

COMMONWEALTH OF MASSACHUSETTS



**CONTRACT DOCUMENTS
AND SPECIAL PROVISIONS**

PROPOSAL NO.	610652-128108
P.V. =	\$3,421,000.00
PLANS	YES

FOR

**Federal Aid Project No. TAP-SRS2(002)X
Robinson Park Elementary School Improvements (SRTS)**

in the City of

AGAWAM

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

This Proposal to be opened and read:

TUESDAY, NOVEMBER 5, 2024 at 2:00 P.M.

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DOCUMENT 00104

**NOTICE TO CONTRACTORS**

Electronic proposals for the following project will be received through the internet using Bid Express 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 Bid Express.

TUESDAY, NOVEMBER 5, 2024 at 2:00 P.M. **

AGAWAM

Federal Aid Project No. TAP-SRS2(002)X

Robinson Park Elementary School Improvements (SRTS)

****Date Subject to Change**

PROJECT VALUE = \$3,421,000.00

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

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

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

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

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

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

NOTICE TO CONTRACTORS (Continued)

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

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

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

Plans will be on display and information will be available at the MassDOT Boston Office and at the District Office in NORTHAMPTON.

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

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

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

NOTICE TO CONTRACTORS (Continued)

PRICE ADJUSTMENTS

This Contract contains price adjustments for hot mix asphalt and Portland cement mixtures, diesel fuel, and gasoline. For reference the base prices are as follows: liquid asphalt \$575.00 per ton, Portland cement \$425.53 per ton, diesel fuel \$2.713 per gallon, and gasoline \$2.666 per gallon, and Steel Base Price Index 409.2. 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, September 14, 2024

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DOCUMENT 00210

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

July 1, 1981, updated October 2016

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

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

- (1) "Contractor" means any person, corporation, partnership, joint venture, sole proprietorship, or other entity awarded a contract pursuant to sections thirty-eight A1/2 to thirty-eight O, inclusive, of chapter seven and any contract awarded or executed pursuant to section eleven C of chapter twenty-five A, section thirty-nine M of chapter thirty, or sections forty-four A to forty-four H, inclusive, of chapter one hundred and forty-nine, which is for an amount or estimated amount greater than one hundred thousand dollars.
- (2) "Contract" means any contract awarded or executed pursuant to sections thirty-eight A1/2 to thirty-eight O, inclusive, of chapter seven and any contract awarded or executed pursuant to section eleven C of chapter twenty-five A, section thirty-nine M of chapter thirty, or sections forty-four A through forty-four H, inclusive, of chapter one hundred and forty-nine, which is for amount or estimated amount greater than one hundred thousand dollars.
- (3) "Records" means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, computer printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.
- (4) "Independent Certified Public Accountant" means a person duly registered in good standing and entitled to practice as a certified public accountant under the laws of the place of his residence or principal office and who is in fact independent. In determining whether an accountant is independent with respect to a particular person, appropriate consideration should be given to all relationships between the accountant and that person or any affiliate thereof. Determination of an accountant's independence shall not be confined to the relationships existing in connection with the filing of reports with the awarding authority.
- (5) "Audit", when used in regard to financial statements, means an examination of records by an independent certified public accountant in accordance with generally accepted accounting principles and auditing standards for the purpose of expressing a certified opinion thereon, or, in the alternative, a qualified opinion or a declination to express an opinion for stated reasons.
- (6) "Accountant's Report", when used in regard to financial statements, means a document in which an independent certified public accountant indicates the scope of the audit which he has made and sets forth his opinion regarding the financial statements taken as a whole with a listing of noted exceptions and qualifications, or an assertion to the effect that an overall opinion cannot be expressed. When an overall opinion cannot be expressed the reason therefor shall be stated. An accountant's report shall include as a part thereof a signed statement by the responsible corporate officer attesting that management has fully disclosed all material facts to the independent certified public accountant, and that the audited financial statement is a true and complete statement of the financial condition of the contractor.
- (7) "Management", when used herein, means the chief executive officers, partners, principals or other person or persons primarily responsible for the financial and operational policies and practices of the contractor.
- (8) Accounting terms, unless otherwise defined herein, shall have a meaning in accordance with generally accepted accounting principles and auditing standards.

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

- (1) The contractor shall make, and keep for at least six years after final payment, books, records, and accounts which in reasonable detail accurately and fairly reflect the transactions and dispositions of the contractor, and
- (2) Until the expiration of six years after final payment, the office of inspector general, and the commissioner of capital asset management and maintenance shall have the right to examine any books, documents, papers or records of the contractor or of his subcontractors that directly pertain to, and involve transactions relating to, the contractor or his subcontractors, and
- (3) If the agreement is a contract as defined herein, the contractor shall describe any change in the method of maintaining records or recording transactions which materially affect any statements filed with the awarding authority, including in his description the date of the change and reasons therefor, and shall accompany said description with a letter from the contractor's independent certified public accountant approving or otherwise commenting on the changes, and
- (4) If the agreement is a contract as defined herein, the contractor has filed a statement of management on internal accounting controls as set forth in paragraph (c) below prior to the execution of the contract, and
- (5) If the agreement is a contract as defined herein, the contractor has filed prior to the execution of the contracts and will continue to file annually, an audited financial statement for the most recent completed fiscal year as set forth in paragraph (d) below.

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

- (1) transactions are executed in accordance with management's general and specific authorization;
- (2) transactions are recorded as necessary
 - i. to permit preparation of financial statements in conformity with generally accepted accounting principles, and
 - ii. to maintain accountability for assets;
- (3) access to assets is permitted only in accordance with management's general or specific authorization; and
- (4) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.

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

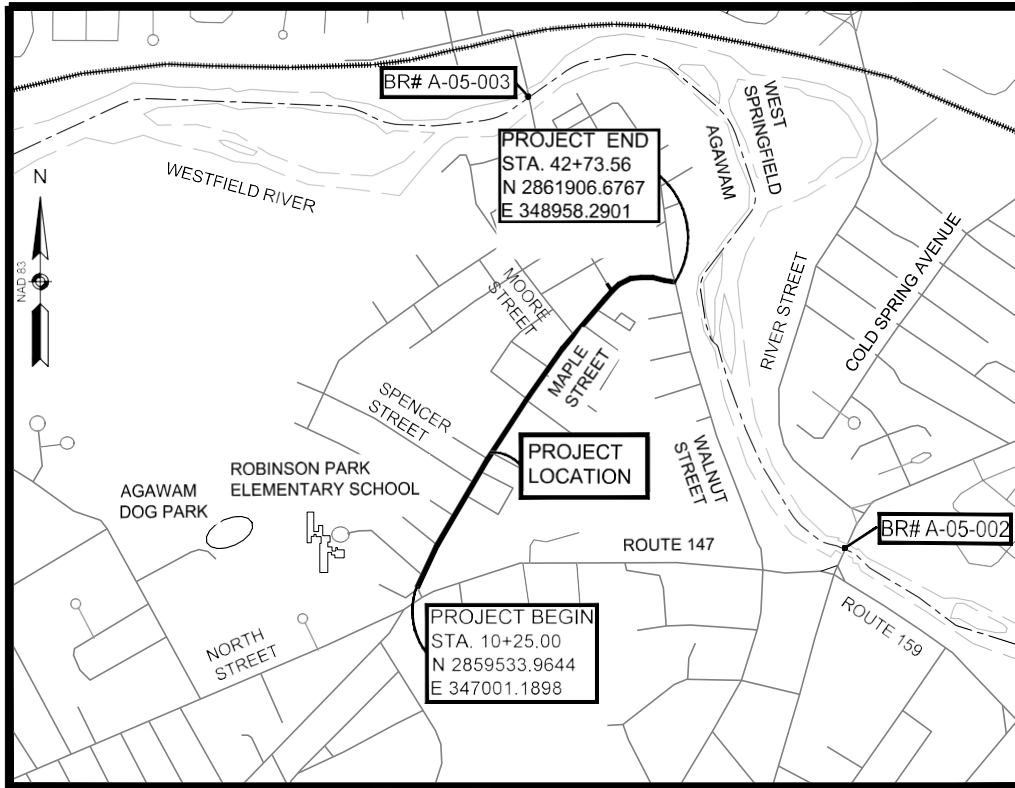
- (1) whether the representations of management in response to this paragraph and paragraph (b) above are consistent with the result of management's evaluation of the system of internal accounting controls; and
- (2) whether such representations of management are, in addition, reasonable with respect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

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DOCUMENT 00331

LOCUS MAP

AGAWAM
Federal Aid Project No. TAP-SRS2(002)X
Robinson Park Elementary School Improvements (SRTS)



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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: _____



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: _____

WORK NOT COMPLETED WITHIN SPECIFIED TIME: _____

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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Massachusetts Department of Transportation
Superpave High Performance Surface Course

DOCUMENT 00712

SUPERPAVE HIGH PERFORMANCE SURFACE COURSE

Massachusetts Department of Transportation
 Superpave High Performance Surface Course

SUBSECTION 458
SUPERPAVE HIGH PERFORMANCE SURFACE COURSE
DESCRIPTION
458.20 General.

The work under this Section consists of producing and placing a Hot Mix Asphalt SUPERPAVE High Performance Surface Course (HP) mixture. The mixture will be a high-performance Hot Mix Asphalt (HMA) surface course placed at a lift thickness as shown on plans when compacted. The Contractor shall select whether to utilize a polymer modified asphalt binder or a ground tire rubber modified binder. The volumetric requirements for the mixture will be dependent upon the type of asphalt binder selected. In either case, the mixture will be subject to performance testing as part of the Department's Acceptance.

All work associated with the placement of this item is subject to the requirements of Section 450 Hot Mix Asphalt Pavement, Section M3 Asphaltic Materials, and the additional requirements herein.

MATERIALS
458.30 General.

Provide materials as specified in Section 450 Hot Mix Asphalt Pavement and Section M3 Asphalt Materials, as amended herein:

Performance Graded Asphalt Binder	M3.01.0
Warm Mix Asphalt Additive	M3.01.4
Asphalt Release Agents	M3.01.6
Asphalt Emulsion for Tack Coat	M3.03.0
HMA Joint Sealant	M3.05.0
Hot Mix Asphalt	M3.11.0
Hot Mix Asphalt Production Facility	M3.12.0
Contractor Quality Control Laboratory	M3.13.1
Department Acceptance Laboratory	M3.13.2

HP Mix Design.

HP shall be a mixture comprised of coarse aggregate, fine aggregate, asphalt binder, and warm mix asphalt additive, and may include mineral filler and crumb rubber. Reclaimed Asphalt Pavement (RAP) shall be limited to 10% by mass of the aggregate. Recycled Asphalt Shingles (RAS), Manufactured Asphalt Shingles (MAS), or Recycled Glass Aggregate shall not be used in HP mixtures.

The Contractor shall be responsible for development of an HP Laboratory Trial Mix Formula (LTMF) for each HP mixture type specified for the contract in accordance with the requirements of Subsection 458.30.

(1) Performance Graded Asphalt Binder.

The asphalt binder shall meet the requirements of M3.01.2 Modified Asphalt Binder as well as the following. The asphalt binder shall be modified and achieve the performance grade necessary for the HP mixture to meet the performance testing requirements specified below. The Contractor shall coordinate with the asphalt binder Supplier to select the proper binder grade.

Massachusetts Department of Transportation
Superpave High Performance Surface Course

SBS Modified Asphalt Binder.

The asphalt binder shall meet the requirements of Section M3.01.2A and Table 458.30-1.

The asphalt binder shall be storage-stable, pre-blended, homogeneous, and polymer modified using Styrene-Butadiene (SB), Styrene-Butadiene-Styrene (SBS), or Styrene-Butadiene-Rubber (SBR) formulations. Other methods of binder modification must be reviewed by the MassDOT Research & Materials Section prior to the mix design. The asphalt binder certifications shall provide the continuous PG binder grade, the polymer content, and the polyphosphoric acid content. The binder viscosity shall not exceed 5.0 Pa-s and must maintain satisfactory workability through the mix plant and during placement.

The asphalt binder certifications for the Lots used for the mix design and for production shall provide the continuous PG binder grade, the polymer content and the polyphosphoric acid content. The continuous grading of the asphalt binder used for the mix design shall be reported in the mix design submission.

The asphalt binder Supplier shall provide the Department with necessary materials to fabricate the control samples in order to perform AASHTO T 302.

Table 458.30-1 – Performance Graded Binder for HP

Performance Characteristic	Test Method	Requirement
Minimum Binder Grade	AASHTO M 332	PG 76E-28HP
Minimum Polymer Content, %	AASHTO T 302	7.0%
Jnr at 3.2 kPa, kPa ⁻¹	AASHTO T 350	≤ 0.1
% Recovery at 3.2 kPa, %	AASHTO T 350	≥ 90

Ground Tire Rubber Modified Binder

The asphalt binder shall meet the requirements of M3.01.2 B. Crumb Rubber Modified Asphalt Binder.

(2) Aggregate.

Aggregate shall conform to the requirements of Subsection M3.06.2. Fine aggregate shall be a manufactured sand and have an uncompacted void content of at least 45 percent when tested according to AASHTO T 304, Method A. The minimum sand equivalent of the fine aggregate shall be 45 percent when tested according to AASHTO T 176.

(3) LTMF Design and Verification.

The Contractor shall develop and submit a Laboratory Trial Mix Formula (LTMF), which is to be proposed as a Job Mix Formula, a minimum of sixty (60) days prior to the start of HP production in accordance with the requirements of Subsection 458.30 and MassDOT’s Asphalt Mix Design approval process.

The mixture shall meet the requirements of Section M3.06.4 Hot Mix Asphalt Mixture Design and the following.

Massachusetts Department of Transportation
Superpave High Performance Surface Course

The control points for the aggregate gradation and volumetric requirements for the mixture shall be dependent upon the modified binder selected for the mixture.

- Mixtures utilizing Polymer Modified Binders will be subject to the volumetric requirements of Superpave mixtures (Table M3.06.4-1 through Table M3.06.4-5) as modified below.
- Mixtures utilizing Asphalt Rubber Modified Binders will be subject to the ARGG volumetric design requirements (Table M3.06.4-8 through Table M3.06.4-9) as modified below.

The Contractor shall not proceed to HP production for the Control Strip as outlined below until the LTMF is verified by the Department.

The Contractor shall submit the LTMF with supporting documentation to the Department along with samples of aggregate material and PG asphalt binder. An adequate amount of the aggregate and PG asphalt binder shall be supplied in order to verify the LTMF. The Department will use these samples for verification of the LTMF and to benchmark the binder and mix design performance. Benchmarking shall include determining the continuous grade of the binder.

Should a change in sources, including the PG asphalt binder, be made or a change in the properties of materials occurs, the Department will require that a new LTMF be developed and approved before production can continue.

Table 458.30-2 – HP Mixture Requirements

Requirements	Polymer Modified		Asphalt Rubber Modified ⁽²⁾
	9.5 mm ⁽²⁾	12.5 mm ⁽²⁾	
Gradation Control Points	Per Tables M3.06.4-1 and Table M3.06.4-2		Per Table M3.06.4-8
Mixture Design Requirements	Per Tables M3.06.4-3 thru M3.06.4-5 ⁽²⁾		Per Table M3.06.4-9
N _{des} , gyrations	50	75	
P _b , % ⁽⁴⁾	≥ 6.5	≥ 6.0	
V _a , %	Per Table 458.30-2		
VMA, %			
Draindown, % ⁽³⁾	≤ 0.3		
VCA _{mix} , % ⁽¹⁾	< VCA _{DRC}		-
LTMF Verification Limits	Per Table M3.06.5-1		Per Table M3.06.5-3
⁽¹⁾ VCA determination shall be performed in accordance with the procedure outlined by MassDOT Research & Materials. ⁽²⁾ The mix design may go outside of the Mixture Design Control Points with prior approval of the Engineer. The mix design will still be required to meet the volumetric and performance criteria. ⁽³⁾ Draindown shall be tested in accordance with AASHTO T 305 at the production temperature. ⁽⁴⁾ Producer may request a waiver on the minimum binder content based on the specific gravity of the aggregate source. Mix design must still meet minimum mixture performance if a waiver is granted.			

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Table 458.30-2 – Volumetric Requirements for Design and Control of Polymer Modified HP

	Required Density at N _{des}	Voids Filled with Asphalt	Voids in Mineral Aggregate (%)	Dust to Binder Ratio
	(% of G _{mm})	(VFA)	(VMA)	
Design Requirements ⁽¹⁾	96.5	≥ 75	≥ 18.0 (HP-9.5 mm)	0.3 – 1.0
Control Requirements	94.0 - 98.5		≥ 17.0 (HP-12.5 mm)	
⁽¹⁾ The mix design may go outside of the Mixture Design Control Points with prior approval of the Engineer. The mix design will still be required to meet the volumetric and performance criteria.				

(4) LTMF Performance Testing.

Submit to the Department a sample comprised of gyratory specimens, two hundred pounds of loose HP mixture, and a sufficient amount of raw material for performance testing of the LTMF by the Department. The Department reserves the right to be present at the time of mixture and specimen fabrication.

Six gyratory specimens shall be compacted according to AASHTO T 312 to a height of 60 mm and shall have an air void content of 7.0 ± 0.5 percent. The Department reserves the right to be present at the time of molding the gyratory specimens. The specimens will be tested using a Hamburg Wheel Tracking Device (HWTD) according to AASHTO T 324 at 45°C.

Four (4) gyratory specimens shall be compacted according to AASHTO T 312 to a height of 60 mm and shall have an air void content of 7.0 ± 0.5 percent. The Department reserves the right to be present at the time of molding the gyratory specimens. The specimens will be tested in the IDEAL-CT machine according to ASTM D8225.

The Department will use the supplied loose mix sample to compact four (4) beam specimens to an air void content of 7.0 ± 0.5 percent for Flexural Beam Fatigue testing. The Beam Fatigue specimens will be tested according to AASHTO T 321 at 15°C, 10 Hz loading frequency, and 500 micro-strains.

The Department will approve the LTMF if the performance testing requirements in Table 458.30-3 are met. If the LTMF does not meet the HWTD, Flexural Beam Fatigue, and IDEAL-CT criteria, the LTMF shall be rejected.

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Table 458.30-3 – Performance Testing Requirements for HP

Performance Characteristic	Test Method	Requirement
HWTB Maximum Rut Depth	AASHTO T 324 @ 45°C ⁽¹⁾⁽⁴⁾	< 0.25 inch
HWTB Stripping Inflection Point	AASHTO T 324 @ 45°C ⁽¹⁾⁽⁴⁾	> 15,000 passes
Beam Fatigue Test Failure	AASHTO T 321 @ 25°C ⁽²⁾⁽⁴⁾	> 1,000,000 cycles
IDEAL-CT	ASTM D8225 @ 25°C ⁽⁴⁾	≥ 550 ⁽³⁾
⁽¹⁾ After 20,000 passes. ⁽²⁾ Test performed at a strain level of 500 microstrains. ⁽³⁾ IDEAL-CT shall be an average of 4 specimens with no individual specimen with an CT Index < 495. ⁽⁴⁾ Performance samples shall be short term aged according to AASHTO R 30 for 2 hours at 135°C.		

CONSTRUCTION PROCEDURES**458.40 General.**

The Construction Procedures shall be in accordance with Section 450 Hot Mix Asphalt Pavement.

458.41 Control Strip Requirements.**HP Control Strip.**

Control strips shall be performed in accordance with Subsection 450.51 and the following:

(1) Control Strip Sampling and Testing.

The Contractor and the Department shall independently sample and test the Control Strip Lot for the Quality Characteristics identified in Table 458.41-1.

(2) Control Strip Performance Testing.

The Department will obtain a sample comprised of five (5) 5-gallon metal buckets of loose HP mixture from the Control Strip Lot for performance testing. Test specimens will be prepared and tested in accordance with Subsection 458.30(3).

(3) Evaluation of Control Strip Inspection Data.

The Contractor and the Department shall each evaluate their respective Control Strip inspection data against the requirements for Materials and Workmanship specified in Subsection 450.43 through Subsection 450.52 as well as Subsection 458.41.

(4) Evaluation of Control Strip Sampling and Testing Data.

The Contractor and the Department shall each evaluate their respective Control Strip test results against the Control Strip Quality Limits in Table 458.41-1.

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(5) Evaluation of Control Strip Performance Testing Data.

The Department will evaluate the Control Strip sample performance testing results against the requirements in Table 458.30-3.

(6) Verification of Control Strip Lot and LTMF.

In order for a Control Strip Lot and corresponding LTMF to be Verified, the criteria in Table 458.41-1 and Subsection 450.51 must be met. In addition, the performance testing results shall meet the requirements in Table 458.30-3.

(7) Acceptance and Payment of Control Strips.

If the Control Strip Lot has been Verified in accordance with the requirements above, the Lot will be accepted and paid for at the unit bid price per ton of HP mixture. If the Control Strip Lot is not Verified, the Contractor will be required to construct another Control Strip.

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Table 458.41-1 HP Control Strip Quality Limits

Quality Characteristic	Target	Specification Limits		Engineering Limits		Acceptance Limit
		LSL	USL	LEL	UEL	
PG Asphalt Binder Grading	Per Binder Grade specified	N/A	N/A	Per AASHTO M320	Per AASHTO M320	N/A
PG Asphalt Binder Content (Polymer)	Per JMF	Target - 0.3 %	Target + 0.3 %	Target - 0.4 %	Target + 0.4 %	≥ 70 PWL
PG Asphalt Binder Content (Asphalt Rubber)	Per JMF	Target - 0.4 %	Target + 0.4 %	Target - 0.6 %	Target + 0.6 %	≥ 70 PWL
Volumetrics: Air Voids (Polymer)	Per JMF	Target - 1.3 %	Target + 1.3 %	Target - 2.0 %	Target + 2.0 %	≥ 70 PWL
Volumetrics: Air Voids (Asphalt Rubber)	Per JMF	Target - 1.3 %	Target + 1.3 %	Target - 2.0 %	Target + 2.0 %	For Information Only
Combined Gradation: Passing #4 and Larger Sieves	Per JMF	N/A	N/A	Target - 6%	Target + 6%	N/A
Combined Gradation: Passing #8 Sieve	Per JMF	N/A	N/A	Target - 5%	Target + 5%	N/A
Combined Gradation: Passing #16 to #50 Sieve	Per JMF	N/A	N/A	Target - 3%	Target + 3%	N/A
Combined Gradation: Passing #100 Sieve	Per JMF	N/A	N/A	Target - 2%	Target + 2%	N/A
Combined Gradation: Passing #200 Sieve	Per JMF	N/A	N/A	Target - 1.5%	Target + 1.5%	N/A
In-Place HP Mat Density (Cores)	95% of G _{mm}	92.5% of G _{mm}	97.5% of G _{mm}	91.5% of G _{mm}	98.5% of G _{mm}	≥ 70 PWL
Thickness ⁽¹⁾ : (All Courses 1 inch or greater)	Per Plans	- 20 % of Target Thickness	+ 20 % of Target Thickness	- 30 % of Target Thickness	+ 30 % of Target Thickness	≥ 70 PWL
Ride Quality ⁽¹⁾ : Posted Speed Limit ≥ 55 mph	50 in/mile	N/A	70 in/mile	N/A	80 in/mile	≥ 70 PWL
Ride Quality ⁽¹⁾ : Posted Speed Limit ≥ 40 mph, but < 55 mph	70 in/mile	N/A	100 in/mile	N/A	110 in/mile	>70 PWL
⁽¹⁾ To be evaluated for applicable pavement courses subject to testing per Subsection 450.65F. The Quality Limits for Ride in Table 450.5 shall only apply to Control Strips for the final pavement course. For pavement courses below the final pavement course that are subject to Ride Quality testing, the Mean IRI for the Control Strip Sublots shall be less than or equal to the Maximum Mean IRI values in Table 450.51-1.						

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CONTRACTOR QUALITY CONTROL

458.60 General.

The Contractor shall provide a Quality Control (QC) system in accordance with the provisions of Section 450 Hot Mix Asphalt, as modified below.

458.61 Contractor Quality Control Plan.

The QC system shall be detailed in a Quality Control Plan (QC Plan). This may be either a standalone QC Plan for the HP mixture, or if a QC Plan is required for other HMA mixtures on the project, the HP mixture may be addressed in that QC Plan. The QC Plan shall conform to the requirements in Subsection 450.61 for submittal, format, contents, and approval.

458.62 Quality Control Personnel Requirements.

The Contractor shall provide the QC personnel required by Subsection 450.62.

458.63 Quality Control Laboratory Facility Requirements.

The Contractor shall provide the QC laboratory facilities required by Subsection 458.30.

458.64 Quality Control Inspection.

The Contractor shall perform Quality Control inspection of the HP mixture in accordance with the requirements of Subsection 450.64, as amended herein.

A. QC Inspection for Preparation of Underlying Surface.

If HMA patching is required on the approach pavement, Quality Control inspection of HMA for Patching shall be performed in accordance with the requirements of Subsection 450.64A and Table 450.64-1. Quality Control inspection of the tack coat for HMA mixtures shall be performed in accordance with the requirements of Table 450.64-2.

B. QC Inspection for Production & Placement of HP Lots.

The Contractor's QC personnel will perform Quality Control inspection at both the HMA production facility and at the site of HP field placement to ensure that the production and placement processes are providing work conforming to the contract requirements. For purposes of QC inspection, the total quantity of HP produced and placed during the same construction season will constitute a Lot. Each in-place Lot shall be divided into 100 lane-feet Sublots. The specific attributes to be inspected for each HP Lot shall be in accordance with the requirements of Subsection 450.43 through Subsection 450.52, as amended herein, and as outlined in Table 450.64-3 and Table 450.64-4.

458.65 Quality Control Sampling and Testing Requirements.

The Contractor shall perform Quality Control sampling and testing of the HP mixture in accordance with the requirements of Subsection 450.65, as amended herein.

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A. Quality Control Testing of Prepared Underlying Surface.

Quality Control sampling and testing of HMA for Patching shall be performed in accordance with the requirements of Table 450.65-1.

B. Quality Control Testing of HP Lots.

The Contractor's QC personnel will perform Quality Control sampling and testing at both the HMA production facility and at the site of HP field placement to ensure that the production and placement processes are providing work conforming to the contract requirements. All QC sampling and testing shall be in accordance with the AASHTO, ASTM, NETTCP, or Department procedures specified in Table 458.65-1 below. The Contractor shall furnish approved containers for all material samples. The Department shall be provided the opportunity to monitor and witness all QC sampling and testing.

Quality Control testing of the HP pavement course for Ride Quality will only be required when the criteria in Subsection 450.65F(11) are met.

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Table 458.65-1 - Minimum Quality Control Sampling & Testing of HP Lots

Quality Characteristic	Test Method(s)	Sublot Size	Minimum Test Frequency	Point of Sampling	Sampling Method
PG Asphalt Binder Content	AASHTO T 308	600 tons	1 per Sublot ⁽¹⁾	From Haul Vehicle at Plant	Random AASHTO R 97 and R 47
Combined Aggregate Gradation	AASHTO T 30	600 tons	1 per Sublot ⁽¹⁾	From Haul Vehicle at Plant	Random AASHTO R 97 and R 47
Maximum Theo. Specific Gravity	AASHTO T 209 (Method A)	600 tons	1 per Sublot ⁽¹⁾	From Haul Vehicle at Plant	Random AASHTO R 97 and R 47
Bulk Specific Gravity	AASHTO T 166 (Method A)	600 tons	1 per Sublot ⁽¹⁾	From Haul Vehicle at Plant	Random AASHTO R 97 and R 47
PG Asphalt Binder Content	AASHTO T 308	600 tons	1 per Sublot ⁽¹⁾	From Haul Vehicle at Plant	Random AASHTO R 97 and R 47
Combined Aggregate Gradation	AASHTO T 30	600 tons	1 per Sublot ⁽¹⁾	From Haul Vehicle at Plant	Random AASHTO R 97 and R 47
Volumetrics: Air Voids, VMA, VFA	AASHTO T 312 and R 35	600 tons	1 per Sublot ⁽¹⁾	From Haul Vehicle at Plant	Random AASHTO R 97 and R 47
In-place Mat Density (Density Gauge)	AASHTO T 343 or T 355	150 tons	1 per Sublot ⁽¹⁾	From Compacted Mat	Selective & Random AASHTO T 343 or T 355
In-place Mat Density (Cores)	AASHTO T 269	600 tons	1 per Sublot ⁽¹⁾	From Compacted Mat	Random AASHTO R 67
Thickness	ASTM D3549	600 tons	1 per Sublot ⁽¹⁾	From Compacted Mat	Random AASHTO R 67
Transverse Joint Density	AASHTO T 343 or T 355	Each Joint	1 per Sublot ⁽¹⁾	At Finished Joint	Random AASHTO T 343 or T 355
Longitudinal Joint Density	AASHTO T 343 or T 355	500 ft per Joint	1 per Sublot ⁽¹⁾	At Finished Joint	Random AASHTO T 343 or T 355
⁽¹⁾ In the event that the total daily HP production is less than one Sublot, a minimum of one random QC sample shall be obtained for the day's production.					

458.66 Quality Control Documentation and Data Evaluation.

The Contractor shall document all QC inspection, sampling and testing and perform evaluation of QC data in accordance with Subsection 450.66.

458.67 Corrective Action.

As part of the Quality Control system, the Contractor shall implement corrective action in accordance with Subsection 450.67 for any part of a Lot that is determined by inspection or testing to not be in conformance with the quality requirements.

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458.68 Quality Control Records System.

The Contractor shall maintain a QC records system for the HP in accordance with Subsection 450.68.

DEPARTMENT ACCEPTANCE**458.70: General**

The Department is responsible for performing all Acceptance activities and making the final Acceptance determination for each HP Lot produced and placed. The Department's Acceptance System will include monitoring the Contractor's QC activity and performing Acceptance inspection, sampling and testing in order to determine the Quality and corresponding payment for each Lot.

458.71 Acceptance System Approach.

The Department's Acceptance determination for each Lot of HP will be based on an evaluation of its Acceptance inspection information, testing data, and performance testing results.

458.72 Department Monitoring of Contractor Quality Control.

The Department will monitor the Contractor's Quality Control system in accordance with Section 450.72.

458.73 Acceptance Inspection.

The Department will perform Acceptance inspection of all work items addressed under Section 450 Hot Mix Asphalt Pavement and herein in accordance with Subsection 450.73, to ensure that all materials and completed work are in conformance with the contract requirements.

A. Acceptance Inspection of Prepared Underlying Surface.

If HMA patching is required on the approach pavement, Acceptance inspection of HMA for Patching shall be performed in accordance with the requirements of Subsection 450.73 and Table 450.73.-1.

Acceptance inspection of the tack coat for HMA mixtures shall be performed in accordance with the requirements of Table 450.73-2.

B. Acceptance Inspection of HP Lots.

The Department will perform Acceptance inspection of the HP at both the HMA production facility and at the site of HP field placement. For purposes of Acceptance inspection, the total quantity of HP mixture produced and placed during the same construction season will constitute a Lot. Each in-place HP Lot will be divided into 100 lane-feet Sublots. The attributes to be inspected and minimum frequency of inspection will be in accordance with the requirements of Subsection 450.73.

458.74 Acceptance Sampling & Testing.

The Department will perform sampling and testing of the HP mixture in accordance with the requirements of Subsection 450.74, as amended herein.

The Department will obtain random samples for Acceptance testing from all Sublots from the HP production facility and at the site of HP field placement in accordance with Subsection 450.74A. The

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specific Quality Characteristics subject to Department Acceptance testing are identified in Table 458.74-1. All Acceptance testing of HP Lots will be performed by the Department in accordance with the AASHTO, ASTM, NETTCP, or Department test methods specified in Subsection 450.74F and Table 458.74-1.

Acceptance testing of the HP pavement course for Ride Quality will only be required when the criteria in Subsection 450.65F(11) are met.

Table 458.74-1 - Department Acceptance Sampling & Testing of HP Lots

Quality Characteristic	Test Method(s)	Sublot Size	Minimum Test Frequency	Point of Sampling	Sampling Method
PG Asphalt Binder Grading	Per M3.01.0: Performance Graded Asphalt Binder	12,000 tons of HP using same PG Grade	1 per Sublot	From In-line Sample Valve at HMA Plant	Random AASHTO R 66
PG Asphalt Binder Content	AASHTO T 308	600 tons	1 per Sublot sampled per 450.74 ⁽¹⁾	From Haul Vehicle at HMA Plant	Random AASHTO R 97 and R 47
Combined Aggregate Gradation	AASHTO T 30	600 tons	1 per Sublot sampled per 450.74 ⁽¹⁾	From Haul Vehicle at HMA Plant	Random AASHTO R 97 and R 47
Volumetrics: Air Voids	AASHTO T 312 and R 35	600 tons	1 per Sublot sampled per 450.74 ⁽¹⁾	From Haul Vehicle at HMA Plant	Random AASHTO R 97 and R 47
In-place HP Mat Density (Cores)	AASHTO T 269	600 tons	1 per Sublot sampled per 450.74 ⁽¹⁾	From Compacted HP Course	Random AASHTO R 67
In-place HP Mat Density (Bridge Courses)	AASHTO T 343 or T 355	150 tons	1 per Sublot sampled per 450.74 ⁽¹⁾	From Compacted HP Course	Random AASHTO T 343 or T 355
Thickness	ASTM D3549	600 tons	1 per Sublot sampled per 450.74 ⁽¹⁾	From Compacted HP Course	Random AASHTO R 67
Ride Quality (IRI)	AASHTO R 54 per 450.65	0.1 miles per each Wheel Path	1 per Sublot	Each Pavement Course per 450.65	Random per 450.65

⁽¹⁾ In the event that the total daily HP production is less than one Sublot but greater than 150 tons, a minimum of one random Acceptance sample shall be obtained for the day's production.

Performance Testing for Acceptance.

The Department will obtain random samples for performance testing from the first Sublot and from a minimum of 25% of all Sublots produced and placed thereafter. Each sample will be comprised of five (5) 5-gallon metal buckets of loose HP mixture. Test specimens will be prepared and tested in accordance with AASHTO T 324 and AASHTO T 321. The Department will evaluate the performance testing results against the requirements in Table 458.30-3.

458.75 Split Sample Correlation.

Split Sample Correlation shall be performed when Validated Contractor QC test data is to be included in the acceptance determination in accordance with Subsection 450.75.

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458.76 Lot Acceptance Determination Based on Inspection Results.

The Department’s Acceptance inspection results will be used in the final acceptance determination for each HP pavement Lot in accordance with Subsection 450.76.

458.77 Lot Acceptance Determination Based on Testing Data.

The Department’s Acceptance testing data will be evaluated for the final acceptance determination for each HP Lot in accordance with Subsection 450.77 and Table 458.77-1 below.

