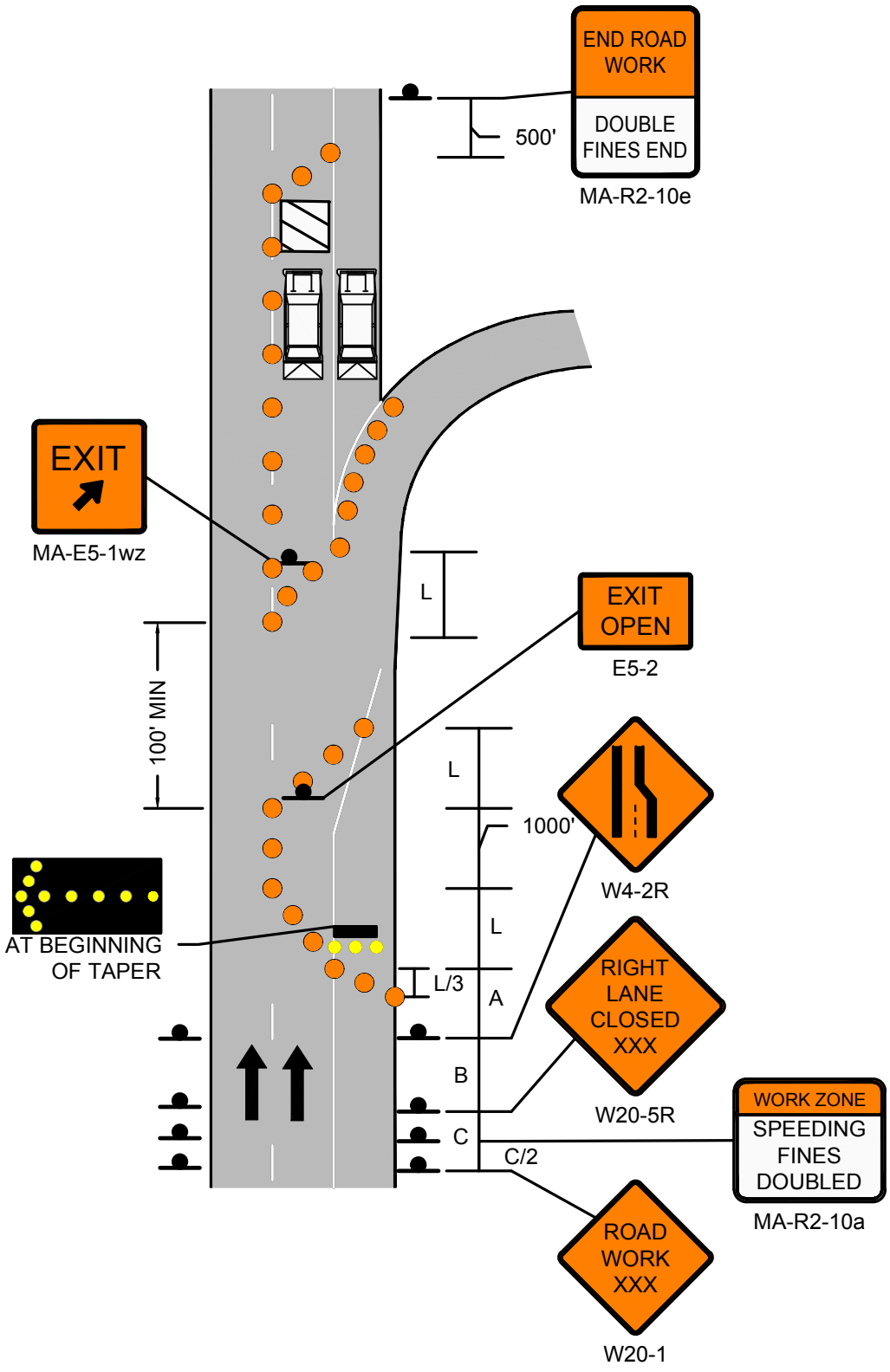


massDOT Massachusetts Department of Transportation Highway Division PAGE 47	Work Zone Safety Standard Details and Drawings	FIGURE 20 STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY ROADWORK BEYOND OFF RAMP

massDOT Massachusetts Department of Transportation Highway Division PAGE 48	Work Zone Safety Standard Details and Drawings	MULTILANE DIVIDED ROADWAY TYPICAL RAMP CLOSURE

POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)	CHANNELIZATION DEVICES (DRUMS OR CONES)			
		SHOULDER TAPER LENGTH (L/3) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES
25-40	500 / 500 / 500	110	305	20	45
45-55	500 / 1000 / 1000	220	495	40	30
60-65	1000 / 1600 / 2600	260	645	40	35

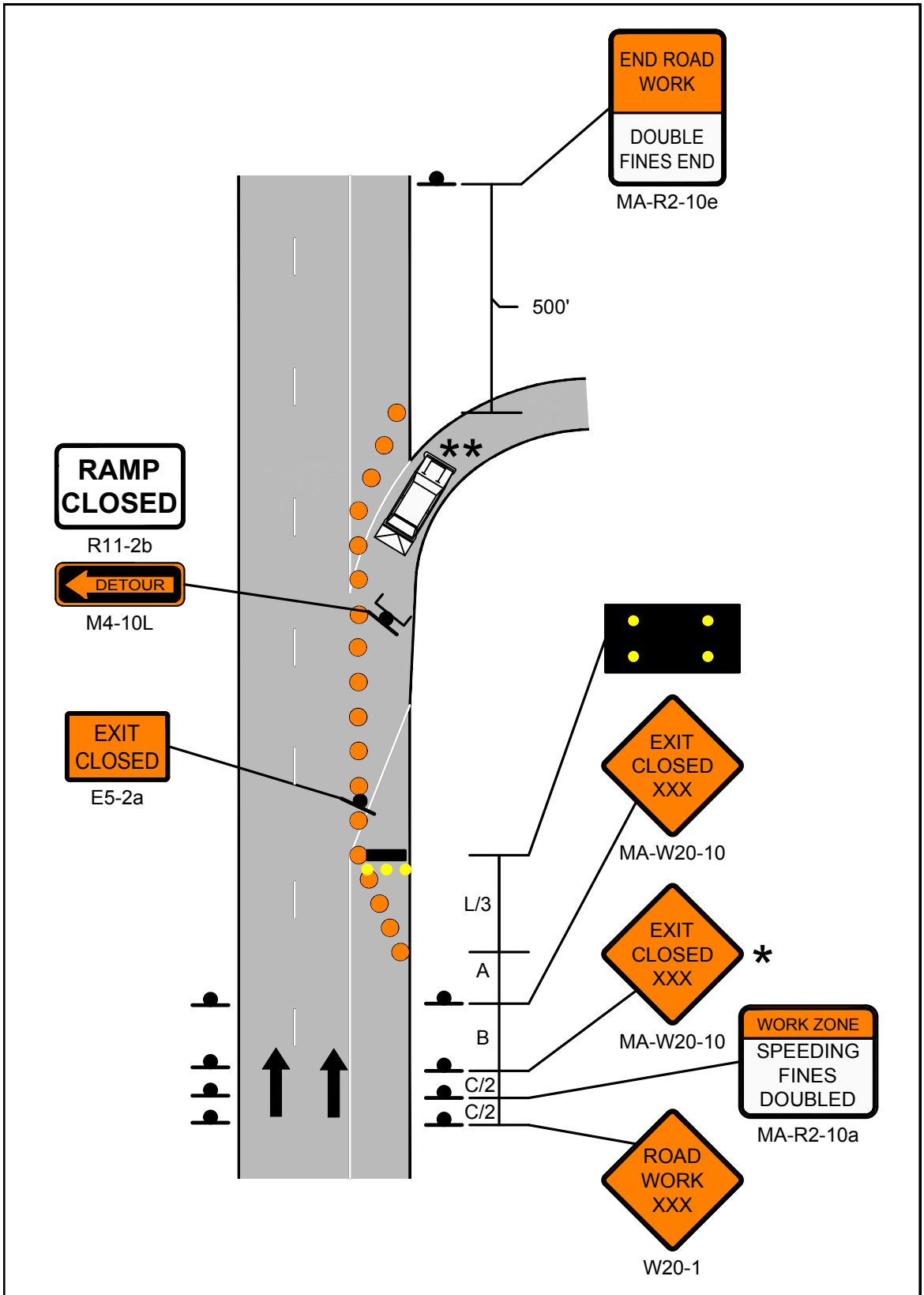
NOTES

1. MA-R2-10a LOCATED AT C/2.
2. * NOT REQUIRED IF RIGHT LANE IS CLOSED IN ADVANCE OF EXIT.
3. ** OPTIONAL AT ENGINEER'S DISCRETION.

LEGEND

- WORK ZONE
- CHANNELIZATION DEVICE
- FLASHING ARROW BOARD
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRUCK MOUNTED ATTENUATOR
- RADAR SPEED FEEDBACK BOARD
- POLICE DETAIL OR UNIFORMED FLAGGER
- TEMPORARY PORTABLE RUMBLE STRIP
- TYPE III BARRICADE

NOT TO SCALE



massDOT Massachusetts Department of Transportation Highway Division PAGE 49	Work Zone Safety Standard Details and Drawings	FIGURE 21 MULTILANE DIVIDED ROADWAY TYPICAL RAMP CLOSURE

massDOT Massachusetts Department of Transportation Highway Division PAGE 50	Work Zone Safety Standard Details and Drawings	MULTILANE DIVIDED ROADWAY TYPICAL CLOVERLEAF RAMP CLOSURE

POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)	CHANNELIZATION DEVICES (DRUMS OR CONES)			
		SHOULDER TAPER LENGTH (L/3) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES
25-40	500 / 500 / 500	110	305	20	45
45-55	500 / 1000 / 1000	220	495	40	30
60-65	1000 / 1600 / 2600	260	645	40	35

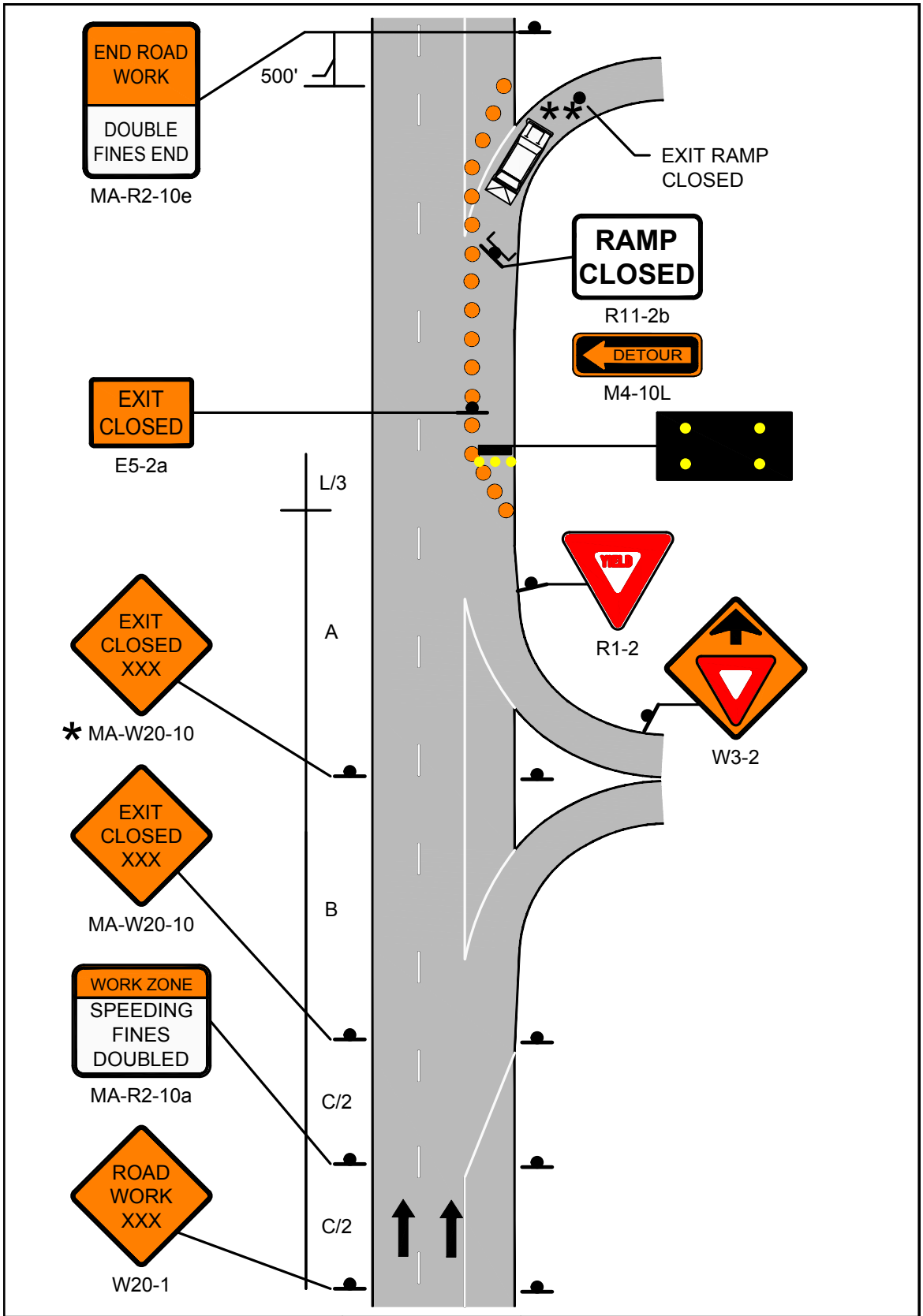
NOTES

1. MA-R2-10a LOCATED AT C/2.
2. * NOT REQUIRED IF RIGHT LANE IS CLOSED IN ADVANCE OF EXIT.
3. ** OPTIONAL AT ENGINEER'S DISCRETION.

LEGEND

- WORK ZONE
- CHANNELIZATION DEVICE
- FLASHING ARROW BOARD
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRUCK MOUNTED ATTENUATOR
- RADAR SPEED FEEDBACK BOARD (##)
- POLICE DETAIL OR UNIFORMED FLAGGER (P/F)
- TEMPORARY PORTABLE RUMBLE STRIP
- TYPE III BARRICADE

NOT TO SCALE



massDOT Massachusetts Department of Transportation Highway Division PAGE 51	Work Zone Safety Standard Details and Drawings	FIGURE 22 MULTILANE DIVIDED ROADWAY TYPICAL CLOVERLEAF RAMP CLOSURE

massDOT Massachusetts Department of Transportation Highway Division PAGE 52	Work Zone Safety Standard Details and Drawings	MULTILANE DIVIDED ROADWAY TYPICAL RAMP CLOSURE ADVANCE SIGNING

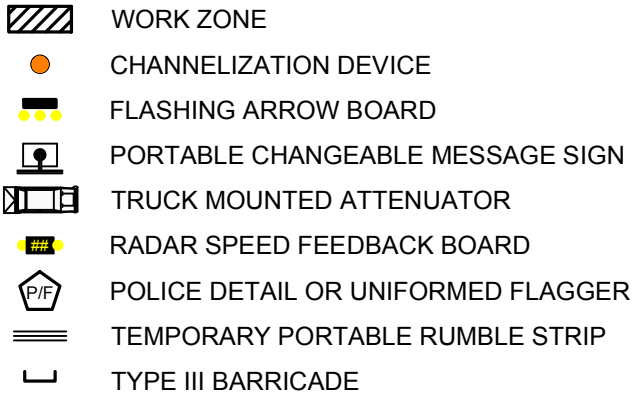
NOTES

1. IF THE CLOSED RAMP IS LOCATED DOWNSTREAM FROM THE PROPOSED DETOUR ROUTE/RAMP, A PCMS SHALL BE POSITIONED AT A SUFFICIENT DISTANCE IN ADVANCE OF THE DETOUR ROUTE/RAMP AND SHOULD STATE WHICH RAMP IS CLOSED AND WHICH SHALL BE USED FOR THE DETOUR.

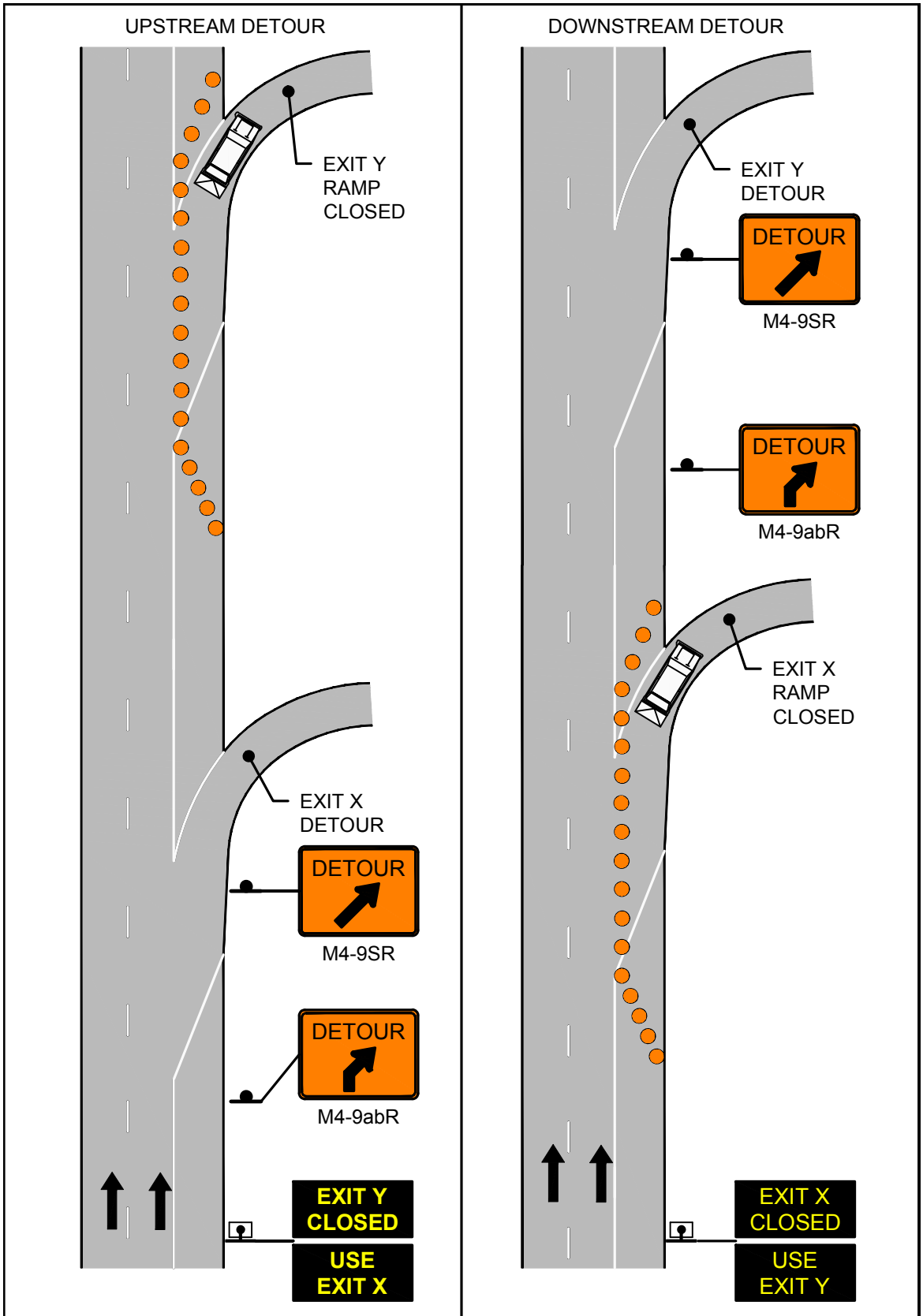
2. IF THE CLOSED RAMP IS LOCATED UPSTREAM FROM THE PROPOSED DETOUR ROUTE/RAMP, A PCMS SHALL BE POSITIONED PRIOR TO THE CLOSED RAMP AND SHOULD STATE WHICH RAMP IS CLOSED AND WHICH SHALL BE USED FOR THE DETOUR.