Table 458.77-1 - Quality Limits for Acceptance of HP Lots

Quality Characteristic	Target	Specification Limits		Engineering Limits		Acceptance Limit
		LSL	USL	LEL	UEL	
PG Asphalt Binder Grading	Per Binder Grade specified	N/A	N/A	Per M3.01.0		N/A
PG Asphalt Binder Content (Polymer)	Per JMF	Target - 0.3 %	Target + 0.3 %	Target - 0.4 %	Target + 0.4 %	60 PWL
PG Asphalt Binder Content (Rubber)	Per JMF	Target - 0.4%	Target + 0.4%	Target - 0.6%	Target + 0.6%	60 PWL
Volumetrics: Air Voids	Per JMF	Target - 1.3 %	Target + 1.3 %	Target - 2.0 %	Target + 2.0 %	60 PWL
Volumetrics: Air Voids (Asphalt Rubber)	Per JMF	Target - 1.3 %	Target + 1.3 %	Target - 2.0 %	Target + 2.0 %	For Information Only
In-Place HMA Mat Density (Cores)	95% of Gmm	92.5% of Gmm	97.5% of Gmm	91.5% of Gmm	98.5% of Gmm	60 PWL
In-Place HMA Mat Density (Bridge Courses)	95% of Gmm	N/A	N/A	90% of Gmm	N/A	N/A
Thickness: (All Courses 1 in. or greater)	Per Plans	-20% of Target Thickness	+20% of Target Thickness	-30% of Target Thickness	+30% of Target Thickness	60 PWL
Ride Quality: Posted Speed Limit \geq 55 mph ⁽¹⁾	50 in/mile	N/A	70 in/mile	N/A	80 in/mile	60 PWL
Posted Speed Limit \geq 40 mph, but $<$ 55 mph ⁽¹⁾	70 in/mile	N/A	100 in/mile	N/A	110 in/mile	60 PWL
Ride Quality: Posted Speed Limit $<$ 40 mph	Not subject to Ride Quality Testing					
⁽¹⁾ Projects with posted speed limits that fall into more than one of the Posted Speed Limit ranges above will be divided into multiple Lots and evaluated separately.						

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Lot Acceptance Determination Based on Performance Testing.

The Department's Performance testing data for each HP Lot will be evaluated against the requirements in Table 458.30-3. The Department will accept a Lot if the evaluation of all Acceptance testing data for the Lot is in conformance with the Quality Limits specified in Table 458.30-3 and Table 458.77-1 above.

458.78 Quality Level Analysis Procedures.

For each HP Category A or B Lot, the Engineer will determine the Lot Quality Level, for the applicable Quality Characteristics in Table 458.77-1, using the Quality Level Analysis (QLA) procedures outlined in Subsection 450.78.

For each HP pavement course that is subject to Ride Quality testing per Subsection 450.65F(11), the Department will determine the Quality Level for the Ride Quality of each HP Lot, using the Quality Level Analysis (QLA) procedures outlined in Subsection 450.78.

DISPUTE RESOLUTION**458.80 Procedures for Dispute Resolution.**

The Contractor or the Department may dispute any of the test values that are utilized in the Acceptance determination for a given HP Lot in accordance with the procedures contained in Subsection 450.80 through Subsection 450.84.

COMPENSATION**458.90 Method of Measurement.**

HMA for Patching (if required), Tack Coat, and Hot Applied Joint Adhesive will be measured as specified in Section 450.90.

High Performance pavement course mixtures will be measured by the ton and shall be the actual pavement course quantity complete, in place, and accepted by the Engineer. The quantity shall be determined only by weight slips that have been properly countersigned by the Engineer at the time of delivery.

When it is determined that the mean thickness of the pavement is not in conformance with the specification limit thicknesses, as specified under Subsection 450.74, Part F(6), the quantity shall be determined based on the actual pavement course quantity complete, in place, at the target thickness specified on the plans and accepted by the Engineer. Material quantity above the target thickness shall not be considered for payment.

458.91 Basis of Payment.

HMA for Patching (if required), Tack Coat, and Hot Applied Joint Adhesive will be paid for as specified in Section 450.91.

Each HP pavement course will be paid for at the contract unit price per ton of in-place mixture under the HP Pay Items specified (Pay Items 458.1 and 458.2). Payment shall include sweeping the underlying surface, transportation, delivery, placement (including providing an MTV, when required), and compaction of each HP pavement course in accordance with Subsection 458.40 and 458.41. Mobile lighting for nighttime milling and paving, in accordance with Subsection 450.47, Part C, is considered incidental to the cost of each HP pavement course placed.

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All sawcutting required for transverse joints or longitudinal joints in accordance with Subsection 450.49 shall also be included in the contract unit price for each HP pavement course. All required sawcutting in the existing pavement in accordance with this specification will be included in the contract unit price for each HP pavement course, except sawcutting pavement for box widening, which will be paid under Item 482.5.

458.92 Pay Adjustment (PA).

Payment adjustments for each HP Lot will be made, for the applicable Quality Characteristic(s) in Table 458.77-1, in accordance with Subsection 450.92.

458.93	Payment Items	Payment Unit
458.1	SUPERPAVE High Performance Surface Course (HP - 9.5)	Ton
458.2	SUPERPAVE High Performance Surface Course (HP - 12.5)	Ton
451.	HMA for Patching	Ton
452.	Asphalt Emulsion for Tack Coat	Gallon
453.	HMA Joint Sealant	Foot
999.490	HMA Pay Adjustment – PG Asphalt Binder Content ⁽¹⁾	Dollar
999.491	HMA Pay Adjustment – Volumetrics (Air Voids) ⁽¹⁾	Dollar
999.492	HMA Pay Adjustment – In-place Mat Density ⁽¹⁾	Dollar
999.493	HMA Pay Adjustment – Thickness ⁽¹⁾	Dollar
999.494	HMA Pay Adjustment – Ride Quality ⁽¹⁾	Dollar

(1) Not a bid item

DOCUMENT 00713

Subsection 701
Cement Concrete Sidewalks, Pedestrian Curb Ramps, and Driveways
and
Guide to the Interim Subsection 701
Cement Concrete Sidewalk Specification

(March 31, 2022)

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SUBSECTION 701: CEMENT CONCRETE SIDEWALKS, PEDESTRIAN CURB RAMPS, AND DRIVEWAYS

Replace this Subsection with the following:

INTERIM SUBSECTION 701: CEMENT CONCRETE SIDEWALKS, PEDESTRIAN CURB RAMPS, AND DRIVEWAYS

DESCRIPTION

701.20: General

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

MATERIALS

701.30: General

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

Gravel Borrow, Type b.....	M1.03.0
Cement Concrete ($\geq 4,000$ psi).....	M4.02.00
Preformed Expansion Joint Filler.....	M9.14.0 ^[1]

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

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

A. Combined Aggregate System.

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

1. Tarantula Curve.

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

Table 701.30-1: Tarantula Curve Particle Size Distribution

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

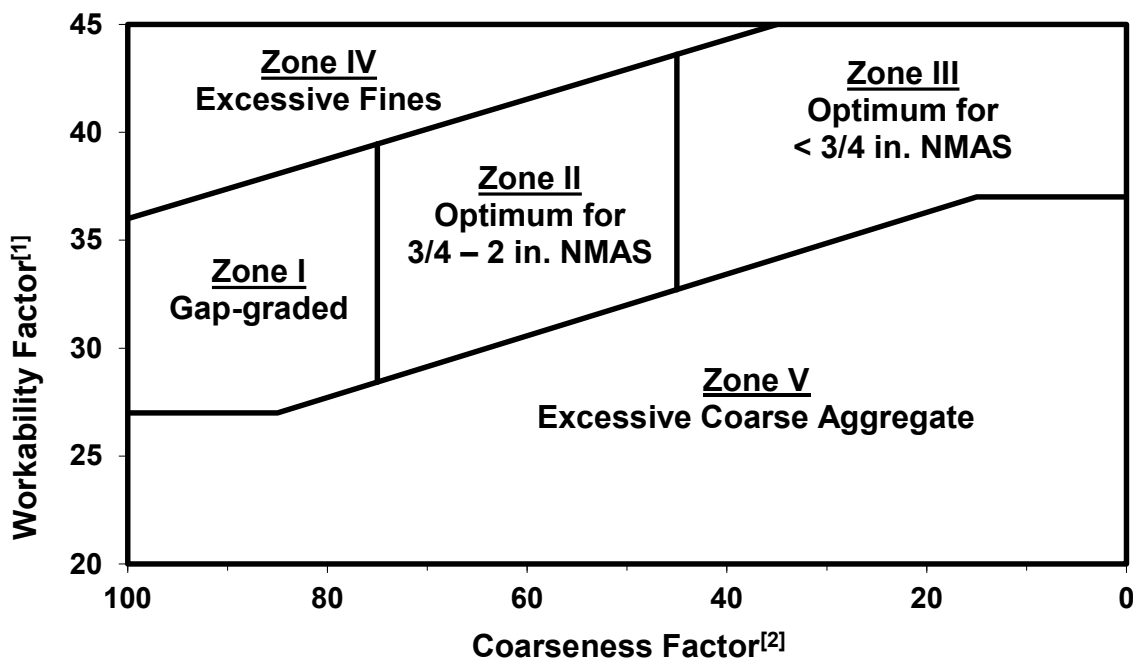
2. Shilstone Workability-Coarseness Chart.

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

Table 701.30-2: Shilstone Workability-Coarseness

Zone	Property	Cause
Zone I	Gap-graded; High potential for segregation during placement and consolidation; Cracking, blistering, spalling, and scaling	Deficiency in intermediate particles; Non-cohesive
Zone II	Optimum mixture for nominal maximum aggregate size from 2 in. – 3/4 in.	Optimized workability factor and coarseness factor
Zone III	Optimum mixture for nominal maximum aggregate size < 3/4 in.	Optimized workability factor and coarseness factor
Zone IV	Sticky; High potential for segregation during consolidation and finishing; Variable strength, high shrinkage, cracking, curling, spalling, and scaling	Excessive fines
Zone V	Rocky; Lacking plasticity	Excessive amount of coarse and intermediate aggregate

Figure 701.30-1: Shilstone Workability-Coarseness Chart



^[1] The workability factor is determined by the equation $WF = W + (C - 564) / 38$, where WF = workability factor, W = percent passing No. 8 sieve and C = total cementitious materials content.

^[2] The coarseness factor is determined by the equation $CF = (Q/R) / 100$, where CF = coarseness factor, Q = cumulative percent retained on 3/8 in. sieve and R = cumulative percent retained on No. 8 sieve.

3. Fineness Modulus.

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

4. Coarse Aggregate Content.

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

B. Paste System.

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

1. Water-Cementitious Ratio.

The water-cementitious ratio for the mix design may be analyzed to evaluate potential properties of the concrete, including strength, concrete and reinforcement bonding, and resistance to freezing, thawing, de-icing, sulfate reaction, corrosion of steel reinforcement, drying shrinkage, cracking, and

volume change from wetting and drying. The water-cementitious ratio is determined by calculating the total water content by mass and dividing by the total cement and supplementary cementitious material (SCM) content by mass. The recommended water-cementitious ratio design target is identified in Table 701.30-3. The water-cementitious ratio shall be less than or equal to 0.45.

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

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

2. Air Content.

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

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

Exposure Class	Severity	Condition	Nominal Maximum Aggregate Size (in.)	Air Content Target Recommendation (%)
F3	Very Severe	Exposed to freezing and thawing cycles and accumulation of snow, ice, and de-icing chemicals; Frequent exposure to water	3/8	7.5
			1/2	7.0
			3/4	7.0
			1	6.5
			1 1/2	6.5

3. Cement and Supplementary Cementitious Materials Content.

The cement and supplementary cementitious materials content incorporated into the mix design shall promote quality properties of the cement concrete, including resistance to alkali silica reaction, freezing, thawing, de-icing, and sulfate reaction. Incorporation of supplementary cementitious materials (SCM) in cement concrete may affect workmanship properties, including workability, bleed rate, setting time, and other properties. Adequate adjustments in Contractor workmanship practices, including placement, finishing, curing, and other construction practices shall be required to account for these changes in properties and to prevent scaling due to freezing, thawing, and de-icing cycles. The cement and supplementary cementitious materials content shall meet the design criteria identified in Table 701.30-5.

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

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

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

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

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

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

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

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

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

4. Chemical Admixtures.

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

Table 701.30-7: Chemical Admixtures

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

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

5. Paste Content.

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

Table 701.30-8: Paste Content

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

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

$$\begin{aligned}
 V_{\text{CEMENT}} &= W_{\text{CEMENT}} / SG_{\text{CEMENT}} * D_{\text{WATER}} \\
 V_{\text{SCM}} &= W_{\text{SCM}} / SG_{\text{SCM}} * D_{\text{WATER}} \\
 V_{\text{ADMIXTURE}} &= V_{\text{ADMIXTURE in oz.}} / 957.5 \text{ oz. per cf} \\
 V_{\text{WATER}} &= V_{\text{WATER in gal.}} / 7.48 \text{ gal. per cf} \\
 V_{\text{COARSE}} &= W_{\text{COARSE}} / SG_{\text{COARSE}} * D_{\text{WATER}} \\
 V_{\text{FINE}} &= W_{\text{FINE}} / SG_{\text{FINE}} * D_{\text{WATER}} \\
 V_{\text{CONCRETE}} &= V_{\text{CEMENT}} + V_{\text{SCM}} + V_{\text{ADMIXTURE}} + V_{\text{WATER}} + V_{\text{COARSE}} + V_{\text{FINE}} + V_{\text{AIR}}
 \end{aligned}$$

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

$$\begin{aligned}
 V_{\text{PASTE}} &= V_{\text{CEMENT}} + V_{\text{SCM}} + V_{\text{ADMIXTURE}} + V_{\text{WATER}} \\
 PC_{\text{CONCRETE}} &= V_{\text{PASTE}} / V_{\text{CONCRETE}}
 \end{aligned}$$

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

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

$$\begin{aligned}
 VC_{\text{COARSE}} &= SG_{\text{COARSE}} * D_{\text{WATER}} - BD_{\text{COARSE}} / D_{\text{COARSE}} \\
 VC_{\text{FINE}} &= SG_{\text{FINE}} * D_{\text{WATER}} - BD_{\text{FINE}} / D_{\text{FINE}} \\
 VC_{\text{AGGREGATE}} &= [(V_{\text{COARSE}} / (V_{\text{COARSE}} + V_{\text{FINE}})) * VC_{\text{COARSE}} + (V_{\text{FINE}} / (V_{\text{COARSE}} + V_{\text{FINE}})) * VC_{\text{FINE}}] \\
 AVC_{\text{CONCRETE}} &= [VC_{\text{AGGREGATE}} * ((V_{\text{COARSE}} + V_{\text{FINE}}) / V_{\text{CONCRETE}})]
 \end{aligned}$$

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

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

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

C. Initial Curing Materials.

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

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

1. Liquid-Applied Evaporation Reducers.

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

D. Intermediate Curing Materials.

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

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

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

E. Final Curing Materials.

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

Curing water shall be free of deleterious impurities, causing staining and deterioration. The potential staining ability of curing water shall be evaluated by means of CRD-C401 (US Army Corps

of Engineers 1975) for instances where curing water quality is questioned. Curing water shall not exceed a temperature differential of more than 20°F from the internal concrete temperature, to prevent cracking due to temperature gradients causing strain that exceeds the strain capacity of concrete. Curing water shall remain above freezing temperatures throughout the duration of the curing cycle.

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

Materials used for final curing methods of cement concrete shall accommodate all exposed cement concrete surfaces with a continuous application of moisture throughout the entire duration of the final curing method cycle and provide controlled and gradual termination of the final curing method cycle.

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

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

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

1. Saturated Covers.

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

2. Sheet Materials.

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

a. Polyethylene Film.

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

i. White Polyethylene Film.

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

ii. Clear and Black Polyethylene Films.

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

b. White Burlap-Polyethylene Sheeting.

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

c. Reinforced Impervious Paper.

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

3. Liquid Membrane-Forming Compounds.

Compounds shall form a continuous, non-yellowing, and durable film with quality moisture-retention properties. Compounds shall maintain the relative humidity of the concrete surface

above 80% for seven days to sustain cement hydration. Compounds shall not affect the original color of the concrete surface. Compounds shall not degrade due to exposure to ultraviolet light from direct sunlight. Compounds shall meet the local and federal allowable Volatile Organic Compound (VOC) content limits.

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

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

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

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

The concrete surface shall be damp when the compound is applied. Power-driven spray equipment shall be used for uniform application of compounds on large paving projects. Spray nozzles recommended by the compound Manufacturer and use of windshields shall be arranged by the Contractor to prevent wind-blown loss of compound and to ensure proper coverage application rates are achieved. The compound shall be applied by power sprayer, using appropriate wands and nozzles with pressures between 25 and 100 psi. The Contractor shall fill the power sprayer with curing compound from the Manufacturer's original container in the presence of the Engineer. Any dilution as recommended by the Manufacturer shall take place in the presence of the Engineer. For very small areas such as repairs, the compound shall be applied with a wide, soft-bristled brush or paint roller.

The Contractor shall verify the application rate and procedures are in accordance with the Manufacturer's instructions and recommendations. At least one uniform coat shall be applied at a rate of 150 to 200 ft²/gallon. On very deeply textured surfaces, the surface area to be treated shall be at least twice the surface area of the surface. In such cases, two separate applications may be needed, each at 200 ft²/gallon or greater if specified by the Manufacturer to achieve the desired

moisture retention rate, with the first being allowed to become tacky before the second is applied. If two coats are necessary to ensure complete coverage, for effective protection the second coat should be applied at right angles to the first. Complete coverage of the surface shall be attained due to the potential for formation of small pinholes in the membrane, which will result in loss of moisture from the concrete. Compounds shall not sag, run off peaks, or collect in grooves.

Compounds and procedures shall be compatible with concrete surfaces receiving subsequent applications or placements of concrete, overlays, coatings, paints, sealers, finishes or other toppings to ensure acceptable bonding to the concrete. Testing to establish compatibility among the curing compound, subsequent surface treatments, concrete moisture content and the actual finished surface texture of the concrete shall be conducted when compatibility is not known. The compound Manufacturer shall be consulted by the Contractor to determine the compatibility of the application. Compounds shall not be applied to concrete surfaces where bonding of subsequent applications or placements is incompatible or is of concern. The use of wax-based curing compounds shall be prohibited in instances where concrete surfaces are subject to additional toppings and vehicular, pedestrian, or other traffic. Deliberate removal of compounds in the presence of the Engineer and in accordance with Manufacturer's instructions and recommendations shall be conducted as an alternative to compatibility testing, incompatibility, or in instances where bonding is of concern. Bonding of subsequent materials may still be inhibited by the presence of the compound even after the moisture retention characteristics of the compound have diminished.

a. Liquid Membrane-Forming Compounds for Curing.

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

Table 701.30-1: Types of Compounds for Curing

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

Table 701.30-2: Composition Class of Compounds for Curing

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

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

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

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

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

Type	Description
Type I	Clear or translucent
Type II	White pigmented

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

Type	Description
Class A	Non-yellowing

F. Protective Sealing Compounds.

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

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

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

G. Cold Weather Concreting Materials.

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

The protection period shall be defined as the minimum duration required to prevent concrete from the negative effects of cold weather exposure. The protection period shall remain in place while

cold weather conditions exist. Controlled and gradual termination of the protection period shall be conducted only after 100% f'c is attained and all specified conditions are met.

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

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

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

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

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

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

1. Insulating Materials.

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

2. Heaters.

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

a. Direct Fired Heaters.

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

b. Indirect Fired Heaters.

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

c. Hydronic Heaters.

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

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

3. Enclosures.

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

H. Hot Weather Concreting Materials.

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

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

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

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

where E = evaporation rate of water-covered surface (lb/ft²/hr), T_c = concrete temperature of the evaporating surface (°F), r = relative humidity of air surrounding the evaporating surface (%), T_a = temperature of the air surrounding the evaporative surface (°F), and V = average wind speed 20 inches above the evaporating surface. The air surrounding the evaporating surface shall be defined as the air approximately 4 to 6 feet above the evaporating surface on the windward side and shielded from the sun's rays.

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

- Procedures for preparing the subgrade prior to placement
- Methods and requirements for hot weather protection and temperature control of constituent materials incorporated into the mix design
- Chemical admixtures incorporated into the mix design for hot weather protection and temperature control
- Methods and requirements for hot weather protection and temperature control during mixing, delivery, placement, finishing, curing, and protection period
- Initial curing methods to be used to reduce surface evaporation
- Curing methods to be used during and following the protection period
- Types of covering, insulation, cooling, or enclosures to be provided
- Evaporation rate and bleeding rate of concrete calculations
- Procedures for measuring and recording concrete temperatures
- Procedures for preventing drying during dry, windy conditions

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

CONSTRUCTION METHODS

701.40: Pre-Placement

A. Excavation.

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

B. Subgrade and Subbase.

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

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

C. Forms.

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

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

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

All forms shall be oiled before placing concrete.

701.41: Placement

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

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

Detectable warning panels conforming to the plans shall be securely incorporated into the work by means acceptable to the Engineer.

On the foundation as specified above, the concrete shall be placed in such quantity that after being thoroughly consolidated in place it shall be 4 in. deep. At driveways, the sidewalks shall be 6 in. deep.

In conveying the concrete from the place of mixing to the place of deposit, the operation shall be conducted in such a manner that no mortar will be lost, and the concrete shall be so handled that the concrete will be of uniform composition throughout, showing neither excess nor lack of mortar in any one place.

The surface of all concrete sidewalks shall be uniformly scored into block units of areas not more than 36 ft². The depth of the scoring shall be at least ½ in. deep and no more than ½ in. wide.

701.42: Initial Curing

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

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

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

701.43: Finishing

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

701.44: Intermediate Curing

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

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

701.45: Final Curing

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

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

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

Table 701.45-1: Termination of Curing Cycle

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

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

701.46: Protective Sealing

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

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

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

701.47: Cold Weather Concreting

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

701.48: Hot Weather Concreting

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

CONTRACTOR QUALITY CONTROL**701.60: General**

The Contractor shall provide adequate Quality Control (QC) to ensure that all materials and workmanship conform with the specification requirements. The Contractor shall perform QC activities as outlined further below.

701.61: Contractor Quality Control Plan

The Contractor shall provide and maintain a Quality Control Plan (QC Plan). The QC Plan should sufficiently document the QC processes of all Contractor parties (i.e. Prime Contractor, Subcontractors, Producers) performing work required under this specification.

701.62: Production Personnel

A. Foreman.

A foreman shall be present throughout the entire duration of the construction operation with at least one of the following personnel certifications.

- NRMCA Concrete Exterior Finisher Certification
- ACI Concrete Flatwork Technician and Flatwork Finisher

The foreman is responsible for the oversight of the construction operation per the requirements specified in Table 701.62-1.

Table 701.62-1: Minimum Foreman Activities

Operation	Foreman	Activity
Oversight	One (1)	Review and compare batch ticket quantities and sources to approved mix design
		Monitors conformance to AASHTO M 157 Standard Specification for Ready-Mixed Concrete
		Monitors conformance to Department specifications
		Monitors Production Personnel activities
		Verifies proper equipment is on hand prior to start of construction
		Monitors equipment, environmental conditions, materials, and workmanship
		Prohibits the use of prohibited equipment and practices
		Acknowledges sampling, testing, and inspection results

B. Operators.

Concrete sidewalk shall be constructed by sufficiently staffed, trained, experienced, and qualified equipment operators and craftsmen, who are presently involved in sidewalk construction, throughout the entire duration of the construction operation, per the requirements specified in Table 701.62-2.

Table 701.62-2: Minimum Operator Activities

Operation	Operators^[1]	Activity
701.40: Pre-Placement	Two (2)	Apply sufficient base compaction
		Moisten sub-base, free of standing water
		Secure forms, straight and level
		Mark expansion locations
		Prohibited Practices: Placement on frozen sub-grade
701.41: Placement (Concrete Discharging)	Two (2)	Direct concrete trucks
		Handle chute discharge and truck movement
		Assist in preparing concrete for testing
		Direct trucks to washout area
		Provide general help
		Prohibited Practices: Adding constituent materials not in conformance with AASHTO M 157 or without Department consent
701.41: Placement	Two (2)	Localize placement to minimize moving material
		Level concrete in front of the screed
		Operate come-alongs or flat headed shovel to move concrete in form
		Consolidate concrete along form edge to avoid honeycombing
		Operate screed over top of forms in sawing action for surface leveling
		Operate magnesium bull float to push coarse aggregate below the surface and fill in the low spots or depressions
		Prohibited Practices: Toothed raking, dragging of internal vibrator, and internal vibrator to move concrete; steel troweling or floating
701.42: Initial Curing	Apply an initial curing material and procedure per 701.42	
	One (1)	701.30.C.1: Liquid-Applied Evaporation Reducers
701.43: Finishing	Two (2)	Permit bleed water to dissipate and concrete to set
		Operate a hose drag or squeegee to remove water from the surface
		Check surface for flatness, fill/cut as necessary
		Finish surface with magnesium float
		Apply pulled broom finish at proper time to acceptable texture
		Clean broom when excessive mortar adheres
		Remove excess water from broom before use
		Finish edges and joints
		Finish well formed, properly spaced joints to sufficient depth
Prohibited Practices: Steel troweling or floating; adding water to the surface; excessive working of surface; pushing broom across surface		

^[1] Recommended number of operators.

Table 701.62-2: Minimum Operator Activities (Continued)

Operation	Operators^[1]	Activity
701.44: Intermediate Curing		If applicable, apply an intermediate curing material and procedure per 701.44
	One (1)	701.30.C.1: Liquid-Applied Evaporation Reducers
	One (1)	701.30.E.3.a: Liquid Membrane-Forming Compounds
	One (1)	701.30.E.3.b: Liquid Membrane-Forming Compounds for Curing and Sealing
701.45: Final Curing		Apply a final curing material and procedure meeting 701.45
	Four (4)	701.30.E.1: Saturated Covers
	Four (4)	701.30.E.2: Sheet Materials
	One (1)	701.30.E.3.a: Liquid Membrane-Forming Compounds
	One (1)	701.30.E.3.b: Liquid Membrane-Forming Compounds for Curing and Sealing
701.46: Protective Sealing	One (1)	If applicable, apply a protective sealing material and procedure per 701.46
701.47: Cold Weather Concreting	Four (4)	If applicable, apply cold weather concreting materials and procedures per 701.47 and the Department approved Contractor cold weather concreting plan
701.48: Hot Weather Concreting	Four (4)	If applicable, apply hot weather concreting materials and procedures per 701.48 and the Department approved Contractor hot weather concreting plan

^[1] Recommended number of operators.

701.63: Quality Control Inspection

Quality Control inspection shall be performed and reported on inspection report forms by qualified Quality Control Technicians, to confirm conformance to specifications and to visually inspect equipment, environmental conditions, materials, and workmanship. Quality Control Technicians shall obtain at least one of the following personnel certifications.

- NRMCA Concrete Exterior Finisher Certification
- ACI Concrete Flatwork Technician and Flatwork Finisher

Quality Control inspection report forms shall be completed by the Contractor and submitted to the Department for review.

DEPARTMENT ACCEPTANCE

701.70: General

Acceptance shall be performed by the Department, including consultants under direct contract with the Department independent of the Contractor, to evaluate the degree of compliance with contract requirements, to monitor each Contractor entity's Quality Control activities, to determine the

corresponding value for a given product, and to determine the acceptability of all material produced and placed.

701.71: Acceptance of Contractor Quality Control Plan

The Department will review the Contractor Quality Control Plan. Department approval shall be subject to conformance with the requirements specified herein.

701.72: Acceptance Inspection

Acceptance inspection will be performed and reported by qualified Department (or designee) Acceptance Technicians, to confirm conformance to specifications and to visually inspect equipment, environmental conditions, materials, and workmanship.

701.73: Acceptance Sampling and Testing

Acceptance sampling and testing will be performed and reported by qualified Department (or designee) Acceptance Technicians, to provide quality characteristic data used for Department Acceptance determination, per the requirements specified herein.

Table 701.73-1: Minimum Acceptance Sampling and Testing Requirements

Property	Method	Quality Characteristic	Sublot Size	Minimum Test Frequency	Point of Sampling	Criteria
Uniformity	T 119	Slump Allowable Tolerance (in.) ^[1]	100 cy	1 per Sublot	Point of Discharge	Target \pm 1.5
Workability	T 119	Segregation Resistance ^[2]	100 cy	1 per Sublot	Point of Discharge	Pass
Thermal	T 309	Concrete Temperature ($^{\circ}$ F)	100 cy	1 per Sublot	Point of Discharge	50 – 90
Strength	T 22	Compressive Strength at 7 Days for Curing Termination (psi) ^[3]	100 cy	1 per Sublot	Point of Discharge	\geq 70% f'_c
		Compressive Strength at 28 Days (psi) ^[3]	100 cy	1 per Sublot	Point of Discharge	\geq 100% f'_c
		Compressive Strength at 56 Days (psi) ^{[3][4]}	100 cy	1 per Sublot	Point of Discharge	\geq 100% f'_c
Durability	T 121 T 152 T 196	Freezing and Thawing Resistance: Air Content (%)	100 cy	1 per Sublot	Point of Discharge	5.5 – 8.5
	T 303 or C1567	Alkali Silica Reaction Resistance: Expansion at 14 Days (%)	–	1 per Annual Mix Design Submission Cycle	–	\leq 0.08

^[1] Test result and the Producer's mix design target shall be within the specified allowable tolerances. Slump shall be reported on the Producer's mix design batch ticket for each delivery.

^[2] Testing for segregation resistance shall be performed while the concrete is being discharged and during AASHTO T 119 Standard Method of Test for Slump of Hydraulic Cement Concrete. Visual signs of segregation include coarse particles advancing in front of or behind the fine particles and mortar and a tendency for coarse aggregate to separate from the mortar, particularly when the mixture is being consolidated.

^[3] Three (3) 4 x 8 in. compressive strength cylinders shall be cast and tested for each age per sublot.

^[4] Testing only required if compressive strength results at 28 days do not conform with specifications.

COMPENSATION

701.80: Method of Measurement

Cement Concrete Sidewalks, Pedestrian Curb Ramps, and Driveways will be measured in square yards.

Excavation will be measured by the cubic yard as specified in 120.80: Method of Measurement.

Gravel Borrow will be measured by the cubic yard as specified in 150.80: Method of Measurement.

Fine grading and compacting will be measured by the square yard as specified in 170.88: Method of Measurement.

701.81: Basis of Payment

Cement Concrete Sidewalk, Cement Concrete Pedestrian Curb Ramp, and Cement Concrete Driveway will be paid for at the contract unit price per square yard complete in place, including detectable warning panels and all incidental materials, labor, and equipment necessary to complete the work to the satisfaction of the Engineer.

Gravel will be paid for at the contract unit price per cubic yard under Item 151: Gravel Borrow.

Fine grading and compacting will be paid for at the contract unit price per square yard under Item 170: Fine Grading and Compacting – Subgrade Areas.

Excavation will be paid for at the contract unit price per cubic yard under the excavation items.

701.82: Payment Items

701.	Cement Concrete Sidewalk.....	Square Yard
701.1	Cement Concrete Sidewalk Driveways	Square Yard
701.2	Cement Concrete Pedestrian Curb Ramp	Square Yard

GUIDE TO THE INTERIM SUBSECTION 701 CEMENT CONCRETE SIDEWALK SPECIFICATION

MATERIALS ACTIVITIES

Section	Activity	
701.30.A	Combined Aggregate System	
701.30.A.1	The mix design's combined aggregate system should meet Table 701.30-1: Tarantula Curve Particle Size Distribution.	Recommendation
701.30.A.2	The mix design's combined aggregate system should meet Table 701.30-2 / Figure 701.30-1: Shilstone Workability-Coarseness.	Recommendation
701.30.A.3	The mix design's combined aggregate system should be analyzed using the Fineness Modulus.	Recommendation
701.30.A.4	The mix design's combined aggregate system should be analyzed using the Coarse Aggregate Content.	Recommendation
701.30.B	Paste System	
701.30.B.1	The mix design's Water-Cementitious Ratio should be ≤ 0.40 (Table 701.30-3: Freezing, Thawing, and De-icing Resistance).	Recommendation
701.30.B.1	The mix design's Water-Cementitious Ratio shall be ≤ 0.45 (Table 701.30-3: Freezing, Thawing, and De-icing Resistance).	Required
701.30.B.2	The mix design's Air Content should approach the recommended Air Content Targets identified in Table 701.30-4: Freezing, Thawing, and De-icing Resistance.	Recommendation
701.30.B.3	The mix design's Cement and Supplementary Cementitious Materials (SCM) Content shall meet Table 701.30-5: Alkali Silica Reaction and Freezing, Thawing, and De-icing Resistance requirements.	Requirement
701.30.B.3	Test results meeting Table 701.30-6: Alternative Performance Evaluation to Alkali Silica Reaction Resistance requirements may be used in lieu of the mix design requirements identified in Table 701.30-5: Alkali Silica Reaction and Freezing, Thawing, and De-icing Resistance requirements.	Optional
701.30.B.4	The mix design should incorporate Chemical Admixtures identified in Table 701.30-7: Chemical Admixtures to enhance the properties of the concrete.	Recommendation
701.30.B.5	The mix design's Paste Content should approach the recommended targets identified in Table 701.30-8: Paste Content.	Recommendation

701.73 Acceptance Sampling and Testing		
T 119	The Slump shall meet Table 701.71-1: Minimum Acceptance Sampling and Testing Requirements (± 1.5 from Slump Target identified by the Concrete Producer on the Batch Ticket).	Requirement
T 119	The Segregation Resistance shall meet Table 701.71-1: Minimum Acceptance Sampling and Testing Requirements.	Requirement
T 309	The Concrete Temperature shall meet Table 701.71-1: Minimum Acceptance Sampling and Testing Requirements.	Requirement
T 22	The Compressive Strength (7, 28, and 56 days) shall meet Table 701.71-1: Minimum Acceptance Sampling and Testing Requirements.	Requirement
T 121 T 152 T 196	The Air Content shall meet Table 701.71-1: Minimum Acceptance Sampling and Testing Requirements (5.5 – 8.5%).	Requirement
T 303 or C1567	The resistance to Alkali Silica Reaction shall meet Table 701.71-1: Minimum Acceptance Sampling and Testing Requirements (One per year for mix design verification).	Requirement

CONTRACTOR ACTIVITIES

Section	Activity	
701.40	Pre-Placement	
	The Contractor should have a minimum of two (2) Operators.	Recommendation
	The Contractor shall apply sufficient base compaction.	Requirement
	The Contractor shall moisten sub-base, free of standing water.	Requirement
	The Contractor shall secure forms, straight and level.	Requirement
	The Contractor shall mark expansion locations.	Requirement
	The Contractor shall be prohibited from performing the following practices: Placement on frozen sub-grade.	Requirement
701.41	Placement (Concrete Discharging)	
	The Contractor should have a minimum of two (2) Operators.	Recommendation
	The Contractor shall direct concrete trucks.	Requirement
	The Contractor shall handle chute discharge and truck movement.	Requirement
	The Contractor shall assist in preparing concrete for testing.	Requirement
	The Contractor shall direct trucks to washout area.	Requirement
	The Contractor shall provide general help.	Requirement

	The Contractor / Concrete Producer shall be prohibited from performing the following practices: Adding constituent materials not in conformance with AASHTO M 157 or without Department consent.	Requirement
701.41	Placement	
	The Contractor should have a minimum of two (2) Operators.	Recommendation
	The Contractor shall localize placement to minimize moving material.	Requirement
	The Contractor shall level concrete in front of the screed.	Requirement
	The Contractor shall operate come-alongs or flat headed shovel to move concrete in form.	Requirement
	The Contractor shall consolidate concrete along form edge to avoid honeycombing.	Requirement
	The Contractor shall operate screed over top of forms in sawing action for surface leveling.	Requirement
	The Contractor shall operate magnesium bull float to push coarse aggregate below the surface and fill in the low spots or depressions.	Requirement
	The Contractor shall be prohibited from performing the following practices: Toothed raking, dragging of internal vibrator, and internal vibrator to move concrete; steel troweling or floating.	Requirement
701.42	Initial Curing (When Applicable)	
	The Contractor should have a minimum of one (1) Operator.	Recommendation
	The Contractor shall apply 701.30.C.1: Liquid-Applied Evaporation Reducers when applicable.	Required when applicable
701.43	Finishing	
	The Contractor should have a minimum of two (2) Operators.	Recommendation
	The Contractor shall permit bleed water to dissipate and concrete to set.	Requirement
	The Contractor shall operate a hose drag or squeegee to remove water from the surface.	Requirement
	The Contractor shall check surface for flatness, fill/cut as necessary.	Requirement
	The Contractor shall finish surface with magnesium float.	Requirement
	The Contractor shall apply pulled broom finish at proper time to acceptable texture.	Requirement
	The Contractor shall clean broom when excessive mortar adheres.	Requirement
	The Contractor shall remove excess water from broom before use.	Requirement

	The Contractor shall finish edges and joints.	Requirement
	The Contractor shall finish well formed, properly spaced joints to sufficient depth.	Requirement
	The Contractor shall be prohibited from performing the following practices: Steel troweling or floating; adding water to the surface; excessive working of surface; pushing broom across surface.	Requirement
701.44	Intermediate Curing (When Applicable, Apply One of the Methods)	
	The Contractor should have a minimum of one (1) Operator.	Recommendation
	The Contractor shall apply 701.30.C.1: Liquid-Applied Evaporation Reducers when applicable and if selected.	Required when applicable
	The Contractor shall apply 701.30.E.3.a: Liquid Membrane-Forming Compounds when applicable and if selected.	Required when applicable
	The Contractor shall apply 701.30.E.3.b: Liquid Membrane-Forming Compounds for Curing and Sealing when applicable and if selected.	Required when applicable
701.45	Final Curing (Apply One of the Methods)	
	The Contractor should meet the minimum number of operators identified in Table 701.62-2: Minimum Operator Activities.	Recommendation
	The Contractor shall apply 701.30.E.1: Saturated Covers if selected.	Requirement
	The Contractor shall apply 701.30.E.2: Sheet Materials if selected.	Requirement
	The Contractor shall apply 701.30.E.3.a: Liquid Membrane-Forming Compounds if selected.	Requirement
	The Contractor shall apply 701.30.E.3.b: Liquid Membrane-Forming Compounds for Curing and Sealing if selected.	Requirement
701.46	Protective Sealing (If Required)	
	The Contractor should have a minimum of one (1) Operator.	Recommendation
	The Contractor shall apply 701.30.F: Protective Sealing Compounds at least 28 days after placement. Application of 701.30.F: Protective Sealing Compounds is NOT REQUIRED IF 701.30.E.3.b: Liquid Membrane-Forming Compounds for Curing and Sealing was applied.	Required if 701.30.E.3.b Curing and Sealing Compound was Not Applied
701.47	Cold Weather Concreting (When Applicable)	
	The Contractor should have a minimum of four (4) Operators.	Recommendation
	The Contractor shall submit a Cold Weather Concreting Plan meeting 701.47.	Required when applicable

	The Contractor shall apply cold weather concreting materials and procedures meeting 701.47 and the Department approved Contractor cold weather concreting plan.	Required when applicable
701.48	Hot Weather Concreting (When Applicable)	
	The Contractor should have a minimum of four (4) Operators.	Recommendation
	The Contractor shall submit a Hot Weather Concreting Plan meeting 701.48.	Required when applicable
	The Contractor shall apply hot weather concreting materials and procedures meeting 701.47 and the Department approved Contractor hot weather concreting plan.	Required when applicable
701.61	Contractor Quality Control Plan	
	The Contractor shall prepare and submit a Quality Control Plan (QC Plan) to the Department for review.	Requirement
701.62	Production Personnel	
701.62.A	Foreman	
	The Contractor shall have a minimum of One (1) Foreman.	Requirement
	A Foreman shall be present throughout the entire duration of the construction operation with at least one of the following personnel certifications. <ul style="list-style-type: none"> • NRMCA Concrete Exterior Finisher Certification • ACI Concrete Flatwork Technician and Flatwork Finisher 	Requirement
	The Contractor's Foreman shall review and compare batch ticket quantities and sources to approved mix design.	Requirement
	The Contractor's Foreman shall monitor conformance to AASHTO M 157 Standard Specification for Ready-Mixed Concrete.	Requirement
	The Contractor's Foreman shall monitor conformance to Department specifications.	Requirement
	The Contractor's Foreman shall monitor Production Personnel activities.	Requirement
	The Contractor's Foreman shall verify that proper equipment is on hand prior to start of construction.	Requirement
	The Contractor's Foreman shall monitors equipment, environmental conditions, materials, and workmanship.	Requirement
	The Contractor's Foreman shall prohibit the use of prohibited equipment and practices.	Requirement
	The Contractor's Foreman shall acknowledge sampling, testing, and inspection results.	Requirement

701.62.B	Operators	
	Concrete sidewalk shall be constructed by sufficiently staffed, trained, experienced, and qualified equipment operators and craftsmen, who are presently involved in sidewalk construction, throughout the entire duration of the construction operation, per the requirements specified in Sections 701.40 to 701.48.	Requirement
701.63	Quality Control Inspection	
	<p>Quality Control inspection shall be performed and reported on inspection report forms by qualified Quality Control Technicians, to confirm conformance to specifications and to visually inspect equipment, environmental conditions, materials, and workmanship. Quality Control Technicians shall obtain at least one of the following personnel certifications.</p> <ul style="list-style-type: none"> • NRMCA Concrete Exterior Finisher Certification • ACI Concrete Flatwork Technician and Flatwork Finisher <p>Quality Control inspection report forms shall be completed by the Contractor and submitted to the Department for review</p>	Requirement

DOCUMENT 00715



SUPPLEMENTAL SPECIFICATIONS

JUNE 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 4: SCOPE OF WORK

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.

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 $\frac{3}{4}$ -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 -..... Cubic Yard
Manual Excavatable (\leq 100 PSI)
- 160.2 Controlled Low-Strength Material – Cubic Yard
Mechanical Excavatable (101-300 PSI)
- 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 403.64: 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 ⁰ + A ¹ SQRT(t) + A ² t. 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⁾ $\text{Na}_2\text{O equivalent} = \% \text{Na}_2\text{O} + 0.658 (\% \text{K}_2\text{O})$
⁽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 subsection 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	-
		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 CONDUITSubsection 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 MATERIALSSubsection 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: MISCELLANEOUS MATERIALSSubsection 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 its 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.

DOCUMENT 00719

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

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

Section: Page 00719-

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POLICY

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

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

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

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

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

1. DEFINITIONS

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

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

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

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

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

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

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

(a) that is at least fifty-one (51%) percent owned by one or more individuals who are both socially and economically disadvantaged, or, in the case of any corporation, in which at least fifty-one (51%) percent of the stock is owned by one or more such individuals; and

(b) where the management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

2. DBE PARTICIPATION

a. Goal

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

Design-Bid-Build Projects: DBE Participation Goal 16 %
(One half of this goal shall be met in the form of Subcontractor construction activity)

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

b. Bidders List

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

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

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

3. CONTRACTOR ASSURANCES

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

4. REQUIRED SUBCONTRACT PROVISIONS

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

5. ELIGIBILITY OF DBES

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

a. Massachusetts DBE Directory

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

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

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

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

b. DBE Certification

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

c. Joint Venture Approval

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

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

6. COUNTING DBE PARTICIPATION TOWARDS DBE PARTICIPATION GOALS

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

a. Commercially Useful Function

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

b. Counting Participation Toward The Contract Participation Goal

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

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

- (2) MassDOT will count the entire amount of fees or commissions charged by a DBE firm for providing bona fide services, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a U.S. DOT assisted Contract, toward DBE participation goals, provided it is determined that the fee is reasonable and not excessive as compared with fees customarily allowed for similar services.
- (3) When a DBE performs as a participant in a joint venture, MassDOT will count toward DBE participation goals a portion of the total dollar value of the contract that is equal to the distinct, clearly defined portion of the work of the Contract that the DBE performs with its own forces.
- (4) MassDOT will use the following factors in determining whether a DBE trucking company is performing a commercially useful function:
 - (i) the DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract; there cannot be a contrived arrangement for the purpose of meeting DBE participation goals.
 - (ii) the DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the Contract.
 - (iii) the Contractor will receive DBE credit for the total value of the transportation services the DBE provides on the Contract using trucks owned, insured, and operated by the DBE itself and using drivers the DBE employs alone.
 - (iv) the DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The Contractor who has a contract with a DBE who leases trucks from another DBE will receive credit for the total value of the transportation services of the lease.
 - (v) the DBE may also lease trucks from a non-DBE firm, including an owner-operator. The Contractor who has a Contract with a DBE who leases trucks from a non-DBE is entitled to credit for the total value of the transportation services provided by non-DBE lessees not to exceed the value of transportation services provided by DBE-owned trucks on the Contract. Additional participation by non-DBE lessees receives credit only for the fee or commission it receives as a result of the lease arrangement, fee or commission it receives as a result of the lease arrangement. The DBE does not receive credit for the total value of the transportation services provided by the lessee, since these services are not provided by a DBE.
 - (vi) the lease must indicate that the DBE has exclusive use of, and control over, the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE.

- (5) MassDOT will count the Prime Contractor's expenditures with DBEs for materials or supplies toward DBE participation goals as follows:
- (i) if the materials or supplies are obtained from a DBE manufacturer, as defined in Section 1 above, MassDOT will count one hundred (100%) percent of the cost of the materials or supplies toward DBE participation goals, provided the DBE meets the other requirements of the regulations.
 - (ii) if the materials or supplies are purchased from a DBE regular dealer, as defined in Section 1 above, MassDOT will count sixty (60%) percent of the cost of the materials or supplies toward the Contract participation goal, provided the DBE meets the other requirements of the regulations.
 - (iii) for materials or supplies purchased from a DBE which is neither a manufacturer nor a regular dealer, MassDOT will count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site toward the Contract participation goal, provided that MassDOT determines the fees to be reasonable and not excessive as compared with fees customarily allowed for similar services; the cost of the materials and supplies themselves will not be counted; and provided the DBE meets the other requirements of the regulations.

c. Joint Check Policy

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

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

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

Other factors MassDOT may consider:

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

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

d. Joint Check Procedure(s)

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

7. AWARD DOCUMENTATION AND PROCEDURES

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

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

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

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

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

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

8. COMPLIANCE

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

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

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

n. Prompt Payment.

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

9. SANCTIONS

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

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

10. FURTHER INFORMATION; ENFORCEMENT, COOPERATION AND CONFIDENTIALITY.

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

- (1) If you are a firm that does not meet the eligibility criteria of 49 CFR, Parts 26.61 to 26.73 (“subpart D”), that attempts to participate in a DOT- assisted program as a DBE on the basis of false, fraudulent, or deceitful statements or representations or under circumstances indicating a serious lack of business integrity or honesty, MassDOT or FHWA may initiate suspension or debarment proceedings against you under 49 CFR Part 29.
 - (2) If you are a firm that, in order to meet DBE Contract participation goals or other DBE Program requirements, uses or attempts to use, on the basis of false, fraudulent or deceitful statements or representations or under circumstances indicating a serious lack of business integrity or honesty, another firm that does not meet the eligibility criteria of subpart D, FHWA may initiate suspension or debarment proceedings against you under 49 CFR Part 29.
 - (3) In a suspension or debarment proceeding brought either under subparagraph a.(1) or b.(2) of this section, the concerned operating administration may consider the fact that a purported DBE has been certified by a recipient. Such certification does not preclude FHWA from determining that the purported DBE, or another firm that has used or attempted to use it to meet DBE participation goals, should be suspended or debarred.
 - (4) FHWA may take enforcement action under 49 CFR Part 31, Program Fraud and Civil Remedies, against any participant in the DBE Program whose conduct is subject to such action under 49 CFR Part 31.
 - (5) FHWA may refer to the Department of Justice, for prosecution under 18 U.S.C. 1001 or other applicable provisions of law, any person who makes a false or fraudulent statement in connection with participation of a DBE in any DOT-assisted program or otherwise violates applicable Federal statutes.
- b. Pursuant to 49 CFR Part 26.109, the rules governing information, confidentiality, cooperation, and intimidation or retaliation are as follows:
- (1) Availability of records.

 - (i) In responding to requests for information concerning any aspect of the DBE Program, FHWA complies with provisions of the Federal Freedom of Information and Privacy Acts (5 U.S.C. 552 and 552a). FHWA may make available to the public any information concerning the DBE Program release of which is not prohibited by Federal law.
 - (ii) MassDOT shall safeguard from disclosure to unauthorized persons information that may reasonably be considered as confidential business information, consistent with Federal and Massachusetts General Law (M.G.L. c. 66, § 10, M.G.L. c. 4, §7 (26), 950 CMR 32.00).
 - (2) Confidentiality of information on complainants. Notwithstanding the provisions of subparagraph b.(1) of this section, the identity of complainants shall be kept confidential, at their election. If such confidentiality will hinder the investigation, proceeding or hearing, or result in a denial of appropriate administrative due process to other parties, the complainant must be advised for the purpose of waiving the privilege. Complainants are advised that, in some circumstances, failure to waive the privilege may result in the closure of the investigation or dismissal of the proceeding or hearing.

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

11. LIST OF ADDITIONAL DOCUMENTS.

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

**REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS**

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

ATTACHMENTS

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

I. GENERAL

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

6. Training and Promotion:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

10. Assurances Required:

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

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

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

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

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

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

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

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

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

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

III. NONSEGREGATED FACILITIES

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

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

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

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

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

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

1. Minimum wages (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act ([29 CFR part 3](#))), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act ([40 U.S.C. 3141\(2\)\(B\)](#)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH-1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in [29 CFR part 1](#), a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

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

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

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

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

c. *Conformance.* (1) The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:

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

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

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

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

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

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

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

under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

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

e. *Unfunded plans.* If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, That the Secretary of Labor has found, upon the written request of the contractor, in accordance with the criteria set forth in § 5.28, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

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

2. Withholding (29 CFR 5.5)

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

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

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

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

3. Records and certified payrolls (29 CFR 5.5)

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

(2) Information required. Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

(3) Additional records relating to fringe benefits. Whenever the Secretary of Labor has found under paragraph 1.e. of this section that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act, the contractor must maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(2) *Fringe benefits.* Apprentices must be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits must be paid in accordance with that determination.

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

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

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

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

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

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

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

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

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

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility. a. By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

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

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

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

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

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

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

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

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchpersons and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1. of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or

mechanic, including watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1. of this section.

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

3. Withholding for unpaid wages and liquidated damages

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

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

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

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

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

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

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

VI. SUBLETTING OR ASSIGNING THE CONTRACT

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

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

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

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

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

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

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

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

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

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

VII. SAFETY: ACCIDENT PREVENTION

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

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

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

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

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

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

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

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

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

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

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

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

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

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

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

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

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

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

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

1. Instructions for Certification – First Tier Participants:

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

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

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

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

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

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

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

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

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

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

* * * * *

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

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

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

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

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

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

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

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

3. Instructions for Certification - Lower Tier Participants:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

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

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

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

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

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

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

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

XII. USE OF UNITED STATES-FLAG VESSELS:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

DOCUMENT 00811

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

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

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

Base Price

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

Period Price

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

Price Adjustment Determination, Calculation and Payment

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

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

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

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

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

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

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DOCUMENT 00812

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

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

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

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

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

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

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

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

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

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

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DOCUMENT 00813

SPECIAL PROVISIONS

PRICE ADJUSTMENTS FOR STRUCTURAL STEEL AND REINFORCING STEEL

September 18, 2024

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	\$0.63
2	ASTM A27 (AASHTO M103) Steel Castings, H-Pile Points & Pipe Pile Shoes (See Note (8) below.)	\$0.87
3	ASTM A668 / A668M (AASHTO M102) Steel Forgings	\$0.87
4	ASTM A108 (AASHTO M169) Steel Forgings for Shear Studs	\$0.90
5	ASTM A709/A709M Grade 36 / AASHTO M270M/M270 Grade 36 or 250 Structural Steel Plate	\$0.96
6	ASTM A709/A709M Grade 36 / AASHTO M270M/M270 Grade 36 or 250 Structural Steel Shapes	\$0.89
7	ASTM A709/A709M Grade 50 / AASHTO M270M/M270 Grade 50 or 345 Structural Steel Plate	\$0.96
8	ASTM A709/A709M Grade 50 / AASHTO M270M/M270 Grade 50 or 345 Structural Steel Shapes	\$0.89
9	ASTM A709/A709M Grade 50WT / AASHTO M270M/M270 Grade 50WT or 345WT Structural Steel Plate	\$1.00
10	ASTM A709/A709M Grade 50WT / AASHTO M270M/M270 Grade 50WT or 345WT Structural Steel Shapes	\$0.90
11	ASTM A709/A709M Grade 50W / AASHTO M270M/M270 Grade 50W 345W Structural Steel Plate	\$1.00
12	ASTM A709/A709M Grade 50W / AASHTO M270M/M270 Grade 50W or 345W Structural Steel Shapes	\$0.90
13	ASTM A709/A709M Grade HPS 50W / AASHTO M270M/M270 Grade HPS 50W or 345W Structural Steel Plate	\$1.04
14	ASTM A709/A709M Grade HPS 70W / AASHTO M270M/M270 Grade HPS 70W or 485W Structural Steel Plate	\$1.11
15	ASTM A514/A514M-05 Grade HPS 100W / AASHTO M270M/M270 Grade HPS 100W or 690W Structural Steel Plate	\$1.71
16	ASTM A992/A992M Grade 50S / AASHTO M270M/M270 Grade 50S or 345S Structural Steel Plate	\$1.00
17	ASTM A992/A992M Grade 50S / AASHTO M270M/M270 Grade 50S or 345S Structural Steel Shapes	\$0.90
18	ASTM A276 Type 316 Stainless Steel	\$5.10
19	ASTM A240 Type 316 Stainless Steel	\$5.10
20	ASTM A148 Grade 80/50 Steel Castings (See Note (8) below.)	\$1.76
21	ASTM A53 Grade B Structural Steel Pipe	\$1.11
22	ASTM A500 Grades A, B, 36 & 50 Structural Steel Pipe	\$1.11
23	ASTM A252, Grades 240 (36 KSI) & 414 (60 KSI) Pipe Pile	\$0.88
24	ASTM 252, Grade 2 Permanent Steel Casing	\$0.88
25	ASTM A36 (AASHTO M183) for H-piles, steel supports and sign supports	\$0.94
26	ASTM A328 / A328M, Grade 50 (AASHTO M202) Steel Sheetpiling	\$1.68
27	ASTM A572 / A572M, Grade 50 Sheetpiling	\$1.68
28	ASTM A36/36M, Grade 50	\$0.96
29	ASTM A570, Grade 50	\$0.94
30	ASTM A572 (AASHTO M223), Grade 50 H-Piles	\$0.96
31	ASTM A1085 Grade A (50 KSI) Steel Hollow Structural Sections (HSS), heat-treated per ASTM A1085 Supplement S1	\$1.11
32	AREA 140 LB Rail and Track Accessories	\$0.58

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

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DOCUMENT 00814

SPECIAL PROVISIONS
PRICE ADJUSTMENT FOR PORTLAND CEMENT CONCRETE MIXES

January 12, 2009

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

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

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

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

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

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

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

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

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

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DOCUMENT 00820

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

I. Definitions

For purposes of this contract,

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

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

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

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

II. Equal Opportunity, Non-Discrimination and Affirmative Action

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

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

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

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

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

III. Minority and Women Workforce Participation

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

IV. Liaison Committee

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

V. Reports and Records

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

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

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

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

VI. Access to Work Site

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

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

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

VIII. Sanctions

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

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

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

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

IX. Severability

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

X. Contractor's Certification

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

XI. Subcontractor Requirements

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

Rev'd 03/07/14

*** END OF DOCUMENT ***

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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.

*** END OF DOCUMENT ***

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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: 128108 Project No. 610652 Federal Aid No.: TAP-SRS2(002)X

Location: AGAWAM

Project Description: Robinson Park Elementary School Improvements (SRTS)

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: _____

(Print Name and Title)

Telephone Number: _____

Federal I.D. Number: _____

(Authorized Signature)

Estimated Start Date: _____

Estimated Completion Date: _____

Estimated Dollar Amount: _____

(Date)

DOCUMENT 00860

COMMONWEALTH OF MASSACHUSETTS PUBLIC EMPLOYMENT LAWS

Revised February 20, 2019

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

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

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

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

The Prevailing Wage Rate generally includes the following:

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

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

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

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

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

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

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

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

STATEMENT OF COMPLIANCE

Date: _____

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

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

(Contractor or Subcontractor)

on the _____
(MassDOT Project Location and Contract Number)

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

Signature _____

Title _____

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

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

MassDOT will request the updates no later 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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MAURA HEALEY
Governor

KIM DRISCOLL
Lt. Governor

Proposal No. 610652-128108
THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

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

LAUREN JONES
Secretary

MICHAEL FLANAGAN
Director

Awarding Authority: MassDOT Highway
Contract Number: 128108 **City/Town:** AGAWAM
Description of Work: AGAWAM: Federal Aid Project No. TAP-SRS2(002)X Robinson Park Elementary School Improvements (SRTS)
Job Location: Along Maple Street

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, the awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. The updated wage schedule must be provided to all contractors, including general and sub-contractors, working on the construction project.
- This annual update requirement is generally not applicable to 27F "rental of equipment" contracts. For such contracts, the prevailing wage rates issued by DLS shall remain in effect for the duration of the contract term. However, if the prevailing wage rate sheet issued does not contain wage rates for each year covered by the contract term, the Awarding Authority must request updated rate sheets from DLS and provide them to the contractor to ensure the correct rates are being paid throughout the duration of the contract. Additionally, if an Awarding Authority exercises an option to renew or extend the contract term, they must request updated rate sheets from DLS and provide them to the contractor.
- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or a sub-contractor.
- Apprentices working on the project are required to be registered with the Massachusetts Division of Apprentice Standards (DAS). Apprentices must keep their apprentice identification card on their persons during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **Any apprentice not registered with DAS regardless of whether they are registered with another federal, state, local, or private agency must be paid the journeyworker's rate.**
- Every contractor or subcontractor working on the construction project must submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee's name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. For a sample payroll reporting form go to <http://www.mass.gov/dols/pw>.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Contractors must obtain the wage schedules from awarding authorities. Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and criminal penalties.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may file a complaint with the Fair Labor Division of the office of the Attorney General at (617) 727-3465.

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2024	\$39.95	\$15.07	\$18.67	\$0.00	\$73.69
	12/01/2024	\$39.95	\$15.07	\$20.17	\$0.00	\$75.19
	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 <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2024	\$40.02	\$15.07	\$18.67	\$0.00	\$73.76
	12/01/2024	\$40.02	\$15.07	\$20.17	\$0.00	\$75.26
	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 <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2024	\$40.14	\$15.07	\$18.67	\$0.00	\$73.88
	12/01/2024	\$40.14	\$15.07	\$20.17	\$0.00	\$75.38
	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 <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2024	\$35.30	\$9.65	\$17.07	\$0.00	\$62.02
	12/02/2024	\$36.50	\$9.65	\$17.07	\$0.00	\$63.22
	06/02/2025	\$37.75	\$9.65	\$17.07	\$0.00	\$64.47
	12/01/2025	\$39.00	\$9.65	\$17.07	\$0.00	\$65.72
	06/01/2026	\$40.30	\$9.65	\$17.07	\$0.00	\$67.02
	12/07/2026	\$41.60	\$9.65	\$17.07	\$0.00	\$68.32
	06/07/2027	\$43.00	\$9.65	\$17.07	\$0.00	\$69.72
	12/06/2027	\$44.40	\$9.65	\$17.07	\$0.00	\$71.12
	06/05/2028	\$45.90	\$9.65	\$17.07	\$0.00	\$72.62
	12/04/2028	\$47.40	\$9.65	\$17.07	\$0.00	\$74.12
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
AIR TRACK OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2024	\$35.30	\$9.65	\$15.06	\$0.00	\$60.01
	12/01/2024	\$36.50	\$9.65	\$15.06	\$0.00	\$61.21
	06/01/2025	\$37.75	\$9.65	\$15.06	\$0.00	\$62.46
	12/01/2025	\$38.99	\$9.65	\$15.06	\$0.00	\$63.70
	06/01/2026	\$40.29	\$9.65	\$15.06	\$0.00	\$65.00
	12/01/2026	\$41.58	\$9.65	\$15.06	\$0.00	\$66.29
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
ASBESTOS WORKER (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (SPRINGFIELD)</i>	06/01/2024	\$37.62	\$14.50	\$10.55	\$0.00	\$62.67
	12/01/2024	\$38.52	\$14.50	\$10.55	\$0.00	\$63.57
	06/01/2025	\$39.42	\$14.50	\$10.55	\$0.00	\$64.47
	12/01/2025	\$40.32	\$14.50	\$10.55	\$0.00	\$65.37
ASPHALT RAKER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2024	\$34.80	\$9.65	\$17.07	\$0.00	\$61.52
	12/02/2024	\$36.00	\$9.65	\$17.07	\$0.00	\$62.72
	06/02/2025	\$37.25	\$9.65	\$17.07	\$0.00	\$63.97
	12/01/2025	\$38.50	\$9.65	\$17.07	\$0.00	\$65.22
	06/01/2026	\$39.80	\$9.65	\$17.07	\$0.00	\$66.52
	12/07/2026	\$41.10	\$9.65	\$17.07	\$0.00	\$67.82
	06/07/2027	\$42.50	\$9.65	\$17.07	\$0.00	\$69.22
	12/06/2027	\$43.90	\$9.65	\$17.07	\$0.00	\$70.62
	06/05/2028	\$45.40	\$9.65	\$17.07	\$0.00	\$72.12
	12/04/2028	\$46.90	\$9.65	\$17.07	\$0.00	\$73.62
For apprentice rates see "Apprentice- LABORER"						
ASPHALT RAKER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2024	\$34.80	\$9.65	\$15.06	\$0.00	\$59.51
	12/01/2024	\$36.00	\$9.65	\$15.06	\$0.00	\$60.71
	06/01/2025	\$37.25	\$9.65	\$15.06	\$0.00	\$61.96
	12/01/2025	\$38.49	\$9.65	\$15.06	\$0.00	\$63.20
	06/01/2026	\$39.79	\$9.65	\$15.06	\$0.00	\$64.50
	12/01/2026	\$41.08	\$9.65	\$15.06	\$0.00	\$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
AUTOMATIC GRADER-EXCAVATOR (RECLAIMER) <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$39.56	\$13.78	\$15.15	\$0.00	\$68.49
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER OPERATOR <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$39.56	\$13.78	\$15.15	\$0.00	\$68.49
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2024	\$34.80	\$9.65	\$17.07	\$0.00	\$61.52
	12/02/2024	\$36.00	\$9.65	\$17.07	\$0.00	\$62.72
	06/02/2025	\$37.25	\$9.65	\$17.07	\$0.00	\$63.97
	12/01/2025	\$38.50	\$9.65	\$17.07	\$0.00	\$65.22
	06/01/2026	\$39.80	\$9.65	\$17.07	\$0.00	\$66.52
	12/07/2026	\$41.10	\$9.65	\$17.07	\$0.00	\$67.82
	06/07/2027	\$42.50	\$9.65	\$17.07	\$0.00	\$69.22
	12/06/2027	\$43.90	\$9.65	\$17.07	\$0.00	\$70.62
	06/05/2028	\$45.40	\$9.65	\$17.07	\$0.00	\$72.12
	12/04/2028	\$46.90	\$9.65	\$17.07	\$0.00	\$73.62
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BATCH/CEMENT PLANT - ON SITE <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$39.03	\$13.78	\$15.15	\$0.00	\$67.96
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2024	\$35.30	\$9.65	\$17.07	\$0.00	\$62.02
	12/02/2024	\$36.50	\$9.65	\$17.07	\$0.00	\$63.22
	06/02/2025	\$37.75	\$9.65	\$17.07	\$0.00	\$64.47
	12/01/2025	\$39.00	\$9.65	\$17.07	\$0.00	\$65.72
	06/01/2026	\$40.30	\$9.65	\$17.07	\$0.00	\$67.02
	12/07/2026	\$41.60	\$9.65	\$17.07	\$0.00	\$68.32
	06/07/2027	\$43.00	\$9.65	\$17.07	\$0.00	\$69.72
	12/06/2027	\$44.40	\$9.65	\$17.07	\$0.00	\$71.12
	06/05/2028	\$45.90	\$9.65	\$17.07	\$0.00	\$72.62
	12/04/2028	\$47.40	\$9.65	\$17.07	\$0.00	\$74.12
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2024	\$35.30	\$9.65	\$15.06	\$0.00	\$60.01
	12/01/2024	\$36.50	\$9.65	\$15.06	\$0.00	\$61.21
	06/01/2025	\$37.75	\$9.65	\$15.06	\$0.00	\$62.46
	12/01/2025	\$38.99	\$9.65	\$15.06	\$0.00	\$63.70
	06/01/2026	\$40.29	\$9.65	\$15.06	\$0.00	\$65.00
	12/01/2026	\$41.58	\$9.65	\$15.06	\$0.00	\$66.29
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	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) <i>BRICKLAYERS LOCAL 3 (SPRINGFIELD/PITTSFIELD)</i>	08/01/2024	\$52.06	\$11.49	\$21.46	\$0.00	\$85.01
	02/01/2025	\$53.36	\$11.49	\$21.46	\$0.00	\$86.31
	08/01/2025	\$55.51	\$11.49	\$21.46	\$0.00	\$88.46
	02/01/2026	\$56.86	\$11.49	\$21.46	\$0.00	\$89.81
	08/01/2026	\$59.06	\$11.49	\$21.46	\$0.00	\$92.01
	02/01/2027	\$60.46	\$11.49	\$21.46	\$0.00	\$93.41

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 08/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.03	\$11.49	\$21.46	\$0.00	\$58.98
2	60	\$31.24	\$11.49	\$21.46	\$0.00	\$64.19
3	70	\$36.44	\$11.49	\$21.46	\$0.00	\$69.39
4	80	\$41.65	\$11.49	\$21.46	\$0.00	\$74.60
5	90	\$46.85	\$11.49	\$21.46	\$0.00	\$79.80

Effective Date - 02/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.68	\$11.49	\$21.46	\$0.00	\$59.63
2	60	\$32.02	\$11.49	\$21.46	\$0.00	\$64.97
3	70	\$37.35	\$11.49	\$21.46	\$0.00	\$70.30
4	80	\$42.69	\$11.49	\$21.46	\$0.00	\$75.64
5	90	\$48.02	\$11.49	\$21.46	\$0.00	\$80.97

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/POWER SHOVEL/TREE SHREDDER <i>/CLAM SHELL OPERATING</i>	12/01/2023	\$39.56	\$13.78	\$15.15	\$0.00	\$68.49
<i>ENGINEERS LOCAL 98</i> For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CAISSON & UNDERPINNING BOTTOM MAN <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2024	\$46.63	\$9.65	\$18.22	\$0.00	\$74.50
	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 <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2024	\$45.48	\$9.65	\$18.22	\$0.00	\$73.35
	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 <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2024	\$45.81	\$9.65	\$18.22	\$0.00	\$73.68
	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 <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2024	\$34.80	\$9.65	\$17.07	\$0.00	\$61.52
	12/02/2024	\$36.00	\$9.65	\$17.07	\$0.00	\$62.72
	06/02/2025	\$37.25	\$9.65	\$17.07	\$0.00	\$63.97
	12/01/2025	\$38.50	\$9.65	\$17.07	\$0.00	\$65.22
	06/01/2026	\$39.80	\$9.65	\$17.07	\$0.00	\$66.52
	12/07/2026	\$41.10	\$9.65	\$17.07	\$0.00	\$67.82
	06/07/2027	\$42.50	\$9.65	\$17.07	\$0.00	\$69.22
	12/06/2027	\$43.90	\$9.65	\$17.07	\$0.00	\$70.62
	06/05/2028	\$45.40	\$9.65	\$17.07	\$0.00	\$72.12
	12/04/2028	\$46.90	\$9.65	\$17.07	\$0.00	\$73.62

For apprentice rates see "Apprentice- LABORER"

CARPENTER <i>CARPENTERS LOCAL 336 - HAMPDEN HAMPSHIRE FRANKLIN</i>	09/01/2024	\$42.36	\$7.91	\$18.15	\$0.00	\$68.42
	03/01/2025	\$43.26	\$7.91	\$18.15	\$0.00	\$69.32
	09/01/2025	\$44.21	\$7.91	\$18.15	\$0.00	\$70.27
	03/01/2026	\$45.11	\$7.91	\$18.15	\$0.00	\$71.17
	09/01/2026	\$46.06	\$7.91	\$18.15	\$0.00	\$72.12
	03/01/2027	\$46.96	\$7.91	\$18.15	\$0.00	\$73.02

Apprentice - CARPENTER - Local 336 Hampden Hampshire Franklin

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$19.06	\$7.91	\$1.40	\$0.00	\$28.37
2	45	\$19.06	\$7.91	\$1.40	\$0.00	\$28.37
3	55	\$23.30	\$7.91	\$2.76	\$0.00	\$33.97
4	55	\$23.30	\$7.91	\$2.76	\$0.00	\$33.97
5	70	\$29.65	\$7.91	\$15.39	\$0.00	\$52.95
6	70	\$29.65	\$7.91	\$15.39	\$0.00	\$52.95
7	80	\$33.89	\$7.91	\$16.77	\$0.00	\$58.57
8	80	\$33.89	\$7.91	\$16.77	\$0.00	\$58.57

Effective Date - 03/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$19.47	\$7.91	\$1.40	\$0.00	\$28.78
2	45	\$19.47	\$7.91	\$1.40	\$0.00	\$28.78
3	55	\$23.79	\$7.91	\$2.76	\$0.00	\$34.46
4	55	\$23.79	\$7.91	\$2.76	\$0.00	\$34.46
5	70	\$30.28	\$7.91	\$15.39	\$0.00	\$53.58
6	70	\$30.28	\$7.91	\$15.39	\$0.00	\$53.58
7	80	\$34.61	\$7.91	\$16.77	\$0.00	\$59.29
8	80	\$34.61	\$7.91	\$16.77	\$0.00	\$59.29

Notes:

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CARPENTER WOOD FRAME <i>CARPENTERS-ZONE 3 (Wood Frame)</i>	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:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
Step 1&2 \$18.52/ 3&4 \$21.07/ 5&6 \$28.70/ 7&8 \$31.26

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING <i>BRICKLAYERS LOCAL 3 (SPRINGFIELD/PITTSFIELD)</i>	01/01/2024	\$44.68	\$12.90	\$18.66	\$1.25	\$77.49
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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - CEMENT MASONRY/PLASTERING - Springfield/Pittsfield