3. A SUFFICIENT NUMBER OF DETOUR SIGNS (M4-9 SERIES) SHOULD BE DEPLOYED TO PROPERLY DIRECT DETOURED TRAFFIC. SIGN SPACING SHALL BE AT THE DIRECTION OF THE ENGINEER.

LEGEND



NOT TO SCALE



massDOT Massachusetts Department of Transportation Highway Division

PAGE 53

Work Zone Safety
Standard Details
and Drawings

FIGURE 23
MULTILANE DIVIDED ROADWAY
TYPICAL RAMP CLOSURE
ADVANCE SIGNING

massDOT Massachusetts Department of Transportation Highway Division PAGE 54	Work Zone Safety Standard Details and Drawings	FIGURE 24-1 MULTILANE DIVIDED ROADWAY PLACEMENT OF TEMPORARY PORTABLE RUMBLE STRIPS SHEET 1 OF 2

POSTED REGULATORY OR WORK ZONE SPEED	SEPARATION BETWEEN RUMBLE STRIPS
Above 55-mph	20-feet
36-mph to 55-mph	15-feet
35-mph and under	10-feet

POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)	TANGENT LENGTH BETWEEN TAPERS (T) (FT)
25-40	500 / 500 / 500	640
45-55	500 / 1000 / 1000	1320
60-65	1000 / 1600 / 2600	1560

NOTES

1. THE INTENTION OF THESE DETAILS IS ONLY TO DEPICT THE PLACEMENT OF TEMPORARY PORTABLE RUMBLE STRIPS (TPRS) IN RELATIONSHIP TO THE TAPER AND THE BUFFER OF A SINGLE- OR MULTI-LANE CLOSURE. THE DEPICTION OF THE NUMBER AND SPACING OF ALL OTHER TRAFFIC CONTROL DEVICES IS NOT TO SCALE. REFER TO OTHER DETAILS FOR LANE CLOSURES FOR THE PLACEMENT AND NUMBER OF ALL OTHER TRAFFIC CONTROL DEVICES.
2. THESE DETAILS ONLY DEPICT RIGHT LANE CLOSURES. LEFT LANE CLOSURES SHOULD UTILIZE A MIRROR IMAGE OF THESE SETUPS, STARTING WITH CLOSURE OF THE LEFTMOST LANE.
3. * THIS TPRS ARRAY IS OPTIONAL AT THE ENGINEER'S DISCRETION. IF USED, IT SHOULD BE PLACED ADJACENT TO THE BUFFER.
4. DETAILS SHOW THE MINIMUM NUMBER OF TPRS REQUIRED. ADDITIONAL MAY BE USED IF CONDITIONS WARRANT.

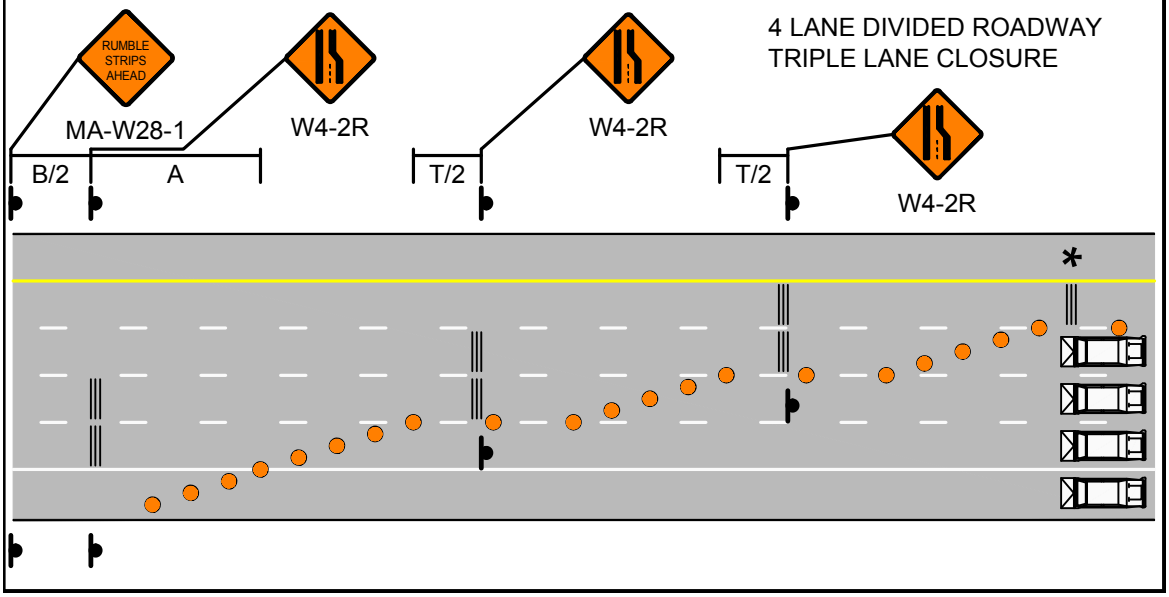
LEGEND

CHANNELIZATION DEVICE

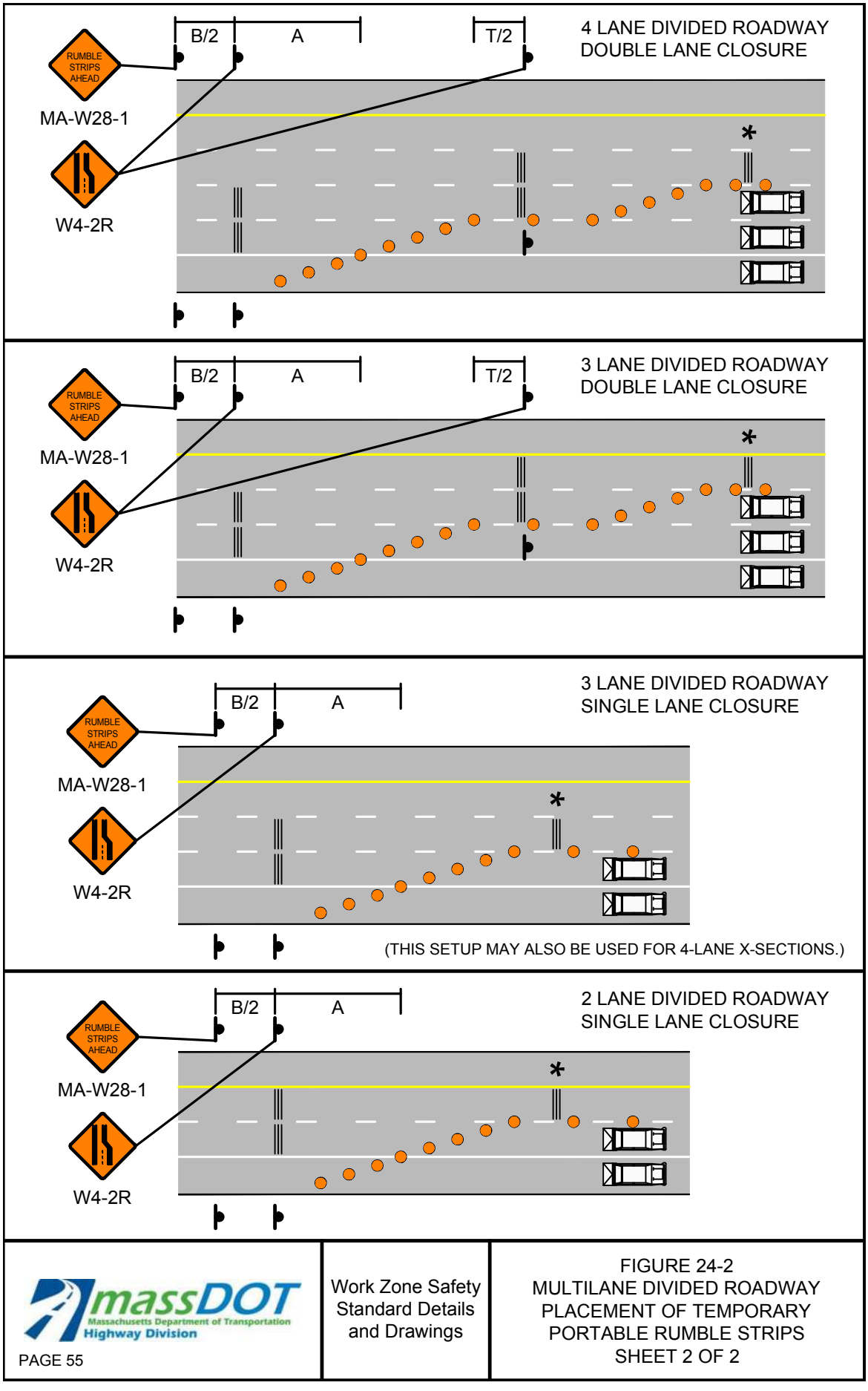
TRUCK MOUNTED ATTENUATOR

TEMPORARY PORTABLE RUMBLE STRIP

NOT TO SCALE



4 LANE DIVIDED ROADWAY
TRIPLE LANE CLOSURE



massDOT Massachusetts Department of Transportation Highway Division

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Work Zone Safety Standard Details and Drawings

FIGURE 24-2
MULTILANE DIVIDED ROADWAY
PLACEMENT OF TEMPORARY
PORTABLE RUMBLE STRIPS
SHEET 2 OF 2

massDOT Massachusetts Department of Transportation Highway Division PAGE 56	Work Zone Safety Standard Details and Drawings	NOTES FOR MOBILE OPERATIONS

Notes for Mobile Operations

- Unless otherwise stated, these notes shall apply to all Mobile Operation setups.
- Additional, setup-specific notes may be found on individual sheets.

1. The Supervisor shall travel the designated roadway prior to scheduling the work to ensure that sufficient and appropriate traffic control devices will be available. Special consideration shall be exercised to ensure that appropriate traffic controls be placed in areas that will have limited visibility of the work areas or any associated traffic queues.

2. Vehicles used for these operations shall be made highly visible with appropriate equipment such as flashing lights, rotating beacons, flags, signs, flashing arrow boards, and/or portable changeable message signs. Any signs mounted to these vehicles shall not obscure the visibility of other devices.

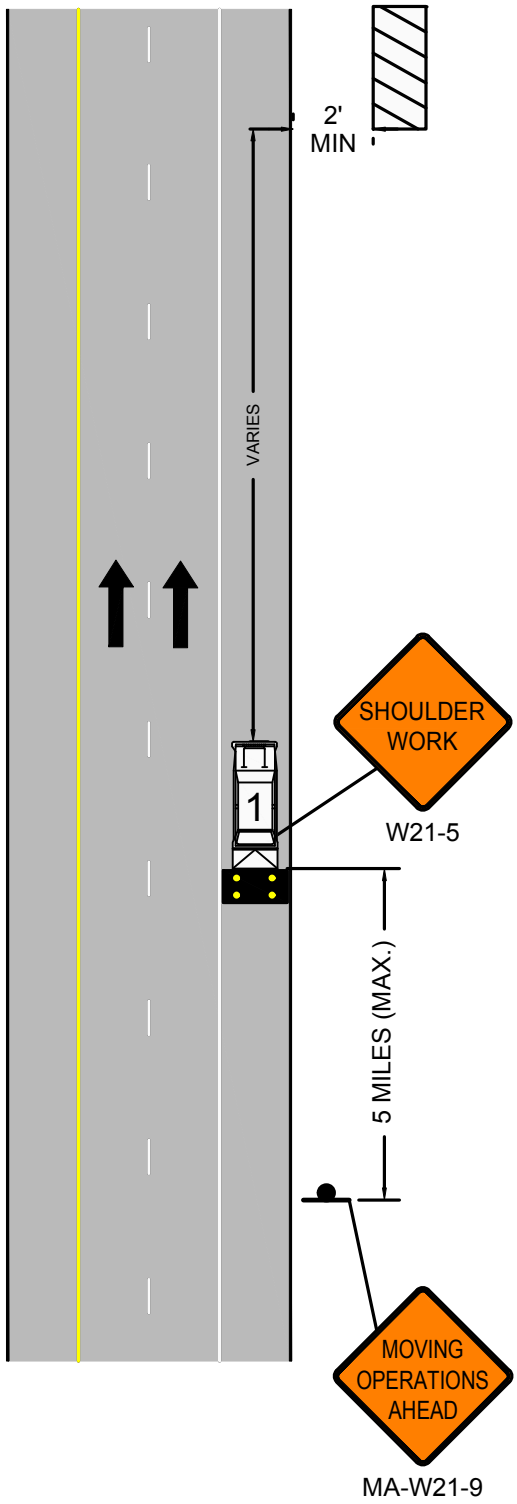
3. All vehicles shown may not be required based upon roadway conditions. However, when needed and practical, additional shadow vehicles and equipment to warn and protect motorists and workers should be used. Based upon roadway conditions, the addition of a police detail with cruiser may be used for additional protection or warning for the traveling public.

4. The distance between the work and shadow vehicle(s) may vary according to the terrain and other factors. Shadow vehicles are used to warn traffic of the operations ahead. Whenever adequate sight distance exists, the shadow vehicle(s) should maintain the minimum appropriate distance and maintain the same speed to prevent non-work related vehicles from entering the work convoy. If this formation cannot be maintained then additional traffic control devices should be deployed in advance of any vertical or horizontal curves that may restrict the sight distance of an oncoming vehicle to either the work vehicle or associated traffic queue.

5. All shadow vehicles shall be equipped with a truck or trailer mounted attenuator (TMA) and a flashing arrow board.

6. Signs should be covered or turned from view when work is not in progress.

7. Portable changeable message signs may be used in lieu of MA-W21-9 signs and any signs mounted directly to a shadow vehicle.



LEGEND

WORK ZONE

SHADOW VEHICLE

FLASHING ARROW BOARD
(WITH STATUS)

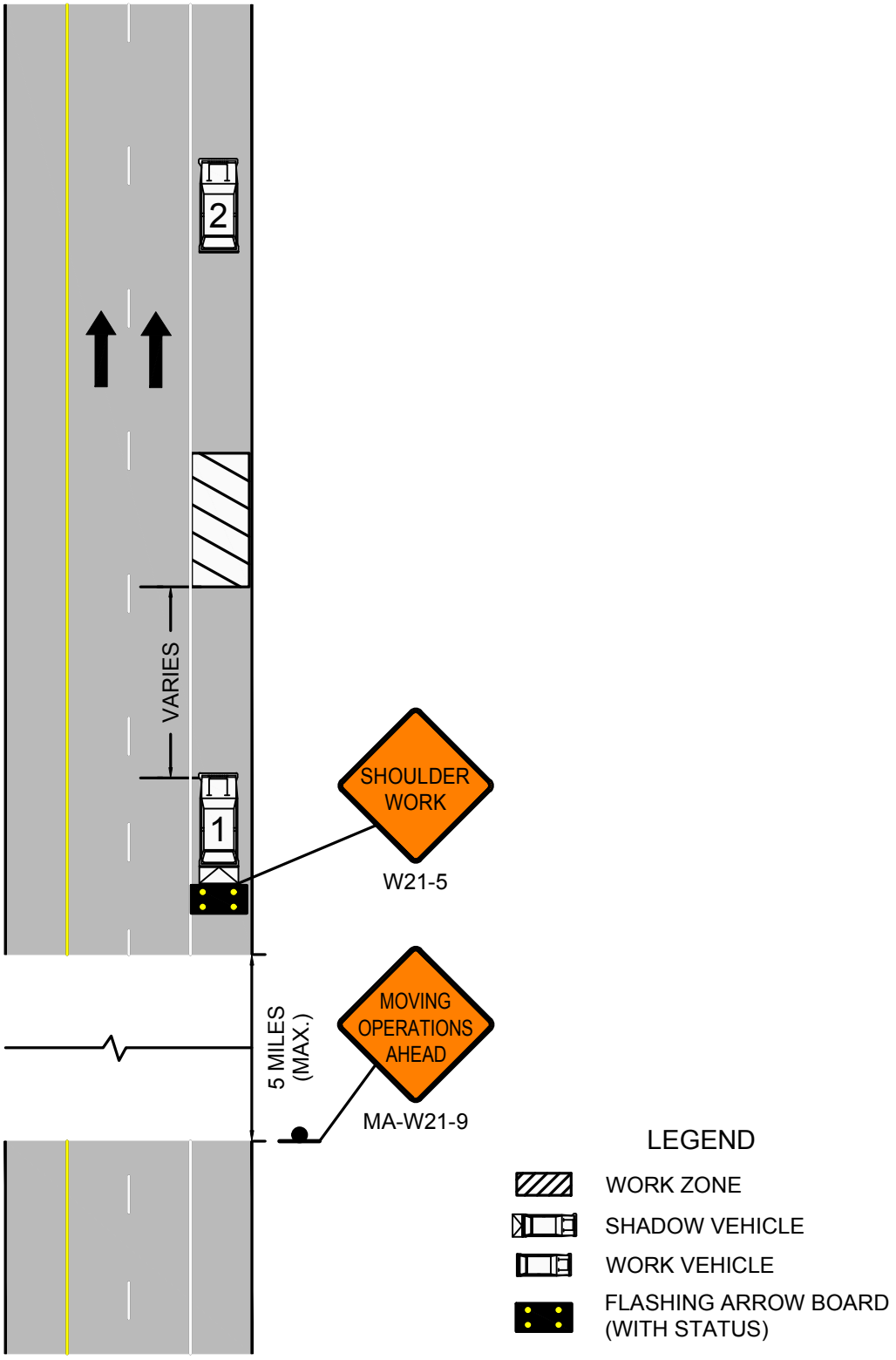
NOT TO SCALE

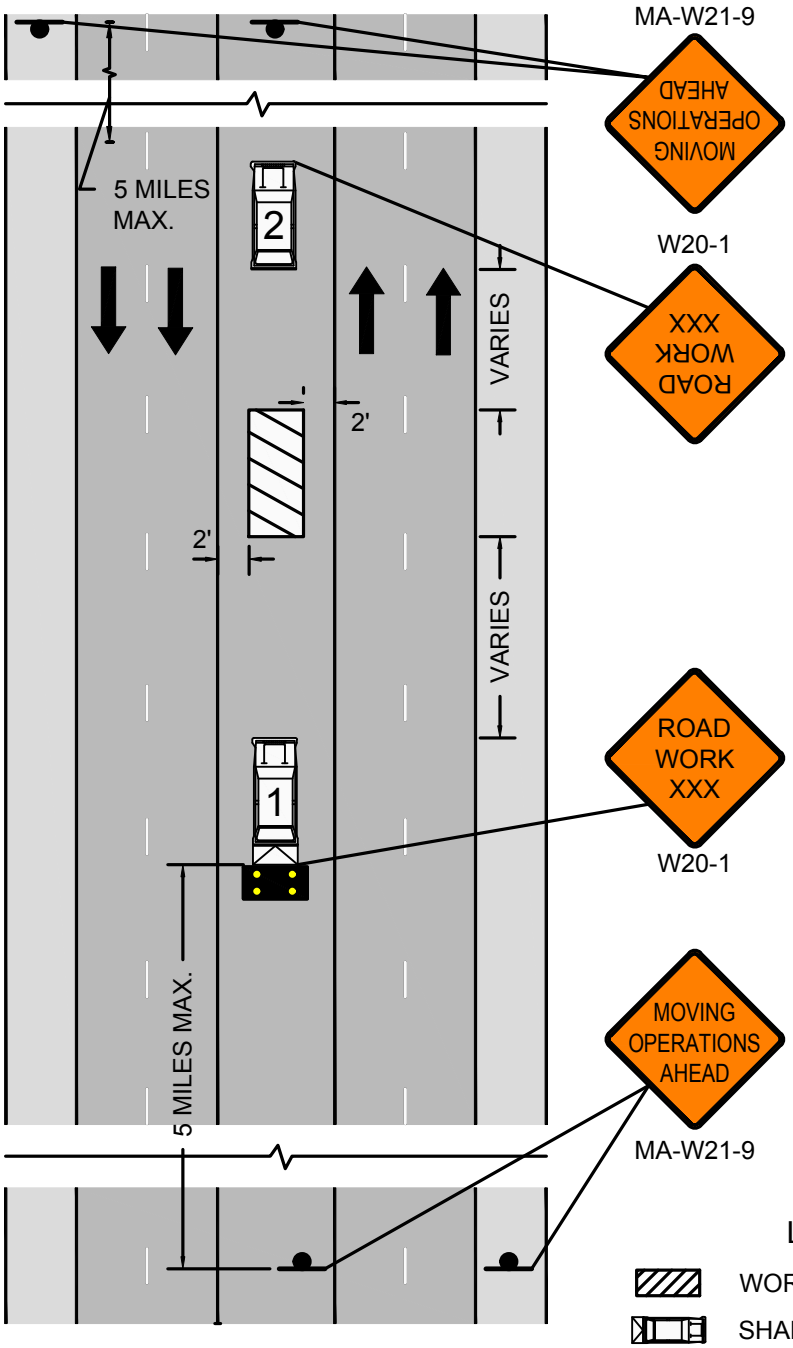
NOTES

1. IF THE WORK AREA IS SUFFICIENTLY AWAY FROM THE EDGE OF ROADWAY (20' MINIMUM) THEN SIGNS AND VEHICLES MAY NOT BE REQUIRED.

massDOT Massachusetts Department of Transportation Highway Division PAGE 57	Work Zone Safety Standard Details and Drawings	FIGURE 25 MOBILE OPERATIONS ANY ROADWAY BEYOND RIGHT SHOULDER

massDOT Massachusetts Department of Transportation Highway Division PAGE 58	Work Zone Safety Standard Details and Drawings	FIGURE 26 MOBILE OPERATIONS ANY ROADWAY SHOULDER





LEGEND

- WORK ZONE
- SHADOW VEHICLE
- WORK VEHICLE
- FLASHING ARROW BOARD (WITH STATUS)

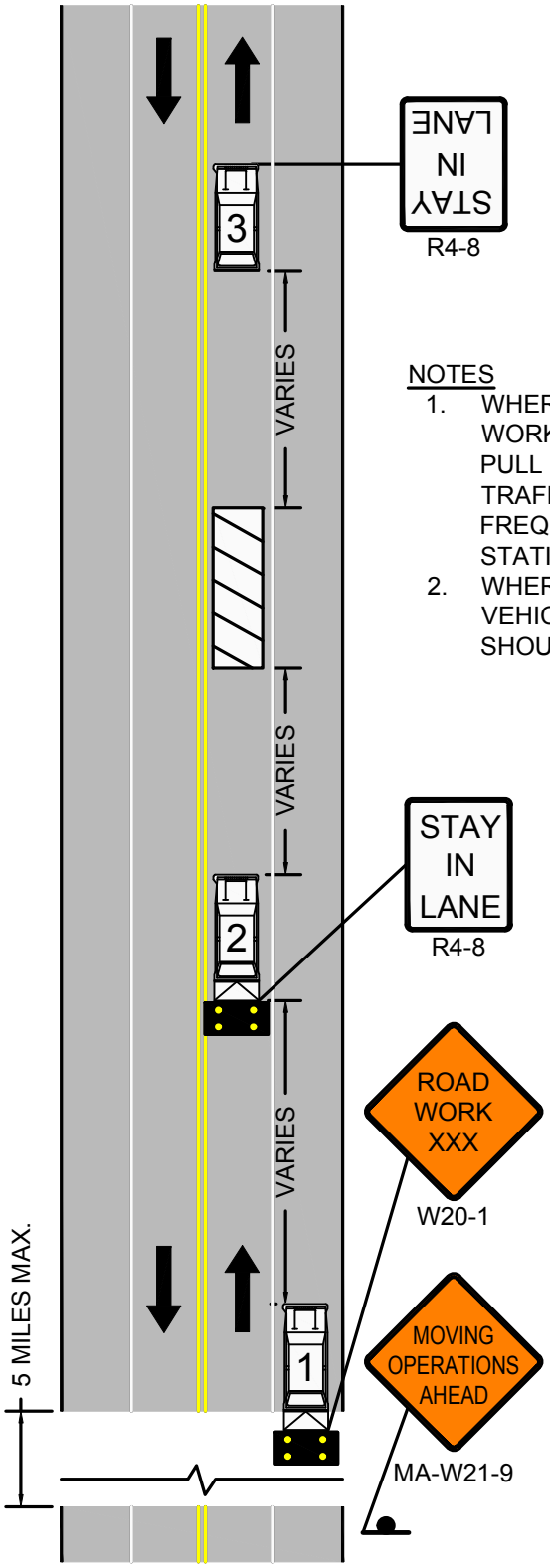
NOT TO SCALE

NOTES

1. IF THE 2' OFFSET CANNOT BE MAINTAINED, A SHORT-TERM STATIONARY SETUP SHOULD BE USED.

massDOT Massachusetts Department of Transportation Highway Division PAGE 59	Work Zone Safety Standard Details and Drawings	FIGURE 27 MOBILE OPERATIONS DIVIDED ROADWAY MEDIAN WORK

massDOT Massachusetts Department of Transportation Highway Division PAGE 60	Work Zone Safety Standard Details and Drawings	FIGURE 28 MOBILE OPERATIONS UNDIVIDED TWO LANE ROADWAY HALF OF ROADWAY CLOSED



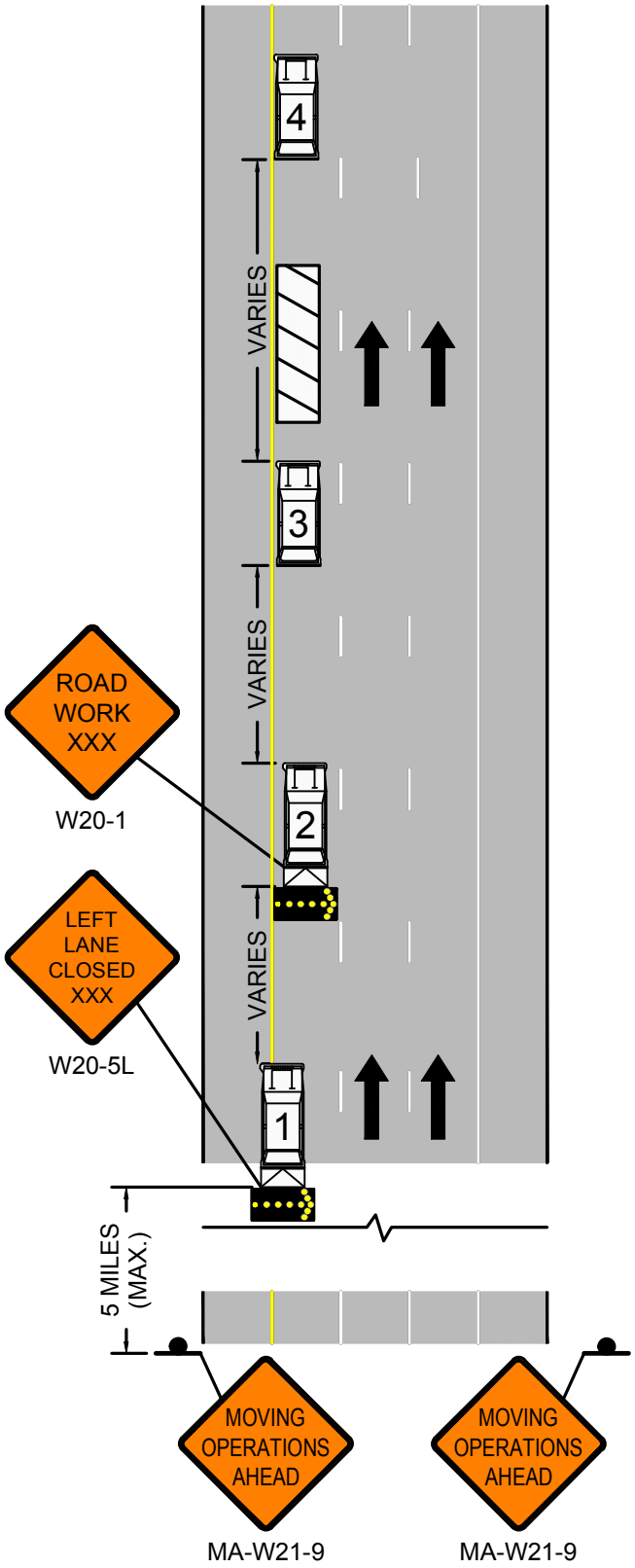
NOTES

1. WHERE PRACTICAL AND WHEN NEEDED, THE WORK AND SHADOW VEHICLE(S) SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS. IF THIS CANNOT BE DONE FREQUENTLY, THEN AN ALTERNATE STATIONARY SETUP SHALL BE DEPLOYED.
2. WHERE A WIDE SHOULDER EXISTS, SHADOW VEHICLE #1 SHOULD DRIVE ON THE SHOULDER.

LEGEND

- WORK ZONE
- SHADOW VEHICLE
- WORK VEHICLE
- FLASHING ARROW BOARD (WITH STATUS)

NOT TO SCALE



LEGEND

- WORK ZONE
- SHADOW VEHICLE
- WORK VEHICLE
- FLASHING ARROW BOARD (WITH STATUS)

NOT TO SCALE

massDOT Massachusetts Department of Transportation Highway Division PAGE 61	Work Zone Safety Standard Details and Drawings	FIGURE 29 MOBILE OPERATIONS MULTILANE DIVIDED ROADWAY LEFT LANE

massDOT Massachusetts Department of Transportation Highway Division

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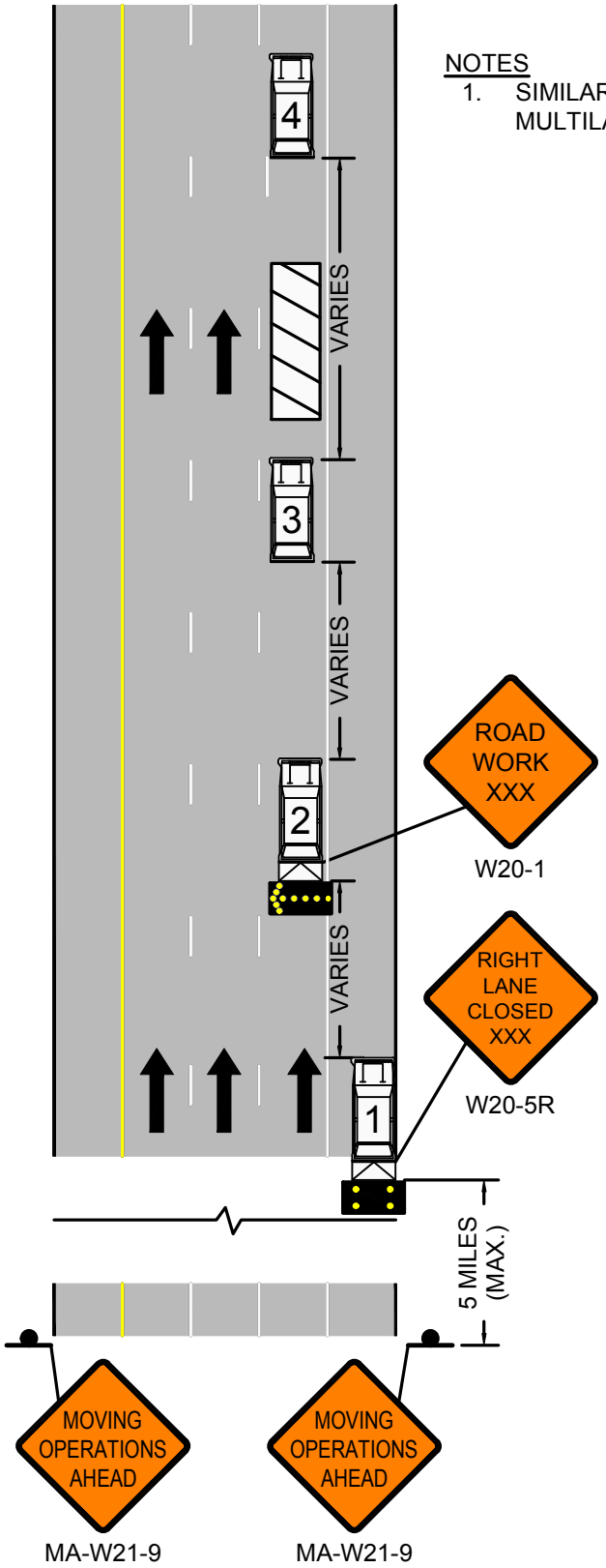
Work Zone Safety Standard Details and Drawings

FIGURE 30
MOBILE OPERATIONS
MULTILANE DIVIDED ROADWAY
RIGHT LANE



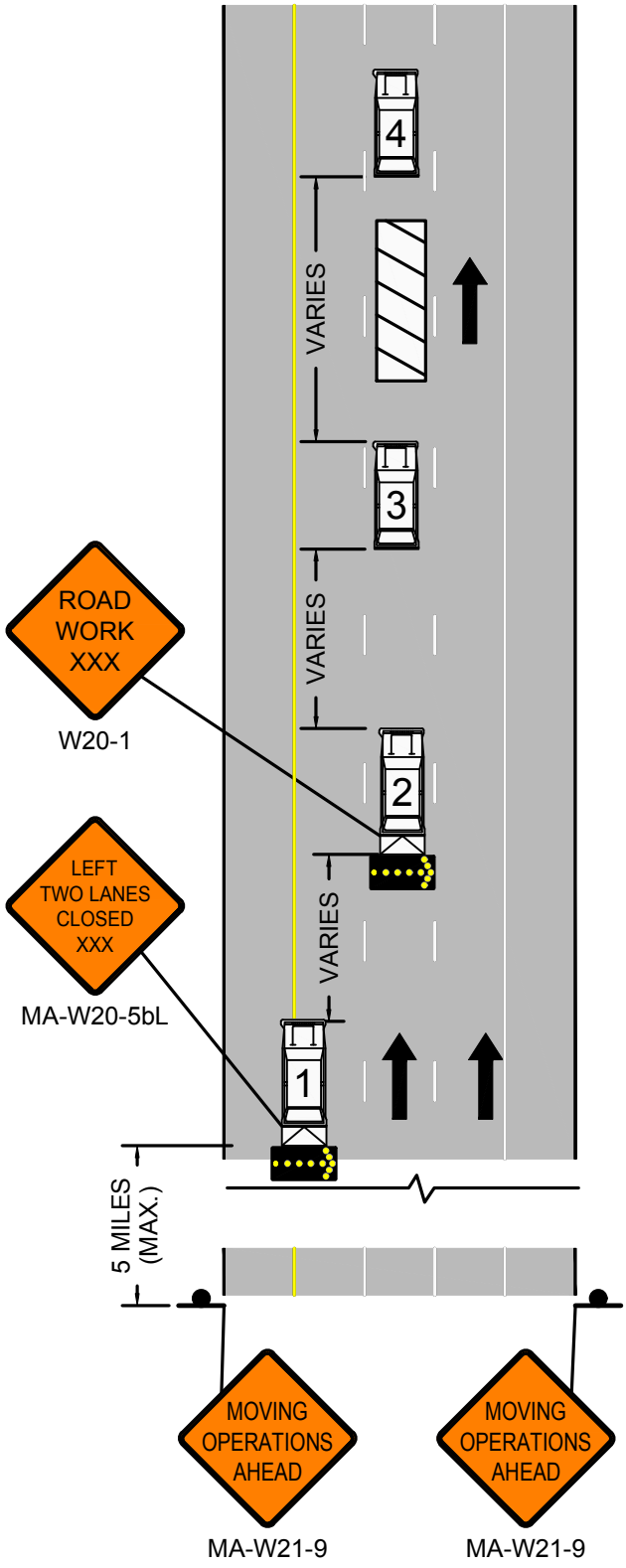
NOTES

1. SIMILAR SETUP MAY BE USED FOR A MULTILANE UNDIVIDED HIGHWAY.

LEGEND

- WORK ZONE
- SHADOW VEHICLE
- WORK VEHICLE
- FLASHING ARROW BOARD (WITH STATUS)

NOT TO SCALE



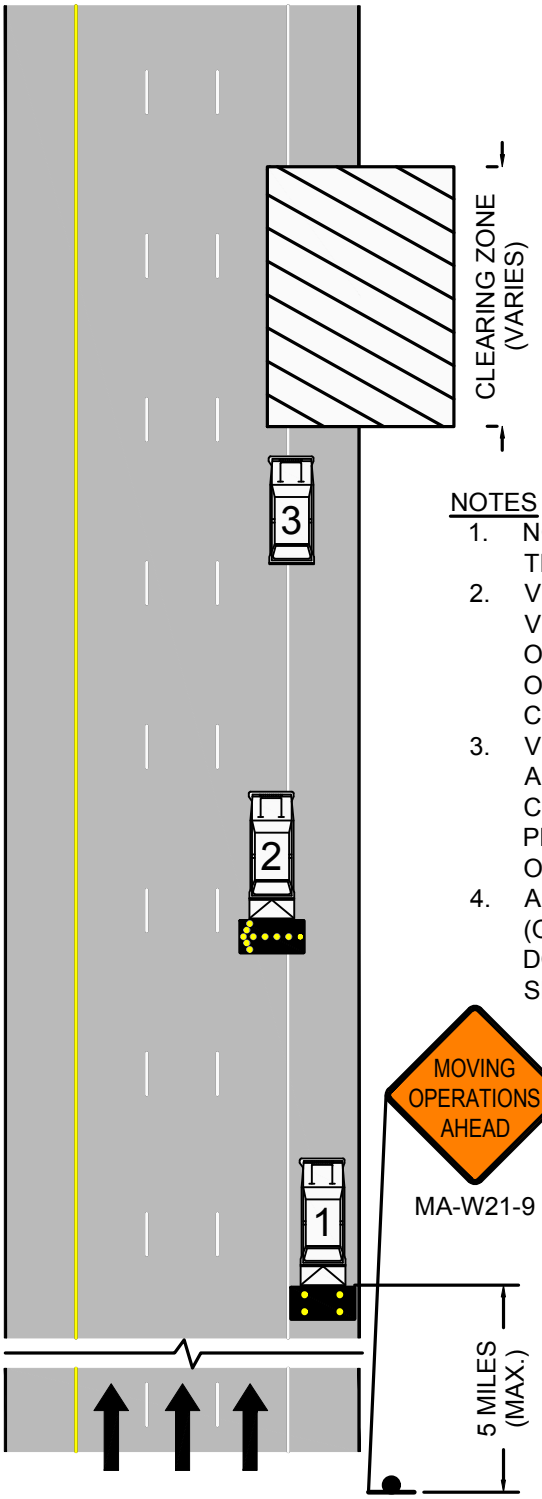
LEGEND

- WORK ZONE
- SHADOW VEHICLE
- WORK VEHICLE
- FLASHING ARROW BOARD (WITH STATUS)

NOT TO SCALE

massDOT Massachusetts Department of Transportation Highway Division PAGE 63	Work Zone Safety Standard Details and Drawings	FIGURE 31 MOBILE OPERATIONS MULTILANE DIVIDED ROADWAY CENTER LANE

massDOT Massachusetts Department of Transportation Highway Division PAGE 64	Work Zone Safety Standard Details and Drawings	FIGURE 32 MOBILE OPERATIONS POST-STORM CLEANUP OPERATION



NOTES

1. NO OTHER NOTES ARE APPLICABLE TO THIS DETAIL.
2. VEHICLE #3 IS A SNOW/DEBRIS REMOVAL VEHICLE AND SHALL ALWAYS BE AWARE OF THE SURROUNDINGS. MORE THAN ONE VEHICLE MAY BE USED IN THE CLEARING ZONE.
3. VEHICLE #1 SHOULD BE EQUIPPED WITH A PCMS, A TMA, AND STAY IN VISUAL CONTACT WITH VEHICLE #3 WHILE PROVIDING AMPLE WARNING TO ONCOMING TRAFFIC.
4. A POLICE DETAIL WITH BLUE LIGHTS (OPTIONAL) SHALL REMAIN DOWNSTREAM OF VEHICLE #1 IN THE SHOULDER.