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.34	\$12.90	\$15.86	\$0.00	\$51.10
2	60	\$26.81	\$12.90	\$18.66	\$1.25	\$59.62
3	65	\$29.04	\$12.90	\$18.66	\$1.25	\$61.85
4	70	\$31.28	\$12.90	\$18.66	\$1.25	\$64.09
5	75	\$33.51	\$12.90	\$18.66	\$1.25	\$66.32
6	80	\$35.74	\$12.90	\$18.66	\$1.25	\$68.55
7	90	\$40.21	\$12.90	\$18.66	\$1.25	\$73.02

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

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2024	\$34.80	\$9.65	\$17.07	\$0.00	\$61.52
	12/02/2024	\$36.00	\$9.65	\$17.07	\$0.00	\$62.72
	06/02/2025	\$37.25	\$9.65	\$17.07	\$0.00	\$63.97
	12/01/2025	\$38.50	\$9.65	\$17.07	\$0.00	\$65.22
	06/01/2026	\$39.80	\$9.65	\$17.07	\$0.00	\$66.52
	12/07/2026	\$41.10	\$9.65	\$17.07	\$0.00	\$67.82
	06/07/2027	\$42.50	\$9.65	\$17.07	\$0.00	\$69.22
	12/06/2027	\$43.90	\$9.65	\$17.07	\$0.00	\$70.62
	06/05/2028	\$45.40	\$9.65	\$17.07	\$0.00	\$72.12
	12/04/2028	\$46.90	\$9.65	\$17.07	\$0.00	\$73.62

For apprentice rates see "Apprentice- LABORER"

COMPRESSOR OPERATOR <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$39.03	\$13.78	\$15.15	\$0.00	\$67.96
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

CRANE OPERATOR <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$43.06	\$13.78	\$15.15	\$0.00	\$71.99
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

DELEADER (BRIDGE) <i>PAINTERS LOCAL 35 - ZONE 3</i>	07/01/2024	\$57.26	\$9.95	\$23.95	\$0.00	\$91.16
	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 - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.63	\$9.95	\$0.00	\$0.00	\$38.58
2	55	\$31.49	\$9.95	\$6.66	\$0.00	\$48.10
3	60	\$34.36	\$9.95	\$7.26	\$0.00	\$51.57
4	65	\$37.22	\$9.95	\$7.87	\$0.00	\$55.04
5	70	\$40.08	\$9.95	\$20.32	\$0.00	\$70.35
6	75	\$42.95	\$9.95	\$20.93	\$0.00	\$73.83
7	80	\$45.81	\$9.95	\$21.53	\$0.00	\$77.29
8	90	\$51.53	\$9.95	\$22.74	\$0.00	\$84.22

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	06/10/2024	\$45.53	\$9.65	\$18.40	\$0.00	\$73.58
LABORERS - ZONE 3 (BUILDING & SITE)	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"

Proposal No. 610652-128108

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: BACKHOE/LOADER/HAMMER OPERATOR <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/10/2024	\$46.53	\$9.65	\$18.40	\$0.00	\$74.58
	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 <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/10/2024	\$46.28	\$9.65	\$18.40	\$0.00	\$74.33
	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: CONCRETE CUTTER/SAWYER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/10/2024	\$46.53	\$9.65	\$18.40	\$0.00	\$74.58
	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 <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/10/2024	\$46.28	\$9.65	\$18.40	\$0.00	\$74.33
	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"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: WRECKING LABORER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/10/2024	\$45.53	\$9.65	\$18.40	\$0.00	\$73.58
	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"						
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2020	\$68.70	\$9.40	\$23.12	\$0.00	\$101.22
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2020	\$73.60	\$9.40	\$23.12	\$0.00	\$106.12
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction) <i>DRAWBRIDGE - SEIU LOCAL 888</i>	07/01/2020	\$26.77	\$6.67	\$3.93	\$0.16	\$37.53
ELECTRICIAN (Including Core Drilling) <i>ELECTRICIANS LOCAL 7</i>	06/30/2024	\$50.01	\$13.00	\$14.86	\$0.00	\$77.87
	12/29/2024	\$51.06	\$13.25	\$15.06	\$0.00	\$79.37
	06/29/2025	\$52.16	\$13.50	\$15.21	\$0.00	\$80.87
	12/28/2025	\$53.26	\$13.75	\$15.36	\$0.00	\$82.37
	06/28/2026	\$54.41	\$14.00	\$15.46	\$0.00	\$83.87
	01/03/2027	\$55.56	\$14.25	\$15.56	\$0.00	\$85.37

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ELECTRICIAN - Local 7

Effective Date - 06/30/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$20.00	\$7.20	\$0.60	\$0.00	\$27.80
2	45	\$22.50	\$7.20	\$0.68	\$0.00	\$30.38
3	50	\$25.01	\$13.00	\$7.40	\$0.00	\$45.41
4	55	\$27.51	\$13.00	\$7.48	\$0.00	\$47.99
5	65	\$32.51	\$13.00	\$9.64	\$0.00	\$55.15
6	70	\$35.01	\$13.00	\$11.06	\$0.00	\$59.07

Effective Date - 12/29/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$20.42	\$7.35	\$0.61	\$0.00	\$28.38
2	45	\$22.98	\$7.35	\$0.69	\$0.00	\$31.02
3	50	\$25.53	\$13.25	\$7.47	\$0.00	\$46.25
4	55	\$28.08	\$13.25	\$7.54	\$0.00	\$48.87
5	65	\$33.19	\$13.25	\$9.74	\$0.00	\$56.18
6	70	\$35.74	\$13.25	\$11.19	\$0.00	\$60.18

Notes:

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

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

ELEVATOR CONSTRUCTOR	01/01/2024	\$61.98	\$16.18	\$20.96	\$0.00	\$99.12
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 - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$30.99	\$16.18	\$0.00	\$0.00	\$47.17
2	55	\$34.09	\$16.18	\$20.96	\$0.00	\$71.23
3	65	\$40.29	\$16.18	\$20.96	\$0.00	\$77.43
4	70	\$43.39	\$16.18	\$20.96	\$0.00	\$80.53
5	80	\$49.58	\$16.18	\$20.96	\$0.00	\$86.72

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

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

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER <i>ELEVATOR CONSTRUCTORS LOCAL 41</i>	01/01/2024	\$43.39	\$16.18	\$20.96	\$0.00	\$80.53
	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) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2024	\$34.80	\$9.65	\$15.06	\$0.00	\$59.51
	12/01/2024	\$36.00	\$9.65	\$15.06	\$0.00	\$60.71
	06/01/2025	\$37.25	\$9.65	\$15.06	\$0.00	\$61.96
	12/01/2025	\$38.49	\$9.65	\$15.06	\$0.00	\$63.20
	06/01/2026	\$39.79	\$9.65	\$15.06	\$0.00	\$64.50
	12/01/2026	\$41.08	\$9.65	\$15.06	\$0.00	\$65.79

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

FIELD ENG.INST/ROD-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/1999	\$18.84	\$4.80	\$4.10	\$0.00	\$27.74
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FIELD ENG.PARTY CHIEF:BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/1999	\$21.33	\$4.80	\$4.10	\$0.00	\$30.23
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FIELD ENG.SURVEY CHIEF-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/1999	\$22.33	\$4.80	\$4.10	\$0.00	\$31.23
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FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 7</i>	06/30/2024	\$50.01	\$13.00	\$14.86	\$0.00	\$77.87
	12/29/2024	\$51.06	\$13.25	\$15.06	\$0.00	\$79.37
	06/29/2025	\$52.16	\$13.50	\$15.21	\$0.00	\$80.87
	12/28/2025	\$53.26	\$13.75	\$15.36	\$0.00	\$82.37
	06/28/2026	\$54.41	\$14.00	\$15.46	\$0.00	\$83.87
	01/03/2027	\$55.56	\$14.25	\$15.56	\$0.00	\$85.37

For apprentice rates see "Apprentice- ELECTRICIAN"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING <i>ELECTRICIANS</i>	06/30/2024	\$50.01	\$13.00	\$14.86	\$0.00	\$77.87
<i>LOCAL 7</i>	12/29/2024	\$51.06	\$13.25	\$15.06	\$0.00	\$79.37
	06/29/2025	\$52.16	\$13.50	\$15.21	\$0.00	\$80.87
	12/28/2025	\$53.26	\$13.75	\$15.36	\$0.00	\$82.37
	06/28/2026	\$54.41	\$14.00	\$15.46	\$0.00	\$83.87
	01/03/2027	\$55.56	\$14.25	\$15.56	\$0.00	\$85.37
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$39.03	\$13.78	\$15.15	\$0.00	\$67.96

Apprentice - OPERATING ENGINEERS - Local 98 Class 3

Effective Date - 12/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$23.42	\$13.78	\$15.15	\$0.00	\$52.35
2	70	\$27.32	\$13.78	\$15.15	\$0.00	\$56.25
3	80	\$31.22	\$13.78	\$15.15	\$0.00	\$60.15
4	90	\$35.13	\$13.78	\$15.15	\$0.00	\$64.06

Notes:

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

Apprentice to Journeyworker Ratio:1:6

FLAGGER & SIGNALER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2024	\$27.01	\$9.65	\$15.06	\$0.00	\$51.72
	12/01/2024	\$27.01	\$9.65	\$15.06	\$0.00	\$51.72
	06/01/2025	\$28.09	\$9.65	\$15.06	\$0.00	\$52.80
	12/01/2025	\$28.09	\$9.65	\$15.06	\$0.00	\$52.80
	06/01/2026	\$29.21	\$9.65	\$15.06	\$0.00	\$53.92
	12/01/2026	\$29.21	\$9.65	\$15.06	\$0.00	\$53.92
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						

FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE III</i>	09/01/2024	\$42.36	\$7.91	\$18.15	\$0.00	\$68.42
	03/01/2025	\$43.26	\$7.91	\$18.15	\$0.00	\$69.32
	09/01/2025	\$44.21	\$7.91	\$18.15	\$0.00	\$70.27
	03/01/2026	\$45.11	\$7.91	\$18.15	\$0.00	\$71.17
	09/01/2026	\$46.06	\$7.91	\$18.15	\$0.00	\$72.12
	03/01/2027	\$46.96	\$7.91	\$18.15	\$0.00	\$73.02

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - FLOORCOVERER - Local 2168 Zone III

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.18	\$7.91	\$1.38	\$0.00	\$30.47
2	55	\$23.30	\$7.91	\$1.38	\$0.00	\$32.59
3	60	\$25.42	\$7.91	\$2.76	\$0.00	\$36.09
4	65	\$27.53	\$7.91	\$2.76	\$0.00	\$38.20
5	70	\$29.65	\$7.91	\$15.39	\$0.00	\$52.95
6	75	\$31.77	\$7.91	\$15.39	\$0.00	\$55.07
7	80	\$33.89	\$7.91	\$16.77	\$0.00	\$58.57
8	85	\$36.01	\$7.91	\$16.77	\$0.00	\$60.69

Effective Date - 03/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.63	\$7.91	\$1.38	\$0.00	\$30.92
2	55	\$23.79	\$7.91	\$1.38	\$0.00	\$33.08
3	60	\$25.96	\$7.91	\$2.76	\$0.00	\$36.63
4	65	\$28.12	\$7.91	\$2.76	\$0.00	\$38.79
5	70	\$30.28	\$7.91	\$15.39	\$0.00	\$53.58
6	75	\$32.45	\$7.91	\$15.39	\$0.00	\$55.75
7	80	\$34.61	\$7.91	\$16.77	\$0.00	\$59.29
8	85	\$36.77	\$7.91	\$16.77	\$0.00	\$61.45

Notes: Steps are 750 hrs.
 % After 10/1/17; 45/45/55/55/70/70/80/80 (1500hr Steps)
 Step 1&2 \$26.72.24/ 3&4 \$32.11/ 5&6 \$50.75/ 7&8 \$56.14

Apprentice to Journeyworker Ratio:1:1

FORK LIFT <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$39.25	\$13.78	\$15.15	\$0.00	\$68.18
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATORS/LIGHTING PLANTS <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$35.80	\$13.78	\$15.15	\$0.00	\$64.73
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) <i>GLAZIERS LOCAL 1333</i>	06/01/2020	\$39.18	\$10.80	\$10.45	\$0.00	\$60.43

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - GLAZIER - Local 1333						
Effective Date - 06/01/2020						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.59	\$10.80	\$1.80	\$0.00	\$32.19
2	56	\$22.04	\$10.80	\$1.80	\$0.00	\$34.64
3	63	\$24.49	\$10.80	\$2.45	\$0.00	\$37.74
4	69	\$26.94	\$10.80	\$2.45	\$0.00	\$40.19
5	75	\$29.39	\$10.80	\$3.15	\$0.00	\$43.34
6	81	\$31.83	\$10.80	\$3.15	\$0.00	\$45.78
7	88	\$34.28	\$10.80	\$10.45	\$0.00	\$55.53
8	94	\$36.73	\$10.80	\$10.45	\$0.00	\$57.98

Notes:

Apprentice to Journeyworker Ratio:1:3

GRADER/TRENCHING MACHINE/DERRICK <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$39.56	\$13.78	\$15.15	\$0.00	\$68.49
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
HVAC (DUCTWORK) <i>SHEETMETAL WORKERS LOCAL 63</i>	07/01/2024	\$40.98	\$12.20	\$18.74	\$2.13	\$74.05
	01/01/2025	\$42.23	\$12.20	\$18.74	\$2.13	\$75.30
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (ELECTRICAL CONTROLS) <i>ELECTRICIANS LOCAL 7</i>	06/30/2024	\$50.01	\$13.00	\$14.86	\$0.00	\$77.87
	12/29/2024	\$51.06	\$13.25	\$15.06	\$0.00	\$79.37
	06/29/2025	\$52.16	\$13.50	\$15.21	\$0.00	\$80.87
	12/28/2025	\$53.26	\$13.75	\$15.36	\$0.00	\$82.37
	06/28/2026	\$54.41	\$14.00	\$15.46	\$0.00	\$83.87
	01/03/2027	\$55.56	\$14.25	\$15.56	\$0.00	\$85.37
For apprentice rates see "Apprentice- ELECTRICIAN"						
HVAC (TESTING AND BALANCING - AIR) <i>SHEETMETAL WORKERS LOCAL 63</i>	07/01/2024	\$40.98	\$12.20	\$18.74	\$2.13	\$74.05
	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) <i>PLUMBERS & PIPEFITTERS LOCAL 104</i>	03/17/2024	\$49.21	\$9.55	\$17.10	\$0.00	\$75.86
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC <i>PLUMBERS & PIPEFITTERS LOCAL 104</i>	03/17/2024	\$49.21	\$9.55	\$17.10	\$0.00	\$75.86
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2024	\$35.30	\$9.65	\$15.06	\$0.00	\$60.01
	12/01/2024	\$36.50	\$9.65	\$15.06	\$0.00	\$61.21
	06/01/2025	\$37.75	\$9.65	\$15.06	\$0.00	\$62.46
	12/01/2025	\$38.99	\$9.65	\$15.06	\$0.00	\$63.70
	06/01/2026	\$40.29	\$9.65	\$15.06	\$0.00	\$65.00
	12/01/2026	\$41.58	\$9.65	\$15.06	\$0.00	\$66.29
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
INSULATOR (PIPES & TANKS) HEAT & FROST INSULATORS LOCAL 6 (SPRINGFIELD)	09/01/2024	\$45.54	\$14.75	\$19.61	\$0.00	\$79.90
	09/01/2025	\$48.27	\$14.75	\$19.61	\$0.00	\$82.63
	09/01/2026	\$51.01	\$14.75	\$19.61	\$0.00	\$85.37

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

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.77	\$14.75	\$14.32	\$0.00	\$51.84
2	60	\$27.32	\$14.75	\$15.37	\$0.00	\$57.44
3	70	\$31.88	\$14.75	\$16.43	\$0.00	\$63.06
4	80	\$36.43	\$14.75	\$17.49	\$0.00	\$68.67

Effective Date - 09/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.14	\$14.75	\$14.32	\$0.00	\$53.21
2	60	\$28.96	\$14.75	\$15.37	\$0.00	\$59.08
3	70	\$33.79	\$14.75	\$16.43	\$0.00	\$64.97
4	80	\$38.62	\$14.75	\$17.49	\$0.00	\$70.86

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER IRONWORKERS LOCAL 7 (SPRINGFIELD AREA)	03/16/2024	\$40.66	\$8.25	\$22.70	\$0.00	\$71.61
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Apprentice - IRONWORKER - Local 7 Springfield

Effective Date - 03/16/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$24.40	\$8.25	\$22.70	\$0.00	\$55.35
2	70	\$28.46	\$8.25	\$22.70	\$0.00	\$59.41
3	75	\$30.50	\$8.25	\$22.70	\$0.00	\$61.45
4	80	\$32.53	\$8.25	\$22.70	\$0.00	\$63.48
5	85	\$34.56	\$8.25	\$22.70	\$0.00	\$65.51
6	90	\$36.59	\$8.25	\$22.70	\$0.00	\$67.54

Notes:

Apprentice to Journeyworker Ratio:1:4

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
JACKHAMMER & PAVING BREAKER OPERATOR <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2024	\$34.80	\$9.65	\$17.07	\$0.00	\$61.52
	12/02/2024	\$36.00	\$9.65	\$17.07	\$0.00	\$62.72
	06/02/2025	\$37.25	\$9.65	\$17.07	\$0.00	\$63.97
	12/01/2025	\$38.50	\$9.65	\$17.07	\$0.00	\$65.22
	06/01/2026	\$39.80	\$9.65	\$17.07	\$0.00	\$66.52
	12/07/2026	\$41.10	\$9.65	\$17.07	\$0.00	\$67.82
	06/07/2027	\$42.50	\$9.65	\$17.07	\$0.00	\$69.22
	12/06/2027	\$43.90	\$9.65	\$17.07	\$0.00	\$70.62
	06/05/2028	\$45.40	\$9.65	\$17.07	\$0.00	\$72.12
	12/04/2028	\$46.90	\$9.65	\$17.07	\$0.00	\$73.62

For apprentice rates see "Apprentice- LABORER"

LABORER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2024	\$34.55	\$9.65	\$17.07	\$0.00	\$61.27
	12/02/2024	\$35.75	\$9.65	\$17.07	\$0.00	\$62.47
	06/02/2025	\$37.00	\$9.65	\$17.07	\$0.00	\$63.72
	12/01/2025	\$38.25	\$9.65	\$17.07	\$0.00	\$64.97
	06/01/2026	\$39.55	\$9.65	\$17.07	\$0.00	\$66.27
	12/07/2026	\$40.85	\$9.65	\$17.07	\$0.00	\$67.57
	06/07/2027	\$42.25	\$9.65	\$17.07	\$0.00	\$68.97
	12/06/2027	\$43.65	\$9.65	\$17.07	\$0.00	\$70.37
	06/05/2028	\$45.15	\$9.65	\$17.07	\$0.00	\$71.87
	12/04/2028	\$46.65	\$9.65	\$17.07	\$0.00	\$73.37

Apprentice - LABORER - Zone 3 Building & Site

Effective Date - 06/03/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$20.73	\$9.65	\$17.07	\$0.00	\$47.45
2	70	\$24.19	\$9.65	\$17.07	\$0.00	\$50.91
3	80	\$27.64	\$9.65	\$17.07	\$0.00	\$54.36
4	90	\$31.10	\$9.65	\$17.07	\$0.00	\$57.82

Effective Date - 12/02/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.45	\$9.65	\$17.07	\$0.00	\$48.17
2	70	\$25.03	\$9.65	\$17.07	\$0.00	\$51.75
3	80	\$28.60	\$9.65	\$17.07	\$0.00	\$55.32
4	90	\$32.18	\$9.65	\$17.07	\$0.00	\$58.90

Notes:

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2024	\$34.55	\$9.65	\$15.06	\$0.00	\$59.26
	12/01/2024	\$35.75	\$9.65	\$15.06	\$0.00	\$60.46
	06/01/2025	\$37.00	\$9.65	\$15.06	\$0.00	\$61.71
	12/01/2025	\$38.24	\$9.65	\$15.06	\$0.00	\$62.95
	06/01/2026	\$39.54	\$9.65	\$15.06	\$0.00	\$64.25
	12/01/2026	\$40.83	\$9.65	\$15.06	\$0.00	\$65.54

Apprentice - LABORER (Heavy & Highway) - Zone 3

Effective Date - 06/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$20.73	\$9.65	\$15.06	\$0.00	\$45.44
2	70	\$24.19	\$9.65	\$15.06	\$0.00	\$48.90
3	80	\$27.64	\$9.65	\$15.06	\$0.00	\$52.35
4	90	\$31.10	\$9.65	\$15.06	\$0.00	\$55.81

Effective Date - 12/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.45	\$9.65	\$15.06	\$0.00	\$46.16
2	70	\$25.03	\$9.65	\$15.06	\$0.00	\$49.74
3	80	\$28.60	\$9.65	\$15.06	\$0.00	\$53.31
4	90	\$32.18	\$9.65	\$15.06	\$0.00	\$56.89

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER: CARPENTER TENDER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2024	\$34.55	\$9.65	\$17.07	\$0.00	\$61.27
	12/02/2024	\$35.75	\$9.65	\$17.07	\$0.00	\$62.47
	06/02/2025	\$37.00	\$9.65	\$17.07	\$0.00	\$63.72
	12/01/2025	\$38.25	\$9.65	\$17.07	\$0.00	\$64.97
	06/01/2026	\$39.55	\$9.65	\$17.07	\$0.00	\$66.27
	12/07/2026	\$40.85	\$9.65	\$17.07	\$0.00	\$67.57
	06/07/2027	\$42.25	\$9.65	\$17.07	\$0.00	\$68.97
	12/06/2027	\$43.65	\$9.65	\$17.07	\$0.00	\$70.37
	06/05/2028	\$45.15	\$9.65	\$17.07	\$0.00	\$71.87
	12/04/2028	\$46.65	\$9.65	\$17.07	\$0.00	\$73.37

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: CEMENT FINISHER TENDER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2024	\$34.55	\$9.65	\$17.07	\$0.00	\$61.27
	12/02/2024	\$35.75	\$9.65	\$17.07	\$0.00	\$62.47
	06/02/2025	\$37.00	\$9.65	\$17.07	\$0.00	\$63.72
	12/01/2025	\$38.25	\$9.65	\$17.07	\$0.00	\$64.97
	06/01/2026	\$39.55	\$9.65	\$17.07	\$0.00	\$66.27
	12/07/2026	\$40.85	\$9.65	\$17.07	\$0.00	\$67.57
	06/07/2027	\$42.25	\$9.65	\$17.07	\$0.00	\$68.97
	12/06/2027	\$43.65	\$9.65	\$17.07	\$0.00	\$70.37
	06/05/2028	\$45.15	\$9.65	\$17.07	\$0.00	\$71.87
	12/04/2028	\$46.65	\$9.65	\$17.07	\$0.00	\$73.37
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2024	\$34.47	\$9.65	\$17.20	\$0.00	\$61.32
	12/02/2024	\$35.67	\$9.65	\$17.20	\$0.00	\$62.52
	06/02/2025	\$36.92	\$9.65	\$17.20	\$0.00	\$63.77
	12/01/2025	\$38.17	\$9.65	\$17.20	\$0.00	\$65.02
	06/01/2026	\$39.47	\$9.65	\$17.20	\$0.00	\$66.32
	12/07/2026	\$40.77	\$9.65	\$17.20	\$0.00	\$67.62
	06/07/2027	\$42.17	\$9.65	\$17.20	\$0.00	\$69.02
	12/06/2027	\$43.57	\$9.65	\$17.20	\$0.00	\$70.42
	06/05/2028	\$45.07	\$9.65	\$17.20	\$0.00	\$71.92
	12/04/2028	\$46.57	\$9.65	\$17.20	\$0.00	\$73.42
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2024	\$37.55	\$9.65	\$17.07	\$0.00	\$64.27
	12/02/2024	\$38.75	\$9.65	\$17.07	\$0.00	\$65.47
	06/02/2025	\$40.00	\$9.65	\$17.07	\$0.00	\$66.72
	12/01/2025	\$41.25	\$9.65	\$17.07	\$0.00	\$67.97
	06/01/2026	\$42.55	\$9.65	\$17.07	\$0.00	\$69.27
	12/07/2026	\$43.85	\$9.65	\$17.07	\$0.00	\$70.57
	06/07/2027	\$45.25	\$9.65	\$17.07	\$0.00	\$71.97
	12/06/2027	\$46.65	\$9.65	\$17.07	\$0.00	\$73.37
	06/05/2028	\$48.15	\$9.65	\$17.07	\$0.00	\$74.87
	12/04/2028	\$49.65	\$9.65	\$17.07	\$0.00	\$76.37
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2024	\$34.80	\$9.65	\$15.06	\$0.00	\$59.51
	12/01/2024	\$36.00	\$9.65	\$15.06	\$0.00	\$60.71
	06/01/2025	\$37.25	\$9.65	\$15.06	\$0.00	\$61.96
	12/01/2025	\$38.49	\$9.65	\$15.06	\$0.00	\$63.20
	06/01/2026	\$39.79	\$9.65	\$15.06	\$0.00	\$64.50
	12/01/2026	\$41.08	\$9.65	\$15.06	\$0.00	\$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2024	\$34.55	\$9.65	\$17.07	\$0.00	\$61.27
	12/02/2024	\$35.75	\$9.65	\$17.07	\$0.00	\$62.47
	06/02/2025	\$37.00	\$9.65	\$17.07	\$0.00	\$63.72
	12/01/2025	\$38.25	\$9.65	\$17.07	\$0.00	\$64.97
	06/01/2026	\$39.55	\$9.65	\$17.07	\$0.00	\$66.27
	12/07/2026	\$40.85	\$9.65	\$17.07	\$0.00	\$67.57
	06/07/2027	\$42.25	\$9.65	\$17.07	\$0.00	\$68.97
	12/06/2027	\$43.65	\$9.65	\$17.07	\$0.00	\$70.37
	06/05/2028	\$45.15	\$9.65	\$17.07	\$0.00	\$71.87
	12/04/2028	\$46.65	\$9.65	\$17.07	\$0.00	\$73.37
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2024	\$34.55	\$9.65	\$17.07	\$0.00	\$61.27
	12/02/2024	\$35.75	\$9.65	\$17.07	\$0.00	\$62.47
	06/02/2025	\$37.00	\$9.65	\$17.07	\$0.00	\$63.72
	12/01/2025	\$38.25	\$9.65	\$17.07	\$0.00	\$64.97
	06/01/2026	\$39.55	\$9.65	\$17.07	\$0.00	\$66.27
	12/07/2026	\$40.85	\$9.65	\$17.07	\$0.00	\$67.57
	06/07/2027	\$42.25	\$9.65	\$17.07	\$0.00	\$68.97
	12/06/2027	\$43.65	\$9.65	\$17.07	\$0.00	\$70.37
	06/05/2028	\$45.15	\$9.65	\$17.07	\$0.00	\$71.87
	12/04/2028	\$46.65	\$9.65	\$17.07	\$0.00	\$73.37
This classification applies to the removal of standing trees, and the trimming and removal of branches and limbs when related to public works construction or site clearance incidental to construction . For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2024	\$34.80	\$9.65	\$17.07	\$0.00	\$61.52
	12/02/2024	\$36.00	\$9.65	\$17.07	\$0.00	\$62.72
	06/02/2025	\$37.25	\$9.65	\$17.07	\$0.00	\$63.97
	12/01/2025	\$38.50	\$9.65	\$17.07	\$0.00	\$65.22
	06/01/2026	\$39.80	\$9.65	\$17.07	\$0.00	\$66.52
	12/07/2026	\$41.10	\$9.65	\$17.07	\$0.00	\$67.82
	06/07/2027	\$42.50	\$9.65	\$17.07	\$0.00	\$69.22
	12/06/2027	\$43.90	\$9.65	\$17.07	\$0.00	\$70.62
	06/05/2028	\$45.40	\$9.65	\$17.07	\$0.00	\$72.12
	12/04/2028	\$46.90	\$9.65	\$17.07	\$0.00	\$73.62
For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2024	\$34.80	\$9.65	\$15.06	\$0.00	\$59.51
	12/01/2024	\$36.00	\$9.65	\$15.06	\$0.00	\$60.71
	06/01/2025	\$37.25	\$9.65	\$15.06	\$0.00	\$61.96
	12/01/2025	\$38.49	\$9.65	\$15.06	\$0.00	\$63.20
	06/01/2026	\$39.79	\$9.65	\$15.06	\$0.00	\$64.50
	12/01/2026	\$41.08	\$9.65	\$15.06	\$0.00	\$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE & TILE</i>	08/01/2024	\$43.05	\$11.49	\$20.53	\$0.00	\$75.07
	02/01/2025	\$44.90	\$11.49	\$20.53	\$0.00	\$76.92
	08/01/2025	\$45.81	\$11.49	\$20.53	\$0.00	\$77.83
	02/01/2026	\$46.89	\$11.49	\$20.53	\$0.00	\$78.91
	08/01/2026	\$48.65	\$11.49	\$20.53	\$0.00	\$80.67
	02/01/2027	\$49.77	\$11.49	\$20.53	\$0.00	\$81.79

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 08/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.53	\$11.49	\$20.53	\$0.00	\$53.55
2	60	\$25.83	\$11.49	\$20.53	\$0.00	\$57.85
3	70	\$30.14	\$11.49	\$20.53	\$0.00	\$62.16
4	80	\$34.44	\$11.49	\$20.53	\$0.00	\$66.46
5	90	\$38.75	\$11.49	\$20.53	\$0.00	\$70.77

Effective Date - 02/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.45	\$11.49	\$20.53	\$0.00	\$54.47
2	60	\$26.94	\$11.49	\$20.53	\$0.00	\$58.96
3	70	\$31.43	\$11.49	\$20.53	\$0.00	\$63.45
4	80	\$35.92	\$11.49	\$20.53	\$0.00	\$67.94
5	90	\$40.41	\$11.49	\$20.53	\$0.00	\$72.43

Notes:

Apprentice to Journeyworker Ratio:1:5

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

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

MECH. SWEEPER OPERATOR (ON CONST. SITES) OPERATING ENGINEERS LOCAL 98	12/01/2023	\$39.56	\$13.78	\$15.15	\$0.00	\$68.49
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MECHANIC/WELDER/BOOM TRUCK OPERATING ENGINEERS LOCAL 98	12/01/2023	\$39.03	\$13.78	\$15.15	\$0.00	\$67.96
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MILLWRIGHT (Zone 3) MILLWRIGHTS LOCAL 1121 - Zone 3	01/01/2024	\$41.20	\$10.08	\$21.22	\$0.00	\$72.50
	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
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Apprentice - MILLWRIGHT - Local 1121 Zone 3

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$22.66	\$10.08	\$5.36	\$0.00	\$38.10
2	65	\$26.78	\$10.08	\$6.34	\$0.00	\$43.20
3	75	\$30.90	\$10.08	\$18.78	\$0.00	\$59.76
4	85	\$35.02	\$10.08	\$19.76	\$0.00	\$64.86

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

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 3 (BUILDING & SITE)	06/03/2024	\$34.80	\$9.65	\$17.07	\$0.00	\$61.52
	12/02/2024	\$36.00	\$9.65	\$17.07	\$0.00	\$62.72
	06/02/2025	\$37.25	\$9.65	\$17.07	\$0.00	\$63.97
	12/01/2025	\$38.50	\$9.65	\$17.07	\$0.00	\$65.22
	06/01/2026	\$39.80	\$9.65	\$17.07	\$0.00	\$66.52
	12/07/2026	\$41.10	\$9.65	\$17.07	\$0.00	\$67.82
	06/07/2027	\$42.50	\$9.65	\$17.07	\$0.00	\$69.22
	12/06/2027	\$43.90	\$9.65	\$17.07	\$0.00	\$70.62
	06/05/2028	\$45.40	\$9.65	\$17.07	\$0.00	\$72.12
	12/04/2028	\$46.90	\$9.65	\$17.07	\$0.00	\$73.62

For apprentice rates see "Apprentice- LABORER"

OILER OPERATING ENGINEERS LOCAL 98	12/01/2023	\$35.02	\$13.78	\$15.15	\$0.00	\$63.95
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

OTHER POWER DRIVEN EQUIPMENT - CLASS VI OPERATING ENGINEERS LOCAL 98	12/01/2023	\$32.74	\$13.78	\$15.15	\$0.00	\$61.67
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Painter (BRIDGES/TANKS) PAINTERS LOCAL 35 - ZONE 3	07/01/2024	\$57.26	\$9.95	\$23.95	\$0.00	\$91.16
	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 - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.63	\$9.95	\$0.00	\$0.00	\$38.58
2	55	\$31.49	\$9.95	\$6.66	\$0.00	\$48.10
3	60	\$34.36	\$9.95	\$7.26	\$0.00	\$51.57
4	65	\$37.22	\$9.95	\$7.87	\$0.00	\$55.04
5	70	\$40.08	\$9.95	\$20.32	\$0.00	\$70.35
6	75	\$42.95	\$9.95	\$20.93	\$0.00	\$73.83
7	80	\$45.81	\$9.95	\$21.53	\$0.00	\$77.29
8	90	\$51.53	\$9.95	\$22.74	\$0.00	\$84.22

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) *	07/01/2024	\$40.03	\$9.65	\$19.90	\$0.00	\$69.58
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 3	01/01/2025	\$41.23	\$9.65	\$19.90	\$0.00	\$70.78

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.02	\$9.95	\$0.00	\$0.00	\$29.97
2	55	\$22.02	\$9.95	\$4.43	\$0.00	\$36.40
3	60	\$24.02	\$9.95	\$4.83	\$0.00	\$38.80
4	65	\$26.02	\$9.95	\$5.23	\$0.00	\$41.20
5	70	\$28.02	\$9.95	\$17.49	\$0.00	\$55.46
6	75	\$30.02	\$9.95	\$17.89	\$0.00	\$57.86
7	80	\$32.02	\$9.95	\$18.29	\$0.00	\$60.26
8	90	\$36.03	\$9.95	\$19.10	\$0.00	\$65.08

Effective Date - 01/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.62	\$9.95	\$0.00	\$0.00	\$30.57
2	55	\$22.68	\$9.95	\$4.43	\$0.00	\$37.06
3	60	\$24.74	\$9.95	\$4.83	\$0.00	\$39.52
4	65	\$26.80	\$9.95	\$5.23	\$0.00	\$41.98
5	70	\$28.86	\$9.95	\$17.49	\$0.00	\$56.30
6	75	\$30.92	\$9.95	\$17.89	\$0.00	\$58.76
7	80	\$32.98	\$9.95	\$18.29	\$0.00	\$61.22
8	90	\$37.11	\$9.95	\$19.10	\$0.00	\$66.16

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)	07/01/2024	\$37.35	\$9.95	\$19.90	\$0.00	\$67.20
PAINTERS LOCAL 35 - ZONE 3	01/01/2025	\$38.55	\$9.95	\$19.90	\$0.00	\$68.40

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.68	\$9.95	\$0.00	\$0.00	\$28.63
2	55	\$20.54	\$9.95	\$4.43	\$0.00	\$34.92
3	60	\$22.41	\$9.95	\$4.83	\$0.00	\$37.19
4	65	\$24.28	\$9.95	\$5.23	\$0.00	\$39.46
5	70	\$26.15	\$9.95	\$17.49	\$0.00	\$53.59
6	75	\$28.01	\$9.95	\$17.89	\$0.00	\$55.85
7	80	\$29.88	\$9.95	\$18.29	\$0.00	\$58.12
8	90	\$33.62	\$9.95	\$19.10	\$0.00	\$62.67