LEGEND

- WORK ZONE
- SHADOW VEHICLE
- WORK VEHICLE
- FLASHING ARROW BOARD (WITH STATUS)

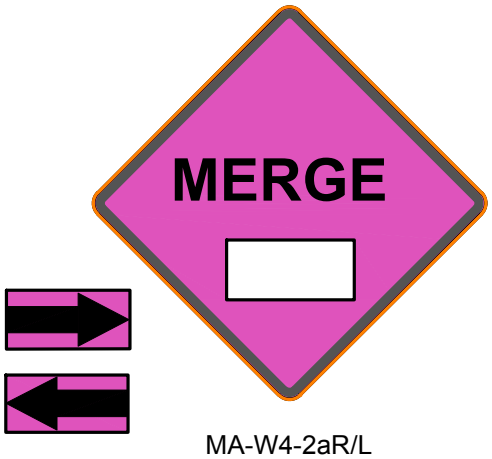
NOT TO SCALE

Notes for Traffic Emergency or Incident Operations

- The goal is to increase awareness of during traffic emergencies or incidents.
- These signs are to be used to differentiate from the traditional construction work zone and an emergency or incident.
- Upon arrival MassDOT First Responders shall assess the magnitude of the scene to determine if the incident is likely to last an hour or more in duration which would trigger the requirement to use these signs.
- Place the "Emergency Ahead" sign on the same side of the road as the incident, if possible, for up to an hour. Emergency response signs should be put up for all incidents and emergencies as soon as possible.
- Place the emergency sign 500 to 1000 feet before the first channelization devices.
- As an incident evolves this sign would be used as a secondary sign with all other emergency controls put in place.
- Only use "MERGE" signs where applicable (Not on 2 lane roads).
- Use MERGE signs on Multi-lane Roads to move traffic away from the incident and keep them in a safe lane.
- Place the MERGE sign about 500 feet before the closure.
- If additional signs are available, they should be placed accordingly as a sign informing people coming in the other direction or on the opposite side of the roadway.
- Use 12 emergency cones spaced 40 to 80 feet apart to form a taper and protect the scene.
- Sequential flashing lights/flares may be used in lieu of or to supplement cones.
- During a major incident that will last for a long duration, the EMERGENCY AHEAD sign should be moved back before an intersecting road or ramp to alert travelers and give them an option of using an alternate route. (Be sure all other devices are in place before moving this sign).

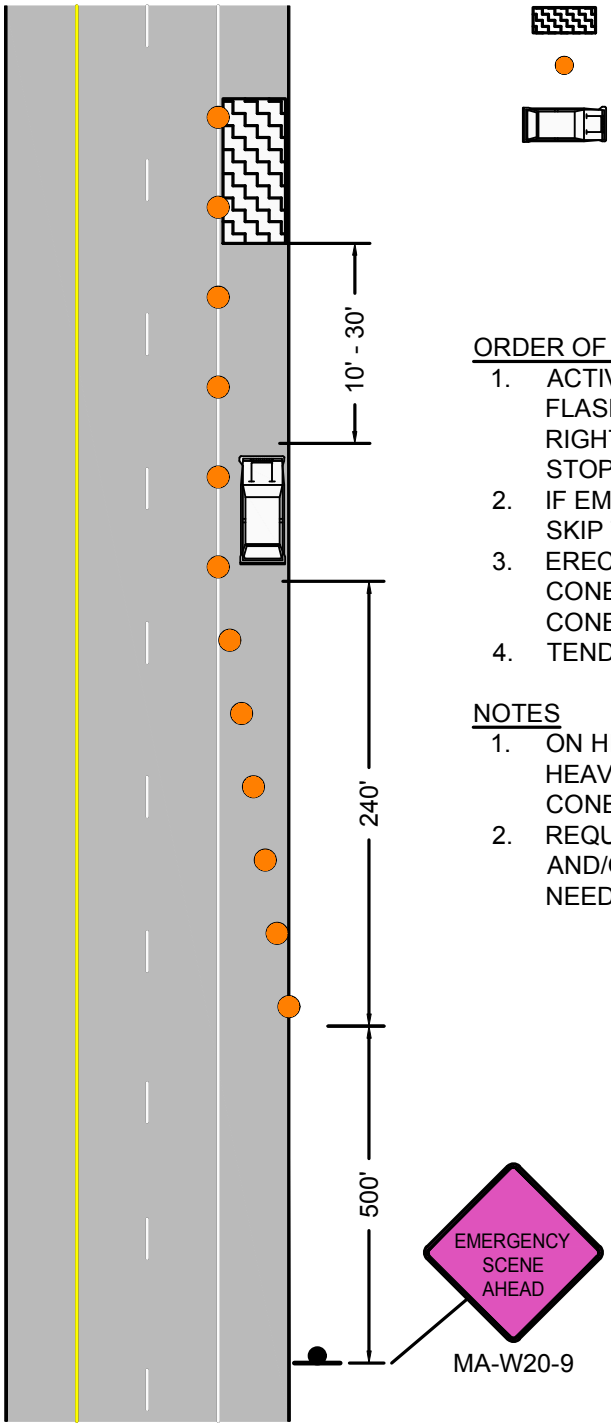
Standard Emergency Signs (36"x36" or 48"x48")

MA-W20-9



MA-W4-2aR/L

massDOT Massachusetts Department of Transportation Highway Division PAGE 66	Work Zone Safety Standard Details and Drawings	FIGURE 33 EMERGENCY RESPONSE ANY ROADWAY SHOULDER ENCROACHMENT



LEGEND

EMERGENCY AREA

CHANNELIZATION DEVICE

EMERGENCY RESPONSE VEHICLE

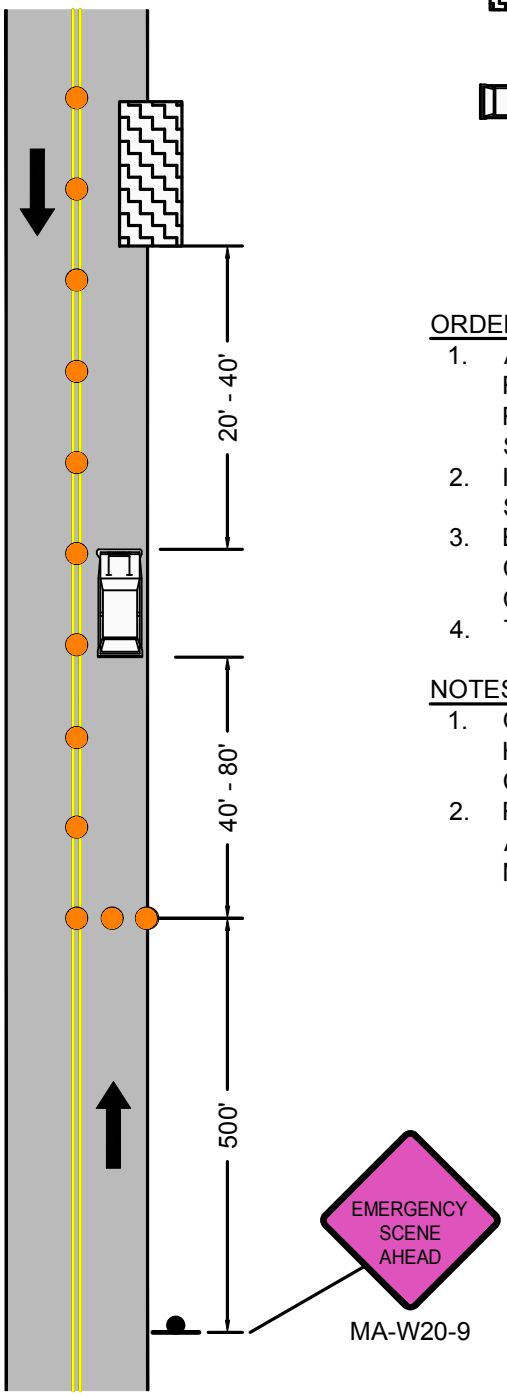
NOT TO SCALE

ORDER OF RESPONSE ACTIVITIES

1. ACTIVATE HAZARD WARNING LIGHTS AND FLASHERS. PULL VEHICLE OVER TO THE RIGHT EDGE OF TRAVEL LANE BEFORE STOPPING.
2. IF EMERGENCY INVOLVES AN INJURY, SKIP TO STEP 4 THEN RETURN TO STEP 3.
3. ERECT SIGNS AND PLACE TRAFFIC CONES. USE 40' SPACING BETWEEN CONES.
4. TEND TO EMERGENCY/INCIDENT.

NOTES

1. ON HILLY TERRAIN, SHARP CURVES, IN HEAVY TRAFFIC, OR WITH HIGH SPEEDS, CONE SPACING MAY BE DOUBLED TO 80'.
2. REQUEST ADDITIONAL ASSISTANCE AND/OR TRAFFIC CONTROL DEVICES, IF NEEDED.



LEGEND

EMERGENCY AREA

CHANNELIZATION DEVICE

EMERGENCY RESPONSE VEHICLE

NOT TO SCALE

ORDER OF RESPONSE ACTIVITIES

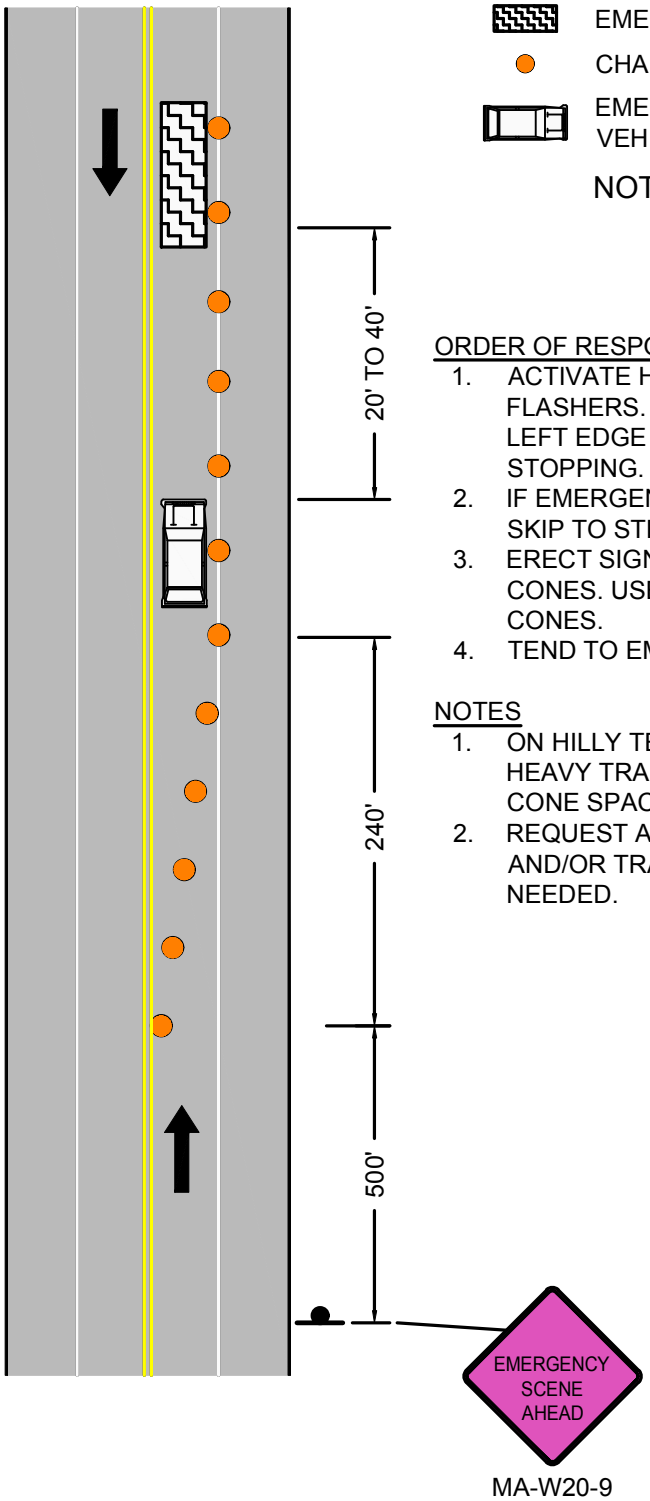
1. ACTIVATE HAZARD WARNING LIGHTS AND FLASHERS. PULL VEHICLE OVER TO THE RIGHT EDGE OF TRAVEL LANE BEFORE STOPPING.
2. IF EMERGENCY INVOLVES AN INJURY, SKIP TO STEP 4 THEN RETURN TO STEP 3.
3. ERECT SIGNS AND PLACE TRAFFIC CONES. USE 40' SPACING BETWEEN CONES.
4. TEND TO EMERGENCY/INCIDENT.

NOTES

1. ON HILLY TERRAIN, SHARP CURVES, IN HEAVY TRAFFIC, OR WITH HIGH SPEEDS, CONE SPACING MAY BE DOUBLED TO 80'.
2. REQUEST ADDITIONAL ASSISTANCE AND/OR TRAFFIC CONTROL DEVICES, IF NEEDED.

massDOT Massachusetts Department of Transportation Highway Division PAGE 67	Work Zone Safety Standard Details and Drawings	FIGURE 34 EMERGENCY RESPONSE TWO LANE ROADWAY NO SHOULDER TRAVEL LANE ENCROACHMENT

massDOT Massachusetts Department of Transportation Highway Division PAGE 68	Work Zone Safety Standard Details and Drawings	FIGURE 35 EMERGENCY RESPONSE TWO LANE ROADWAY TRAVERSABLE SHOULDER SINGLE LANE ENCROACHMENT



LEGEND

- EMERGENCY AREA
- CHANNELIZATION DEVICE
- EMERGENCY RESPONSE VEHICLE

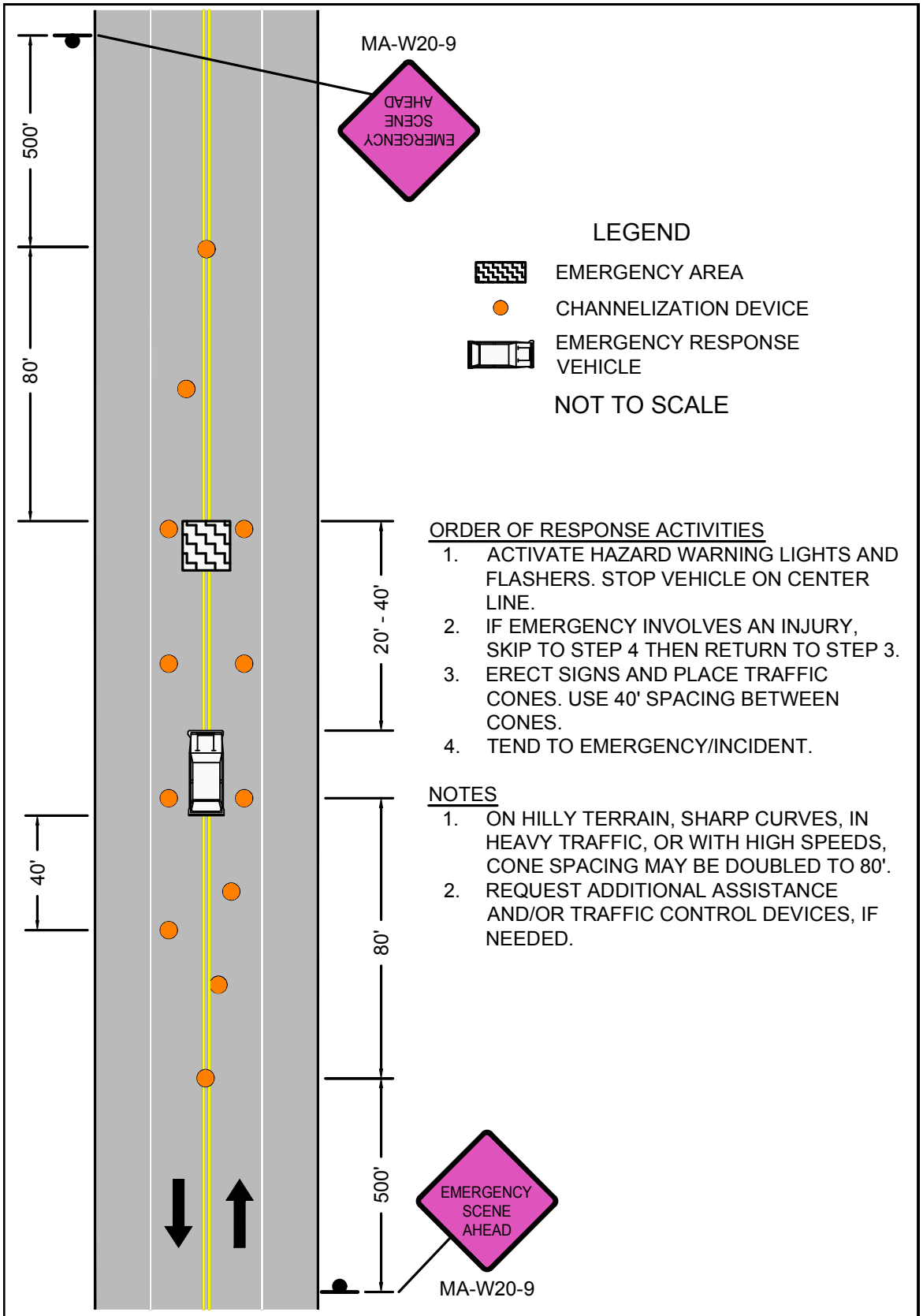
NOT TO SCALE

ORDER OF RESPONSE ACTIVITIES

1. ACTIVATE HAZARD WARNING LIGHTS AND FLASHERS. PULL VEHICLE OVER TO THE LEFT EDGE OF TRAVEL LANE BEFORE STOPPING.
2. IF EMERGENCY INVOLVES AN INJURY, SKIP TO STEP 4 THEN RETURN TO STEP 3.
3. ERECT SIGNS AND PLACE TRAFFIC CONES. USE 40' SPACING BETWEEN CONES.
4. TEND TO EMERGENCY/INCIDENT.

NOTES

1. ON HILLY TERRAIN, SHARP CURVES, IN HEAVY TRAFFIC, OR WITH HIGH SPEEDS, CONE SPACING MAY BE DOUBLED TO 80'.
2. REQUEST ADDITIONAL ASSISTANCE AND/OR TRAFFIC CONTROL DEVICES, IF NEEDED.