Effective Date - 01/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.28	\$9.95	\$0.00	\$0.00	\$29.23
2	55	\$21.20	\$9.95	\$4.43	\$0.00	\$35.58
3	60	\$23.13	\$9.95	\$4.83	\$0.00	\$37.91
4	65	\$25.06	\$9.95	\$5.23	\$0.00	\$40.24
5	70	\$26.99	\$9.95	\$17.49	\$0.00	\$54.43
6	75	\$28.91	\$9.95	\$17.89	\$0.00	\$56.75
7	80	\$30.84	\$9.95	\$18.29	\$0.00	\$59.08
8	90	\$34.70	\$9.95	\$19.10	\$0.00	\$63.75

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, NEW) *	07/01/2024	\$38.63	\$9.95	\$19.90	\$0.00	\$68.48
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 3	01/01/2025	\$39.83	\$9.95	\$19.90	\$0.00	\$69.68

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER - Local 35 Zone 3 - BRUSH NEW

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.32	\$9.95	\$0.00	\$0.00	\$29.27
2	55	\$21.25	\$9.95	\$4.43	\$0.00	\$35.63
3	60	\$23.18	\$9.95	\$4.83	\$0.00	\$37.96
4	65	\$25.11	\$9.95	\$5.23	\$0.00	\$40.29
5	70	\$27.04	\$9.95	\$17.49	\$0.00	\$54.48
6	75	\$28.97	\$9.95	\$17.89	\$0.00	\$56.81
7	80	\$30.90	\$9.95	\$18.29	\$0.00	\$59.14
8	90	\$34.77	\$9.95	\$19.10	\$0.00	\$63.82

Effective Date - 01/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.92	\$9.95	\$0.00	\$0.00	\$29.87
2	55	\$21.91	\$9.95	\$4.43	\$0.00	\$36.29
3	60	\$23.90	\$9.95	\$4.83	\$0.00	\$38.68
4	65	\$25.89	\$9.95	\$5.23	\$0.00	\$41.07
5	70	\$27.88	\$9.95	\$17.49	\$0.00	\$55.32
6	75	\$29.87	\$9.95	\$17.89	\$0.00	\$57.71
7	80	\$31.86	\$9.95	\$18.29	\$0.00	\$60.10
8	90	\$35.85	\$9.95	\$19.10	\$0.00	\$64.90

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT)	07/01/2024	\$35.95	\$9.95	\$19.90	\$0.00	\$65.80
PAINTERS LOCAL 35 - ZONE 3	01/01/2025	\$37.15	\$9.95	\$19.90	\$0.00	\$67.00

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 3 - BRUSH REPAINT

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.98	\$9.95	\$0.00	\$0.00	\$27.93
2	55	\$19.77	\$9.95	\$4.43	\$0.00	\$34.15
3	60	\$21.57	\$9.95	\$4.83	\$0.00	\$36.35
4	65	\$23.37	\$9.95	\$5.23	\$0.00	\$38.55
5	70	\$25.17	\$9.95	\$17.49	\$0.00	\$52.61
6	75	\$26.96	\$9.95	\$17.89	\$0.00	\$54.80
7	80	\$28.76	\$9.95	\$18.29	\$0.00	\$57.00
8	90	\$32.36	\$9.95	\$19.10	\$0.00	\$61.41

Effective Date - 01/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.58	\$9.95	\$0.00	\$0.00	\$28.53
2	55	\$20.43	\$9.95	\$4.43	\$0.00	\$34.81
3	60	\$22.29	\$9.95	\$4.83	\$0.00	\$37.07
4	65	\$24.15	\$9.95	\$5.23	\$0.00	\$39.33
5	70	\$26.01	\$9.95	\$17.49	\$0.00	\$53.45
6	75	\$27.86	\$9.95	\$17.89	\$0.00	\$55.70
7	80	\$29.72	\$9.95	\$18.29	\$0.00	\$57.96
8	90	\$33.44	\$9.95	\$19.10	\$0.00	\$62.49

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY)	06/01/2024	\$34.55	\$9.65	\$15.06	\$0.00	\$59.26
LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/01/2024	\$35.75	\$9.65	\$15.06	\$0.00	\$60.46
	06/01/2025	\$37.00	\$9.65	\$15.06	\$0.00	\$61.71
	12/01/2025	\$38.24	\$9.65	\$15.06	\$0.00	\$62.95
	06/01/2026	\$39.54	\$9.65	\$15.06	\$0.00	\$64.25
	12/01/2026	\$40.83	\$9.65	\$15.06	\$0.00	\$65.54

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

PANEL & PICKUP TRUCKS DRIVER	06/01/2024	\$39.78	\$15.07	\$18.67	\$0.00	\$73.52
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/01/2024	\$39.78	\$15.07	\$20.17	\$0.00	\$75.02
	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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) <i>PILE DRIVER LOCAL 56 (ZONE 3)</i> For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2020	\$43.53	\$9.40	\$23.12	\$0.00	\$76.05
PILE DRIVER <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2020	\$43.53	\$9.40	\$23.12	\$0.00	\$76.05

Apprentice - PILE DRIVER - Local 56 Zone 3

Effective Date - 08/01/2020

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

Notes: Apprentice wages shall be no less than the following Steps;
(Same as set in Zone 1)
1\$57.06/2\$61.96/3\$66.87/4\$69.32/5\$71.78/6\$71.78/7\$76.68/8\$76.68

Apprentice to Journeyworker Ratio:1:5

PIPELAYER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2024	\$34.80	\$9.65	\$17.07	\$0.00	\$61.52
	12/02/2024	\$36.00	\$9.65	\$17.07	\$0.00	\$62.72
	06/02/2025	\$37.25	\$9.65	\$17.07	\$0.00	\$63.97
	12/01/2025	\$38.50	\$9.65	\$17.07	\$0.00	\$65.22
	06/01/2026	\$39.80	\$9.65	\$17.07	\$0.00	\$66.52
	12/07/2026	\$41.10	\$9.65	\$17.07	\$0.00	\$67.82
	06/07/2027	\$42.50	\$9.65	\$17.07	\$0.00	\$69.22
	12/06/2027	\$43.90	\$9.65	\$17.07	\$0.00	\$70.62
	06/05/2028	\$45.40	\$9.65	\$17.07	\$0.00	\$72.12
	12/04/2028	\$46.90	\$9.65	\$17.07	\$0.00	\$73.62

For apprentice rates see "Apprentice- LABORER"

PIPELAYER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2024	\$34.80	\$9.65	\$15.06	\$0.00	\$59.51
	12/01/2024	\$36.00	\$9.65	\$15.06	\$0.00	\$60.71
	06/01/2025	\$37.25	\$9.65	\$15.06	\$0.00	\$61.96
	12/01/2025	\$38.49	\$9.65	\$15.06	\$0.00	\$63.20
	06/01/2026	\$39.79	\$9.65	\$15.06	\$0.00	\$64.50
	12/01/2026	\$41.08	\$9.65	\$15.06	\$0.00	\$65.79

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

PLUMBER & PIPEFITTER <i>PLUMBERS & PIPEFITTERS LOCAL 104</i>	03/17/2024	\$49.21	\$9.55	\$17.10	\$0.00	\$75.86
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Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PLUMBER/PIPEFITTER - Local 104

Effective Date - 03/17/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$22.14	\$9.55	\$10.10	\$0.00	\$41.79
2	50	\$24.61	\$9.55	\$10.10	\$0.00	\$44.26
3	55	\$27.07	\$9.55	\$10.10	\$0.00	\$46.72
4	60	\$29.53	\$9.55	\$10.10	\$0.00	\$49.18
5	65	\$31.99	\$9.55	\$10.10	\$0.00	\$51.64
6	70	\$34.45	\$9.55	\$10.10	\$0.00	\$54.10
7	75	\$36.91	\$9.55	\$10.10	\$0.00	\$56.56
8	80	\$39.37	\$9.55	\$10.10	\$0.00	\$59.02
9	80	\$39.37	\$9.55	\$17.10	\$0.00	\$66.02
10	80	\$39.37	\$9.55	\$17.10	\$0.00	\$66.02

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

Apprentice to Journeyworker Ratio:**

PNEUMATIC CONTROLS (TEMP.) PLUMBERS & PIPEFITTERS LOCAL 104	03/17/2024	\$49.21	\$9.55	\$17.10	\$0.00	\$75.86
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For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"

PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY) LABORERS - ZONE 3 (HEAVY & HIGHWAY)	06/01/2024	\$34.80	\$9.65	\$15.06	\$0.00	\$59.51
	12/01/2024	\$36.00	\$9.65	\$15.06	\$0.00	\$60.71
	06/01/2025	\$37.25	\$9.65	\$15.06	\$0.00	\$61.96
	12/01/2025	\$38.49	\$9.65	\$15.06	\$0.00	\$63.20
	06/01/2026	\$39.79	\$9.65	\$15.06	\$0.00	\$64.50
	12/01/2026	\$41.08	\$9.65	\$15.06	\$0.00	\$65.79

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

POWDERMAN & BLASTER LABORERS - ZONE 3 (BUILDING & SITE)	06/03/2024	\$35.55	\$9.65	\$17.07	\$0.00	\$62.27
	12/02/2024	\$36.75	\$9.65	\$17.07	\$0.00	\$63.47
	06/02/2025	\$38.00	\$9.65	\$17.07	\$0.00	\$64.72
	12/01/2025	\$39.25	\$9.65	\$17.07	\$0.00	\$65.97
	06/01/2026	\$40.55	\$9.65	\$17.07	\$0.00	\$67.27
	12/07/2026	\$41.85	\$9.65	\$17.07	\$0.00	\$68.57
	06/07/2027	\$43.25	\$9.65	\$17.07	\$0.00	\$69.97
	12/06/2027	\$44.65	\$9.65	\$17.07	\$0.00	\$71.37
	06/05/2028	\$46.15	\$9.65	\$17.07	\$0.00	\$72.87
12/04/2028	\$47.65	\$9.65	\$17.07	\$0.00	\$74.37	

For apprentice rates see "Apprentice- LABORER"

POWDERMAN & BLASTER (HEAVY & HIGHWAY) LABORERS - ZONE 3 (HEAVY & HIGHWAY)	06/01/2024	\$35.55	\$9.65	\$15.06	\$0.00	\$60.26
	12/01/2024	\$36.75	\$9.65	\$15.06	\$0.00	\$61.46
	06/01/2025	\$38.00	\$9.65	\$15.06	\$0.00	\$62.71
	12/01/2025	\$39.24	\$9.65	\$15.06	\$0.00	\$63.95
	06/01/2026	\$40.54	\$9.65	\$15.06	\$0.00	\$65.25
	12/01/2026	\$41.83	\$9.65	\$15.06	\$0.00	\$66.54

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$39.56	\$13.78	\$15.15	\$0.00	\$68.49
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$39.03	\$13.78	\$15.15	\$0.00	\$67.96
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER <i>TEAMSTERS 404 - Construction Service (Northampton)</i>	05/01/2024	\$26.14	\$11.82	\$7.25	\$0.00	\$45.21
RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2024	\$34.80	\$9.65	\$17.07	\$0.00	\$61.52
	12/02/2024	\$36.00	\$9.65	\$17.07	\$0.00	\$62.72
	06/02/2025	\$37.25	\$9.65	\$17.07	\$0.00	\$63.97
	12/01/2025	\$38.50	\$9.65	\$17.07	\$0.00	\$65.22
	06/01/2026	\$39.80	\$9.65	\$17.07	\$0.00	\$66.52
	12/07/2026	\$41.10	\$9.65	\$17.07	\$0.00	\$67.82
	06/07/2027	\$42.50	\$9.65	\$17.07	\$0.00	\$69.22
	12/06/2027	\$43.90	\$9.65	\$17.07	\$0.00	\$70.62
	06/05/2028	\$45.40	\$9.65	\$17.07	\$0.00	\$72.12
	12/04/2028	\$46.90	\$9.65	\$17.07	\$0.00	\$73.62
For apprentice rates see "Apprentice- LABORER"						
ROLLER OPERATOR <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$38.42	\$13.78	\$15.15	\$0.00	\$67.35
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Coal tar pitch) <i>ROOFERS LOCAL 248</i>	10/02/2024	\$42.38	\$10.35	\$18.00	\$0.00	\$70.73
	07/16/2025	\$43.88	\$10.35	\$18.00	\$0.00	\$72.23
	10/02/2025	\$44.88	\$10.35	\$18.00	\$0.00	\$73.23
	07/16/2026	\$46.88	\$10.35	\$18.00	\$0.00	\$75.23
For apprentice rates see "Apprentice- ROOFER"						
ROOFER (Inc.Roofer Waterproofing &Roofer Damproofg) <i>ROOFERS LOCAL 248</i>	10/02/2024	\$41.88	\$10.35	\$18.00	\$0.00	\$70.23
	07/16/2025	\$43.38	\$10.35	\$18.00	\$0.00	\$71.73
	10/02/2025	\$44.38	\$10.35	\$18.00	\$0.00	\$72.73
	07/16/2026	\$46.38	\$10.35	\$18.00	\$0.00	\$74.73

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - ROOFER - Local 248						
Effective Date - 10/02/2024						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$25.13	\$10.35	\$0.00	\$0.00	\$35.48
2	65	\$27.22	\$10.35	\$18.00	\$0.00	\$55.57
3	70	\$29.32	\$10.35	\$18.00	\$0.00	\$57.67
4	75	\$31.41	\$10.35	\$18.00	\$0.00	\$59.76
5	80	\$33.50	\$10.35	\$18.00	\$0.00	\$61.85
6	85	\$35.60	\$10.35	\$18.00	\$0.00	\$63.95
7	90	\$37.69	\$10.35	\$18.00	\$0.00	\$66.04
8	95	\$39.79	\$10.35	\$18.00	\$0.00	\$68.14

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

Apprentice to Journeyworker Ratio:1:3

ROOFER SLATE / TILE / PRECAST CONCRETE <i>ROOFERS LOCAL 248</i>	10/02/2024	\$42.38	\$10.35	\$18.00	\$0.00	\$70.73
	07/16/2025	\$43.88	\$10.35	\$18.00	\$0.00	\$72.23
	10/02/2025	\$44.88	\$10.35	\$18.00	\$0.00	\$73.23
	07/16/2026	\$46.88	\$10.35	\$18.00	\$0.00	\$75.23
For apprentice rates see "Apprentice- ROOFER"						
SCRAPER <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$39.03	\$13.78	\$15.15	\$0.00	\$67.96
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
SELF-POWERED ROLLERS AND COMPACTORS (TAMPERS) <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$38.42	\$13.78	\$15.15	\$0.00	\$67.35
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
SELF-PROPELLED POWER BROOM <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$35.80	\$13.78	\$15.15	\$0.00	\$64.73
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
SHEETMETAL WORKER <i>SHEETMETAL WORKERS LOCAL 63</i>	07/01/2024	\$40.98	\$12.20	\$18.74	\$2.13	\$74.05
	01/01/2025	\$42.23	\$12.20	\$18.74	\$2.13	\$75.30

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - SHEET METAL WORKER - Local 63

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$18.44	\$5.49	\$4.86	\$0.85	\$29.64
2	50	\$20.49	\$6.10	\$5.40	\$0.94	\$32.93
3	55	\$22.54	\$6.71	\$9.71	\$1.15	\$40.11
4	60	\$24.59	\$7.32	\$9.71	\$1.23	\$42.85
5	65	\$26.64	\$7.93	\$9.71	\$1.31	\$45.59
6	70	\$28.69	\$8.54	\$9.71	\$1.39	\$48.33
7	75	\$30.74	\$9.15	\$9.71	\$1.47	\$51.07
8	80	\$32.78	\$9.76	\$17.66	\$1.78	\$61.98
9	85	\$34.83	\$10.37	\$17.66	\$1.86	\$64.72
10	90	\$36.88	\$10.98	\$17.66	\$1.94	\$67.46

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	06/01/2024	\$40.24	\$15.07	\$18.67	\$0.00	\$73.98
	12/01/2024	\$40.24	\$15.07	\$20.17	\$0.00	\$75.48
	01/01/2025	\$40.24	\$15.57	\$20.17	\$0.00	\$75.98
	06/01/2025	\$41.24	\$15.57	\$20.17	\$0.00	\$76.98
	12/01/2025	\$41.24	\$15.57	\$21.78	\$0.00	\$78.59
	01/01/2026	\$41.24	\$16.17	\$21.78	\$0.00	\$79.19
	06/01/2026	\$42.24	\$16.17	\$21.78	\$0.00	\$80.19
	12/01/2026	\$42.24	\$16.17	\$23.52	\$0.00	\$81.93
	01/01/2027	\$42.24	\$16.77	\$23.52	\$0.00	\$82.53

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SPECIALIZED EARTH MOVING EQUIP > 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2024	\$40.53	\$15.07	\$18.67	\$0.00	\$74.27
	12/01/2024	\$40.53	\$15.07	\$20.17	\$0.00	\$75.77
	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 <i>SPRINKLER FITTERS LOCAL 669</i>	04/01/2023	\$47.43	\$11.45	\$16.61	\$0.00	\$75.49

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

TELECOMMUNICATION TECHNICIAN <i>ELECTRICIANS LOCAL 7</i>	06/30/2024	\$50.01	\$13.00	\$14.86	\$0.00	\$77.87
	12/29/2024	\$51.06	\$13.25	\$15.06	\$0.00	\$79.37
	06/29/2025	\$52.16	\$13.50	\$15.21	\$0.00	\$80.87
	12/28/2025	\$53.26	\$13.75	\$15.36	\$0.00	\$82.37
	06/28/2026	\$54.41	\$14.00	\$15.46	\$0.00	\$83.87
	01/03/2027	\$55.56	\$14.25	\$15.56	\$0.00	\$85.37

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - TELECOMMUNICATION TECHNICIAN - Local 7

Effective Date - 06/30/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$20.00	\$7.20	\$0.60	\$0.00	\$27.80
2	45	\$22.50	\$7.20	\$0.68	\$0.00	\$30.38
3	50	\$25.01	\$13.00	\$7.40	\$0.00	\$45.41
4	55	\$27.51	\$13.00	\$7.48	\$0.00	\$47.99
5	65	\$32.51	\$13.00	\$9.64	\$0.00	\$55.15
6	70	\$35.01	\$13.00	\$11.06	\$0.00	\$59.07

Effective Date - 12/29/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$20.42	\$7.35	\$0.61	\$0.00	\$28.38
2	45	\$22.98	\$7.35	\$0.69	\$0.00	\$31.02
3	50	\$25.53	\$13.25	\$7.47	\$0.00	\$46.25
4	55	\$28.08	\$13.25	\$7.54	\$0.00	\$48.87
5	65	\$33.19	\$13.25	\$9.74	\$0.00	\$56.18
6	70	\$35.74	\$13.25	\$11.19	\$0.00	\$60.18

Notes:

Steps are 800 hours

Apprentice to Journeyworker Ratio:1:1

TERRAZZO FINISHERS	08/01/2024	\$63.44	\$11.49	\$23.59	\$0.00	\$98.52
BRICKLAYERS LOCAL 3 (SPR/PITT) - 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
	02/10/2026	\$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 (Spr/Ptt)

Effective Date - 08/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$31.72	\$11.49	\$23.59	\$0.00	\$66.80
2	60	\$38.06	\$11.49	\$23.59	\$0.00	\$73.14
3	70	\$44.41	\$11.49	\$23.59	\$0.00	\$79.49
4	80	\$50.75	\$11.49	\$23.59	\$0.00	\$85.83
5	90	\$57.10	\$11.49	\$23.59	\$0.00	\$92.18

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

Notes:

Apprentice to Journeyworker Ratio:1:5

TERRAZZO MECHANIC	08/01/2024	\$64.52	\$11.49	\$23.56	\$0.00	\$99.57
BRICKLAYERS LOCAL 3 (SPR/PITT) - 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 - TERRAZZO MECH - Local 3 Marble/Tile (Spr/Pitt)

Effective Date - 08/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$32.26	\$11.49	\$23.56	\$0.00	\$67.31
2	60	\$38.71	\$11.49	\$23.56	\$0.00	\$73.76
3	70	\$45.16	\$11.49	\$23.56	\$0.00	\$80.21
4	80	\$51.62	\$11.49	\$23.56	\$0.00	\$86.67
5	90	\$58.07	\$11.49	\$23.56	\$0.00	\$93.12

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

Notes:

Apprentice to Journeyworker Ratio:1:5

TEST BORING DRILLER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2024	\$49.81	\$9.65	\$18.22	\$0.00	\$77.68
	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 <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2024	\$45.60	\$9.65	\$18.22	\$0.00	\$73.47
	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 <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2024	\$45.48	\$9.65	\$18.22	\$0.00	\$73.35
	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 <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$38.42	\$13.78	\$15.15	\$0.00	\$67.35
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2024	\$40.82	\$15.07	\$18.67	\$0.00	\$74.56
	12/01/2024	\$40.82	\$15.07	\$20.17	\$0.00	\$76.06
	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 <i>LABORERS (COMPRESSED AIR)</i>	06/01/2024	\$57.71	\$9.65	\$19.00	\$0.00	\$86.36
	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) <i>LABORERS (COMPRESSED AIR)</i>	06/01/2024	\$59.71	\$9.65	\$19.00	\$0.00	\$88.36
	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 <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2024	\$49.78	\$9.65	\$19.00	\$0.00	\$78.43
	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) <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2024	\$51.78	\$9.65	\$19.00	\$0.00	\$80.43
	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 <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2024	\$40.24	\$15.07	\$18.67	\$0.00	\$73.98
	12/01/2024	\$40.24	\$15.07	\$20.17	\$0.00	\$75.48
	01/01/2025	\$40.24	\$15.57	\$20.17	\$0.00	\$75.98
	06/01/2025	\$41.24	\$15.57	\$20.17	\$0.00	\$76.98
	12/01/2025	\$41.24	\$15.57	\$21.78	\$0.00	\$78.59
	01/01/2026	\$41.24	\$16.17	\$21.78	\$0.00	\$79.19
	06/01/2026	\$42.24	\$16.17	\$21.78	\$0.00	\$80.19
	12/01/2026	\$42.24	\$16.17	\$23.52	\$0.00	\$81.93
	01/01/2027	\$42.24	\$16.77	\$23.52	\$0.00	\$82.53

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
WAGON DRILL OPERATOR <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2024	\$34.80	\$9.65	\$17.07	\$0.00	\$61.52
	12/02/2024	\$36.00	\$9.65	\$17.07	\$0.00	\$62.72
	06/02/2025	\$37.25	\$9.65	\$17.07	\$0.00	\$63.97
	12/01/2025	\$38.50	\$9.65	\$17.07	\$0.00	\$65.22
	06/01/2026	\$39.80	\$9.65	\$17.07	\$0.00	\$66.52
	12/07/2026	\$41.10	\$9.65	\$17.07	\$0.00	\$67.82
	06/07/2027	\$42.50	\$9.65	\$17.07	\$0.00	\$69.22
	12/06/2027	\$43.90	\$9.65	\$17.07	\$0.00	\$70.62
	06/05/2028	\$45.40	\$9.65	\$17.07	\$0.00	\$72.12
	12/04/2028	\$46.90	\$9.65	\$17.07	\$0.00	\$73.62
For apprentice rates see "Apprentice- LABORER"						
WAGON DRILL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2024	\$34.80	\$9.65	\$15.06	\$0.00	\$59.51
	12/01/2024	\$36.00	\$9.65	\$15.06	\$0.00	\$60.71
	06/01/2025	\$37.25	\$9.65	\$15.06	\$0.00	\$61.96
	12/01/2025	\$38.49	\$9.65	\$15.06	\$0.00	\$63.20
	06/01/2026	\$39.79	\$9.65	\$15.06	\$0.00	\$64.50
	12/01/2026	\$41.08	\$9.65	\$15.06	\$0.00	\$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
WATER METER INSTALLER <i>PLUMBERS & PIPEFITTERS LOCAL 104</i>	03/17/2024	\$49.21	\$9.55	\$17.10	\$0.00	\$75.86
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						
Outside Electrical - West						
EQUIPMENT OPERATOR <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	09/01/2019	\$44.67	\$8.00	\$12.55	\$0.00	\$65.22
	For apprentice rates see "Apprentice- LINEMAN"					
GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	09/01/2019	\$30.58	\$8.00	\$5.48	\$0.00	\$44.06
	For apprentice rates see "Apprentice- LINEMAN"					
GROUNDMAN / TRUCK DRIVER <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	09/01/2019	\$39.97	\$8.00	\$10.96	\$0.00	\$58.93
	For apprentice rates see "Apprentice- LINEMAN"					
HEAVY EQUIPMENT OPERATOR <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	09/01/2019	\$47.01	\$8.00	\$13.22	\$0.00	\$68.23
	For apprentice rates see "Apprentice- LINEMAN"					
JOURNEYMAN LINEMAN <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	09/01/2019	\$51.71	\$8.00	\$15.55	\$0.00	\$75.26

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - LINEMAN (Outside Electrical) - West Local 42

Effective Date - 09/01/2019

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

Notes:

Apprentice to Journeyworker Ratio:1:2

TELEDATA CABLE SPLICER <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	02/04/2019	\$30.73	\$4.70	\$3.17	\$0.00	\$38.60
TELEDATA LINEMAN/EQUIPMENT OPERATOR <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	02/04/2019	\$28.93	\$4.70	\$3.14	\$0.00	\$36.77
TELEDATA WIREMAN/INSTALLER/TECHNICIAN <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	02/04/2019	\$28.93	\$4.70	\$3.14	\$0.00	\$36.77
TRACTOR-TRAILER DRIVER <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	09/01/2019	\$44.67	\$8.00	\$12.55	\$0.00	\$65.22

Additional Apprentice Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentice ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours.)

Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

** Multiple ratios are listed in the comment field.

*** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.

**** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

DOCUMENT 00870

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

1. As used in these specifications:
 - a. "Covered area" means the geographical area described in the solicitation from which this contract resulted:
 - b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority.
 - c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
 - d. "Minority" includes:
 - (i) Black (all persons having origins in any of the black African racial groups not of Hispanic origin);
 - (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
 - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$ 10,000 the provisions of the specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.
3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.
4. The Contractor shall implement the specific affirmative action standards provided in Paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.
5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

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

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

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.
14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as many be required by the Government and keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

APPENDIX A

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

Area covered: Goal for Women apply nationwide

Goals and Timetables

Timetable

Goals (percent)

From Apr. 1, 1980 until further notice

6.9

APPENDIX B-80

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

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

Economic Areas

<u>STATE:</u>	<u>Goals (percent)</u>
MASSACHUSETTS	
004 Boston MA:	
SMSA Counties:	
1123 Boston-Lowell-Brockton-Lawrence-Haverhill, MA-NH	4.0
MA Essex, MA Middlesex, MA Norfolk, MA Plymouth, MA Suffolk, NH Rockingham.	
5403 Fall River- New Bedford MA, Bristol	1.6
9243 Worcester-Fitchburg-Leominster, MA	1.6
6323 Springfield-Chicopee-Holyoke MA-CT MA Hampden, MA Hampshire	4.8
Non-SMSA Counties: MA Barnstable, MA Dukes, MA Nantucket	3.6
Non-SMSA Counties: MA Franklin	5.9

APPENDIX C

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

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

APPENDIX D

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

PERTINENT NON-DISCRIMINATION AUTHORITIES:

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

*** END OF DOCUMENT ***

DOCUMENT 00875
TRAINEE SPECIAL PROVISIONS
Revised October, 2016

THE REQUIRED NUMBER OF TRAINEES TO BE TRAINED UNDER THIS CONTRACT WILL BE **2**

The contractor shall provide on-the job training aimed at developing full journeyworkers in the type of trade of job classification involved.

In the event that a contractor subcontracts a portion of the contract work, the General Contractor shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided, however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this training special provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeyworkers in the various classifications within a reasonable area of recruitment. Prior to commencing construction, the contractor shall submit to the Massachusetts Department Of Transportation (MassDOT) for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the contractor shall specify the starting time for training in each of the classifications. The contractor will be credited for each trainee employed on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeyworker status is a primary objective of the Training Special Provision. Accordingly, the contractor shall make every effort to enroll minority and women trainees (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent that such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that have been taken in pursuance thereof, prior to a determination as to whether the contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training.

No employee shall be trained under this Special Provision in any classification in which he or she has successfully completed a training course leading to journeyworker status or in which he or she has been employed as a journeyworker. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the contractor's records should document the finding in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the contractor and approved by the Massachusetts Department Of Transportation and the Federal Highway Administration. The Massachusetts Department Of Transportation and the Federal Highway Administration shall approve a program if it is reasonably calculated to meet the equal employment opportunity obligations of the contractor and to qualify the average trainee for journeyworker status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved but not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typist or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc. where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the Federal Highway Administration division office. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Reimbursement

Under these Training Special Provisions, reimbursement will be as follows:

The Contractor will only be reimbursed 80 cents for each hour of on the job training as specified in the approved Training Program.

The Contractor is advised and encouraged that it may train additional persons in excess of the number specified and will be reimbursed as stated above. Reimbursement will be made even though the contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other reimbursement.

If less than full training specified in the approved training programs is provided, payment to the contractor will be made at a rate of 80 cents for each hour of training completed under this contract. However, no payment shall be made to the contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyworker, is caused by the contractor and evidences a lack of good faith on the part of the contractor in meeting the requirements of this Training Special Provision.

Payment

Trainees will be paid:

1. Percentage (%) of the journeyworker's rate as provided in the existing programs approved by the Department of Labor or Transportation as of September 15, 1970.
2. For journeyworker programs submitted by the Contractor and approved by Massachusetts Department Of Transportation and the Federal Highway Administration at least 60 percent of the appropriate minimum journeyworker's rate specified in the contract for the first half of the training period, 75 percent for the third quarter if the training period, and 90 percent for the last quarter of the training period.
3. For skilled laborer programs, the minimum starting wage rate of unskilled laborer. At the conclusion of training, he or she will be paid the minimum wage rate of the Classification for programs submitted by the Contractor and approved by the Massachusetts Department Of Transportation and the Federal Highway Administration.
4. For the purposes of meeting the legal requirements of State Prevailing Wage Law, please be advised that no person may be paid the Apprentice wage rate as listed on a MA Prevailing Wage Rates schedule, unless that person and program is registered with the Department of Labor Standards/Division of Apprentice Standards (DLS/DAS). Any person or program not registered with DLS/DAS, regardless of whether or not they are registered with any other federal, state, local, or private entity must be paid the journeyworker's rate for the trade.

The contractor shall provide each trainee with a certification showing the type and length of training satisfactorily complete.

The contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

Form FHWA-1409, Federal-aid Highway Construction Contracting Semi Annual Training Report, shall be submitted as per instructions on the Form.

*** END OF DOCUMENT ***

DOCUMENT 00880

Revised January 12, 2022



DEPARTMENT OF LABOR

Employment Standards Administration

MINIMUM WAGES FOR FEDERAL AND FEDERALLY ASSISTED CONTRACTS

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General Decision Number: MA20240019 09/13/2024

Superseded General Decision Number: MA20230019

State: Massachusetts

Construction Type: Highway

County: Hampden County in Massachusetts.

HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

<p> If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:</p>	<p>. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$17.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2024.</p>
<p> If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:</p>	<p>. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$12.90 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2024.</p>

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the

Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number	Publication Date
0	01/05/2024
1	01/19/2024
2	05/31/2024
3	06/21/2024
4	09/06/2024
5	09/13/2024

ENGI0004-019 06/01/2024

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
Group 1.....	\$ 56.03	32.75
Group 2.....	\$ 55.41	32.75

FOOTNOTE FOR POWER EQUIPMENT OPERATORS:
A. PAID HOLIDAYS: New Year's Day, Washington's Birthday, Labor Day, Memorial Day, Independence Day, Patriot's Day, Columbus Day, Veteran's Day, Thanksgiving Day, Christmas Day

POWER EQUIPMENT OPERATORS CLASSIFICATIONS
Group 1: Broom/Sweeper; Crane; Gradall; Post Driver (Guardrail/Fences)
Group 2: Bulldozer; Grader/Blade

ENGI0098-010 06/01/2024

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
Group 1.....	\$ 41.23	30.58+A
Group 2.....	\$ 40.92	30.58+A
Group 4.....	\$ 37.47	30.58+A

Footnote:
A. Paid Holidays: New year's Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day and Christmas Day

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

Group 1: Backhoe/Excavator/Trackhoe; Bobcat/Skid Steer/Skid Loader; Loader

Group 2: Milling Machine; Paver (Asphalt, Aggregate, and Concrete)

Group 4: Roller

IRON0007-027 03/16/2024

	Rates	Fringes
IRONWORKER (ORNAMENTAL AND STRUCTURAL).....	\$ 39.51	32.98

LABO0596-006 12/01/2021

	Rates	Fringes
LABORER (Traffic Control: Flagger).....	\$ 24.50	23.96

LABO0999-002 12/01/2021

	Rates	Fringes
LABORER (Common or General).....	\$ 32.50	23.96

* PAIN0035-023 07/01/2024

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

SUMA2014-009 01/11/2017

	Rates	Fringes
CARPENTER, Includes Form Work....	\$ 33.03	20.02
CEMENT MASON/CONCRETE FINISHER...	\$ 52.13	20.89
ELECTRICIAN.....	\$ 47.13	13.41
IRONWORKER, REINFORCING.....	\$ 46.21	21.27
LABORER: Asphalt, Includes Raker, Shoveler, Spreader and Distributor.....	\$ 33.10	18.09

LABORER: Concrete Saw (Hand Held/Walk Behind).....	\$ 44.43	14.18
LABORER: Landscape.....	\$ 44.11	18.85
OPERATOR: Forklift.....	\$ 51.63	0.00
OPERATOR: Mechanic.....	\$ 48.14	17.02
OPERATOR: Piledriver.....	\$ 43.87	18.04
PAINTER: Spray (Linestriping)....	\$ 38.30	17.43
TRAFFIC CONTROL:		
Laborer-Cones/ Barricades/Barrels - Setter/Mover/Sweeper.....	\$ 43.73	15.06
TRUCK DRIVER: Concrete Truck....	\$ 33.69	15.79
TRUCK DRIVER: Dump Truck.....	\$ 43.81	5.39
TRUCK DRIVER: Flatbed Truck....	\$ 48.53	0.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

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

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which

these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

State Adopted Rate Identifiers

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

WAGE DETERMINATION APPEALS PROCESS

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

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter

* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

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

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

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

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

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DOCUMENT A00801

SPECIAL PROVISIONS**AGAWAM****Federal Aid Project No. TAP-SRS2(002)X
Robinson Park Elementary School Improvements (SRTS)**

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

Improvements will consist of the reconstruction of sidewalks along the Maple Street corridor from Begley Street to Walnut Street in the City of Agawam. The project involves the construction of a hot-mix-asphalt shared use path along the north side of Maple Street from Begley Street to the end of Maple Street at Walnut Street. Rectangular Rapid Flashing Beacons will be provided at two crosswalks locations along the Maple Street Corridor. The roadway will be milled and overlaid, providing a new surface wearing course along Maple Street. New sidewalks and pedestrian curb ramps within the project limits will be ADA-compliant. A raised intersection will be constructed at the intersection of Maple Street and Bridge Street and allow pedestrians and bicycles to cross the shared use path and continue along the remainder of the corridor.