ORDER OF RESPONSE ACTIVITIES

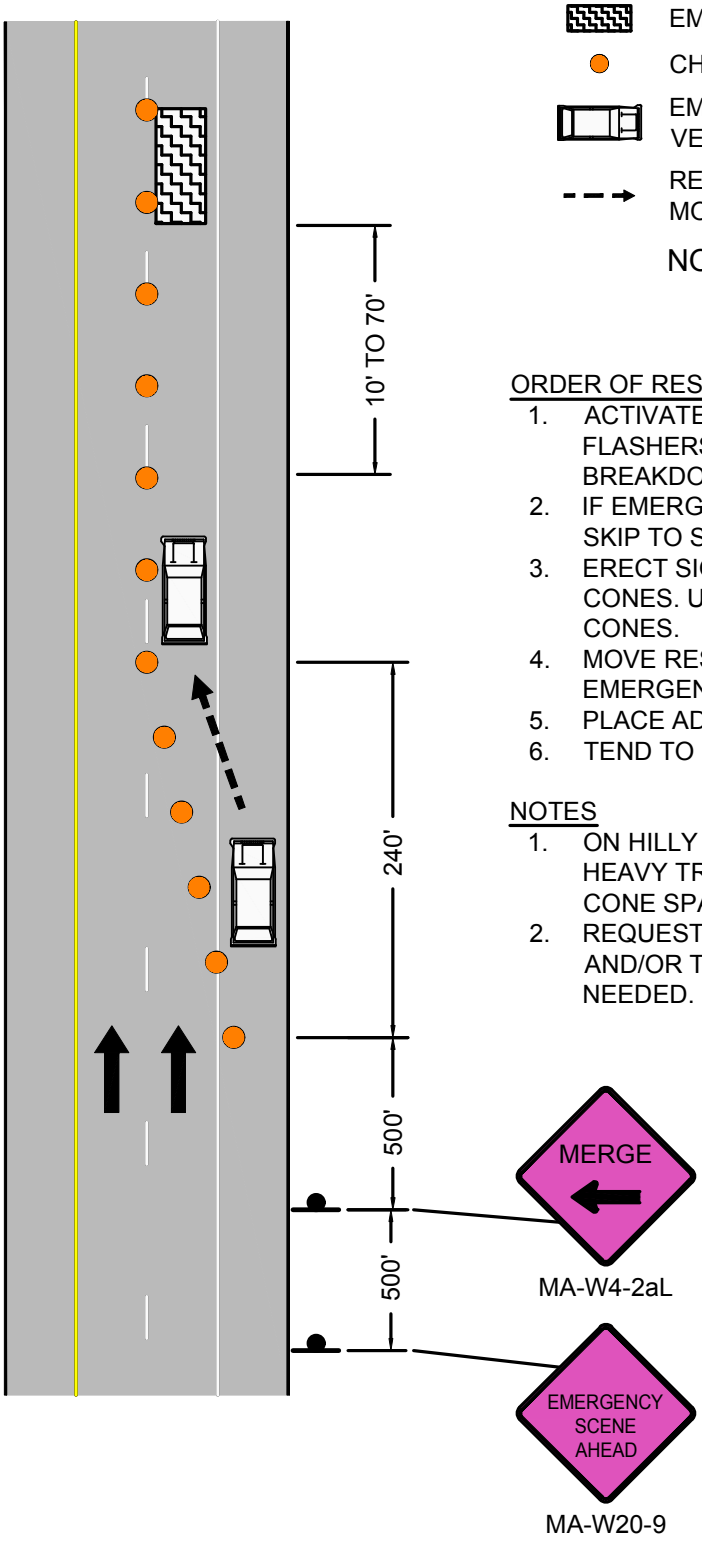
1. ACTIVATE HAZARD WARNING LIGHTS AND FLASHERS. STOP VEHICLE ON CENTER LINE.
2. IF EMERGENCY INVOLVES AN INJURY, SKIP TO STEP 4 THEN RETURN TO STEP 3.
3. ERECT SIGNS AND PLACE TRAFFIC CONES. USE 40' SPACING BETWEEN CONES.
4. TEND TO EMERGENCY/INCIDENT.

NOTES

1. ON HILLY TERRAIN, SHARP CURVES, IN HEAVY TRAFFIC, OR WITH HIGH SPEEDS, CONE SPACING MAY BE DOUBLED TO 80'.
2. REQUEST ADDITIONAL ASSISTANCE AND/OR TRAFFIC CONTROL DEVICES, IF NEEDED.

massDOT Massachusetts Department of Transportation Highway Division PAGE 69	Work Zone Safety Standard Details and Drawings	FIGURE 36 EMERGENCY RESPONSE TWO LANE ROADWAY TRAVERSABLE SHOULDER CENTER OF ROADWAY

massDOT Massachusetts Department of Transportation Highway Division PAGE 70	Work Zone Safety Standard Details and Drawings	FIGURE 37 EMERGENCY RESPONSE MULTILANE DIVIDED ROADWAY RIGHT LANE



LEGEND

- EMERGENCY AREA
- CHANNELIZATION DEVICE
- EMERGENCY RESPONSE VEHICLE
- RESPONSE VEHICLE MOVEMENT

NOT TO SCALE

ORDER OF RESPONSE ACTIVITIES

1. ACTIVATE HAZARD WARNING LIGHTS AND FLASHERS. STOP VEHICLE IN BREAKDOWN LANE.
2. IF EMERGENCY INVOLVES AN INJURY, SKIP TO STEP 6 THEN RETURN TO STEP 3.
3. ERECT SIGNS AND PLACE TRAFFIC CONES. USE 40' SPACING BETWEEN CONES.
4. MOVE RESPONSE VEHICLE BEHIND EMERGENCY.
5. PLACE ADDITIONAL CONES.
6. TEND TO EMERGENCY.

NOTES

1. ON HILLY TERRAIN, SHARP CURVES, IN HEAVY TRAFFIC, OR WITH HIGH SPEEDS, CONE SPACING MAY BE DOUBLED TO 80'.
2. REQUEST ADDITIONAL ASSISTANCE AND/OR TRAFFIC CONTROL DEVICES, IF NEEDED.

LEGEND

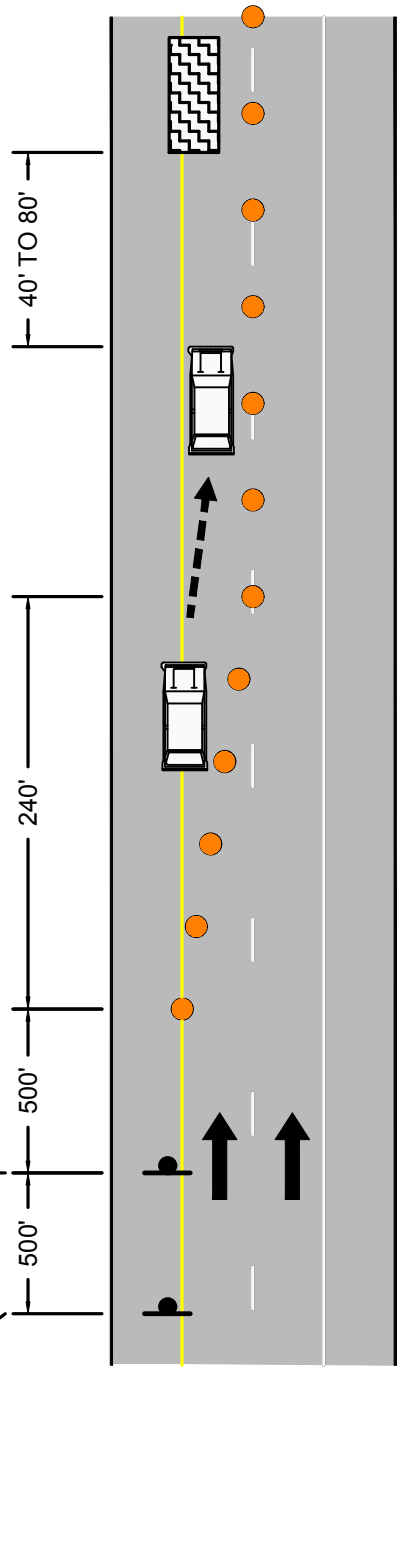
EMERGENCY AREA

CHANNELIZATION DEVICE

EMERGENCY RESPONSE VEHICLE

RESPONSE VEHICLE MOVEMENT

NOT TO SCALE



ORDER OF RESPONSE ACTIVITIES

1. ACTIVATE HAZARD WARNING LIGHTS AND FLASHERS. STOP VEHICLE IN MEDIAN, IF PRESENT.
2. IF EMERGENCY INVOLVES AN INJURY, SKIP TO STEP 6 THEN RETURN TO STEP 3.
3. ERECT SIGNS AND PLACE TRAFFIC CONES. USE 40' SPACING BETWEEN CONES.
4. MOVE RESPONSE VEHICLE BEHIND EMERGENCY.
5. PLACE ADDITIONAL CONES.
6. TEND TO EMERGENCY/INCIDENT.

NOTES

1. ON HILLY TERRAIN, SHARP CURVES, IN HEAVY TRAFFIC, OR WITH HIGH SPEEDS, CONE SPACING MAY BE DOUBLED TO 80'.
2. REQUEST ADDITIONAL ASSISTANCE AND/OR TRAFFIC CONTROL DEVICES, IF NEEDED.

massDOT Massachusetts Department of Transportation Highway Division

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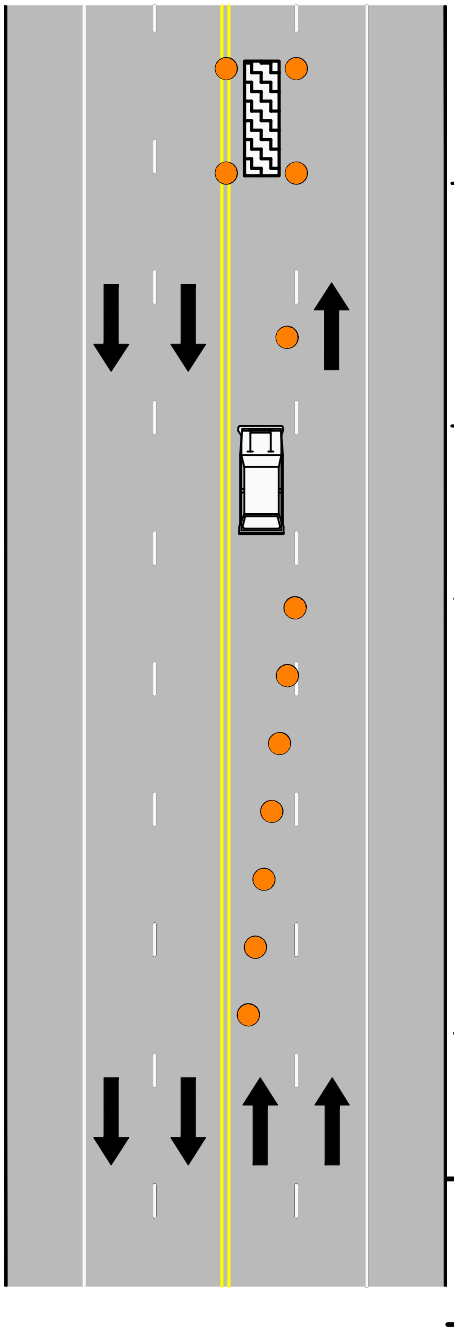
Work Zone Safety Standard Details and Drawings

FIGURE 38
EMERGENCY RESPONSE
MULTILANE DIVIDED ROADWAY
LEFT LANE

massDOT Massachusetts Department of Transportation Highway Division PAGE 72	Work Zone Safety Standard Details and Drawings	FIGURE 39 EMERGENCY RESPONSE MULTILANE UNDIVIDED ROADWAY LEFT LANE



LEGEND

- EMERGENCY AREA
- CHANNELIZATION DEVICE
- EMERGENCY RESPONSE VEHICLE

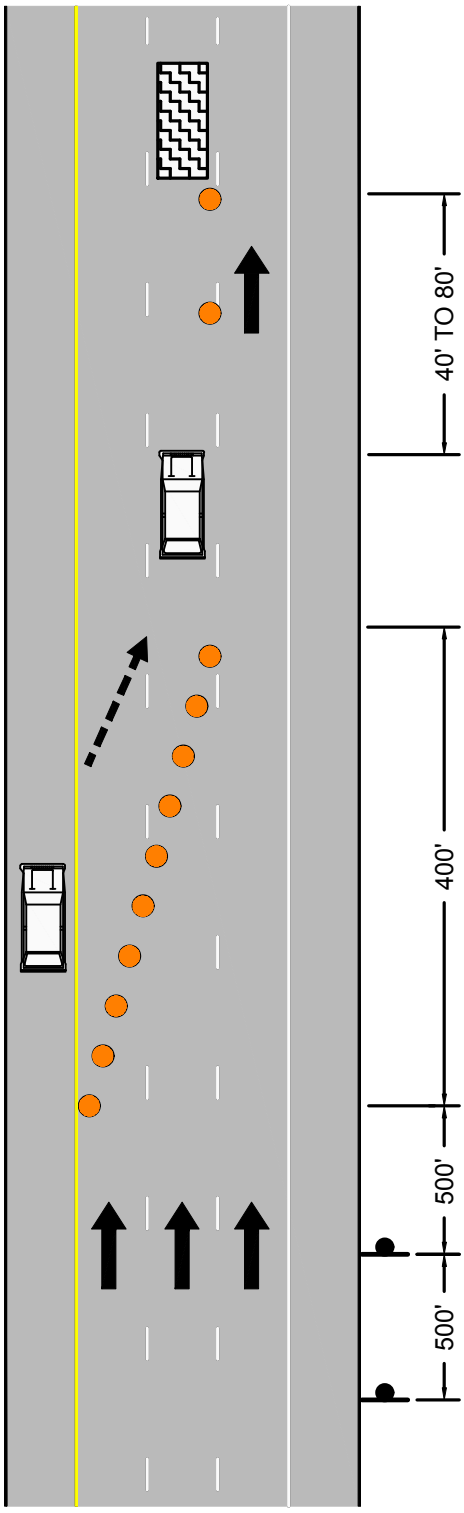
NOT TO SCALE

NOTES

1. ON HILLY TERRAIN, SHARP CURVES, IN HEAVY TRAFFIC, OR WITH HIGH SPEEDS, CONE SPACING MAY BE DOUBLED TO 80'.
2. REQUEST ADDITIONAL ASSISTANCE AND/OR TRAFFIC CONTROL DEVICES, IF NEEDED.

ORDER OF RESPONSE ACTIVITIES

1. ACTIVATE HAZARD WARNING LIGHTS AND FLASHERS. PULL VEHICLE OVER TO THE RIGHT EDGE OF BREAKDOWN LANE OR SHOULDER OR, IF NOT PRESENT, RIGHT EDGE OF TRAVEL LANE BEFORE STOPPING.
2. IF EMERGENCY INVOLVES AN INJURY, SKIP TO STEP 4 THEN RETURN TO STEP 3.
3. ERECT SIGNS AND PLACE TRAFFIC CONES. USE 40' SPACING BETWEEN CONES.
4. TEND TO EMERGENCY/INCIDENT.



LEGEND

- EMERGENCY AREA
- CHANNELIZATION DEVICE
- EMERGENCY RESPONSE VEHICLE
- RESPONSE VEHICLE MOVEMENT

NOT TO SCALE

ORDER OF RESPONSE ACTIVITIES

1. ACTIVATE HAZARD WARNING LIGHTS AND FLASHERS. STOP VEHICLE IN MEDIAN, IF PRESENT.
2. IF EMERGENCY INVOLVES AN INJURY, SKIP TO STEP 6 THEN RETURN TO STEP 3.
3. ERECT SIGNS AND PLACE TRAFFIC CONES. USE 40' SPACING BETWEEN CONES.
4. MOVE RESPONSE VEHICLE BEHIND EMERGENCY.
5. PLACE ADDITIONAL CONES.
6. TEND TO EMERGENCY/INCIDENT.

NOTES

1. ON HILLY TERRAIN, SHARP CURVES, IN HEAVY TRAFFIC, OR WITH HIGH SPEEDS, CONE SPACING MAY BE DOUBLED TO 80'.
2. REQUEST ADDITIONAL ASSISTANCE AND/OR TRAFFIC CONTROL DEVICES, IF NEEDED.

massDOT Massachusetts Department of Transportation Highway Division PAGE 73	Work Zone Safety Standard Details and Drawings	FIGURE 40 EMERGENCY RESPONSE MULTILANE DIVIDED ROADWAY MIDDLE LANE APPROACH FROM LEFT

massDOT Massachusetts Department of Transportation Highway Division

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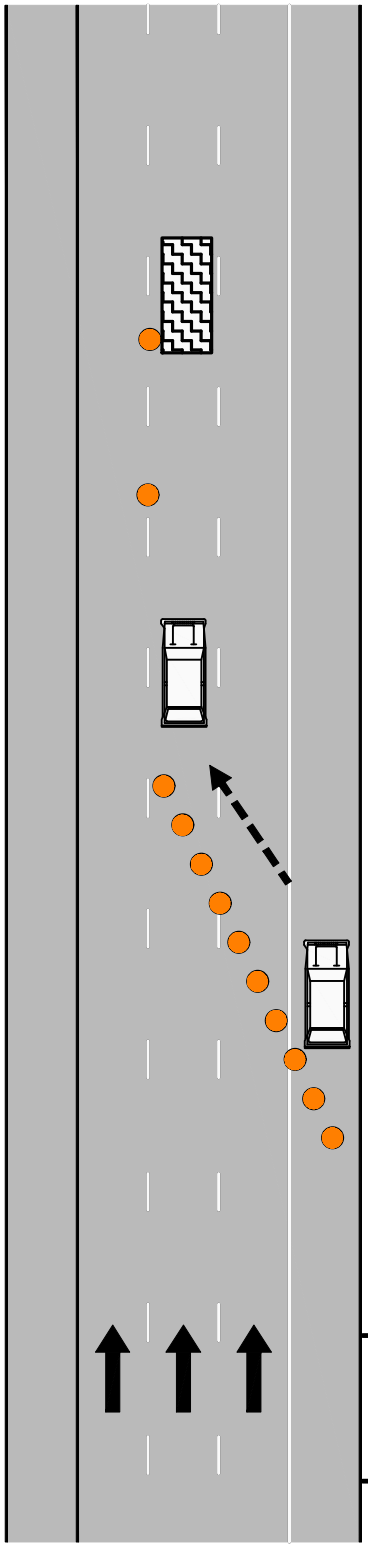
Work Zone Safety Standard Details and Drawings

FIGURE 41
EMERGENCY RESPONSE
MULTILANE DIVIDED ROADWAY
MIDDLE LANE
APPROACH FROM RIGHT



LEGEND

- EMERGENCY AREA
- CHANNELIZATION DEVICE
- EMERGENCY RESPONSE VEHICLE
- RESPONSE VEHICLE MOVEMENT

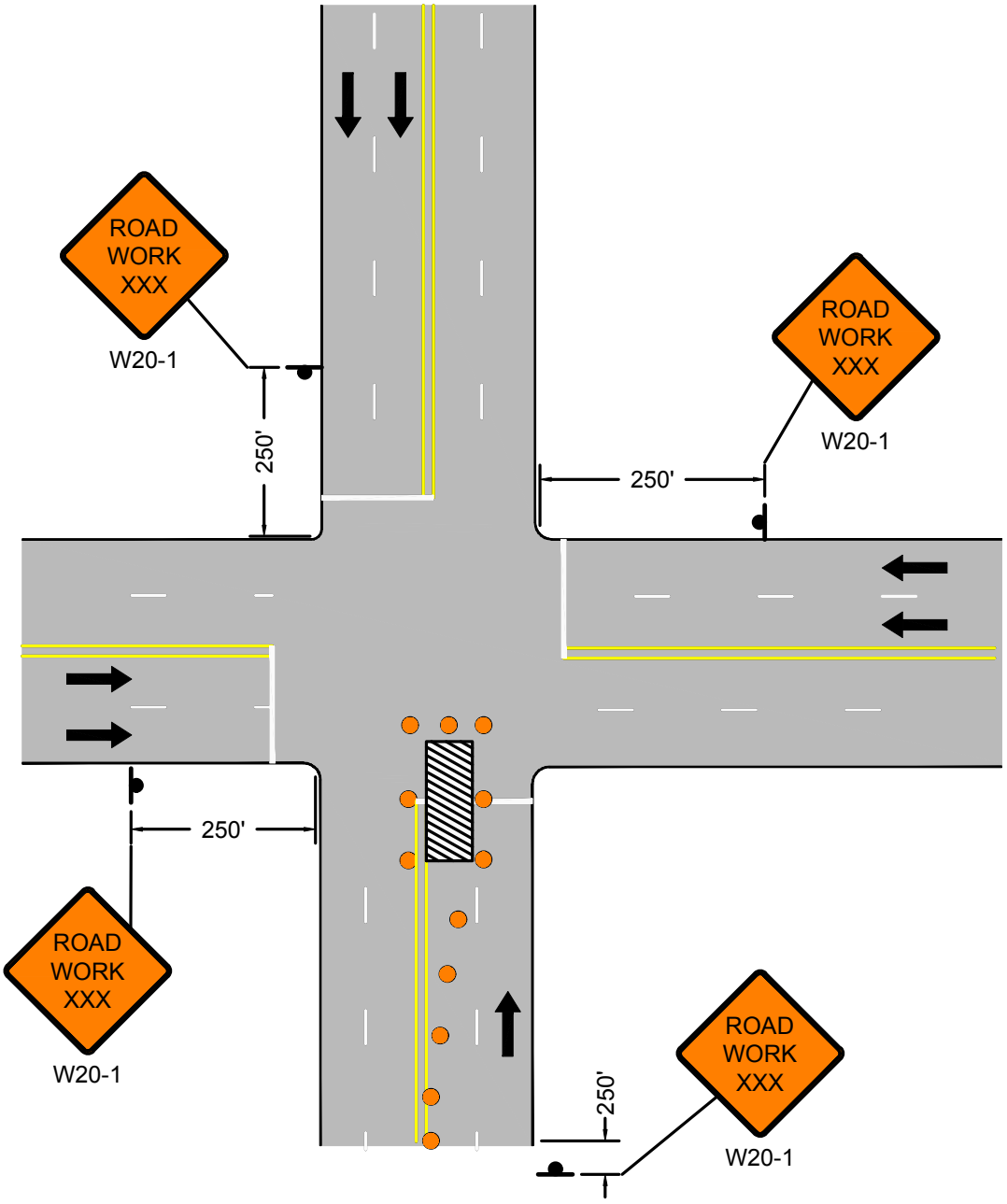
NOT TO SCALE

ORDER OF RESPONSE ACTIVITIES

1. ACTIVATE HAZARD WARNING LIGHTS AND FLASHERS. STOP VEHICLE IN BREAKDOWN LANE.
2. IF EMERGENCY INVOLVES AN INJURY, SKIP TO STEP 6 THEN RETURN TO STEP 3.
3. ERECT SIGNS AND PLACE TRAFFIC CONES. USE 40' SPACING BETWEEN CONES.
4. MOVE RESPONSE VEHICLE BEHIND EMERGENCY.
5. PLACE ADDITIONAL CONES.
6. TEND TO EMERGENCY.