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.

SUBSECTION 7.05 INSURANCE REQUIREMENTS**B. Public Liability Insurance**

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

Paragraphs 1 and 2

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

Paragraph 4

Asbestos Liability Insurance shall be obtained for this project. The Contractor and the Massachusetts Department of Transportation shall be named as additional insureds.

CONTRACTOR QUESTIONS AND ADDENDUM ACKNOWLEDGEMENTS

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

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

HOLIDAY WORK RESTRICTIONS

(Supplementing Subsection 7.09)

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

Below are the holiday work restrictions:

New Year's Day (Federal Holiday)

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

Martin Luther King's Birthday (Federal Holiday)

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

President's Day (Federal Holiday)

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

HOLIDAY WORK RESTRICTIONS (Continued)

Evacuation Day (Suffolk County State Holiday)

No work restrictions due to traffic concerns.

Patriot's Day (State Holiday)

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

Mother's Day

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

Memorial Day (Federal Holiday)

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

Bunker Hill Day (Suffolk County State Holiday)

No work restrictions due to traffic concerns.

Juneteenth

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

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.

ENVIRONMENTAL PERMITTING

Environmental permits have not been obtained, as no work (either temporary or permanent) is proposed to occur in water or wetland resource areas. If Contractor erection, demolition, storage, or other procedures require work to occur in or otherwise impact water or wetland resource areas, the Contractor is advised that no associated work can occur until all required environmental permits have been obtained. The Contractor must notify the District 2 Highway Director and Resident Engineer in writing at least 60 days prior to desired commencement of the proposed activity. All environmental submittals, including any contact with Local, State, or Federal environmental agencies, must be coordinated through the District 2 Environmental Engineer. The Contractor is expected to fully cooperate with requests for information and provide same in a timely manner. The Contractor is further advised that the Department will not entertain a delay claim due to the time required to obtain the environmental permits. As a supplement to Section 7.00 of the Standard Specifications, the Contractor is reminded that no debris of any type shall be allowed to enter water or wetland resource areas, either temporarily or permanently.

WORK SCHEDULE

Work requiring lane closures that will impact traffic in the judgement of the Engineer will be allowed from 9:00 a.m. to 3:00 p.m. (Monday – Friday). Work schedule shall be a 5-day week and as noted below not including Saturdays, Sundays or Holidays with the prime contractor and all subcontractors working on the same shifts.

Work not requiring lane closures is allowed from 7:00 a.m. to 3:30 p.m. only, 5-day week and as noted below not including Saturdays, Sundays or Holidays with the prime contractor and all subcontractors working on the same shifts. Work is allowed from 9:00 p.m. to 5:00 a.m. only with the approval of MassDOT District 2 and the City of Agawam.

TRAFFIC MANAGEMENT

Safety devices/signing for construction operations shall comply with the relevant provisions of Subsection 850 of the Standard Specifications, the applicable sections of the MUTCD, and Temporary Traffic Control Plans included as part of this Contract and the following:

The Contractor shall submit Temporary Traffic Control Plans to the City and the Engineer for approval. Construction shall not begin until the Plans have been approved. The Plan shall detail construction time frames and phasing, address pedestrian and vehicular flow to and through the construction operations, access by emergency vehicles, bus, and delivery truck traffic. The Contractor shall update this plan as construction progresses, subject to the approval of the City and the Engineer. Payment for development of the Temporary Traffic Control Plan shall be considered incidental to the Contract bid Items. The Contractor shall also submit a copy of the Temporary Traffic Control plans to the local police and fire departments.

The speed of traffic through work limits will be determined by the City of Agawam and the Engineer. Advisory sign plaques (W13-1p) shall be placed only for the purposes of construction.

TRAFFIC MANAGEMENT (Continued)

The Contractor shall remove and dispose of all detour and safety signing erected for this Contract at the completion of work and cover signs if they are not in use.

The Contractor shall be responsible for furnishing, installing, relocating, and maintaining all traffic control devices as shown on the plans or required by the City of Agawam and the Engineer.

Upon commencement of construction, the Contractor shall submit the required work schedule to the Resident Engineer for distribution to the City of Agawam.

The following conditions shall be followed unless otherwise required by the Engineer:

- At all times the Contractor shall maintain a minimum of one lane two-way travel on all streets, except where otherwise instructed or approved by the Engineer.
- At all times the Contractor shall keep one sidewalk open to pedestrians on either side of the street within the limits of the project.
- Reconstruction of intersections shall be carried out in a way such that all existing turning movements are maintained for local traffic.
- Pedestrian access shall be maintained to all abutting properties except for very short periods of time that are not to exceed one hour. When it is necessary to deny access to a property, the owner shall be informed at least 48 hours in advance.
- Access to commercial driveways shall be maintained for the full extent of the individual facilities operating hours.
- Work involving fire hydrants shall be done in accordance with instructions from the City of Agawam Public Works Department.
- Alternating fire hydrants shall be kept operative at all stages of the construction, unless otherwise required in writing by the Engineer. No fire hydrant shall be out of order for more than 4 hours.
- All detours requiring road closures shall be coordinated with Agawam emergency services personnel and City officials to ensure enough time is given to plan adequate alternate routes for drivers.

PROVISIONS FOR TRAVEL AND PROSECUTION OF WORK

Prior to commencement of work, the Contractor shall be responsible for obtaining all necessary local permits.

The Contractor shall coordinate his work with the work to be done by Utilities or other agencies, and he shall so schedule his operations as to cause the least interruption to the normal flow of traffic on existing roads. Roadways under construction shall remain open to traffic at all times during the period of time required for the completion of the work.

Attention is further directed to the following provisions unless otherwise directed by the Engineer:

1. Vehicular and pedestrian access to abutting properties shall be safe and reasonable, and maintained always, unless otherwise approved by the Engineer.
2. No detouring of traffic shall be allowed, unless approved by the City of Agawam, the City Police Department, and other Emergency Services, and MassDOT. Detours shall have appropriate signs directing traffic along the entire detour route.

At least one lane in each direction of travel shall remain open to traffic at all times, unless otherwise approved by the City of Agawam. Uniformed traffic police shall be employed for the protection and maintenance of traffic. Reasonable facilities shall be provided by the Contractor for the convenient and safe passage of pedestrians and vehicles through the project, and also to and from properties abutting the site of improvement.

Vehicular and pedestrian travel on the public ways shall be maintained during construction, and access to abutting land shall be safe and reasonable at all times. Emergency vehicle access to and from the Agawam Emergency Services shall be provided 24 hours a day for emergency response.

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 their 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.

MassDOT DUCE

Hampden County – District 2
811 N King Street
Northampton, MA 01060
Contact: Paul Kelly
Telephone: 857-368-3066
Email: Paul.Kelly@dot.state.ma.us

Electric

Eversource Electric West
300 Cadwell Drive
Springfield, MA 01104
Contact: Michael Rosenburg
Telephone: 413-787-9462
Email: michael.rosenburg@eversource.com

Gas

Eversource Gas
2025 Roosevelt Avenue
Springfield, MA 01104
Contact: Bryan Meccariello
Telephone: 413-784-2208
Email: bryan.meccariello@eversource.com

Tennessee Gas Pipeline Company
8 Anngina Drive
Enfield, CT 06082
Contact: David Wood
Telephone: 860-763-6005
Email: KMEncroachmentsNorth@kindermorgan.com

Telephone

Verizon
385 Myles Standish Blvd
Taunton, MA 02780
Contact: Karen Mealey
Telephone: 774-409-3160
Email: karen.m.mealey@verizon.com

NOTICE TO OWNERS OF UTILITIES (Continued)

Municipal Water and Sewer

Agawam Water Department
1000 Suffield Street (Route 75)
Agawam, MA 01001
Contact: John Decker
Telephone: 413-821-0627

Cable

Comcast Cable Corporation
PO Box 6505, 5 Omni Way
Chelmsford, MA 01824
Contact: Wendy Brown
Telephone: 978-848-5163
Email: Wendy_Brown@comcast.com

Crown Castle

80 Central Street
Boxborough, MA 01719
Contact: Mark Bonanno
Telephone: 508-616-7818
Email: mark.bonanno@crowncastle.com

Fire Alarm

Agawam Fire Department
800 Main Street
Agawam, MA 01001
Contact: Alan Sirois, Chief
Telephone: 413-786-0657
Email: afdchief@agawam.ma.us

Agawam Department of Public Works:

Agawam City Engineer
1000 Suffield Street (Route 75)
Agawam, MA 01001
Contact: Michelle Chase
Telephone: 413-786-0657
Email: mchase@agawam.ma.us

NOTICE TO OWNERS OF UTILITIES (Continued)

Pioneer Valley Transit Authority (PVTA)

PVTA Administration Offices
2808 Main Street
Springfield, MA 01036

Contact: Paul Burns-Johnson, Director of Transit Operations;
Telephone: 413-732-6248 Ex. 2230; Cell: 413-234-0549
Email: pburns@pvta.com

Contact: Sandra Sheehan, Administrator
Telephone: 413-732-6248 Ex. 216;
Email: ssheenhan@pvta.com

Agawam Public Schools

1305 Springfield Street, Suite 1
Feeding Hills, MA 01030
Contact: Helen Marganti, Transportation Coordinator
Telephone: 413-821-0554
Email: hmarganti@agawamed.org

Other

Local Linx
30 Elmview Circle
Dover, NH 03820
Contact: Jason Wing
Telephone: 403-538-4545
Email: Jason.wing@locallinx.com

Lumen
1025 Eldorado Boulevard
Broomfield, CO 80021
Contact: Renoy Thomas
Telephone: 516-712-3041
Email: relocations@lumen.com

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

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.

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 a Traffic Level 2 (300,000 to < 10,000,000) 18-kip (80-kn) ESALs.

NOTIFICATION OF FUNDING SOURCES FOR WORK TO BE PAID BY OTHERS

This contract contains work that shall be paid by the *City of Agawam*. The said *City* shall be responsible for construction costs associated with a Non-Participating Agreement with MassDOT.

PROPRIETARY PRODUCTS

MassDOT has approved the use of the following proprietary products on this contract pursuant to M.G.L. c. 30, § 39M(b):

[INSERT ITEM NUMBER AND NAME OF PROPRIETARY PRODUCT/SPECIFICATION]

Approval letter has been filed with MassDOT.

CONTAMINATED SOIL

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

SOIL STOCKPILING DIRECTIVE P-22-001

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

PRIVATELY OWNED IRRIGATION SYSTEMS

The Contractor shall note that existing irrigations systems may be present at the back of sidewalk within the limits of the project.

The Contractor shall locate sprinkler heads and lines to protect during excavation, forming, and pouring of sidewalks and shared use paths. Protecting irrigation systems shall be incidental to this Contract. If a system is damaged during construction, then the Contractor shall repair the system at no additional cost.

COORDINATION WITH PVTA BUS STOPS

The Contractor shall note that there are several Pioneer Valley Transit Authority (PVTA) bus stops which will be affected by construction.

The Contractor shall coordinate with the PVTA a minimum of 60 days prior to the closure of the existing bus stops located below:

Maple at Begley – Stop ID #1680 and 1679

Maple at Oak Hill – Stop ID #1666

Maple at Orchard – Stop ID #1631

Maple at Tower – Stop ID #1592

Maple at Moore – Stop ID #1579

Bridge at Maple – Stop ID #1559

The Contractor shall provide alternate location when the current bus stop locations are under construction, providing the necessary temporary signs and posts, as directed by the PVTA, to notify bus customers, at the current bus stop location, of the closure and to direct customers to the alternate bus stop location. Contractor shall not close two stops adjacent to one another at the same time. Temporary signs and posts shall be paid considered incidental to PVTA coordination required as part of this project. Coordination with the PVTA shall be incidental to Item 701. and Item 702.

SAWCUTTING

Sawcutting will be required for pipe trenches, curbing, and at numerous other locations as shown on the Plans. The Contractor shall be aware that based on these Special Provisions and the MassDOT Standard Specifications, only specific locations as shown on the plans will be measured for payment.

PROPERTY MARKERS

The Contractor shall attempt to maintain existing property markers within the limits of the project. If the property markers are disturbed during construction activities, the Contractor shall have a Massachusetts Registered Land Surveyor re-establish the property makers. This work shall be considered incidental to other contract items, and no specific compensation will be made.

NOTICE TO CITY TREE WARDEN

All existing trees within the right of way fall under the jurisdiction the City of Agawam's Tree Warden, or the Superintendent of Public Works. The Contractor shall provide to the City the name and certification number of the arborist who will be in charge of roadside tree protection for review and approval at least thirty (30) days prior to the start of work. See roadside tree protection section for additional requirements. Contractor's arborist shall conduct a site walk with the City Tree Warden, or Superintendent of Public Works, prior to starting work; to review protection procedures and other tree related issues.

RECORD DRAWINGS

Once construction activities associated with this Contract are deemed "substantially complete", the Contractor shall supply the City of Agawam with Record Drawings of utility installations. Utility installations include, but not limited to, drainage structures and pipes depicting rims / inverts, sewer manholes and pipes installed as part of project, hydrants, and water gates / fittings.

The City, via the Engineer, shall supply the Contractor with the AutoCAD base plans associated with this project to use a basis for said Record Plans. The Engineer and the Contractor shall sign a File Transfer Agreement prior to issuance of electronic files.

The Contractor shall supply the Department of Public Works an electronic copy (PDF format) of the Record Plans, and any hard copies requested by City staff. The creation of Record Plans and the reproduction costs will be incidental to the overall contract cost.

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.

SUBSECTION 8.14 UTILITY COORDINATION, DOCUMENTATION, AND MONITORING RESPONSIBILITIES

A. GENERAL

In accordance with the provisions of Section 8.00 Prosecution and Progress, utility coordination is a critical aspect to this Contract. This section defines the responsibility of the Contractor and MassDOT, with regard to the initial utility relocation plan and changes that occur as the prosecution of the Work progresses. The Engineer, with assistance from the Contractor shall coordinate with Utility companies that are impacted by the Contractor's operations. To support this effort, the Contractor shall provide routine and accurate schedule updates, provide notification of delays, and provide documentation of the steps taken to resolve any conflicts for the temporary and/or permanent relocations of the impacted utilities. The Contractor shall provide copies to the Engineer of the Contractor communication with the Utility companies, including but not limited to:

- Providing advanced notice, for all utility-related meetings initiated by the Contractor.
- Providing meeting minutes for all utility-related meetings that the Contractor attends.
- Providing all test pit records.
- Request for Early Utility work requirements of this section (see below).
- Notification letters for any proposed changes to Utility start dates and/or sequencing.
- Written notification to the Engineer of all apparent utility delays within seven (7) Calendar Days after a recognized delay to actual work in the field – either caused by a Utility or the Contractor.
- Any communication, initiated by the Contractor, associated with additional Right-of-Way needs in support of utility work.
- Submission of completed Utility Completion Forms.

B. PROJECT UTILITY COORDINATION (PUC) FORM

The utility schedule and sequence information provided in the Project Utility Coordination Form (if applicable) is the best available information at the time of the bid and has been considered in setting the contract duration. The Contractor shall use all of this information in developing the bid price and the Baseline Schedule Submission, inclusive of the individual utility durations sequencing requirements, and any work that has been noted as potentially concurrent utility installations.

C. INITIATION OF UTILITY WORK

The Engineer will issue all initial notice-to-proceed dates to each Utility company based on either the:

- 1) Contractor's accepted Baseline Schedule
- 2) An approved Early Utility Request in the form of an Early Utility sub-net schedule (in accordance with the requirements of this Subsection)
- 3) An approved Proposal Schedule

C.1 - BASELINE SCHEDULE – UTILITY BASIS

The Contractor shall provide a Baseline Schedule submission in accordance with the requirements of Subsection 8.02 and inclusive of all of the information provided in the PUC Form that has been issued in the Contract documents. This is to include the utility durations, sequencing of work, allowable concurrent work, and all applicable considerations that have been depicted on the PUC Form.

SUBSECTION 8.14 (Continued)**C.2 – EARLY UTILITY REQUEST – (aka SUBNET SCHEDULE) PRIOR TO THE BASELINE**

All early utility work is defined as any anticipated/required utility relocations that need to occur prior to the Baseline Schedule acceptance. In all cases of proposed early utility relocation, the Contractor shall present all known information at the pre-construction conference in the form of a ‘sub-net’ schedule showing when each early utility activity needs to be issued a notice-to-proceed. The Contractor shall provide advance notification of this intent to request early utility work in writing at or prior to the Pre-Construction meeting. Prior to officially requesting approval for early utility work, the Contractor shall also coordinate with MassDOT and all utility companies (private, state or municipal) which may be impacted by the Contract. If this request is acceptable to the Utilities and to MassDOT, the Engineer will issue a notice-to-proceed to the affected Utilities, based on these accepted dates.

C.3 – PROPOSAL SCHEDULE - CHANGES TO THE PUC FORM

If the Contractor intends to submit a schedule (in accordance with MassDOT Standard Specifications, Division I, Subsection 8.02) that contains durations or sequencing that vary from those provided in the Project Utility Coordination (PUC) Form, the Contractor must submit this as an intended change, in the form of a Proposal Schedule and in accordance with MassDOT Standard Specifications, Division I, Subsection 8.02. These proposed changes are subject to the approval of the Engineer and the impacted utilities, in the form of this Proposal Schedule and a proposed revision to the PUC form. The Contractor shall not proceed with any changes of this type without written authorization from the Engineer, that references the approved Proposal Schedule and PUC form changes. The submission of the Baseline Schedule should not include any of these types of proposed utility changes and should not delay the submission of the Baseline Schedule. As a prerequisite to the Proposal Schedule submission, and in advance of the utility notification(s) period, the Contractor shall coordinate the proposed utility changes with the Engineer and the utility companies, to develop a mutually agreed upon schedule, prior to the start of construction.

D. UTILITY DELAYS

The Contractor shall notify the Engineer upon becoming aware that a Utility owner is not advancing the work in accordance with the approved utility schedule. Such notice shall be provided to the Engineer no later than seven (7) calendar days after the occurrence of the event that the Contractor believes to be a utility delay. After such notice, the Engineer and the Contractor shall continue to diligently seek the Utility Owner’s cooperation in performing their scope of Work.

In order to demonstrate that a critical path delay has been caused by a third-party Utility, the Contractor must demonstrate, through the requirements of the monthly Progress Schedule submissions and the supporting contract records associated with Subsection 8.02, 8.10 and 8.14, that the delays were beyond the control of the Contractor.

SUBSECTION 8.14 (Continued)

All documentation provided in this section is subject to the review and verification of the Engineer and, if required, the Utility Owner. In accordance with MassDOT Specifications, Division I, Subsection 8.10, a Time Extension will be granted for a delay caused by a Utility, only if the actual duration of the utility work is in excess of that shown on the Project Utility Coordination Form, and only if;

- 1) proper Notification of Delay was provided to MassDOT in accordance with the time requirements that are specified in this Section
- 2) the utility delay is a critical path impact to the Baseline Schedule (or most recently approved Progress Schedule)

E. LOCATION OF UTILITIES

The locations of existing utilities are shown on the Contract drawings as an approximation only. The Contractor shall perform a pre-construction utility survey, including any required test pits, to determine the location of all known utilities no later than thirty (30) calendar days before commencing physical site work in the affected area.

F. POST UTILITY SURVEY – NOTIFICATION

Following completion of a utility survey of existing locations, the Contractor will be responsible to notify the Engineer of any known conflicts associated with the actual location of utilities prior to the start of the work. The Engineer and the Contractor will coordinate with any utility whose assets are to be affected by the Work of this Contract. A partial list of utility contact information is provided in the Project Utility Coordination Form.

G. MEETINGS AND COOPERATION WITH UTILITY OWNERS

The Contractor shall notify the Engineer in advance of any meeting they initiate with a Utility Owner's representative to allow MassDOT to participate in the meeting if needed.

Prior to the Pre-Construction Meeting, the Contractor should meet with all Utility Owners who will be required to perform utility relocations within the first 6 months of the project, to update the affected utilities of the Project Utility Coordination Form and all other applicable Contract requirements that impact the Utilities. The Contractor shall copy the Engineer on any correspondence between the Utility Owner and the Contractor.

H. FORCE ACCOUNT / UTILITY MONITORING REQUIREMENTS

The Engineer will be responsible for recording daily Utility work force reports. The start, suspension, re-start, and completion dates of each of the Utilities, within each phase of the utility relocation work, will be monitored and agreed to by the Engineer and the Contractor as the work progresses.

I. ACCESS AND INSPECTION

The Contractor shall be responsible for allowing Utility owners access to their own utilities to perform the relocations and/or inspections. The Contractor shall schedule their work accordingly so as not to delay or prevent each utility from maintaining their relocation schedule.

NORTHERN LONG-EARED BAT PROTECTION

The U.S. Fish and Wildlife Service (USFWS) has listed the northern long-eared bat (NLEB) as endangered under the Endangered Species Act (ESA) and the following requirements exist to protect the bat and its habitat. This project has been consulted with the USFWS through the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and Federal Transit Administration (FTA) Programmatic Biological Opinion for Transportation Projects in the Range of the Indiana Bat and Northern Long-Eared Bat revised February 5, 2018.

On behalf of FHWA, the lead federal agency for Section 7 consultation, MassDOT submitted a Programmatic Consultation for Transportation Projects affecting NLEB or Indiana Bat to the USFWS through the Information for Planning and Consultation (IPaC) webpage and generated a USFWS No Effect Consistency Letter (see **Document USFWS No Effect**), whereby it was determined that this Project will have “No Effect” to the NLEB. Therefore, the project has completed Section 7 consultation through the Endangered Species Act, and no AMMs apply to the project.

If the project scope changes (i.e., tree clearing, bridge work), additional review is required by the MassDOT Highway Division’s Environmental Services Section. Contact MassDOT Environmental Services - Wildlife & Endangered Species Unit Supervisor (David Paulson, david.j.paulson@dot.state.ma.us, 857-262-3378).

BIDDERS LIST

Pursuant to the provisions of 49 CFR Part 26.11 all official bidders will be required to report the names, addresses and telephone numbers of all firms that submitted bids or quotes in connection with this project. Failure to comply with a written request for this information within 15 business days may result in a recommendation to the Prequalification Committee that prequalification status be suspended until the information is received.

The Department will survey all firms that have submitted bids or quotes during the previous year prior to setting the annual goal and shall request that each firm report its age and gross receipts for the year.

BUILD AMERICA BUY AMERICA PREFERENCE

On Federally-aid projects the Buy America (23.CFR § 635.410) and Build America, Buy America Act (Pub. L. No. 117-58, §§ 70901-52). requires the following,

- (1) all iron and steel used in the project are produced in the United States--this means all manufacturing processes, from the initial melting stage through the application of coatings, must occur in the United States. Foreign steel and iron can be used if the cost of the materials does not exceed 0.1% of the total Contract cost or \$2,500, whichever is greater. The action of applying a coating to a covered material (i.e., steel and iron) is deemed a manufacturing process subject to Buy America. Coating includes epoxy coating, galvanizing, painting and any other coating that protects or enhances the value of a material subject to requirements of Build America, Buy America. Steel used for temporary support of excavation, including H piles, soldier piles, and sheeting when the steel is required to be left in place is subject to requirements of Build America, Buy America. Temporary steel, shall remain in place when it falls within the influence zone of the soil supporting any structure or railroad tracks.
- (2) all manufactured products used in the project are produced in the United States—this means the manufactured product was manufactured in the United States; and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation; and
- (3) all construction materials are manufactured in the United States—this means that all manufacturing processes for the construction material occurred in the United States. “Construction materials” includes an article, material, or supply—other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives—that is or consists primarily of:
 - non-ferrous metals,
 - plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables),
 - glass (including optic glass),
 - lumber; or
 - drywall.

The Buy America preference only applies to articles, materials, and supplies that are consumed in, incorporated into, or affixed to an infrastructure project. As such, it does not apply to tools, equipment, and supplies, such as temporary scaffolding, brought to the construction site and removed at or before the completion of the infrastructure project. Nor does a Buy America preference apply to equipment and furnishings, such as movable chairs, desks, and portable computer equipment, that are used at or within the finished infrastructure project but are not an integral part of the structure or permanently affixed to the infrastructure project.

NOTE: The requirements for manufactured products indicated in paragraph (2) above are not in effect for this contract.

COMPLIANCE WITH THE NATIONAL DEFENSE AUTHORIZATION ACT

(Supplementing Subsection 7.01)

On all projects, the “Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment” Regulation (2 CFR 200.216) prohibits the Contractor from using or furnishing the following telecommunications equipment or services:

- Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).
- For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).
- Telecommunications or video surveillance services provided by such entities or using such equipment.
- Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

This prohibition applies to all products manufactured by the aforementioned companies, including any individual components or parts.

By submitting a bid on a project, the Contractor certifies that all work will be in compliance with the terms of 2 CFR 200.216. The Contractor shall submit a COC indicating compliance with the above provisions for all telecommunications equipment or services included in the Contract.

Payment for the item in which the materials are incorporated may be withheld until these COCs are received. Any cost involved in furnishing the certificate(s) shall be borne by the Contractor.

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 when required in this Subsection. These requirements are in addition to, and not in limitation of, requirements imposed in other sections.

The requirements for scheduling submissions are established based on the Project Value at the time of the bid and are designated as Type A, B, C or D. The definitions of these Schedule Requirement Types are summarized below. Complete descriptions of all detailed requirements are established elsewhere in this specification.

Type A – for all Site-Specific Contracts with a Project Value over \$20 Million

- Schedule Planning Session
- Baseline CPM Schedule
- Monthly Update CPM Schedule
- Short-term Construction Schedule
- Contract Schedule Update Meeting
- Resource-Loading
- Resources Graphic Reporting
- Cash Flow Projections from the CPM
- Cash Flow Charts
- Cost-loaded CPM
- Contractor-furnished CPM software, computer and training

Type B – for all Site-Specific Contracts with a Project Value between \$10 Million and \$20 Million

- Schedule Planning Session
- Baseline CPM Schedule
- Monthly Update CPM Schedule
- Short-term Construction Schedule
- Contract Schedule Update Meeting
- Cost-loaded CPM
- Resource-Loading
- Monthly Projected Spending Report (PSR)
- Contractor-furnished CPM software, computer and training

SECTION 722 (Continued)

Type C – for all Site-Specific Contracts with a Project Value between \$3 Million and \$10 Million

- 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, computer and training

Type D - for all contracts with a Project Value less than \$3 Million; various locations contracts of any dollar amount; contracts with durations less than one-hundred and eighty (180) Calendar Days; and other contracts as determined by the Engineer.

- Bar chart schedule updated monthly or at the request of the Engineer (See Section 722.62.B - Bar Charts.)
- Monthly Projected Spending Report (PSR) (See Section 722.62.F - Projected Spending Reports.)

MATERIALS, EQUIPMENT, PERSONNEL**722.40 General****A. Software Requirements (Types A, B and C)**

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 within twenty-eight (28) Calendar Days after Notice to Proceed. The computer and software shall be maintained and serviced as recommended by the computer manufacturer and/or as required by the Engineer during the duration of the Contract at no additional cost to the Department. The Contractor shall provide professional training in the basic use of the software for up to eight (8) Department employees. The trainer shall be approved by the Engineer. This training shall be provided within twenty-eight (28) Calendar Days after Notice to Proceed.

B. Scheduler Requirements

For all schedule types, if the Contractor plans to use outside scheduling services, the scheduler shall be approved as a subcontractor 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.

SECTION 722 (Continued)**CONSTRUCTION METHODS****722.60 General****A. Schedule Planning Session**
(Types A, B and C)

The Contractor shall conduct a schedule planning session within seven (7) Calendar Days after the Contractor receives the NTP and 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;
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 minimum of five (5) copies of 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 (All Types)**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. Baseline Schedules shall be resubmitted within fifteen (15) Calendar Days after receipt of the Engineer's comments.

2. Contract Progress Schedule / Monthly Update Reviews

The Engineer will respond to each submittal within twenty one (21) Calendar Days. Schedules shall be resubmitted by the Contractor within five (5) Calendar Days after receipt of the Engineer's comments.

Failure to submit schedules as and when required could result in the withholding of full or partial pay estimate payments by the Engineer.

SECTION 722 (Continued)**722.61 Schedule Content and Preparation Requirements**
(Types A, B and C unless otherwise noted)

Each Contract Progress Schedule shall fully conform to these requirements.

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.

B. ACTIVITIES

The schedules shall clearly define the progression of the Work from NTP to Contractor Field Completion (CFC) by using separate activities for each of the following items:

1. NTP
2. Each component of the Work defined by specific activities
3. Detailed activities to satisfy permit requirements
4. Procurement of fabricated materials and equipment with long lead times, including time for review and approval of submittals required before purchasing
5. 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
6. 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
7. Interfaces with adjacent work, utility companies, other public agencies, sensitive abutters, and/or any other third party work affecting the Contract
8. The Critical Path, clearly defined and organized
9. Float shall be clearly identified
10. 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
11. Milestones listed in Subsection 8.03 - Prosecution of Work or elsewhere in the Contract Documents
12. Subcontractor approvals at fifteen (15) Calendar Days from submittal to response
13. Full Beneficial Use (FBU) Contract Milestone per the requirements of Subsection 8.03 - Prosecution of Work
14. Contractor's request for validation of FBU (ready to open to traffic)
15. The Department's confirmation of completed work to allow for FBU

SECTION 722 (Continued)

16. Substantial Completion Contract Milestone per the requirements of Subsections 7.15 - Claims Against Contractors for Payment of Labor, Materials and Other Purposes and 8.03 - Prosecution of Work
17. Contractor's request for validation of Substantial Completion
18. Punchlist 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 and 8.03 - Prosecution of Work
19. Contractor confirmation that all punchlist work and documentation has been completed
20. Physical Completion of the Work Contract Milestone per the requirements of Subsections 5.11 - Final Acceptance and 8.03 - Prosecution of Work
21. Documentation Completion per the requirements of Subsections 5.11 - Final Acceptance and 8.03 - Prosecution of Work
22. Contractor Field Completion Contract Milestone per the requirements of Subsections 5.11 - Final Acceptance and 8.03 - Prosecution of Work
23. 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
24. Traffic work zone set-up and removal, night work and phasing
25. Early Utility Relocation (by others) that has been identified in the Contract
26. Right-of-Way (ROW) takings that have been identified in the Contract
27. Material Certifications
28. Work Breakdown Structure in accordance with the MassDOT-Highway Division Contractor Construction Schedule Toolkit located on the MassDOT-Highway Division website at:
<https://www.mass.gov/info-details/massdot-highway-contractors-schedule-toolkit>
29. For Type A and B Contracts only: All items to be paid, 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.

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.

SECTION 722 (Continued)**D. DURATIONS**

Activity durations shall be in Work Days. Planned Original Durations shall be established with consideration to 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.

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 (for Types A and B only)

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 as specified in the MassDOT-Highway Division Contractor Construction Schedule Toolkit located on the MassDOT-Highway Division website at:

<https://www.mass.gov/info-details/massdot-highway-contractors-schedule-toolkit>

G. ACTIVITY IDENTIFICATION NUMBERS

The Contractor shall use the activity identification numbering system specified in the MassDOT-Highway Division Contractor Construction Schedule Toolkit located online at the address above.

H. ACTIVITY CODES

The Contractor shall use the activity codes specified in the MassDOT-Highway Division Contractor Construction Schedule Toolkit located online at the address above.

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.

SECTION 722 (Continued)

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.
- 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. Refer to the Project Special Provisions for specific restrictions.
- 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. Refer to the Project Special Provisions for specific restrictions.
- 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: Refer to the Project Special Provisions for specific restrictions.
- Night-time paving and striping operations, traffic and temperature restrictions: Refer to the Project Special Provisions for specific 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.

SECTION 722 (Continued)

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.
8. For Type A Schedules, each month, the Contractor will be paid using the Cost-loaded CPM activities for Lump Sum payment items. This requirement supersedes any requirements elsewhere in this Contract regarding partial payments of schedule-of-values for all Lump Sum items.

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

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.

Except as stated elsewhere in this subsection, schedule submittals shall include each of the documents listed below, prepared in two formats, for distribution as follows:

- a. four (4) compact discs (CD); one (1) each for the Office of Project Controls and Performance Oversight (O-PC&PO), the Boston Construction Section Office, the District Construction Office and the Resident Engineer's Office. Additional copies shall be required if the work is performed in more than one district.
- b. two (2) hard copies plotted in color on 24" X 36" paper; one (1) copy each for the District Construction Office and the Resident Engineer's Office. No copies for the O-PC&PO and the Boston Construction Section Office. Additional copies shall be required if the work is performed in more than one district.

SECTION 722 (Continued)**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;
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.

SECTION 722 (Continued)**B. Bar Charts (Types A, B, C and D)**

One (1) time-scaled 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 time-scaled 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.

Bar Charts shall be printed in color and submitted on 11" X 17" paper or, if approved by the Engineer, as a .pdf file.

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. The DASC 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>

The reports described in Subsections D, E and F below shall be submitted with all of the schedules listed in Subsection 722.20 - General:

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.

For Unit Price pay items, in addition to the above, estimates to complete and 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 (Types B, C and D)**

A Projected Spending Report (PSR) shall be prepared and submitted in accordance with the instructions listed at the end of this section. 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. If the difference between the Contractor's monthly projections vs. the actual spending is greater than 10%, the Contractor's monthly spending projection shall be revised and resubmitted within fifteen (15) Calendar Days.

The Projected Spending Report (PSR) shall be depicted in a tabular format and printed in color on 11 x 17-sized paper or larger as approved by the Engineer. For additional instructions and a template for preparing the Projected Spending Report (PSR), refer to the Contractor's Construction Schedule Toolkit located on the MassDOT-Highway Division website at:

<https://www.mass.gov/info-details/massdot-highway-contractors-schedule-toolkit> or consult with the District Construction Scheduler.

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 (Types A, B, C and D)**

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 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 as-built sequencing and as-built dates for completed and in-progress activities. As-built 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.

Except as otherwise designated by a Contract Modification, no Contract Progress Schedule that extends performance beyond the Contract Time and/or beyond any Contract Milestone shall be approved by the Engineer. The Contractor shall submit a Recovery Schedule if any Contract Progress Schedule/Monthly Update indicates a failure to meet the Contract Dates.

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 bar chart 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.

SECTION 722 (Continued)

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.

Failure to submit Short-Term Construction Schedules every two (2) weeks may result in withholding of full or partial payments by the Engineer.

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 three (3) Calendar Days 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 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 fourteen (14) 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 most efficiently demonstrate the schedule impacts 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 resource 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/Contract Progress Schedule.

C. Recovery Schedules

The Contractor shall promptly report to the Engineer all schedule delays during the prosecution of the Work. Except as otherwise designated by a Contract Modification, no Contract Progress Schedule that extends performance beyond the Contract Time and/or beyond any Contract Milestone shall be approved by the Engineer. The Contractor shall submit a Recovery Schedule within fourteen (14) Calendar Days of a Contract Progress Schedule submission that shows failure to meet the Contract Dates. This requirement is critical to the Department's ability to make informed decisions regarding Contract Time and costs.