NOTES

1. ON HILLY TERRAIN, SHARP CURVES, IN HEAVY TRAFFIC, OR WITH HIGH SPEEDS, CONE SPACING MAY BE DOUBLED TO 80'.
2. REQUEST ADDITIONAL ASSISTANCE AND/OR TRAFFIC CONTROL DEVICES, IF NEEDED.



LEGEND

WORK ZONE

CHANNELIZATION DEVICE

NOT TO SCALE

NOTES

1. DURATION OF WORK = 20 MINUTES OR LESS.
2. EQUIPMENT: 12 CONES + 4 PORTABLE SIGNS.
3. CONE SPACING IS 20 FEET.
4. SINGLE WORK VEHICLE PARKED/STOPPED.
5. POLICE DETAIL REQUIRED.

massDOT Massachusetts Department of Transportation Highway Division

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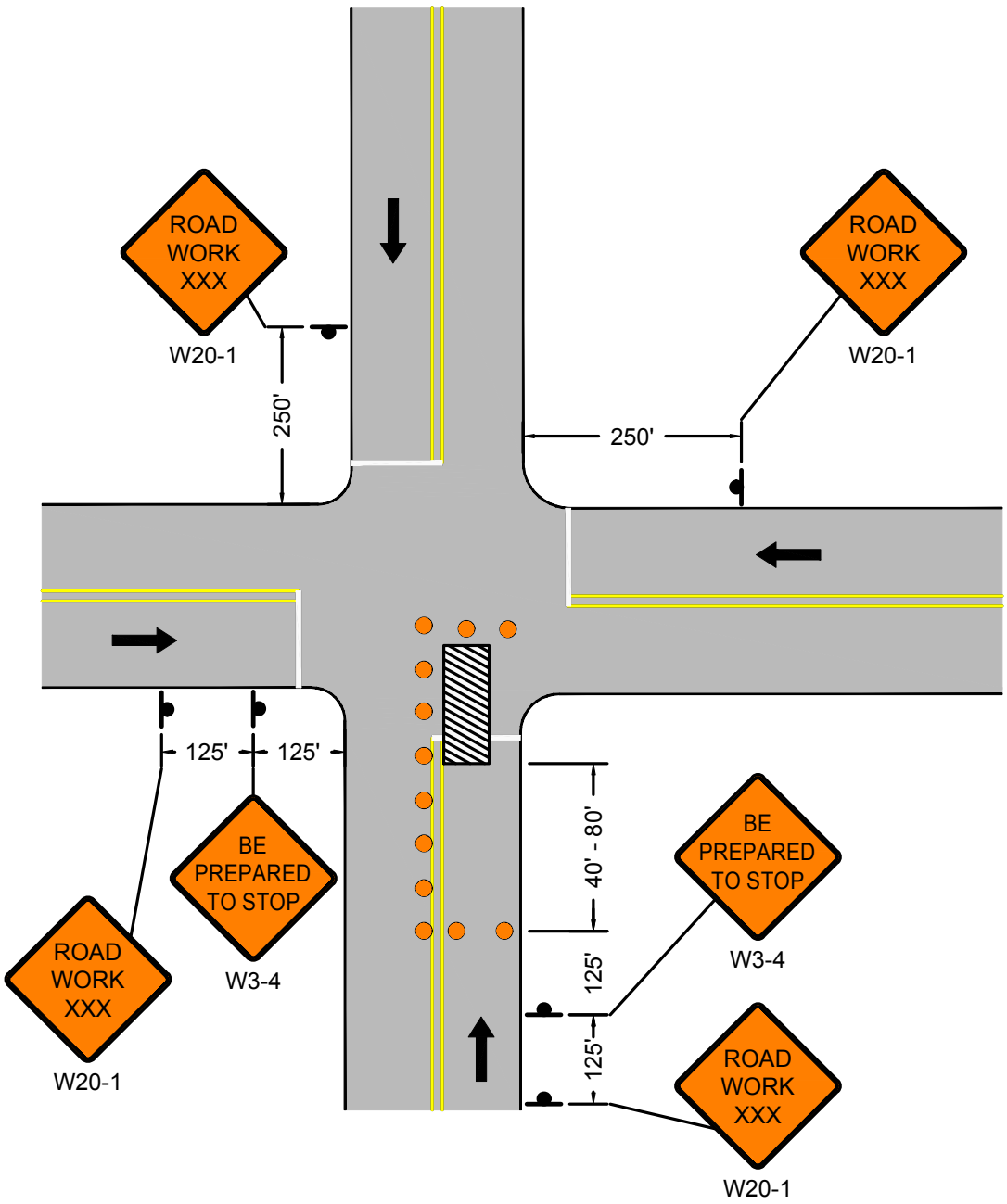
Work Zone Safety Standard Details and Drawings

FIGURE 42
TRAFFIC SIGNAL REPAIR WORK
MULTILANE UNDIVIDED ROADWAY
LEFTMOST OR LEFT TURNING LANE

massDOT Massachusetts Department of Transportation Highway Division PAGE 76	Work Zone Safety Standard Details and Drawings	FIGURE 43 TRAFFIC SIGNAL REPAIR WORK TWO LANE UNDIVIDED ROADWAY ONE LEG OF INTERSECTION



LEGEND

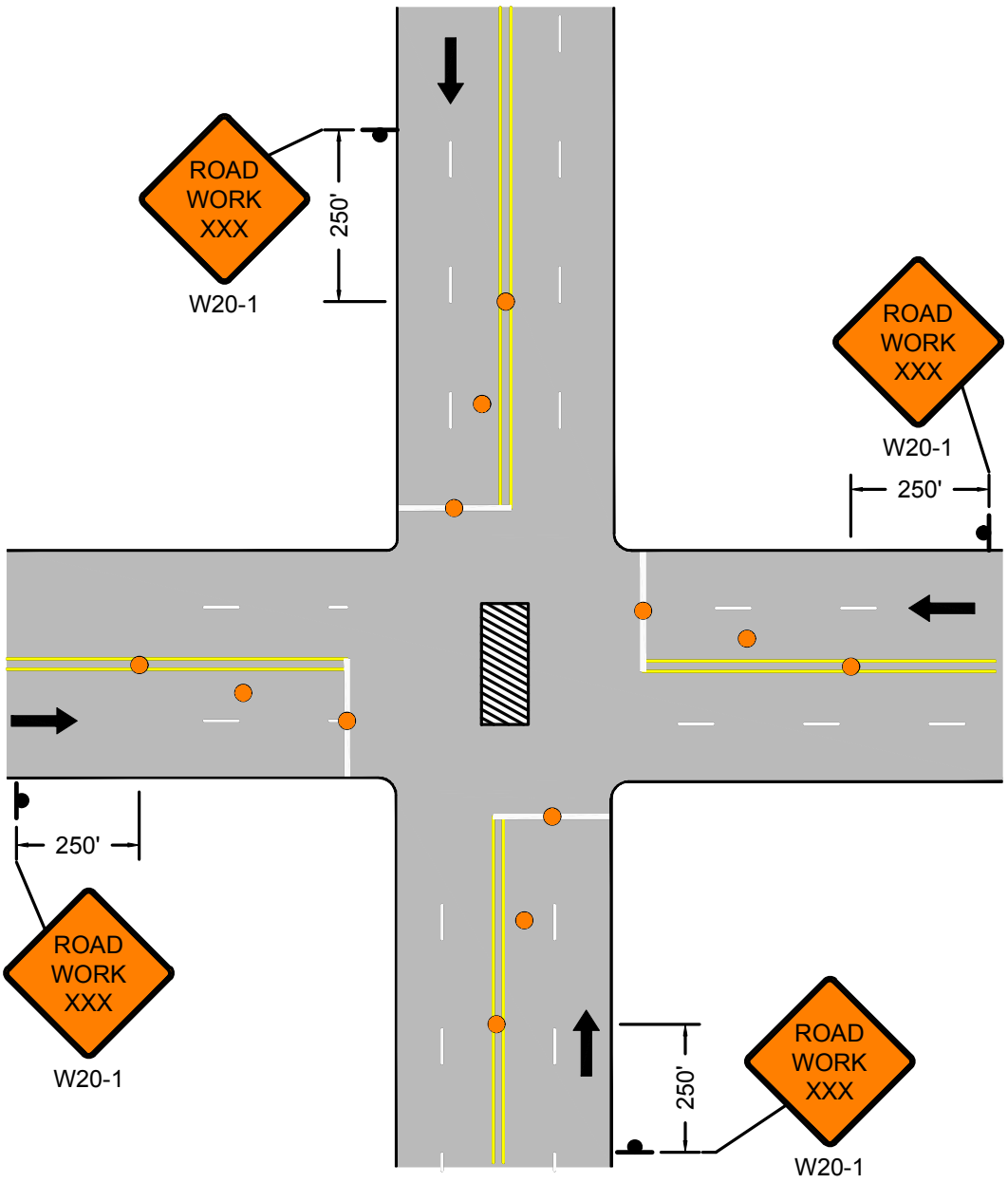
WORK ZONE

CHANNELIZATION DEVICE

NOT TO SCALE

NOTES

1. DURATION OF WORK = 20 MINUTES OR LESS.
2. EQUIPMENT: 12 CONES + 6 PORTABLE SIGNS.
3. CONE SPACING IS 20 FEET.
4. SINGLE WORK VEHICLE PARKED/STOPPED.
5. POLICE DETAIL REQUIRED.



LEGEND

WORK ZONE

CHANNELIZATION DEVICE

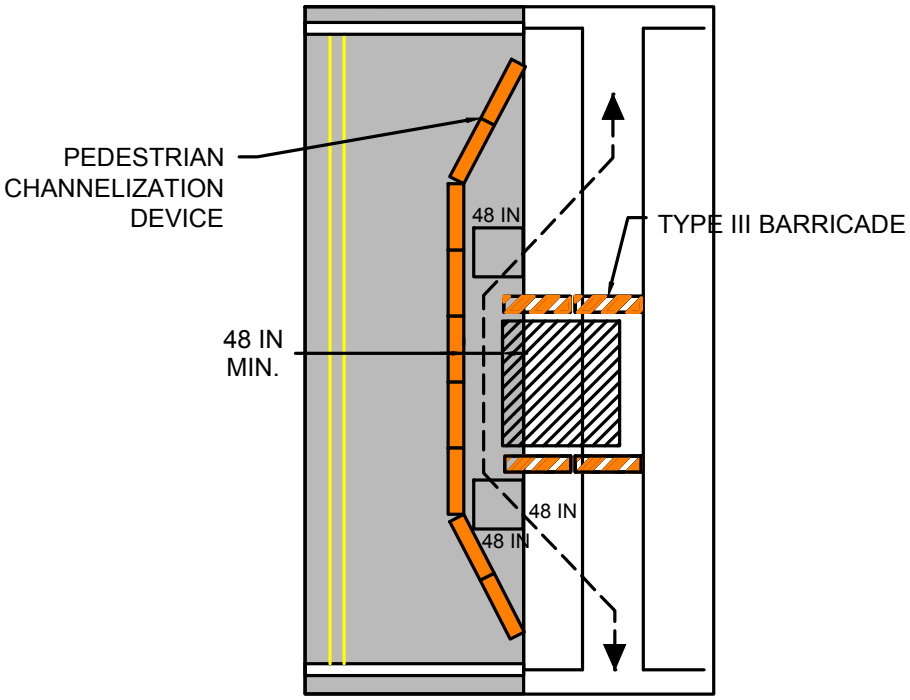
NOT TO SCALE

NOTES

1. DURATION OF WORK = 20 MINUTES OR LESS.
2. EQUIPMENT: 12 CONES + 4 PORTABLE SIGNS.
3. CONE SPACING IS 20 FEET.
4. SINGLE WORK VEHICLE PARKED/STOPPED.
5. POLICE DETAIL REQUIRED.

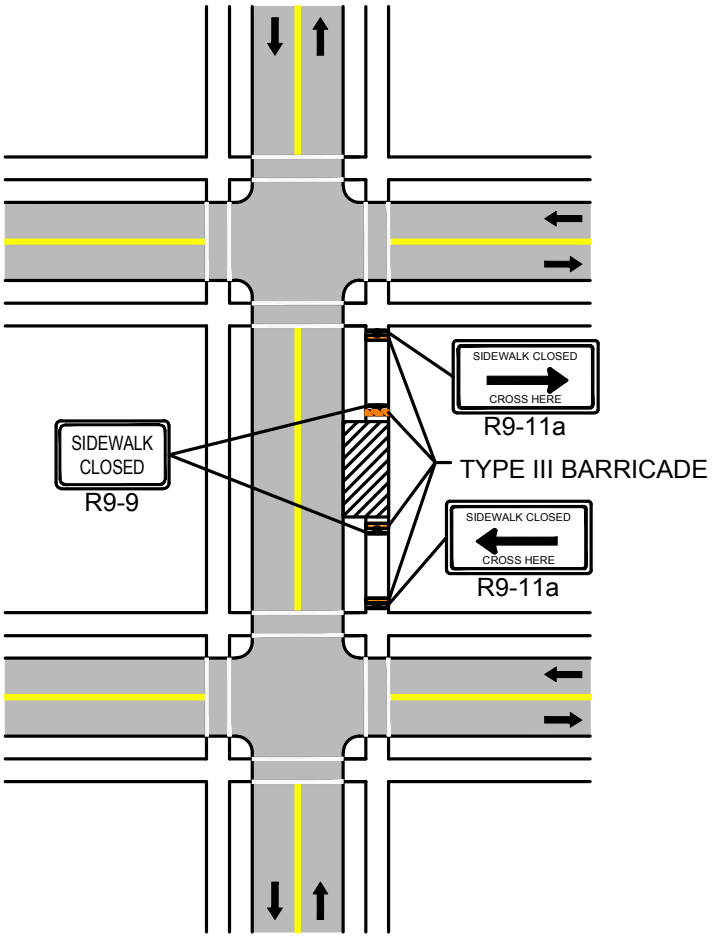
massDOT Massachusetts Department of Transportation Highway Division PAGE 77	Work Zone Safety Standard Details and Drawings	FIGURE 44 TRAFFIC SIGNAL REPAIR WORK MULTILANE UNDIVIDED ROADWAY CENTER OF INTERSECTION

massDOT Massachusetts Department of Transportation Highway Division PAGE 78	Work Zone Safety Standard Details and Drawings	FIGURE 45 PEDESTRIAN BYPASS



NOTES:

1. WHEN EXISTING PEDESTRIAN FACILITIES ARE DISRUPTED, CLOSED, OR RELOCATED IN A TTC ZONE, TEMPORARY FACILITIES SHALL BE PROVIDED AND THEY SHALL BE DETECTABLE AND INCLUDE ACCESSIBILITY FEATURES CONSISTENT WITH THE FEATURES PRESENT IN THE EXISTING PEDESTRIAN FACILITY.
2. A PEDESTRIAN CHANNELIZATION DEVICE THAT IS DETECTABLE BY A PERSON WITH A VISUAL DISABILITY TRAVELING WITH THE AID OF A LONG CANE SHALL BE PLACED ALONG THE FULL LENGTH OF THE TEMPORARY PEDESTRIAN ROUTE.
3. WHEN USED, TEMPORARY RAMPS SHALL COMPLY WITH AMERICANS WITH DISABILITIES ACT.
4. THE ALTERNATE PATHWAY SHOULD HAVE A SMOOTH CONTINUOUS HARD SURFACE FOR THE ENTIRE LENGTH OF THE TEMPORARY PEDESTRIAN FACILITY.
5. THE TEMPORARY SIDEWALK SHOULD BE A MINIMUM OF 4 FEET WIDE. IF THE SIDEWALK EXCEEDS 200 FEET THEN A 5 FOOT BY 5 FOOT PASSING ZONE SHALL BE PROVIDED NEAR THE MID-POINT OF THE CLOSURE.
6. THE PROTECTIVE REQUIREMENTS OF A TTC WORK ZONE MAY HAVE AN IMPACT IN DETERMINING THE NEED FOR TEMPORARY TRAFFIC BARRIERS AND THEIR USE IN PROVIDING PEDESTRIAN DELINEATION SHOULD BE BASED ON ENGINEERING JUDGMENT.
7. ON-DEMAND PEDESTRIAN ASSISTANCE PERSONNEL TO ASSIST WITH NAVIGATION AROUND THE CLOSURE/WORK AREA MAY BE CONSIDERED AS AN OPTION IN PLACE OF PROVIDING ADA/AAB DEVICES FOR WORK FOR CLOSURES LASTING 4 HOURS OR LESS.
8. CONTROLS ONLY FOR PEDESTRIAN TRAFFIC ARE SHOWN; VEHICULAR TRAFFIC SHOULD BE HANDLED AS SHOWN ELSEWHERE. THESE DETAILS ARE USED IN CONJUNCTION WITH THE PROPOSED LANE CLOSURE DETAILS AND DURING CONSTRUCTION STAGING, AS DETERMINED BY THE ENGINEER.



NOTES:

1. CLOSURE OF A SIDEWALK FACILITY SHALL CONSTITUTE THE PROVISION FOR MANAGING PEDESTRIAN TRAFFIC AND ACCOMMODATING ALL USERS. IF THE EXISTING PEDESTRIAN ACCESS ROUTE(S) CAN BE TEMPORARILY RELOCATED ALONG THE EXISTING SIDEWALK , AND SAID FACILITY PROVIDES A MINIMUM WIDTH OF 48-INCHES OF SOLID, SMOOTH UNOBSTRUCTED SURFACE, THEN NO DETOURING OF THE ROUTE SHALL BE REQUIRED. DELINEATION OF THE WORK AREA IS STILL REQUIRED.

2. IF IT IS NECESSARY TO DIVERT PEDESTRIAN TRAFFIC TO AN ALTERNATE ROUTE ACROSS THE ROADWAY FROM THE EXISTING FACILITY, THE FIGURE ABOVE SHALL BE FOLLOWED TO PROVIDE ADEQUATE DIRECTION TO PEDESTRIANS. ALTERNATE ROUTE SHALL PROVIDE THE SAME LEVEL OF ACCOMMODATION AS THE FACILITY THAT IS BEING DETOURED AND RETAIN ADA COMPLIANCE IN ITS ENTIRETY.