SECTION 722 (Continued)

During the prosecution of the Work, should the Contractor's progress on a critical operation clearly not meet anticipated production, without cause by fault of the Department, or should a critical activity or series of activities not be staffed in accordance with the Contractor's approved Baseline Schedule resource planning, the Contractor shall be obligated to recover such delay. Recovery Schedules shall be prepared and submitted in accordance with Subsections 722.61 - Schedule Content and Preparation Requirements and 722.62 - Submittal Requirements within fourteen (14) Calendar Days of any of the cases listed above.

Recovery Schedules shall clearly indicate any proposed overtime hours, additional shifts, and the resources that are proposed to be incorporated in to the schedule. The Engineer shall have final discretion over the use of overtime hours and additional shifts and shall have the right to require that overtime hours and/or additional shifts be used to minimize the duration of Time Extensions, without additional compensation for any Contractor delays, if it is determined to be in the best interest of the Department to do so.

During the review of any Recovery Schedule, all Contract Progress Schedules shall continue to be required every month.

The Engineer may request that the Contractor prepare a Recovery Schedule to further mitigate any delays that are shown in an accepted TEA/Contract Progress Schedule.

Changes represented in accepted Recovery Schedules shall be incorporated into the next Contract Progress Schedule.

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/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 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.

Changes represented in 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.

SECTION 722 (Continued)

E. Disputes (Types A, B, C and D)

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.

Any dispute concerning the acceptance of a schedule or any other question of fact arising under this subsection shall be determined by the Engineer. Pending resolution of any dispute, the last schedule accepted by the Engineer will remain the Contract Schedule of Record.

COMPENSATION

722.80 Method of Measurement and Basis of Payment (Types A, B, C and D)

The Special Provisions will specify the fixed-price amount to be paid to the Contractor for the Project Schedule requirements contained herein. Each bidder shall include this lump-sum, fixed-price bid item amount in his/her bid. Failure to do so may be grounds for the rejection of the bid.

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.

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.

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:

$$\text{Monthly Payment} = \frac{\text{Remaining Fixed Price amount (80\% of Item 100.)}}{\text{Contract Duration in whole months} - 2 \text{ months}}$$

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.

SECTION 722 (Continued)

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. Late submittal of missed Contract Progress Monthly Updates 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 withholding of full or partial payments by the Engineer.

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. Item 100. will be the basis for this Equitable Adjustment.

722.82 Payment Items

100. SCHEDULE OF OPERATIONS - FIXED PRICE \$ _____ LUMP SUM

ITEM 102.25

HEDGE PRUNING

FOOT

The work under this Item shall conform to the relevant provisions of Subsection 101 of the Standard Specifications and the following:

Hedges within the limit of work designated to remain shall be pruned at the direction of the Arborist and or MassDOT Landscape Section. This work shall also apply to hedges that overhang the public right-of-way including those planted within the municipal right-of-way or abutting privately-owned properties.

All pruning must be done in compliance with American National Standards Institute Z133 and A300 standards. Prior to the start of work all hedges shall be inspected by the Arborist as part of project assessment.

Hedges shall be sheared using manual or electric trimmers and shall be done in such a way as to maintain the shape and form of the hedge. Branches shall be removed in a manner that does not damage the shrubs comprising the hedge or other plants or property. Not more than 40% of the leaf surface of each branch pruned shall be removed.

At the onset of pruning activities, the Arborist may determine that not enough of the hedge will remain, resulting in the significant exposure of bare trunks and branches with little to no foliage from pruning, in order to provide clearance above the sidewalk within the public right of way, or to achieve recommended clearance for overhead utility wires. Should this be the determination, the contractor shall remove the hedge, including stumps and roots, to be performed and paid for under Item 120.

The hedge shall be replaced under Item 784.

Method of Measurement

Item 102.25 will be measured for payment by the Foot of hedging properly pruned.

Basis of Payment

Item 102.25 will be paid for at the contract unit price per Foot. This price shall include all labor, materials, equipment, and incidental costs required to complete the work.

Note: If the hedge is to be removed as directed by the Landscape Architect, the price for this Item shall be inclusive of the removal of the hedge, including stumps and roots, in lieu of pruning activities.

ITEM 102.3 **HERBICIDE TREATMENT OF INVASIVE PLANTS** **HOURLY**

This work must be performed by persons who meet the qualifications below and are approved by the Landscape Design Section.

Work under this item consists of herbicide treatment of invasive plants currently existing within the project limits and as directed. An Invasive Plant Management Strategy (IPMS) shall be submitted to the Engineer for review and approval and the IPMS shall be implemented on-site. The IPMS shall be measured and paid for under Item 102.33 Invasive Plant Management Strategy.

Work under this item shall be coordinated with work and schedule for Selective Clearing, Clearing and Grubbing, Mowing, Tree Removal, Planting, and Wetland Mitigation items.

Payment is per hour on-site and shall be compensation for a minimum crew of 2 licensed applicators, 2 back-pack sprayers and mist-blowers, a properly equipped spray truck with spray hoses, and a tank with sufficient capacity for a full day of work. If there is only one applicator, hourly payment shall be adjusted to 50 percent of the unit price. This item is not intended for manual removal of plants.

Management of plants determined to have been introduced to the site via imported loam, compost, mulch, plants, equipment, or other construction activities will be the Contractor's responsibility and at the Contractor's expense.

Herbicide shall be applied during daytime hours only.

Measures to prevent the introduction of invasive plant species to the site and to address introduction due to construction-related activities shall be covered under the Standard Specifications, Division I - Subsections 7.01(D) Plant Pest Control and 7.13 Protection and Restoration of Property as amended in these Special Provisions.

Plant species targeted for management under this item shall be as determined in the field per the site walk and as specified in the IPMS.

The definition of invasive plant species shall be as described by Massachusetts Invasive Plant Advisory Group (MIPAG): "non-native species that have spread into native or minimally managed plant systems in Massachusetts, causing economic or environmental harm by developing self-sustaining populations and becoming dominant and/or disruptive to those systems."

Control of invasive plants shall begin immediately with the initiation of construction activities and prior to any clearing or site disturbance. Treatment areas shall include stockpile locations and may, upon approval of the Engineer, extend outside the project limit. Treatment shall be done each consecutive year for the duration of the contract unless specified otherwise in the IPMS or unless directed otherwise by the MassDOT invasive species contact. Work shall be done during the growing season from May – October unless otherwise specified in the IPMS.

ITEM 102.3 (Continued)

Areas identified for vegetation control measures shall be as shown on the plans and as determined in the field by the Engineer and a MassDOT Landscape Architect. Contact at MassDOT Landscape Design Section may be contacted at: Robbin.Bergfors@dot.state.ma.us.

Qualifications

The applicators shall submit and meet the qualifications outlined below. A list of contractors specializing in invasive management and approved by MassDOT Landscape Design Section is available on the following website: <https://www.mass.gov/lists/landscape-design-and-roadside-maintenance> under Invasive Plant Management.

Requirements

1. Company must provide proof of qualifications by providing the following:
 - a. Narrative describing company, its expertise and experience with invasive plant control.
 - b. Demonstrate experience with herbicide treatment as part of restorations and in sensitive areas.
 - c. Describe company's technical qualifications and past performance.
2. Company must meet licensing requirements:
 - a. All crew applicators must have a Massachusetts Commercial Applicator License (CORE).
 - b. At least one or more applicator must have a ROW certification, if required for work.
 - c. Company must provide name(s) of applicator(s) and Applicator License/Certification number for all contractor crew leaders working on the project.
 - d. Company must provide documentation of any warnings, damages or fines received in the last three (3) years.
3. Company must provide proof of experience with invasive plant control and include following:
 - a. At least five (5) references from prior invasive plant control work completed in last five (5) years. Provide contact information including address, phone number and email.
 - b. Provide a summary of each of these projects including nature of the problem, specific invasive vegetation treated, dates and period of treatment, methodologies used, and summary of success or not in terms of meeting performance objectives. Include summary of equipment used.
 - c. Photo documentation of these projects.
 - d. GPS coordinates of project locations, if available.
4. Crew leader must have expertise with invasive plant control and provide the following:
 - a. Have held Core license for at least five (5) years.
 - b. Resume listing five (5) or more years of experience applying pesticides with the company or with another company specializing in vegetation management.

ITEM 102.3 (Continued)

Submittals

No work shall begin without approval of the submittals.

Submittals include the following items:

Invasive Plant Management Strategy (IPMS)

At least thirty (30) days prior to proposed treatment the IPMS shall be submitted for approval by the Engineer and MassDOT Landscape Architect. All chemicals, methods and work done under this item shall be consistent with the IPMS. The IPMS shall be as described under Item 102.33.

Herbicide Use Report

Within two (2) weeks after each application, the Contractor shall provide to the Engineer a completed and signed MassDOT Herbicide Use Report.

Photo Documentation

Digital photos with date and time of herbicide application work may be required and shall be submitted upon request.

Materials

All proposed herbicides shall be as approved in the IPMS. Herbicides shall be labeled for the method of treatment and shall meet all federal, state and local regulation requirements. Application rates will depend on herbicide proposed and shall be per the manufacturer's label for specific application.

Methods

All methods used shall be as approved in the IPMS which shall be determined during the Initial Site Walk as described under Item 102.33 Invasive Plant Management Strategy.

The Contractor shall be responsible for marking delineated areas and plants to be preserved, removed, or otherwise treated. Fencing or other materials needed for marking and delineating protected areas shall be incidental to this item.

The Contractor shall notify the Engineer a minimum of 3 days prior to date of expected herbicide application. Applicators shall notify the Engineer upon arriving on-site and upon leaving the site.

Herbicide Applications

All herbicide application shall conform to Massachusetts Pesticide Laws and Regulations per the Massachusetts Department of Agricultural Resources (MDAR) Pesticide Bureau.

Mixing, applying and/or disposing of herbicides shall always be in accordance with instructions on their labels and all applicable federal, state, and local regulations. Mixing shall not occur within sensitive areas, wetlands, or buffer zones.

ITEM 102.3 (Continued)

Contractor shall not spray 2 hours prior to precipitation, during rain, or during windy conditions. The Contractor shall be responsible for monitoring weather conditions and adjusting the work schedule as appropriate for the herbicide and application method to be used.

Targeted vegetation shall be identified and marked prior to treatment. Plants treated by foliar spray, injection or glove application or other methods that leave standing vegetation, as opposed to cut-stump application, shall remain clearly marked for identification through the contract period.

Desirable vegetation shall be protected from both spray and other physical damage.

Contractor is responsible for any damage to vegetation not designated for removal or treatment. Vegetation damaged shall be restored. Cost of replacement plants and/or restoration shall be borne by the Contractor.

Contractor shall ensure that the public does not enter a work area while herbicide application or spraying is underway.

Disposal of Invasive Plant Material

All material to be cleared shall become the property of the Contractor. The satisfactory disposal of all cleared plant material (seeds, roots, woody vegetation, associated soils, etc.) shall be the Contractor's responsibility.

The Contractor shall take measures to prevent viable plant material from leading to further infestations (seeds, roots, woody material, etc.) while stockpiled, in transit, or at final disposal locations. All precautions shall be taken to avoid contamination of natural landscapes with invasive plants or invasive plant material.

Chipping, shredding, or on-site burning of plant material must be approved by the Engineer and included in the IMPS.

For plant material taken to an incinerating facility per the IPMS, a receipt from that facility shall be submitted to the Engineer as proof of disposal.

Where feasible, it is preferable to dispose of plants on-site or to bury them on-site with on-going monitoring for re-sprouting. Disposal locations and methods must be approved and included in the IPMS. Site work such as grading and seeding to stabilize and restore disposal area shall be incidental to this item.

The Contractor shall be responsible for treating or otherwise managing areas of re-growth due to improper disposal. Treatment shall be at the Contractor's expense.

ITEM 102.3 (Continued)

Follow-Up Treatment

Plants and areas shall be re-treated as necessary and as appropriate to the time of year. Treatment shall be for the duration of the contract and per the IPMS.

Measure of Success

The expectation is a minimum of 85-95 percent control achieved after the first treatment, depending on plants targeted and extent of population, and based on the expectations laid out in the IPMS. The expectation for the contract duration is 95-100% eradication by the end of the treatment period, unless otherwise specified in the IPMS.

Method of Measurement

Item 102.3 will be measured for payment by the Hour of crew time spent on the project doing actual herbicide application work. A crew shall be defined as a minimum of two licensed applicators each equipped with (at minimum) back-pack sprayer and mist blower. The crew shall also have a properly equipped spray truck with hoses and a tank with sufficient capacity for a full day of work.

Basis of Payment

Item 102.3 will be paid at the contract unit price per Hour, which price shall include all labor, materials, equipment, tools, and all incidentals required to complete the work.

Payment will be based upon time spent on the project doing actual work and shall not include travel time to and from the Contractor's place of business and shall also not include time for investigative field trips.

If there is only one applicator, hourly payment shall be adjusted to 50 percent of the unit price.

The Invasive Plant Management Strategy will be paid for under Item 102.33.

ITEM 102.33 **INVASIVE PLANT MANAGEMENT STRATEGY** **HOUR**

This item consists of providing an Invasive Plant Management Strategy (IPMS) for the control of invasive plants currently existing on the project site and/or as directed and shall be coordinated with Item 102.3 Herbicide Treatment of Invasive Plants. The IPMS shall be submitted for review and approval and the IPMS shall be implemented on-site.

Herbicide treatment for invasive plants shall be as described under Item 102.3 Herbicide Treatment of Invasive Plants and shall be compensated per that Item.

Work under this item shall be coordinated with work and schedule for Selective Clearing, Clearing and Grubbing, Mowing, Tree Removal, Planting, and Wetland Mitigation as relevant to the project.

Individual attending the site walk and determining the Invasive Plant Management Strategy must demonstrate expertise with vegetation management and invasive plant control and submit qualifications as described below.

Qualifications

Individual shall be from the same company as that providing services for Item 102.3 Herbicide Treatment of Invasive Plants and shall submit the following, if not submitted under Item 102.3:

- Submit copy of current Core license.
- Submit a resume listing five (5) or more years of experience managing invasive plants with a company specializing in vegetation management.
- References shall be submitted if requested.

SUBMITTALS**Task Summary & Reports**

For measurement of payment, the contractor shall submit the total sum and a breakdown of hours for the tasks performed. At a minimum, the tasks shall include the Initial Site Walk, the IPMS Written Report, and if necessary to accommodate project or site changes, a Follow-up Site Inspection and accompanying IPMS Amendment.

Interim Site Monitoring Reports and/or a Final Report shall be submitted if requested by the MassDOT Landscape Design contact. The MassDOT Landscape Design contact must be notified to attend the final walk through when a Final Report has been requested.

Invasive Plant Management Strategy (IPMS)

At least thirty (30) days prior to construction activities and/or any proposed treatment, submit a written IPMS proposal for approval by the Engineer and MassDOT Landscape Architect. All chemicals and methods proposed shall be consistent with applicable Massachusetts Wetlands Protection Act Order of Conditions.

ITEM 102.33 (Continued)

The IPMS shall be completed in coordination with the Roadway Contractor and the Engineer and shall include the following as appropriate to the project:

- I. Project Information**
 - a. Company writing IPMS and performing herbicide application.
 - b. Date of site walk
 - c. Attendees at site walk
 - d. Expected end date of contract and expected last treatment (month/season)
- II. Brief Description of Conditions**
 - a. Provide a free-hand sketch on construction plans or aerial image showing species, location, and as relevant, show or note extent of population as relevant to Strategy (i.e., population extends off ROW preventing eradication, small population and eradication deemed feasible within contract schedule, etc.).
- III. Coordination with Roadway Contractor regarding other work**
 - a. Tree Work: Note coordination to be implemented with tree removal, clearing, and clearing and grubbing as applicable to the project.
 - b. Wetland Mitigation - Include management proposed for wetland mitigation areas in the IPMS, if and as required.
 - c. Planting: If there will be planting in areas proposed for treatment, propose treatment and schedule to avoid herbicide damage to plants.
 - d. Mowing: If coordination is required with state mowers, note need in IPMS.
- IV. Soil Management**
 - a. Provide specifics on how soil with invasive plant roots (in particular) or seeds will be handled (i.e., separate stockpiles, plant material will be buried on-site, re-used on-site, disposed off site and if so, where?).
 - b. Show stockpile locations on plan and include treatment schedule.
 - c. Note measures that will be implemented to avoid spread through equipment, including how and where equipment will be cleaned.
- V. Invasive Plant Treatment & Management**
 - a. Proposed chemical and methods of treatment for each species or area.
 - b. Time of treatment based on target plant species.
 - c. Submit product label including application methods and rates (entire MSDS information need not be submitted if available online).
 - d. Proposed performance metrics or measure of treatment success if different from that specified under Item 102.3.
 - e. Method for disposing invasive plant material. This includes material that may result in spread (i.e., seeds, roots) and material that has been treated and/or is not viable (foliage, dead wood, etc.). Methods may include grinding in place, stockpiling and treating, and incinerating offsite.
 - f. Expected follow-up treatment for duration of contract.
- VI. Monitoring Schedule** if requested by MassDOT.

ITEM 102.33 (Continued)

Note: The IPMS is critical for identifying pre-construction conditions as well as strategies for minimizing import or spread of invasive plants. Failure to provide an approved IPMS may jeopardize this item, in which case, the contractor will be responsible for management of invasive plants found on-site at no cost to the contract.

Photo Documentation

Digital photos with date and time verification shall be provided with the IPMS and with any follow-up monitoring or reporting.

METHODS**Initial Site Walk**

Prior to any construction activities and soil disturbance, the Contractor shall walk the site with the Engineer and the MassDOT Landscape Architect to determine the IPMS. During the site walk the Contractor shall identify limits of work and, as necessary, mark locations of areas designated for treatment and individual plants targeted for treatment or removal. The Contractor shall be responsible for marking delineated areas and plants to be preserved, removed, or otherwise treated. Fencing or other materials needed for marking and delineating protected areas shall be incidental to this item.

IPMS Follow-up Amendment

The IPMS may be amended to address additional concerns or adjust to conditions if required by the MassDOT Landscape Architect. The amended IPMS shall be submitted to the Engineer and MassDOT Landscape Architect for approval at least fourteen (14) days prior to any proposed treatment.

Interim Site Monitoring Inspection Reports

If required by the MassDOT Landscape Architect and Engineer, Interim Site Monitoring and an accompanying report shall be conducted.

Final Inspection

A final inspection and report documenting the status of the invasive control may be required for regulatory purposes or for instances where control will be continued by others. The report shall include photo documentation of pre-construction (existing) and post-treatment conditions, notations on a plan or aerial image of area treated, summary of treatment performed, and control achieved.

Method of Measurement

Item 102.33 will be measured for payment by the Hour. The basis for measurement shall be per the completion of tasks as approved under the Task Summary submittal.

Basis of Payment

Item 102.33 will be paid at the contract unit price per Hour, which price shall include all labor, materials, equipment, tools, and all incidentals required to complete the work.

Payment shall not include travel time to and from the Contractor's place of business.

ITEM 102.511 TREE PROTECTION – ARMORING AND PRUNING EACH

The work under this item shall conform to the relevant provisions of Subsection 771 of the Standard Specifications and the following:

Tree protection – armoring and pruning shall be used for instances where construction activity (the use of heavy equipment), comes within proximity to potentially damage tree trunk(s) or limbs.

The work shall include the furnishing and installing of temporary tree trunk protection, minor limb pruning, or removal of lower tree limbs to prevent injury to the tree from construction equipment and activities; as shown on the Drawings; and/or as required by the Engineer.

References

If requested, the Contractor shall provide to the Engineer one copy of the latest edition of the American National Standards Institute (ANSI) A300 Standard Practices for Tree, Shrub, and Other Woody Plant Maintenance: Part 1-Pruning and Part 5-Construction Management Standard. Provision of reference shall be incidental to this item.

Materials

Trunk armoring shall be such that it prevents damage to the trunk from construction equipment. Material used for trunk armoring or mounting shall be such that installation and removal shall not damage the trunk.

Acceptable trunk armoring materials shall include two by four (2x4) wood cladding, mounted with wire or metal strapping, or when duration of construction activities is less than three months, slotted corrugated plastic pipe, mounted with duct tape. Eight (8) ounce untreated burlap shall be used to wrap the tree trunk prior to installation of cladding.

Alternative armoring methods or materials may be acceptable if approved by the Engineer.

The height of tree trunk cladding shall be measured from the base of the tree (including root flare) to the bottom of the first branch, or to a height of eight (8) feet, or as may be required by the Engineer.

METHODS OF WORK

Prior to construction activities, the Engineer, Contractor, and the Arborist (if item is included in the contract), shall review trees noted on the Drawings to be protected. Final decision and selection of trees to be armored and/or pruned shall be per the Engineer.

Care shall be taken to avoid damage to the bark during installation and removal of armoring. Trunk armoring shall be maintained such that it is effective for as long as required or replaced when materials are found to be damaged or ineffective, as determined by the Engineer. Replacement, if required, shall be incidental to the work. Armoring shall be removed immediately upon completion of work activities adjacent to the protected tree(s).

Pruning of limbs shall conform to the techniques and standards of the most recent ANSI A300 standards.

ITEM 102.511 (Continued)**Damages or Loss**

If trees designated for protection under this item are damaged, including root damage from unapproved trespassing onto the root zone, the Contractor shall, at his own expense, secure the services of an Arborist, described in Item 102.55. The Arborist shall be approved by MassDOT.

If, based on the recommendation of the Arborist, the Engineer determines that damages can be remedied by corrective measures, such as repairing trunk or limb injury; soil compaction remediation; pruning; soil injection fertilization; and/or watering; the damage shall be repaired as soon as possible, within the appropriate season for such work and according to industry standards.

If, based on the recommendation of the Arborist, the Engineer determines that damages are irreparable, or that the damages are such that the tree is sufficiently compromised to pose a future safety hazard, the tree shall be removed. Tree removal shall include cleanup of all wood, grinding of the stump to a depth sufficient to plant a replacement tree or plant, removal of all chips from the stump site, and filling the resulting hole with topsoil. Such tree removal(s), grinding, debris removal, and topsoil filling, shall be at the Contractor's expense.

Tree removal from improper or inadequate tree protection shall result in the Engineer assessing the Contractor monetary damages consistent with industry standards for assessed value and/or replacement.

Method of Measurement and Basis of Payment

Item 102.511 will be measured and paid at the contract unit price per EACH tree to be armored and pruned. This will include full compensation for all labor, equipment, materials, and incidentals for the satisfactory completion of the work and the subsequent removal and satisfactory disposal of the protective materials upon completion of the contract or as required by the Engineer.

Payment for work under this item will be scheduled as follows:

- 40% of the value shall be paid upon installation of trunk armoring and completion of pruning work, if required.
- 60% of the value shall be paid at the end of construction operations that would potentially damage the tree and after protection materials have been removed and properly disposed of by the Contractor. In the event of repairable damages, payment shall be made after the completion of remediation measures.

No separate payment will be made for costs of remedial actions, Arborist services, tree removal, but all costs in connection therewith shall be included in the Contract unit price bid.

Tree damages assessed, due to lack of or improper tree and plant protective measures being taken, shall be deducted from the contract price of the work.

ITEM 102.513**AIR EXCAVATION FOR ROOT PRUNING****FOOT**

Item 102.513 Air Excavation and Root Pruning is for the services of excavating soil with an air pressure tool in order to expose tree roots, and for associated services and materials necessary to complete the work of pruning, backfilling with existing soil, watering, mulching, and fertilizing. This item shall include the furnishing and operating the air excavating tool.

Associated Item: All references to Arborist herein shall refer to the Arborist under Item 102.55 Arborist. Arborist shall meet the requirements as specified under that Item and shall be compensated under that Item.

Trees to be air spaded shall be those shown on the plans and/or as determined necessary by the Engineer per the recommendations of the Arborist.

References

The standards from American National Standards Institute (ANSI): A300 (Part 8)-2013 Root Management with special attention to Section 84 shall apply to this work. If requested, the Contractor shall provide to the Engineer one copy of this reference. Provision of reference shall be incidental to this item.

METHODS

Air excavation and pruning work shall be performed by or overseen by the Arborist.

Air excavation of soil and root pruning shall occur any time prior to equipment work within the root zone of marked trees.

Air excavation shall be done along the limit of proposed excavation. Trench shall be of sufficient width to observe and cut roots and shall be to the depth of proposed excavation. Immediately following air excavation, roots shall be pruned.

Following pruning, roots shall immediately be fully covered with backfill and immediately watered. Roots shall continue to be watered and fertilized as directed by the Arborist.

Method of Measurement and Basis of Payment

Item 102.513 will be measured and paid per foot where air spading, pruning, watering, and fertilizing are performed. This item will include full compensation for all labor, equipment, materials, and incidentals required for the satisfactory completion of the work.

Arborist services shall be per Item 102.55 Arborist and compensated under that Item.

ITEM 102.521**TREE AND PLANT PROTECTION FENCE****FOOT**

The work under this Item shall conform to the relevant provisions of Subsections 644 and 771 of the Standard Specifications and the following:

Work under this item shall consist of furnishing, installing, and maintaining tree and plant protection fence(s) in a vertical and taut position; removing and resetting fencing as may be required; and final removal of protection fence(s) at the completion of construction activities, or as otherwise required by the Engineer.

The purpose of the fencing is to signify a construction work-free zone and physical barrier, thereby preventing damage to tree roots, tree trunks, soil, and all other vegetation within this delineated Tree and Plant Protection Zone (TPPZ), as shown on the Drawings, as required by the Engineer, and as described herein.

Protection shall be for the duration of the construction activities unless otherwise required by the Engineer.

Materials

Tree and plant protection fence(s) shall provide a minimum forty-eight (48) inch tall barrier, that remains vertical and taut. The Fence shall be orange plastic safety fence (recommended where high visibility is necessary), or wooden snow fencing, or other approved material. Posts and anchoring materials shall be incidental to the work.

Per requirements of the Engineer, additional posts, deeper post depths, and/or additional attachments shall be used if the fabric or fence sags, leans or otherwise is not providing visible or physical protection to the TPPZ.

References

If requested, the Contractor shall provide to the Engineer one copy of the American National Standards Institute (ANSI) A300 Standard Practices for Tree, Shrub, and Other Woody Plant Maintenance Part 1, Pruning and Part 5, Construction Management Standard. Provision of reference shall be incidental to this item.

Establishment of TPPZ

Fencing shall be used to delineate and establish the TPPZ, adjacent to construction areas, staging areas, stockpile areas, as shown on the Drawings, and/or as required by the Engineer.

Fencing shall be located as close to the work zone limit and as far from tree trunk(s) and plants as possible to maximize the area to be protected. Fence shall run parallel and adjacent to construction activity to create a barrier between the work zone and the root zone or designated limit of plants and soils to be protected.

When construction activities surround (or have the potential to surround) trees or plants to be protected, a circular enclosure shall be used. In these instances, the TPPZ limit shall be the drip line of each tree or as close as possible to the drip line, and/or as shown on the Drawings. The drip line is defined as the outermost limit of tree canopy.

ITEM 102.521 (Continued)

The Contractor shall not engage in any construction activity within the TPPZ without the approval of the Engineer. Activities may including operating, moving, or storing equipment, supplies, or materials; and locating temporary facilities, including trailers or portable toilets, Accessing or traversing the TPPZ shall not be permitted.

METHOD OF WORK

TPPZ fencing shall be installed prior to any construction work or staging activities. Fence(s) shall be repositioned where and as necessary for optimum tree and plant protection. Repositioning shall be incidental to this item. TPPZ fencing shall not be moved without prior approval by the Engineer.

The TPPZ shall be protected at all times from compaction of the soil; damage of any kind to trunks, bark, branches, leaves, and roots of all plants; and contamination of the soil with construction materials, debris, silt, fuels, oils, and any chemicals substance.

After construction activities are completed, or when required by the Engineer, fencing, stakes, and other anchoring materials, if any, shall be removed and disposed off-site by the Contractor.

Required Work Within the TPPZ

In the event that grading, trenching, utility work, or storage is unavoidable within the TPPZ, the Engineer shall be notified. Measures may be required for tree protection and preservations, including air spading; the use of six (6) inch depth of wood chips or approved matting for root protection; pruning of branches; and/or trunk protection. These protection measures shall be paid under applicable contract items.

Landscaping work specified within the TPPZ shall be accomplished by hand tools. Where handwork is not feasible, with permission of the Engineer, work shall be conducted with the smallest mechanized equipment necessary.

Tree and Plant Damages or Loss

If the TPPZ is encroached by construction activity without approval, at the discretion of the Engineer, the Contractor may be required to provide a more durable barrier (e.g., Jersey Barriers, chain link fence (if not already in use) to secure the area. Costs of furnishing and installing additional or more durable barrier(s) shall be borne by the Contractor.

In such cases of encroachment, soils shall be considered compacted and tree root injury will be assumed. Action shall be taken as specified below.

In the event that trees designated for protection under this item are injured, including root injury from unapproved trespassing onto the root zone, the Contractor shall, at his own expense, secure the services of an Arborist, described under Item 102.55. The Arborist shall be approved by MassDOT.

ITEM 102.521 (Continued)

In the event of spills, compaction or injury, the Contractor shall take corrective action immediately using methods approved by the Engineer, in coordination with the Arborist.

If, based on the recommendations of the Arborist, the Engineer determines that injuries can be remedied by corrective measures, such as repairing trunk or limb injury, soil compaction remediation, pruning, and/or watering; the injury shall be repaired as soon as possible, within the appropriate season for such work, and according to industry standards.

If, based on the recommendations of the Arborist, the Engineer determines that injuries are irreparable, or that the injuries are such that the tree is sufficiently compromised to pose a future safety hazard, the tree shall be removed. Tree removal shall include cleanup of all wood, grinding of the stump to a depth sufficient to plant a replacement tree or plant, removal of all chips from the stump site, and filling the resulting hole with topsoil. Such tree removal(s), grinding, debris removal, and filling, shall be at the Contractor's expense.

Tree removal from improper or inadequate protection of the TPPZ shall result in the Engineer assessing the Contractor monetary damages consistent with industry standards for assessed value and/or replacement.

Shrubs removals from improper or inadequate protection of the TPPZ shall be replaced with plants of similar species and equal size or the largest size plants reasonably available. The Engineer shall approve the size, quality, and quantity of the replacement plant(s). Each replacement shall include a minimum of one year of watering and establishment care, specified under Subsection 771.

Method of Measurement and Basis of Payment

Tree and Plant Protection Fence will be measured by the FOOT, complete in place, by the length along the top of the fence.

Tree and plant protection fence will be paid for under the contract unit price per FOOT, complete in place and shall include all materials, labor, and equipment required to furnish, install, anchor, maintain, and remove the fence upon completion, as described herein. Posts, temporary footings, anchoring and removal upon completion, shall be incidental to this item.

No separate payment will be made for costs of remedial actions, including addition of more durable barriers, Arborist services, tree or plant removal, shrub replacement and establishment, but all costs in connection therewith shall be included in the Contract unit price bid.

Tree damages assessed, due to lack of or improper tree and plant protective measures being taken, shall be deducted from the contract price of the work.

ITEM 102.521 (Continued)

Payment for work under this item will be scheduled as follows:

- Forty (40) percent of the value payment will be made upon installation of TPPZ fencing.
- Sixty (60) percent of the value payment will be made when TPPZ fencing materials have been maintained to function as specified for the intended duration and removed and disposed off-site at the completion of protection measure requirement.

ITEM 102.55**ARBORIST****HOUR**

The work under this Item is for the services of a Certified Arborist. Arborist shall be an International Society of Arboriculture (ISA) Certified Arborist or a Massachusetts Certified Arborist. The Arborist shall have at least 10 years of experience in tree care, including tree protection during construction, and shall demonstrate a familiarity with the American National Standards Institute (ANSI) A300 Standard Practices for Tree, Shrub, and Other Woody Plant Maintenance Part 1 Pruning, Part 5 Construction Management Standards, and Part 9 Tree Risk Assessment.

The Arborist's general responsibilities include protecting high priority trees within and adjacent to the project limits, stating areas, and access routes; recommending removal of diseased, damaged or otherwise unhealthy trees that pose a potential safety hazard; evaluating effects of construction on future health of trees close to proposed work; and recommending and/or overseeing tree work and care.

The Arborist for this item shall not be from the same company as the company responsible for selective clearing or tree removal work.

For projects with multiple phases, projects where construction activities (work or stockpiling) shifts, or when otherwise directed by the Engineer, the Arborist shall re-evaluate conditions and provide follow-up recommendations.

Submittals

- Contractor shall submit to the Engineer for approval by MassDOT Landscape Design the qualifications and experience of the Arborist. Submittal shall include copy of current certification and a resume summarizing specific construction experience (including relevant MassDOT projects) for a minimum of five projects.
- Arborist's Report documenting recommendations shall be submitted to the Engineer and an electronic copy forwarded to MassDOT Landscape Design Section. Report shall include the following:

ITEM 102.55 (Continued)

The Arborist shall be responsible for the following tasks:

- Initial Evaluation and Report
 - recommend and prioritize trees that require removal as appropriate to contract scope, project limits, and project intent;
 - review and modify, if necessary, tree protection measures shown on the drawings
 - review and mark limits of protective fencing for trees and groups of trees to be retained;
 - review and recommend protection measures for high priority trees;
 - submit a marked-up Construction Plan that briefly notes recommendations and decisions made in the field;
 - submit a corresponding report including photo documentation;
- Oversight
 - direct or execute pruning of branches and/or roots, air spading, and/or other tree care operations
- Special Care
 - oversee tree pruning for health and aesthetics
 - recommend fertilization and amendments
 - recommend and oversee pest control

Methods

Prior to any work, the Arborist shall walk the site with the Contractor, the Engineer, the Town Tree Warden, and, if specified, the MassDOT Landscape Architect, to review trees, limits of construction activities, and other concerns. Where required for proper assessment of tree impacts, limits of work shall be staked or otherwise marked in the field prior to the site walk.

Trees to be removed shall be painted or otherwise marked.

Trees to be retained shall be marked such that it does not mar or damage the tree and such that marker is not easily removed. As applicable to the work and scope of the project, trees designated for removal or to be retained shall be noted on the plan and/or in the arborist's report and photographed.

Trees designated to remain that are damaged or removed by construction activities shall be noted and photographed for inclusion in inspection reports submitted to the Engineer.

Method of Measurement and Basis of Payment

Item 102.55 will be measured for payment by the Hour of time spent onsite.

Item 102.55 will be paid at the contract unit price per hour upon submittal and acceptance of Reports described above.

ITEM 119.**RODENT CONTROL****LUMP SUM**

The work under this Item shall conform to the relevant provisions of Subsection 119 of the Standard Specifications and the following:

The work under this item shall include all work required to provide rodent control in the areas of proposed construction.

Rodent control shall include a pre-construction survey of surface rodent activity and sanitation deficiencies in and bordering the proposed work area. The Contractor is required to make all efforts to reduce the activity of rodents within the proposed work area prior, during and after construction has ceased, within the limits of work for the duration of this project to the satisfaction of the Engineer.