3. FOR EMERGENCY OR SHORT-DURATION SIDEWALK CLOSURES OF 4-HOURS OR LESS, IT IS OPTIONAL TO HAVE ON-DEMAND PEDESTRIAN ASSISTANCE PERSONNEL AVAILABLE AT ALL TIMES DURING THE CLOSURE TO ASSIST THOSE MOBILITY CHALLENGED PERSONS WHO REQUIRE ADDITIONAL ASSISTANCE TO SAFELY NAVIGATE AROUND THE WORK AREA IN LIEU OF A FULL DETOUR.

massDOT Massachusetts Department of Transportation Highway Division PAGE 80	Work Zone Safety Standard Details and Drawings	STATIONARY OPERATIONS BIKE LANE CLOSURE

POSTED SPEED LIMIT (MPH)	SPACING FOR BIKE ADVANCE WARNING SIGNS (FT) (A,B))	CHANNELIZATION DEVICES (DRUMS OR CONES)			
		TRANSITION LENGTH (L/3)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	150 / 150	100	305	20	45
45-55	150 / 150	220	495	40	35
60-65	150 / 150	260	645	40	40

* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

NOTES

1. DETAIL SHALL BE USED IN CONJUNCTION WITH THE PROPOSED LANE CLOSURE DETAILS. SIGNING SHOWN ONLY FOR BIKE TRAFFIC. FOLLOW ALL OTHER RELEVANT DETAILS FOR TTC DEVICES FOR VEHICULAR TRAFFIC.
2. ** SIGN SHALL BE USED ONLY IF THERE IS A MARKED BIKE LANE.
3. *** SIGN SHALL BE USED ONLY IF THERE IS NO MARKED BIKE LANE.

LEGEND


WORK ZONE


CHANNELIZATION DEVICE

FLASHING ARROW BOARD


PORTABLE CHANGEABLE MESSAGE SIGN


TRUCK MOUNTED ATTENUATOR

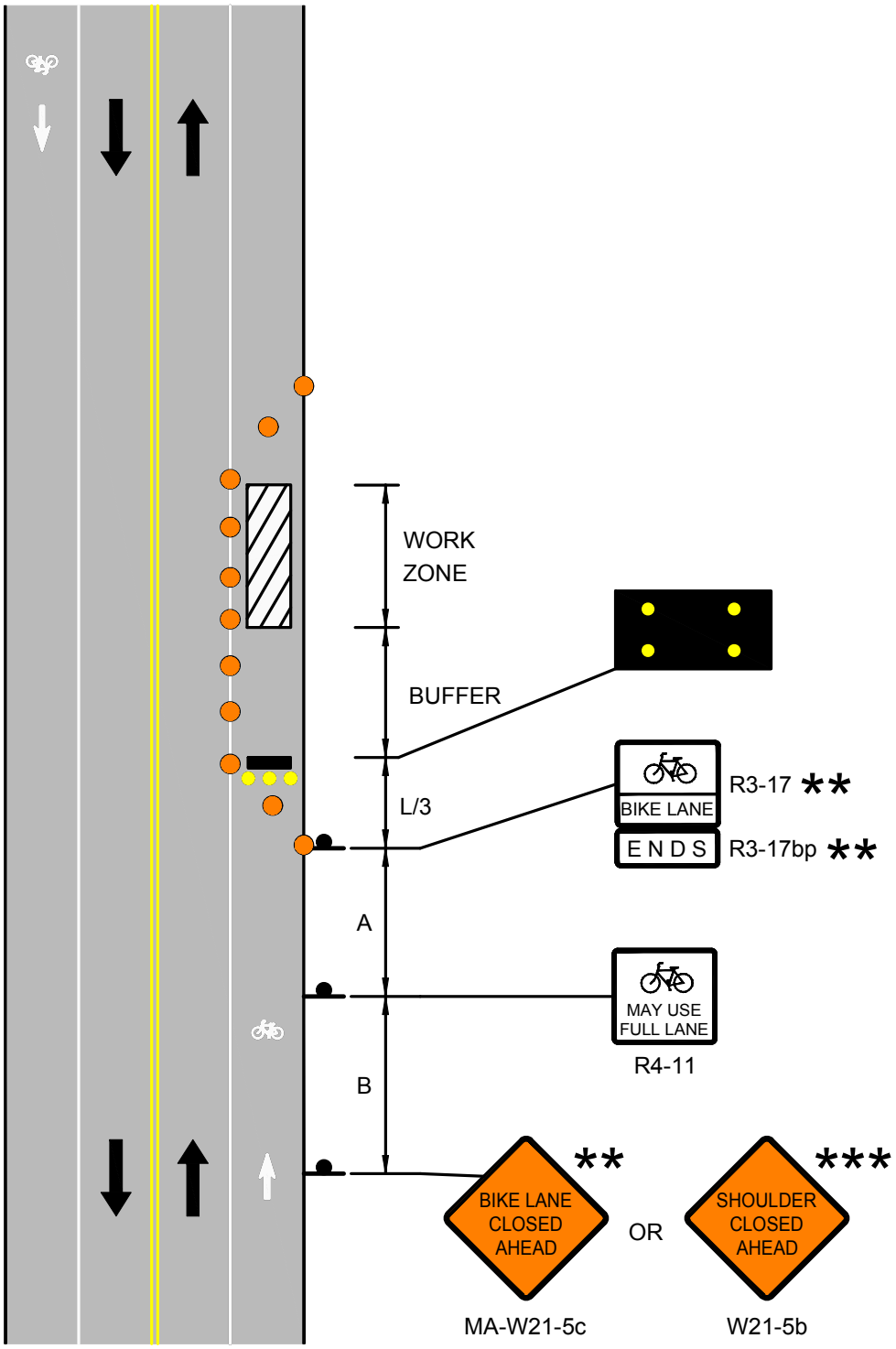
RADAR SPEED FEEDBACK BOARD

POLICE DETAIL OR UNIFORMED FLAGGER

TEMPORARY PORTABLE RUMBLE STRIP

TYPE III BARRICADE

NOT TO SCALE



massDOT Massachusetts Department of Transportation Highway Division PAGE 81	Work Zone Safety Standard Details and Drawings	FIGURE 48 STATIONARY OPERATIONS BIKE LANE CLOSURE

Rev. June, 2017

DOCUMENT A00820

Massachusetts Department of Transportation
Conditions of Custody

REQUEST FOR RELEASE OF MASSDOT AUTOCAD FILES FORM
(Only to be used following award of contract)

City/Town: DISTRICT 3 Project File Number: 613769

Contract Number: 129394

Project Description: Scheduled and Emergency Drainage Repairs and Improvements at Various Locations

All AutoCAD files are provided solely as a courtesy to facilitate public access to information. MassDOT attempts to provide current and accurate information but cannot guarantee so. MassDOT provides such documents, files or other data "as is" without any warranty of any kind, either expressed or implied, including but not limited to, accuracy, reliability, omissions, completeness and currentness. The Commonwealth of Massachusetts and its Consultants shall not be liable for any claim for damages, including lost profits or other consequential, exemplary, incidental, indirect or special damages, relating in any way to the documents, files or other data accessible from this file, including, but not limited to, claims arising out of or related to electronic access or transmission of data or viruses. Because data stored on electronic media can deteriorate undetected or be modified without our knowledge, MassDOT cannot be held liable for its completeness or correctness. MassDOT makes no representation as to the compatibility of these files beyond the version of the stated CAD software.

By signing this form, I agree that it shall be my responsibility to reconcile this electronic data with the conformed contract documents, and that only the conformed contract documents shall be regarded as legal documents for this Project. I understand that this authorization does not give me the right to distribute the files. I agree to the terms above and wish to receive the AutoCAD files.

This signed form shall be emailed to the Highway Design Engineer at the MassDOT -Highway Division at the following email address:

DOTHighwayDesign@dot.state.ma.us
Attn: AutoCAD Files

Name of person requesting AutoCAD files: _____

Affiliation/Company: _____

Address: _____

_____

Telephone number: _____

Email address: _____

Signature/Date: _____

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DOCUMENT A00875

POLICY DIRECTIVE P-22-001
AND
POLICY DIRECTIVE P-22-002

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massDOT Massachusetts Department of Transportation Highway Division

Number: P-22-001
Date: 9/23/22

POLICY DIRECTIVE

Jonathan Gulliver (signature on original)
HIGHWAY ADMINISTRATOR

Off-Site Stockpiling of Soil from MassDOT Construction Projects

Purpose

The purpose of this Policy Directive is to formally establish a policy and procedures for managing and stockpiling soil generated and transported from MassDOT construction projects. This Policy Directive does not supersede any Federal, State, or Local regulations.

Date of Effect

This Policy Directive is effective immediately for all projects, including active construction projects.

For active construction projects and for other projects advertised prior to October 15, 2022, changes to the contract documents needed to implement the requirements of this Policy Directive will be considered on a case-by-case basis and shall be approved by the District Highway Director, as necessary.

For projects advertised on or after October 15, 2022, MassDOT will include the requirements and implementation procedures of this Policy Directive in the construction contract documents.

Policy Requirements

This policy is intended to prevent the off-site relocation of excavated soil generated from MassDOT projects to areas near residential receptors and to control potential fugitive dusts and/or contaminants. To that end, excavated soil may not be moved from the project site without knowledge of the content of the material. Knowledge may include visual field observations for presence of staining, odor, and/or debris, screening with a photoionization detector (PID), laboratory analysis, and/or site history. Pavement millings and other non-soil materials are not subject to the requirements of this Policy Directive.

Moving soil from a MassDOT project site to a temporary off-site storage location must be approved in writing by the District Highway Director.

The Contractor must select a storage location that is at least 500 feet away from residential receptors, as defined herein to include, but not be limited to, residential dwellings, residentially

zoned property, schools, daycare facilities, playgrounds, parks, recreational areas, hospitals, elderly housing and convalescent facilities.

Temporary off-site storage of excavated soil from a MassDOT project is only permissible at a location approved and permitted by MassDOT. The temporary storage location should be located within the same municipality where the soil was excavated, where possible. Stockpiled soil must be securely covered, and appropriate measures must be taken to minimize fugitive dust and erosion.

Signs indicating the source of the soil, the date the soil was generated, and contact information must be erected and maintained until the stockpiled soils are transported to a disposal facility or reused on the project site.

Implementation Procedures

To ensure that off-site storage of excavated soils is managed properly on MassDOT projects, this policy requires the following:

1. **Off-Site Stockpile Storage Locations**
    a. The Contractor shall provide proposed off-site storage locations to the Engineer for approval at least 30 days prior to transporting soil off site. Off-site storage locations should be in the same municipality as the work site.
    b. The Contractor shall keep excavated soil on site until adequately characterized to the satisfaction of the Engineer.
    c. The Contractor shall provide notification of the approved off-site storage location to the local Board of Health and the Town Manager's/Mayor's Office at least 7-days prior to transporting soil off site.
    d. The Contractor shall provide the Engineer with at least 3-days' notice prior to transporting soil off site.
    e. For off-site storage locations on MassDOT property, the Contractor is required to obtain an Access Permit through the District Permits Office prior to storage of soil or other materials. MassDOT will issue these permits at no cost to the Contractor. Information to be submitted by the Contractor as part of the permit application shall include:
        i. A description of material to be stored off-site, including available analytical data;
        ii. A figure of the location with distances to residences and residential receptors; and
        iii. Anticipated duration of temporary storage.
    f. Stockpile locations should not be within 500 feet of residential receptors (e.g., residential dwellings, residentially zoned property, schools, daycare facilities, playgrounds, parks, recreational areas, hospitals, elderly housing and convalescent facilities).
        i. If the stockpile location must be within 500 feet of residential receptors, then soil must be less than RCS-1 (per 310 CMR 40.1600) and free of potentially hazardous or regulated items.

g. For off-site storage locations on non-MassDOT property, the Contractor must notify the property owner(s) at least 7 days prior to transporting material.
h. Exceptions to these rules will be reviewed by MassDOT and may be approved by the District Highway Director on a case-by-case basis.

2. Off-Site Stockpile Management

a. The Contractor shall keep soil stockpiles on impermeable surfaces (e.g., asphalt or concrete) or on 10-mil polyethylene sheeting.
b. The Contractor shall cover soil stockpiles with 10-mil polyethylene sheeting and surround with a berm made of hay bales, straw wattles, or similar.
    i. Piles that are actively being worked on must be covered and re-secured at the end of the work shift.
c. The Contractor shall label stockpiles with signs, including:
    i. Location of origin (including any Release Tracking Numbers)
    ii. Stockpile ID number (including MassDOT District office-assigned tracking ID, if different)
    iii. Date of initial accumulation
    iv. Applicable telephone numbers for the Contractor and MassDOT.
d. The Contractor shall mitigate fugitive dust at storage locations under the direction of an appropriately trained/certified environmental professional.
e. The Contractor shall remedy noncompliance with this policy within 48 hours.
f. The Contractor shall remedy noncompliance with this policy on the SAME DAY for potentially hazardous material, as determined by the Engineer.
g. The Contractor shall handle excavated soil according to federal, state, and local regulations.
h. The Contractor shall use appropriate shipping documents for all movements of excavated soil on public roadways (e.g., Bill of Lading, Material Shipping Record, Manifest, Asbestos Waste Shipment Record, etc.).

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massDOT Massachusetts Department of Transportation Highway Division

Number: P-22-002
Date: 9/23/22

POLICY DIRECTIVE

Jonathan Gulliver (signature on original)
HIGHWAY ADMINISTRATOR

Use of MassDOT Property for Staging and other Construction-Related Operations

Purpose

This Policy Directive is intended to address the use of MassDOT property by MassDOT Contractors for construction staging and other construction-related operations that are not specifically defined in the construction contract. Such use of MassDOT property will only be allowed if permitted by the District Office in accordance with 700 CMR 13.00, Approval of Access to MassDOT Highways and Other Property. This includes the use of MassDOT property for staging, laydown, and storage of equipment and materials, including soil excavated from a project site.

This Policy Directive requires the Contractor/applicant to obtain a Non-Vehicular Access Permit from MassDOT to use MassDOT property for these purposes.

This Policy Directive is effective immediately and applies to all MassDOT construction projects.

General Permit Considerations and Conditions

In addition to other normal MassDOT Access Permit procedures, MassDOT shall consider the following during the application, review, implementation and monitoring processes of Access Permits required by this Policy Directive:

- Storage and placement of the Contractor's equipment and materials should not be allowed within the clear zone of the roadway.
- Stockpiled soils should not be located within 500 feet of residential receptors, as defined herein to include, but not be limited to, residential dwellings, residentially zoned property, schools, daycare facilities, playgrounds, parks, recreational areas, hospitals, elderly housing and convalescent facilities.
- The Contractor/applicant shall identify the access/egress locations of the proposed storage areas. MassDOT will only approve locations determined to be safe for roadway users, construction workers and the general public.
- The Contractor may be required to submit a Traffic Management Plan and/or Lighting Plan for MassDOT review and approval as part of the permit application, depending on the proposed use of the area.

- The Contractor shall submit the permit application through MassDOT's online State Highway Access Permit System (SHAPS).
- MassDOT will waive the permit application fee for any application received from a MassDOT Contractor for any permit required by this Policy Directive and will waive any subsequent amendment and extension fees that may otherwise be required.
- MassDOT will review the permit application in accordance with applicable standard procedures and will apply standard permit terms and conditions, as necessary.
- The Resident Engineer will verify that the permit is approved before allowing the Contractor to use the affected area for the requested purpose.
- Areas permitted are for use by the approved applicant only and are not to be shared with or used by other vendors. Subcontractors specifically engaged with the applicant working on the specific MassDOT project will be allowed to use the area in accordance with the terms of the permit.
- Permits are issued on an annual basis and will require the Contractor to file for an extension each year to continue use.

Exemptions from Permit Requirements

Equipment and materials being used for active construction operations and located within the work zone of the construction contract are exempt from this permit requirement, provided they do not interfere with the safety or operation of the roadway or the work zone. Examples of these types of exempt uses are:

- Equipment and materials parked or stored within a protected (barriered) work zone.
- Materials placed in the work zone prior to same-day installation or use.
- Soils excavated temporarily and scheduled to be replaced, such as for trenching operations or for installation of drainage structures.

DOCUMENT B00420

PROPOSAL

DISTRICT 3

For: **Scheduled and Emergency Drainage Repairs and Improvements at Various Locations**

COMMONWEALTH OF MASSACHUSETTS

LOCATION

The work referred to herein is in the Cities and Towns of DISTRICT 3 in Middlesex, Norfolk and Worcester Counties, in the Commonwealth of Massachusetts, and is shown by the locus map (Document 00331) in the Proposal Pamphlet, the work locations extend as follows:

at Various Locations

The contract prices shall include the furnishing of all materials (except as otherwise herein specified), the performing of all the labor requisite or proper, the providing of all necessary machinery, tools, apparatus and other means of construction, the doing of all the abovementioned work in the manner set forth, described and shown in the specifications and on the drawings for the work, and in the form of contract, and the completion thereof within **730 CALENDAR DAYS** upon receipt of a Notice to Proceed.

The Work of this project is described by the following Items and quantities.

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massDOT Massachusetts Department of Transportation Highway Division

CMS Contract Management System

Project # 613769	Contract # 129394			
Location : DISTRICT3				
Description : Scheduled and Emergency Drainage Repairs and Improvements at Various Locations				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
101.	1.1	CLEARING AND GRUBBING AT _____ PER ACRE		
102.001	90	LONG REACH EXCAVATOR AT _____ PER HOUR		
102.002	90	LOWBED TRAILER AT _____ PER HOUR		
107.04	5,440	TEMPORARY STEEL PLATE(S) AT _____ PER POUND		
107.041	13	DEPLOYMENT OF TEMPORARY STEEL PLATE(S) AT _____ EACH		
107.042	18	REMOVE AND RESET TEMPORARY STEEL PLATE(S) AT _____ PER DAY		
109.02	26	2-INCH PUMP AT _____ PER DAY		
109.06	26	6-INCH PUMP AT _____ PER DAY		
120.	250	EARTH EXCAVATION AT _____ PER CUBIC YARD		

Project # 613769	Contract # 129394			
Location : DISTRICT3				
Description : Scheduled and Emergency Drainage Repairs and Improvements at Various Locations				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
120.1	950	UNCLASSIFIED EXCAVATION AT _____ PER CUBIC YARD		
127.1	120	REINFORCED CONCRETE EXCAVATION AT _____ PER CUBIC YARD		
141.	150	CLASS A TRENCH EXCAVATION AT _____ PER CUBIC YARD		
141.1	202	TEST PIT FOR EXPLORATION AT _____ PER CUBIC YARD		
142.	175	CLASS B TRENCH EXCAVATION AT _____ PER CUBIC YARD		
144.	100	CLASS B ROCK EXCAVATION AT _____ PER CUBIC YARD		
145.	5	DRAINAGE STRUCTURE ABANDONED AT _____ EACH		
146.	10	DRAINAGE STRUCTURE REMOVED AT _____ EACH		
151.	910	GRAVEL BORROW AT _____ PER CUBIC YARD		

Project # 613769	Contract # 129394			
Location : DISTRICT3				
Description : Scheduled and Emergency Drainage Repairs and Improvements at Various Locations				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
153.	80	CONTROLLED DENSITY FILL - EXCAVATABLE AT _____ PER CUBIC YARD		
156.	1,038	CRUSHED STONE AT _____ PER TON		
201.1	29	CATCH BASIN (4-FOOT SUMP) AT _____ EACH		
201.11	4	CATCH BASIN (4-FOOT SUMP - INSTALLATION ONLY) AT _____ EACH		
202.	11	MANHOLE AT _____ EACH		
204.	5	GUTTER INLET AT _____ EACH		
205.	2	LEACHING BASIN AT _____ EACH		
209.3	3	DROP INLET CHANGE IN TYPE AT _____ EACH		
220.	175	DRAINAGE STRUCTURE ADJUSTED AT _____ EACH		

Project # 613769	Contract # 129394			
Location : DISTRICT3				
Description : Scheduled and Emergency Drainage Repairs and Improvements at Various Locations				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
220.01	5	DRAINAGE STRUCTURE ADJSUTED - TURNPIKE (2 FT X 4 FT) AT _____ EACH		
220.02	8	DRAINAGE STRUCTURE REBUILT - TURNPIKE (2 FT X 4 FT) AT _____ PER FLOOR		
220.2	704	DRAINAGE STRUCTURE REBUILT AT _____ PER FOOT		
220.21	8	ADD PIE FLOOR TO CATCH BASIN AT _____ EACH		
220.22	10	REPAIR EXISTING INVERT AT _____ PER SQUARE FOOT		
220.23	5	ADD INVERT TO MANHOLE AT _____ EACH		
220.5	5	DRAINAGE STRUCTURE REMODELED AT _____ EACH		
221.	15	FRAME AND COVER AT _____ EACH		
221.1	38	FRAME AND COVER - SECURED AT _____ EACH		

Project # 613769	Contract # 129394			
Location : DISTRICT3				
Description : Scheduled and Emergency Drainage Repairs and Improvements at Various Locations				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
222.	55	FRAME AND GRATE - MASSDOT BAR TYPE AT _____ EACH		
222.1	50	FRAME AND GRATE - MASSDOT CASCADE TYPE AT _____ EACH		
222.31	22	RECTANGULAR FRAME WITH TWO 24-INCH GRATES AT _____ EACH		
222.4	5	LARGE HOOK LOCK BAR GRATE - FURNISHED AND INSTALLED AT _____ EACH		
222.5	5	LARGE FRAME - FURNISHED AND INSTALLED AT _____ EACH		
223.2	198	FRAME AND GRATE (OR COVER) REMOVED AND DISCARDED AT _____ EACH		
226.5	300	CLEANING WATERWAYS AT _____ PER SQUARE YARD		
226.9	28	INTERNAL PIPE INSPECTION BY VIDEO CAMERA AT _____ PER HOUR		
227.3	150	REMOVAL OF DRAINAGE STRUCTURE SEDIMENT AT _____ PER CUBIC YARD		

Project # 613769	Contract # 129394			
Location : DISTRICT3				
Description : Scheduled and Emergency Drainage Repairs and Improvements at Various Locations				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
227.31	120	REMOVAL OF DRAINAGE PIPE SEDIMENT AT _____ PER FOOT		
227.4	20	MASONRY PLUG AT _____ PER SQUARE FOOT		
228.024	36	CURED-IN-PLACE PIPING (LESS THAN OR EQUAL TO 24 INCH) AT _____ PER FOOT		
228.048	36	CURED-IN-PLACE PIPING (MORE THAN 24 INCH TO 48 INCH) AT _____ PER FOOT		
228.072	100	CURED-IN-PLACE PIPING (MORE THAN 48 INCH TO 72 INCH) AT _____ PER FOOT		
234.12	1,535	12 INCH DRAINAGE PIPE - OPTION AT _____ PER FOOT		
234.15	85	15 INCH DRAINAGE PIPE - OPTION AT _____ PER FOOT		
234.18	605	18 INCH DRAINAGE PIPE - OPTION AT _____ PER FOOT		
234.24	100	24 INCH DRAINAGE PIPE - OPTION AT _____ PER FOOT		

Project # 613769	Contract # 129394			
Location : DISTRICT3				
Description : Scheduled and Emergency Drainage Repairs and Improvements at Various Locations				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
234.30	100	30 INCH DRAINAGE PIPE - OPTION AT _____ PER FOOT		
234.36	100	36 INCH DRAINAGE PIPE - OPTION AT _____ PER FOOT		
235.12	3	12 INCH DRAINAGE PIPE FLARED END - OPTION AT _____ EACH		
235.15	2	15 INCH DRAINAGE PIPE FLARED END - OPTION AT _____ EACH		
235.18	3	18 INCH DRAINAGE PIPE FLARED END - OPTION AT _____ EACH		
235.24	3	24 INCH DRAINAGE PIPE FLARED END - OPTION AT _____ EACH		
235.30	2	30 INCH DRAINAGE PIPE FLARED END - OPTION AT _____ EACH		
235.36	1	36 INCH DRAINAGE PIPE FLARED END - OPTION AT _____ EACH		
238.08	75	8 INCH DUCTILE IRON PIPE AT _____ PER FOOT		

Project # 613769	Contract # 129394			
Location : DISTRICT3				
Description : Scheduled and Emergency Drainage Repairs and Improvements at Various Locations				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
238.12	175	12 INCH DUCTILE IRON PIPE AT _____ PER FOOT		
238.16	75	16 INCH DUCTILE IRON PIPE AT _____ PER FOOT		
241.48	50	48 INCH REINFORCED CONCRETE PIPE CLASS III AT _____ PER FOOT		
242.18	1	18 INCH REINFORCED CONCRETE PIPE FLARED END AT _____ EACH		
258.	112.5	STONE FOR PIPE ENDS AT _____ PER SQUARE YARD		
269.08	800	8 INCH SLOT-PERFORATED CORRUGATED PLASTIC PIPE (SUBDRAIN) AT _____ PER FOOT		
309.	150	DUCTILE IRON FITTINGS FOR WATER PIPE AT _____ PER POUND		
451.	1,002.75	HMA FOR PATCHING AT _____ PER TON		
452.	236	ASPHALT EMULSION FOR TACK COAT AT _____ PER GALLON		

Project # 613769	Contract # 129394			
Location : DISTRICT3				
Description : Scheduled and Emergency Drainage Repairs and Improvements at Various Locations				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
453.	101	HMA JOINT ADHESIVE AT _____ PER FOOT		
482.33	425	SAWCUTTING ASPHALT PAVEMENT LESS THAN 7-INCH AT _____ PER FOOT		
482.34	125	SAWCUTTING ASPHALT PAVEMENT EQUAL TO OR GREATER THAN 7-INCH AT _____ PER FOOT		
503.	100	GRANITE CURB TYPE VA3 - STRAIGHT AT _____ PER FOOT		
503.01	27	GRANITE CURB TYPE VA3 - STRAIGHT (MONOLITHIC SLAB) AT _____ PER FOOT		
514.	12	GRANITE CURB INLET - STRAIGHT AT _____ EACH		
570.	625	HOT MIX ASPHALT CURB - OPTION AT _____ PER FOOT		
580.	225	CURB REMOVED AND RESET AT _____ PER FOOT		
581.	10	CURB INLET REMOVED AND RESET AT _____ EACH		

Project # 613769	Contract # 129394			
Location : DISTRICT3				
Description : Scheduled and Emergency Drainage Repairs and Improvements at Various Locations				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
583.	200	EDGING REMOVED AND RESET AT _____ PER FOOT		
628.305	5	TEMPORARY IMPACT ATTENUATOR, NON-REDIRECTIVE, TL-3 AT _____ EACH		
628.4	6	TEMPORARY IMPACT ATTENUATOR, REMOVED AND RESET AT _____ EACH		
630.	50	HIGHWAY GUARD REMOVED AND RESET AT _____ PER FOOT		
630.2	100	HIGHWAY GUARD REMOVED AND DISCARDED AT _____ PER FOOT		
697.1	15	SILT SACK AT _____ EACH		
698.4	1,530	GEOTEXTILE FABRIC FOR PERMANENT EROSION CONTROL AT _____ PER SQUARE YARD		
748.1	5	EMERGENCY RESPONSE AT _____ EACH		
751.	461	LOAM FOR ROADSIDES AT _____ PER CUBIC YARD		

Project # 613769	Contract # 129394			
Location : DISTRICT3				
Description : Scheduled and Emergency Drainage Repairs and Improvements at Various Locations				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
751.1	100	LOAM FOR LAWNS AT _____ PER CUBIC YARD		
765.	3,900	SEEDING AT _____ PER SQUARE YARD		
767.121	1,069.5	SEDIMENT CONTROL BARRIER AT _____ PER FOOT		
767.9	600	JUTE MESH AT _____ PER SQUARE YARD		
850.41	105	ROADWAY FLAGGER AT _____ PER HOUR		
851.1	91	TRAFFIC CONES FOR TRAFFIC MANAGEMENT AT _____ PER DAY		
852.	398	SAFETY SIGNING FOR TRAFFIC MANAGEMENT AT _____ PER SQUARE FOOT		
853.2	325	TEMPORARY BARRIER (TL-2) AT _____ PER FOOT		
853.21	215	TEMPORARY BARRIER REMOVED AND RESET AT _____ PER FOOT		

Project # 613769	Contract # 129394			
Location : DISTRICT3				
Description : Scheduled and Emergency Drainage Repairs and Improvements at Various Locations				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
853.403	91	TRUCK MOUNTED ATTENUATOR AT _____ PER DAY		
853.8	26	TEMPORARY ILLUMINATION FOR WORK ZONE AT _____ PER DAY		
856.	91	ARROW BOARD AT _____ PER DAY		
856.12	182	PORTABLE CHANGEABLE MESSAGE SIGN AT _____ PER DAY		
859.	2,160	REFLECTORIZED DRUM AT _____ PER DAY		
859.1	23	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS AT _____ PER DAY		
904.	50	4000 PSI, 3/4 INCH, 610 CEMENT CONCRETE AT _____ PER CUBIC YARD		
910.	450	STEEL REINFORCEMENT FOR STRUCTURES AT _____ PER POUND		
983.	460	DUMPED RIPRAP AT _____ PER TON		

Project # 613769	Contract # 129394			
Location : DISTRICT3				
Description : Scheduled and Emergency Drainage Repairs and Improvements at Various Locations				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
984.601	43	DUMPED STONE FOR EROSION CONTROL AT _____ PER TON		
995.045	25	PRECAST CONCRETE BOX CULVERT - UNDER 25 SQUARE FEET AT _____ PER FOOT		
995.046	10	PRECAST CONCRETE BOX CULVERT - 25 SQUARE FEET TO 50 SQUARE FEET AT _____ PER FOOT		
995.047	10	PRECAST CONCRETE BOX CULVERT - OVER 50 SQUARE FEET TO 90 SQUARE FEET AT _____ PER FOOT		
996.03	220	HEADWALL REBUILD - CONCRETE BLOCK AT _____ EACH		
996.04	10	CONCRETE HEADWALL EXTENSION - HEIGHT ADJUSTMENT AT _____ PER CUBIC YARD		
Total Qty:	31,738.85			

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DOCUMENT B00842

SCHEDULE OF PARTICIPATION
BY MINORITY OR WOMEN BUSINESS ENTERPRISES (M/WBE)

MASSDOT PROJECT NUMBER: 613769

PROJECT LOCATION: DISTRICT 3

DATE OF BID OPENING: _____

NAME OF PRIME BIDDER: _____

Name Address and Phone Number of M/WBE	Name of Activity	(a) M/WBE Contractor Activity Amount	(b) M/WBE Other Business Amount	(c) Total amount eligible for credit under rules in Section VIII of the Special Provisions
Total Bid Amount	TOTALS:	$		$
$	M/WBE Percentage of Total bid:	%		%

Column (a) must be at least one-half of the M/WBE percentage goal.

SIGNATURE: _____ Date: _____ Tel No: _____

NAME AND TITLE (PRINT):_____

BIDDERS ARE CAUTIONED TO REVIEW DOCUMENT 00718 -- SPECIAL PROVISION FOR PARTICIPATION BY MINORITY OR WOMEN BUSINESS ENTERPRISES AND SERVICE DISABLED VETERAN OWNED BUSINESS ENTERPRISES.

*** END OF DOCUMENT ***

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DOCUMENT B00843

MINORITY OR WOMEN'S BUSINESS ENTERPRISE PARTICIPATION LETTER OF INTENT
PAGE 1 OF 2

MASSDOT PROJECT NUMBER: 613769

PROJECT LOCATION: DISTRICT 3

DATE OF BID OPENING: _____

FROM _____
(Minority or Women's Business Enterprise Company)

TO: _____
(Name of Prime Contractor)

1. My company is currently certified as an MBE or WBE by the Massachusetts Supplier Diversity Office, formerly known as the State Office of Minority and Women Business Assistance (SOMWBA). There have been no changes affecting the ownership, control or independence of my company since my last certification review.

2. If any such change occurs prior to my company's completion of this proposed work, I will give written notification to your firm and to the Massachusetts Department of Transportation (MassDOT).

3. (For contractor activity only.) My firm will provide to you, upon request, for the purpose of obtaining subcontractor approval from MassDOT; (1) a resume stating the qualifications and experience of the superintendent or foreperson who will supervise on site-work; (2) a list of equipment owned or leased by my firm for use on the project; (3) a list of all projects (public or private) which my firm is currently performing, is committed to perform, or intends to make a commitment to perform. I shall include, for each project, the names and telephone number of a contact person for the contracting organization, the dollar value of the work, a description of the work, and my firm's work schedule for the Project.

4. If you are awarded the Contract, my company intends to enter into an agreement with your firm to perform the items of work or other activity described on the following sheet for the prices indicated.

5. My firm has the ability to manage, supervise and perform the activity described on the following page.

_____ _____
M/WBE Authorized Signature Date

MINORITY OR WOMEN'S BUSINESS ENTERPRISE PARTICIPATION LETTER OF INTENT
PAGE 2 OF 2

MASSDOT PROJECT NUMBER: 613769

PROJECT LOCATION: DISTRICT 3

DATE OF BID OPENING: _____

NAME OF PRIME BIDDER: _____

Item number if applicable	Description of Activity with notations such as Installation Only, Material Only, or Complete	Quantity	Unit Price	Amount
		TOTAL AMOUNT:		

M/WBE COMPANY NAME: _____

M/WBE AUTHORIZED SIGNATURE: _____

NAME AND TITLE (PRINT): _____

TELEPHONE NUMBER: _____ FAX NUMBER: _____

Rev'd 9/20/19

*** END OF DOCUMENT ***

DOCUMENT B00846

M/WBE OR SDVOBE JOINT CHECK ARRANGEMENT APPROVAL FORM

(to be submitted by Prime Contractor)

Contract No: 129394 **Project No.** 613769

Location: DISTRICT 3 **Bid Opening Date:** _____

Project Description: Scheduled and Emergency Drainage Repairs and Improvements at Various Locations

We have received the attached request for the use of a joint check arrangement from _____ _____ , a M/WBE or SDVOBE on the above- referenced Contract and _____ _____, a Material Supplier/Vendor for the subject Contract. The M/WBE or SDVOBE has complied with the requirements of Special Provision Document 00718. In particular, the M/WBE or SDVOBE has:

- a written agreement with the material supplier/vendor;
- applied for credit with the subject material supplier and has supplied the vendor's response;
- shown that it will place all orders to the subject material supplier/vendor;
- made and retains all decision-making responsibilities concerning the materials; and
- provided a Joint Check Agreement that is acceptable to MassDOT;

As the Contractor for the Project, we agree to issue joint checks (made payable to the Material Supplier/Vendor and the M/WBE or SDVOBE) for payment of sums due pursuant to invoices from the Supplier/Vendor and M/WBE or SDVOBE.

Contractor:

_____ _____
Company Name Signature
Duly Authorized

_____
Printed Name

_____ _____
Date Title

SubContractor:

_____ _____
Company Name Signature –
Duly Authorized

_____
Printed Name

_____ _____
Date Title

*** END OF DOCUMENT ***

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DOCUMENT B00847

JOINT VENTURE AFFIDAVIT

(All Firms)

- All Information Requested By This Schedule Must Be Answered. Additional Sheets May Be Attached.
- If, there is any change in the information submitted, the Joint Venture parties must inform MassDOT Pre-Qualifications Office (and, if one of the companies is a M/WBE or SDVOBE, the Director of Contract Compliance, Office of Civil Rights) *prior* to such change, in writing, either directly or through the Prime Contractor if the Joint Venture is a subcontractor.
- If the Joint Venture Entity will be the bidder on a prime Contract, it must bid and submit all required documents (insurance, worker's compensation, bonds, etc.) in the name of the Joint Venture Entity.

I. Name of Joint Venture: _____

Type of Entity if applicable (Corp., LLC):_____Filing State _____

Address of joint venture: _____

_____

Phone No(s) for JV Entity: _____E-mail:_____

Contact Person(s)_____

Tax ID/EIN of Joint Venture: _____Vendor Code:_____

II. Identify each firm or party to the Joint Venture:

Name of Firm: _____

Address: _____

Phone : _____E-mail:_____

Contact person(s) _____

Name of Firm: _____

Address: _____

Phone: _____E-mail:_____

Contact Person(s)_____

III. Describe the role(s) of the each party to the Joint Venture:

_____

_____

IV. Attach a copy of the Joint Venture Agreement. The proposed Joint Venture Agreement should include specific details including, but not limited to: (1) the contributions of capital and equipment; (2) work items to be performed by each company's forces, (3) work items to be performed under the supervision of any M/WBE or SDVOBE Venturer; (4) the commitment of management, supervisory and operative personnel employed by the M/WBE or SDVOBE to be dedicated to the performance of the Project; and (5) warranty, guaranty, and indemnification clauses.

V. Attach any applicable Corporate or LLC Votes, Authorizations, etc.

VI. Ownership of the Joint Venture:

A. What is the percentage(s) of each company's ownership in the Joint Venture?

ownership percentage(s): _____

ownership percentage(s): _____

B. Specify percentages for each of the following (provide narrative descriptions and other detail as applicable):

1. Sharing of profit and loss: _____
2. Capital contributions:

(a) Dollar amounts of initial contribution: _____

(b) Dollar amounts of anticipated on-going contributions: _____

(c) Contributions of equipment (specify types, quality and quantities of equipment to be provided by each firm): _____

_____

4. Other applicable ownership interests, including ownership options or other agreements, which restrict or limit ownership and/or control:

_____

_____

5. Provide copies of all other written agreements between firms concerning bidding and operation of this Project or projects or contracts.

6. Identify all current contracts and contracts completed during the past two (2) years by either of the Joint Venture partners to this Joint Venture:

_____

_____

VII. Control of and Participation in the Joint Venture. Identify by name and firm those individuals who are, or will be, responsible for and have the authority to engage in the following management functions and policy decisions. (Indicate any limitations to their authority such as dollar limits and co-signatory requirements.):

A. Joint Venture check signing:

_____

_____

B. Authority to enter Contracts on behalf of the Joint Venture:

_____

_____

C. Signing, co-signing and/or collateralizing loans:

_____

_____

D. Acquisition of lines of credit:

E. Acquisition and indemnification of payment and performance bonds:

F. Negotiating and signing labor agreements:

G. Management of contract performance. *(Identify by name and firm only)*:

1. Supervision of field operations:
2. Major purchases:
3. Estimating:
4. Engineering:

VIII. Financial Controls of Joint Venture:

A. Which firm and/or individual will be responsible for keeping the books of account?

B. Identify the "Managing Partner," if any, and describe the means and measure of their compensation:

C. What authority does each firm have to commit or obligate the other to insurance and bonding companies, financing institutions, suppliers, subcontractors, and/or other parties participating in the performance of this Contract or the work of this Project?

IX. Personnel of Joint Venture: State the approximate number of personnel (by trade) needed to perform the Joint Venture's work under this Contract. Indicate whether they will be employees of the majority firm, M/WBE or SDVOBE firm, or the Joint Venture.

	Firm 1 (number)	Firm 2 (number)	Joint Venture (number)
Trade			
Professional			
Administrative/Clerical			
Unskilled Labor			

Will any personnel proposed for this Project be employees of the Joint Venture?: _____

If so, who: _____

A. Are any proposed Joint Venture employees currently employed by either firm?

Employed by Firm 1: _____ Employed by firm 2 _____

B. Identify by name and firm the individual who will be responsible for Joint Venture hiring: ____

_____

X. Additional Information. Please state any material facts and additional information pertinent to the control and structure of this Joint Venture.

_____

_____

XI. AFFIDAVIT OF JOINT VENTURE PARTIES. The undersigned affirm that the foregoing statements and attached documents are correct and include all material information necessary to identify and explain the terms and operations of our Joint Venture and the intended participation of each firm in the undertaking. Further, the undersigned covenant and agree to provide to MassDOT current, complete and accurate information regarding actual Joint Venture work, payments, and any proposed changes to any provisions of the Joint Venture, or the nature, character of each party to the Joint Venture. We understand that any material misrepresentation will be grounds for terminating any Contract awarded and for initiating action under Federal or State laws concerning false statements.

Firm 1	Firm 2
Signature Duly Authorized	Signature Duly Authorized
Printed Name and Title	Printed Name and Title
Date	Date

*** END OF DOCUMENT ***