Baiting will include a pre-construction baiting program at each street location followed by a maintenance-baiting program that lasts throughout the construction period, terminated once underground utility installations are complete. All baiting will be done according to the rodenticide labeling as approved by the U.S. EPA and the Massachusetts Department of Food and Agriculture. All bait applications will be made by licensed pest control operators in the Commonwealth of Massachusetts and based upon activity levels and distribution of rodent control populations.

Records shall be maintained on baiting and survey results. A summary of determinable results of the control program must be submitted to the Engineer monthly. Baiting shall continue until after underground utility installations have been completed and reported to the Engineer. The summary must include the types of bait used, baiting locations, a description of rodent activity and sanitation conditions, and recommendations. Control shall include baiting of active rat burrows and the use of tamper-resistant bait stations, as appropriate. Control shall also be applied at all manholes and/or catch basins within the immediate contract area and to all catch basins and sewer manholes on adjoining streets within 300 feet of the Project Limits as defined by this Contract.

The pest control operator must provide adequate liability insurance and be prepared to respond to changes in rodent populations and any rodent related complaints associated with construction activities.

Initial submittals at the Pre-Construction Meeting:

1. Name, a copy of Massachusetts license, and qualifications of the pest control operator that will implement the Rodent Control Program.
2. Description of the Rodent Control Program.

Basis of Payment

Item 119. will be paid for at the Contract price, Lump Sum, which price shall include all specified work required to accomplish the control of rodent populations during construction of this project within the limits specified. A payment in the amount of 50% of the price bid shall be made after the pre-construction survey has been completed and the necessary steps for the duration of the project have been initiated. The remaining 50% of each Item will be paid for at the conclusion of underground utility installation or at a prior date as directed by the Engineer.

ITEM 120.

EARTH EXCAVATION

CUBIC YARD

The work under this Item shall conform to the relevant provisions of Subsection 120 of the Standard Specifications and the following:

The work under this Item shall consist of removing and disposing all the materials obstructing the execution of required work as shown on the plans and as directed, except materials for which payment is made under other items of this Contract.

The work under this Item shall include the satisfactory removal of hot mix asphalt sidewalks, concrete sidewalks, concrete driveways, concrete slabs, reinforced concrete, gutters, pipes, hot mix asphalt pavement, hot mix asphalt curb, concrete curb, brick, cobblestones, boulders, buried foundations, headwalls, footings, fencing, posts, irrigation control valves, and any other work required to be removed to complete the proposed construction.

Edges of excavation made in existing pavement shall be squared by sawcutting with power driven tools to provide a neat, clean edge for jointing new pavement as shown on the Plans. Ragged, uneven edges shall not be accepted. Pavement areas that have been broken or undermined shall be edged neatly with a minimum disturbance to the remaining pavement.

Method of Measurement

Item 120. will be measured for payment per Subsection 120.80.

Basis of Payment

Item 120. will be paid for per Subsection 120.81.

Hot mix asphalt pavement for box widening will be paid under Item 482.5

ITEM 180.01 ENVIRONMENTAL HEALTH AND SAFETY PROGRAM LUMP SUM

The work shall consist of ensuring the health and safety of the Contractor's employees and subcontracting personnel, the Engineer, their representatives, the environment, and public welfare from any on-site chemical contamination present in air, soil, water and sediment.

The Contractor shall prepare and implement a site-specific Environmental Health and Safety Plan (EHASP) which has been approved and stamped by a Certified Industrial Hygienist (CIH) and includes the preparer's name and work experience. The EHASP shall include appropriate components required by OSHA Standard 29 CFR 1910.120(b) and the Massachusetts Contingency plan (MCP) 310 CMR 40.0018 and must comply with all applicable state and federal laws, regulations, standards and guidelines, and provide a degree of protection and training appropriate for implementation on the project. The EHASP shall be a dynamic document with provision for change to reflect new information, new practices or procedures, changing site environmental conditions or other situations which may affect site workers and the public. The EHASP shall be developed and implemented independently from the standard construction HASP required to work on all MassDOT construction projects.

Health and safety procedures provided by the Contractor shall comply with all the appropriate regulations that address employee working conditions, including but not limited to standards established by OSHA and National Institute for Occupational Safety and Health (NIOSH). Equipment used for the purpose of health and safety shall be approved by and meet pertinent standards and specifications of the appropriate regulatory agencies.

A copy of the most up-to-date version of the EHASP shall be maintained on-site at all times by the Contractor. The on-site copy shall contain the signature of the Engineer and each on-site employee of the MassDOT, Contractor, and Subcontractors involved with on-site activities. The employee's signature on the EHASP shall be deemed prima facie evidence that the employee has read and understands the plan. Updated copies of signature sheets shall be submitted to the Engineer.

ITEM 180.01 (Continued)

The EHASP shall specify a Contractor Site Safety and Health Officer responsible for implementation of the EHASP and to oversee all construction activities, including handling, storage, sampling and transport, which require contact with or exposure to potentially hazardous materials.

The level of protection, required to ensure the health and safety of on-site personnel will be stipulated in the EHASP. The Site Safety and Health Officer shall implement the EHASP based on changing site and weather conditions, type of operation or activity, chemical compounds identified on-site, concentration of the chemicals, air monitoring data, physical state of the hazardous materials, potential duration of exposure to hazardous materials, dexterity required to perform work, decontamination procedures, necessary personnel and type of equipment to be utilized.

During implementation of the EHASP, a daily log shall be kept by the Site Safety and Health Officer and a copy shall be provided weekly to the Engineer. This log shall be used to record a description of the weather conditions, levels of personal protection being employed, screening data and any other information relevant to on-site environmental safety conditions. The Site Safety and Health Officer shall sign and date the daily log.

Method of Measurement and Basis of Payment

Preparation and implementation of the Environmental Health and Safety Program, including the monitoring, protection and storage of all contaminated materials, as well as subsequent modifications to the EHASP, will be measured and paid for at the Lump Sum Bid Price.

Payment of 50% of the Environmental Health and Safety Program contract price will be made upon the initial acceptance of the EHASP by the Engineer. Payment of the remaining 50% of the Environmental Health and Safety Program contract price will be made upon completion of the work. The bid price shall include preparation and implementation of the EHASP as well as the cost for its enforcement by the Site Safety and Health Officer along with any necessary revisions and updates. The work of implementing the Environmental Health and Safety Program includes work involving, but not limited to, the monitoring, protection, and storage of all contaminated materials.

ITEM 180.02**PERSONAL PROTECTION LEVEL C UPGRADE****HOUR**

The work shall consist of providing appropriate personal protective equipment (PPE) for all personnel in an area either containing or suspected of containing a hazardous environment.

Contingencies for upgrading the level of protection for on-site workers will be identified in the EHASP and the Contractor shall have the capability to implement the personal protection upgrade in a timely manner. The protective equipment and its use shall be in compliance with the EHASP and all appropriate regulations and/or standards for employee working conditions.

Method of Measurement and Basis of Payment

Personal Protection Level C Upgrade will be measured and paid only upon upgrade to Level C and will be at the contract unit price, per Hour, per worker, required in Level C personal protection. No payment will be made to the Contractor to provide Level D PPE.

ITEM 180.03**LICENSED SITE PROFESSIONAL SERVICES****HOUR**

Within limited areas of the project site, soils, sediments and/or groundwater may be contaminated. A Licensed Site Professional (LSP) shall be required to provide the services necessary to comply with the requirements of the MCP. These services may include sampling, analysis and characterization of potentially contaminated media, preparation of Immediate Response Action (IRA) Plans, Utility-Related Abatement Measure (URAM) and Release Abatement Measure (RAM) Plans, Imminent Hazard Evaluations, status reports, transmittal forms, release notification forms, risk assessments, completion statements, and related documents required pursuant to the Massachusetts Contingency Plan (MCP). LSP hours related to the characterization and disposal of contaminated soil and/or sediment are incidental to the disposal items. An estimate of LSP services to be provided shall be submitted to the Engineer for approval before any LSP activity begins.

The name and qualifications of the LSP and all environmental technicians to be assigned to the project shall be submitted to the Engineer for approval at least four weeks prior to initial site activities. The LSP shall have a current, valid license issued by the Massachusetts Board of Registration of Hazardous Waste Site Cleanup Professionals. The LSP shall have significant experience in the oversight of MCP activities at active construction sites. Qualification packages for the LSP and each technician shall include a resume, all recent work assignments with responsibilities identified (previous 5 years), and applicable training and certifications. A list of all Notices of Noncompliance, Notice of Audit Findings and Enforcement Orders issued by the DEP shall be submitted for all work assignments listed for the LSP and environmental technicians.

The LSP shall evaluate soil and/or sediment with discoloration, odor, and presence of petroleum liquid or sheening on the groundwater surface, or any abnormal gas or materials in the ground which are known or suspected to be oil or hazardous materials. Excavated soil and sediment which is suspected of petroleum contamination shall be field screened using the jar headspace procedures according to established DEP Guidance. All field screening equipment must be pre-approved by the Engineer. The LSP shall ensure proper on site calibration of all field screening instrumentation.

The Engineer shall be contacted immediately when observations or any field screening results verify contamination requiring further analysis, and/or enhanced management of suspect soil and/or sediment. Any enhanced management of contaminated soil to ensure proper stockpiling and storage is incidental to the LSP Services item. The LSP shall adequately characterize subsurface conditions prior to backfill in areas where contaminated material has been excavated. The Engineer shall approve the locations of the testing sites prior to the sampling.

ITEM 180.03 (Continued)

Contaminated soil, sediment and/or groundwater shall be handled in accordance with all applicable state and federal statutes, regulations and policies. The LSP shall adequately characterize contaminated media for comparison to the requirements of the MCP. The Contractor and the LSP shall be aware of the reporting requirements for releases of oil and/or other hazardous material (OHM) as set forth in federal and state laws and regulations, and shall both be held responsible for performing the work in accordance with all applicable Federal and State laws and regulations. The LSP shall maintain written records in a clear and concise format which tracks the excavation, stockpiling, analysis and reuse/disposal of all suspect contaminated soils, sediments and groundwater. These records shall be up-to-date and available to the Engineer on a bi-weekly basis. The LSP shall review and summarize the laboratory data from any analyses performed on contaminated media. A report shall be delivered to the Engineer outlining the material sampling methods, laboratory analysis results and proposed course of action. The laboratory report together with Chain of Custody forms for all analytical results shall be submitted to the Engineer within 14 days after completion of such analyses.

The LSP and Contractor shall be held responsible for the submission of all MCP-related documents to the Engineer at least 14 days in advance of any timeframe specified in the MCP and for the timely submission of data and tracking information as noted within this Item. All documents prepared under this Item must be reviewed and signed by the approved LSP. The Contractor and LSP shall be responsible for all fines, penalties and enforcement requirements imposed by applicable regulatory agencies for failure to meet regulatory and contract timeframes. No compensation will be provided for such fines, penalties and enforcement actions.

The Contractor and the LSP shall be aware of the reporting requirements for releases of oil and/or other hazardous material (OHM) as set forth in federal and state laws and regulations, and shall both be held responsible for performing the work in accordance with all applicable Federal and State laws and regulations.

If the Contractor causes a release of OHM, the Contractor shall be responsible for assessing and remediating the release in accordance with all pertinent State and Federal regulations, including securing the services of a LSP, at his own expense.

The LSP shall coordinate all activities involving both MassDOT and the DEP through the Engineer. Any notification of release shall be approved by the Department before submittal to the DEP, except if an imminent hazard condition exists as defined in 309 CMR 4.03(4)(b).

ITEM 180.03 (Continued)**Laboratory Testing in Support of LSP Services**

Laboratory testing provides for analytical testing in support of LSP services related to maintaining MCP compliance, such as delineating the extent and type of contamination present. Sampling and testing for disposal purposes are not included.

In order to maintain compliance with the MCP or other regulatory requirements, the LSP shall request approval from the Engineer to obtain samples from various locations and depths within the project area and to perform laboratory analyses on those samples. The samples shall be delivered to a DEP-certified laboratory using proper chain-of-custody documentation for analyses which, depending upon site conditions and suspected and/or identified contaminants of concern, may include, but are not limited to, metals, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, polycyclic aromatic hydrocarbons (PAHs), extractable petroleum hydrocarbons (EPHs) and volatile petroleum hydrocarbons (VPHs). Subsequent testing, depending upon initial results, may be required for Toxicity Characteristic Leaching Procedure (TCLP) analyses (EPA Method 1311) for metals.

Method of Measurement and Basis of Payment

LSP Services for work under this item will be measured per person, per hour of service provided by LSP, Environmental Technicians and other approved personnel. Travel time shall not be included in the billable hours. LSP hours related to soil/sediment disposal (disposal characterization, landfill acceptance, disposal package preparation, etc.) shall be incidental to disposal items.

The quantity and type of laboratory tests must be approved by the Engineer beforehand. The contractor will be reimbursed upon satisfactory written evidence of payment. The contractor may be required to obtain cost estimates from three DEP certified laboratories for the Engineer to choose the service provider. Laboratory testing related to soil/sediment disposal (disposal characterization, landfill acceptance, disposal package preparation, etc.) shall be incidental to disposal items.

LSP Services will be paid at the Contractor bid price for each hour, or fraction thereof, spent to perform the work as described above. The bid price shall be a blended rate that includes the cost of the LSP, environmental technicians and other personnel, the performance of all work tasks and field screening, including required equipment, materials and instrumentation, and production of all documentation described above. All requests for payment must be accompanied by the following information: the names of the personnel associated with the work charged under LSP Services, dates and hours worked, work conducted, including, where appropriate, locations as identified on the construction plans, and a copy of the field diary for the dates submitted.

Laboratory Testing will be reimbursed upon receipt of paid invoices for testing approved by the Engineer.

<u>ITEM 181.11</u>	<u>DISPOSAL OF UNREGULATED SOIL</u>	<u>TON</u>
<u>ITEM 181.12</u>	<u>DISPOSAL OF REGULATED SOIL IN-STATE FACILITY</u>	<u>TON</u>
<u>ITEM 181.13</u>	<u>DISPOSAL OF REGULATED SOIL OUT-OF-STATE FACILITY</u>	<u>TON</u>
<u>ITEM 181.14</u>	<u>DISPOSAL OF HAZARDOUS WASTE</u>	<u>TON</u>

The work under these Items shall include the transportation and disposal of contaminated material excavated, or excavated and stockpiled. It shall also include the cost of any additional laboratory analyses required by a particular disposal facility beyond the standard disposal test set.

Excavation of existing subsurface materials may include the excavation of contaminated soils. The Contractor shall be responsible for the proper coordination of characterization, transport and disposal, recycling or reuse of contaminated soils. Disposal, recycling or reuse will be referred to as “disposal” for the purposes of this specification. However, regardless of the use of the term herein, there will be no compensation under these items for reuse within the project limits. The Contractor will be responsible for coordinating the activities necessary for characterization, transport and disposal of contaminated soils. Such coordination will include the Engineer and his/her designee overseeing management of contaminated materials. Contaminated soils must be disposed of in a manner appropriate for the soil classification as described below and in accordance with the applicable laws of local, state and federal authorities. The Contractor shall be responsible for identifying disposal facility (ies) licensed to accept the class of contaminated soils to be managed and assure that the facility can accept the anticipated volume of soil contemplated by the project. The Contractor shall be responsible for hiring a Licensed Site Professional (LSP) and all ancillary professional services including laboratories as needed for this work. The Contractor will be responsible for obtaining all permits, approvals, manifests, waste profiles, Bills of Lading, etc. subject to the approval of the Engineer prior to the removal of the contaminated soil from the site. The Contractor and LSP shall prepare and submit to the Engineer for approval all documents required under the Massachusetts Contingency Plan (MCP) and related laws and environmental regulations to conduct characterization, transport, and disposal of contaminated materials.

Classes Of Contaminated Soils

The Contractor and its LSP shall determine if soil excavated or soil to be excavated is unregulated soil or contaminated soil as defined in this section. Such materials shall be given a designation for purposes of reuse or disposal based on the criteria of the MCP. Soils and sediments which are not suitable for reuse will be given a designation for purposes of off-site disposal based on the characterization data and disposal facility license requirements. The Classes of Contaminated Soils are defined as follows:

ITEMS 181.11 through 181.14 (Continued)

UNREGULATED SOIL consists of soil, fill and dredged material with measured levels of oil and hazardous material (OHM) contamination at concentrations below the applicable Reportable Concentrations (RCs) presented in the MCP. Unregulated soil consists of material which may be reused (or otherwise disposed) as fill within the Commonwealth of Massachusetts subject to the non-degradation criteria of the MCP (310 CMR 40.0032(3), in a restricted manner, such that they are sent to a location with equal or higher concentrations of similar contaminants. Disposal areas include licensed disposal facilities, approved industrial settings in areas which will be capped or covered with pavement or loamed and seeded, and for purposes of this project should be reused as fill within the project site construction corridor whenever possible. The material cannot be placed in residential and/or environmentally sensitive (e.g. wetlands) areas. Under no circumstances shall contaminated soils be placed in an uncontaminated or less contaminated area (including the area above the groundwater table if this area shows no sign of contamination).

The Contractor shall submit to MassDOT the proposed disposal location for unregulated soils for approval. If such a disposal location is not a licensed disposal facility, the Contractor shall submit to the Engineer analytical data to characterize the disposal area sufficiently to verify that the unregulated material generated within the MassDOT construction project limits is equal to or less than the contaminant levels at the disposal site and meets the non-degradation requirements of the MCP. In addition, the Contractor shall provide written confirmation from the owner of the proposed disposal location that they have been provided with the analytical data for both the materials to be disposed as well as the disposal site characterization and that s/he agrees to accept this material. A Material Shipping Record or Bill of Lading, as appropriate, shall be used to track the off-site disposal of unregulated soil and a copy, signed by the disposal facility or property owner, shall be provided to the Engineer in order to document legal disposal of the unregulated material.

The cost of on-site disposal of unregulated soil within the project area will be considered incidental to the item of work to which it pertains.

REGULATED SOIL consists of materials containing measurable levels of OHM that are equal to or exceed the applicable Reportable Concentrations for the site as defined by the MCP, 310 CMR 40.0000. Regulated soil which meets the MCP reuse criteria of the applicable soil/groundwater category for this project area may be reused on site provided that it meets the appropriate geotechnical criteria established by the Engineer. Regulated Soil may be reused (as daily or intermediate cover or pre-cap contouring material) or disposed (as buried waste) at lined landfills within the Commonwealth of Massachusetts or at an unlined landfill that is approved by the Massachusetts Department of Environmental Protection (DEP) for accepting such material, in accordance with DEP Policy #COMM-97-001, or at a similar out-of-state facility. It should be noted that soils which exceed the levels and criteria for disposal at in-state landfills, as outlined in COMM-97-001, may be shipped to an in-state landfill, but require approval from the DEP Division of Solid Waste Management and receiving facility. An additional management alternative for this material is recycling into asphalt. Regulated Soils may also be recycled at a DEP approved recycling facility possessing a Class A recycling permit subject to acceptance by the facility and compliance with DEP Policy #BWSC-94-400. Regulated Soil removed from the site for disposal or treatment must be removed via an LSP approved Bill of Lading, Manifest or applicable material tracking form. This type of facility shall be approved/permitted by the State in which it operates to accept the class of contaminated soil in accordance with all applicable local, state and federal regulations.

ITEMS 181.11 through 181.14 (Continued)

HAZARDOUS WASTE consists of materials which must be disposed of at a facility permitted and operated in full compliance with Federal Regulation 40 CFR 260-265, Massachusetts Regulation 310 CMR 30.000, Toxic Substances Control Act (TSCA) regulations, or the equivalent regulations of other states, and all other applicable local, state, and federal regulations. All excavated materials classified as hazardous waste shall be disposed of at an out-of-state permitted facility. This facility shall be a RCRA hazardous waste or TSCA facility, or RCRA hazardous waste incinerator. This type of facility shall be approved/permitted by the State in which it operates to accept hazardous waste in accordance with all applicable local, state and federal regulations and shall be permitted to accept all contamination which may be present in the soil excavate. The Contractor shall ensure that, when needed, the facility can accept TSCA waste materials i.e. polychlorinated biphenyls (PCBs). Hazardous waste must be removed from the site for disposal or treatment via an LSP approved Manifest.

MONITORING/SAMPLING/TESTING REQUIREMENTS

The Contractor shall be responsible for monitoring, sampling and testing during and following excavation of contaminated soils to determine the specific class of contaminated material. Monitoring, sampling and testing frequency and techniques should be performed in accordance with Item 180.03 – LSP Services. Additional sampling and analysis may be necessary to meet the requirements of the disposal facility license. The cost of such additional sampling and analysis shall be included in the bid cost for the applicable disposal items. The Contractor shall obtain sufficient information to demonstrate that the contaminated soil meets the disposal criteria set by the receiving facility that will accept the material.

No excavated material will be permanently placed on-site or removed for off-site disposal until the results of chemical analyses have been received and the materials have been properly classified. The Contractor shall submit to the Engineer results of field and laboratory chemical analyses tests within seven days after their completion, accompanied by the classification of the material determined by the Contractor, and the intended disposition of the material. The Contractor shall submit to the Engineer for review all plans and documents relevant to LSP services, including but not limited to, all documents that must be submitted to the DEP.

WASTE TRACKING: Copies of the fully executed Weight Slips/Bills of Lading/ Manifests/Material Shipping Records or other material tracking form received by the Contractor from each disposal facility and for each load disposed of at that facility, shall be submitted to Engineer and the Contractor's LSP within three days of receipt by the Contractor. The Contractor is responsible for preparing and submitting such documents for review and signature by the LSP or other appropriate person with signatory authority, three days in advance of transporting soil off-site. The Contractor shall furnish a form attached to each manifest or other material tracking form for all material removed off-site, certifying that the material was delivered to the site approved for the class of material. If the proposed disposition of the material is for reuse within the project construction corridor, the Contractor shall cooperate with MassDOT to obtain a suitable representative sample(s) of the material to establish its structural characteristics in order to meet the applicable structural requirements as fill for the project.

ITEMS 181.11 through 181.14 (Continued)

All material transported off-site shall be loaded by the Contractor into properly licensed and permitted vehicles and transported directly to the selected disposal or recycling facility and be accompanied by the applicable shipping paper. At a minimum, truck bodies must be structurally sound with sealed tail gates, and trucks shall be lined and loads covered with a liner, which shall be placed to form a continuous waterproof tarpaulin to protect the load from wind and rain.

DECONTAMINATION OF EQUIPMENT: Tools and equipment which are to be taken from and reused off site shall be decontaminated in accordance with applicable local, state and federal regulations. This requirement shall include, but not be limited to, all tools, heavy machinery and excavating and hauling equipment used during excavation, stockpiling and handling of contaminated material. Decontamination of equipment is considered incidental to the applicable excavation item.

REGULATORY REQUIREMENTS: The Contractor shall be responsible for adhering to regulations, specifications and recognized standard practices related to contaminated material handling during excavation and disposal activities. MassDOT shall not be responsible at any time for the Contractor's violation of pertinent State or Federal regulations or endangerment of laborers and others. The Contractor shall comply with all rules, regulations, laws, permits and ordinances of all authorities having jurisdiction including, but not limited to, Massachusetts DEP, the U.S. Environmental Protection Agency (EPA), Federal Department of Transportation (DOT), Massachusetts Water Resources Authority (MWRA), the Commonwealth of Massachusetts and other applicable local, state and federal agencies governing the disposal of contaminated soils.

All labor, materials, equipment and services necessary to make the work comply with such regulations shall be provided by the Contractor without additional cost to MassDOT. Whenever there is a conflict or overlap within the regulations, the most stringent provisions shall apply. The Contractor shall reimburse MassDOT for all costs it incurs, including penalties and/or for fines, as a result of the Contractor's failure to adhere to the regulations, specifications, recognized standard practices, etc., that relate to contaminated material handling, transportation and disposal.

Submittals**I. Summary of Sampling Results, Classification of Material and Proposed Disposal Option.**

The following information, presented in tabular format, must be submitted to the Engineer for review and approval prior to any reuse on-site or disposal off-site. This requirement is on-going throughout the project duration. At least two weeks prior to the start of any excavation activity, the Contractor shall submit a tracking template to be used to present the information as stipulated below. Excavation will not begin until the format is acceptable to MassDOT.

Characterization Reports will be submitted for all soil, sediment, debris and groundwater characterized through the sampling and analysis program. Each report will include a site plan which identifies the sampling locations represented in the Report. The Construction Plan sheets may be used as a baseplan to record this information.

ITEMS 181.11 through 181.14 (Continued)

The Sampling Results will be presented in tabular format. Each sample will be identified by appropriate identification matching the sample identification shown on the Chain of Custody Record. The sample must also be identified by location (e.g. grid number or stockpile number). For each sample, the following information must be listed: the classification (unregulated, regulated, etc.), proposed disposal option for the stockpile or unit of material represented, and, all analytical results.

Each Characterization Report will include the laboratory analytical report and Chain of Custody Record for the samples included in the Report.

II. Stockpiling, Transport, and Disposal.

At least two weeks prior to the start of any excavation activity, the Contractor shall submit, in writing, the following for review and shall not begin excavation activity until the entire submittal is acceptable to MassDOT.

Excavation and Stockpiling Protocol:

Provide a written description of the management protocols for performing excavation and stockpiling and/or direct loading for transport, referencing the locations and methods of excavating and stockpiling excavated material.

Disposal and Recycling Facilities:

1. Provide the name, address, applicable licenses and approved waste profile for disposal and/or recycling location(s) where contaminated soil will be disposed. Present information substantiating the suitability of proposed sites to receive classifications of materials intended to be disposed there, including the ability of the facility to accept anticipated volumes of material.
2. Provide a summary of the history of compliance actions for each disposal/recycling facility proposed to be used by the Contractor. The compliance history shall include a comprehensive list of any state or federal citations, notices of non-compliance, consent decrees or violations relative to the management of waste (including remediation waste) at the facility. Material should not be sent to facilities which are actively considered by the DEP, USEPA or other responsible agency to be in violation of federal, state or local hazardous waste or hazardous material regulations. MassDOT reserves the right to reject any facility on the basis of poor compliance history.

Transportation:

The name, address, applicable license and insurance certificates of the licensed hauler(s) and equipment and handling methods to be used in excavation, segregation, transport, disposal or recycling.

ITEMS 181.11 through 181.14 (Continued)**III. Material Tracking and Analytical Documentation for Reuse/Disposal.**

The following documents are required for all excavation, reuse and disposal operations and shall be in the format described. At least two weeks prior to the start of any excavation or demolition activity, the Contractor shall submit the tracking templates required to present the information as stipulated below. Excavation or demolition will not begin until the format is acceptable to MassDOT.

All soils, sediments and demolition debris must be tracked from the point of excavation to stockpiling to onsite treatment/processing operations to off-site disposal or onsite reuse as applicable.

Demolition Debris:

Demolition debris must be tracked if the debris is stockpiled at a location other than the point of origin or if treatment or material processing is conducted. Identification of locations will be based on the station-offset of the location. The tracking table will identify date and point of generation, any field screening such as PID or dust monitoring, visual observations/comments, quantity, and stockpile ID/processing operation location. For each unit of material tracked, the table will also track reuse of the material on-site, providing reuse date, location of reuse as defined by start and end station, width of reuse location by offset, the fill elevation range, quantity, and finish grade for said location. For demolition debris which is not reused on site, the table will also track disposal of the material as defined by disposal date, quantity and disposal facility. The table must provide a reference to any analytical data generated for the material.

Soil/Sediment:

Soil excavation will be identified based on the station-offset of the excavation location limits. The tracking table will identify date and point of generation, any field screening such as PID or dust monitoring, visual observations, quantity, and stockpile number/location. For each unit of material tracked, the table will also track reuse of the material on-site and disposal of the material off-site using the same categories identified for demolition debris above.

Method of Measurement and Basis of Payment

Disposal of contaminated soil shall be measured for payment by the Ton of actual and verified weight of contaminated materials removed and disposed of. The quantities will be determined only by weight slips issued by and signed by the disposal facility. The most cost-effective, legal disposal method shall be used. The work of the LSP for disposal under all of these items shall be incidental to the work with no additional compensation.

ITEM 181.11 Measurement for Disposal of Unregulated Soil shall be under the Contract Unit Price by the weight, in tons, of contaminated materials removed from the site and transported to and disposed of at an approved location or licensed facility, and includes any and all costs for approvals, permits, fees and taxes, additional testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEMS 181.11 through 181.14 (Continued)

ITEM 181.12 Measurement for Disposal of Regulated Soil – In-State Facility shall be under the Contract Unit Price by the weight in tons of contaminated materials removed from the site and transported to and disposed of at an approved in-state facility, and includes any and all costs for approvals, permits, fees and taxes, testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEM 181.13 Measurement for Disposal of Regulated Soil - Out-of-State Facility shall be under the Contract Unit Price by the weight in tons of contaminated materials removed from the site and transported to and disposed of at an approved out-of-state facility, and includes any and all costs for approvals, permits, fees and taxes, testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEM 181.14 Measurement for Disposal of Hazardous Waste shall be under the Contract Unit Price by the weight in tons of hazardous waste removed from the site and transported to and disposed of at the licensed hazardous waste facility, and includes any and all costs for approvals, permits, fees and taxes, testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEM 182.1 **INSPECTION AND TESTING FOR ASBESTOS** **LUMP SUM**

The work shall include the inspecting and testing of all materials suspected of containing asbestos. When any demolition is required to enable the inspection and testing of the suspected material it will be considered incidental to this Item and the Contractor must perform all asbestos handling and testing in accordance with the regulations stated below.

Dust suppression in the form of light water sprays, foams, dust suppressants and calcium chloride will be implemented as required to control dusting during any disturbance of asbestos suspected material. Alternatively, intrusive activities may be reduced or curtailed under high wind or heavy rain conditions, which in the opinion of the Health and Safety Plan (HASP) may pose a safety hazard to the workers.

The Contractor shall employ the services of a Massachusetts licensed "Asbestos Inspector" to inspect the material to determine whether or not "ITEM 182.2 REMOVAL OF ASBESTOS" is required. Should the asbestos inspector determine laboratory testing is required, a state certified laboratory shall be used to perform all necessary tests.

REGULATIONS

U.S. Department of Labor, Occupational Safety and Health Administration, (OSHA) including but not limited to:

29 CFR 1910 Section 1001 and 29 CFR 1926 Section 58 Occupational exposure to Asbestos, Tremolite, Anthophyllite and Actinolite, Final Rule
29 CFR 1910 Section 134 Respiration Protection
29 CFR 1926 Construction Industry

ITEM 182.1 Cont.

29 CFR 1910 Section 2 Access to Employee Exposure and Medical Records
29 CFR 1910 Section 1200 Hazard Communication
29 CFR 1910 Section 145 Specifications for Accident Prevention Signs and Tags

U.S. Environmental Protection Agency, (EPA) including but not limited to:

40 CFR 762, CPTS 62044, FRL 2843-9, Federal Register Vol. 50 no.134, July 12, 1985
p.28530 - 28540 Asbestos Abatement Projects Rule
40 CFR 61 Subpart A Regulation for Asbestos
40 CFR 61 Subpart M (Revised Subpart B) National Emission
Standard for Asbestos

U.S. Department of Transportation 49 CFR 172 and 173

Massachusetts Department of Labor Standards Regulations, (DLS) including but not limited to:

454 CMR 28.00 Removal, Containment and Encapsulation of Asbestos

Massachusetts Department of Environmental Protection (DEP) including but not limited to
(supplementing subsection 7.01):

310 CMR 7.00, Section 7.09 Odor and Dust, Section 7.10 Noise, Section 7.15 Air Pollution
Control Regulations
310 CMR 18.00 and 19.00 Solid Waste Regulations

Massachusetts Division of Industrial Safety 45 CMR 10.00

Local Requirements including but not limited to those of Health Departments, Fire Departments and
Inspection Services Departments

Wherever there is a conflict or overlap of the above references, the most stringent provision shall
apply.

Method of Measurement and Basis of Payment

Measurement and payment will be at the contract unit price per Lump Sum for ITEM 182.1
INSPECTION AND TESTING FOR ASBESTOS as specified above including all materials, tools,
equipment and labor to complete the inspecting and testing of the asbestos suspected material.

All costs in the connection with the protection of general public, private property, and all costs
associated with the proper inspecting and testing of the material shall be included in the price and no
additional compensation will be allowed.

ITEM 183.1 TREATMENT OF CONTAMINATED GROUNDWATER GALLON

This Item addresses the treatment and disposal of contaminated groundwater encountered during excavation operations. The work generally consists of furnishing the materials, equipment, labor, services, testing/sampling, waste characterization, transportation, disposal, permits and agreements necessary to perform the work required for the collection, treatment and disposal of contaminated groundwater.

The Contractor is advised that contaminated groundwater may be encountered during dewatering activities. The levels and nature of contamination may vary depending on location and/or depth. No data has been provided in this specification indicating the types of contaminants that may be found in groundwater encountered during this work. It will be the responsibility of the Contractor to ensure that water removed during dewatering operations is treated and disposed of in accordance with all applicable laws and regulations and in accordance with this specification.

The Contractor shall monitor the quantity of groundwater collected for treatment using an in-line totalizer flowmeter or an alternate method approved by MassDOT. The Contractor shall, at all times, minimize the quantity of groundwater removed from the excavations. All groundwater determined to be contaminated will be managed in accordance with all applicable local, state and federal regulations.

It is not the intent herein for the Department to design for or specify to the Contractor which particular treatment is to be used, if necessary. Rather, it is the Department's intent to provide guidance to the Contractor for informational and bidding purposes only. It is, therefore, the Contractor's responsibility to use a treatment method to allow him/her to meet any and all laws, regulations, policies, guidelines and permit requirements. Treatment of contaminated groundwater for dewatering operations is generally performed using a mobile treatment trailer equipped with one or more granular-activated carbon (GAC) canisters, although other techniques are also used.

It is likely that treatment of the contaminated groundwater using granular-activated carbon will be required to complete the work under this Contract. The Methods described under Item 183.1 provides for the identification, testing, management and treatment or disposal of contaminated groundwater and shall be implemented, at a minimum and as necessary by the Contractor via Methods under Item 183.1.

The overall handling and management of contaminated groundwater is regulated under the provisions of 310 CMR 40.0000, 314 CMR 3.00 and 5.00, NPDES and other applicable laws. The unpermitted discharge of contaminated dewatering effluent into the environment (storm drain, surface water body, onto the ground) is a violation of federal and state laws and regulations. Should dewatering of contaminated groundwater be necessary, approvals must be sought from the appropriate federal, state, or local regulatory jurisdiction. The USEPA will not specify a treatment system or method, but normally requires that the treated discharge meet Massachusetts Drinking Water Standards.

ITEM 183.1 (Continued)

The discharge standards are normally met by treating the dewatered groundwater through granular-activated carbon canisters, or similar techniques. Longer term discharges to surface waters or storm drains, and any discharges to the ground, require approval and/or issuance of a permit from the DEP Division of Water Pollution Control. The Contractor shall be responsible for applying for, paying all fees for and obtaining all permits required for treatment and/or disposal of contaminated groundwater. Additional requirements may be mandated by local/regional sewer authorities for discharge to sanitary sewer or Publicly Owned Treatment Works (POTW). Copies of permit applications and correspondence from federal and state agencies and sewer authorities shall be supplied to the Engineer prior to dewatering activities.

EPA regulations published in the Federal Register on September 9, 2005 (70 FR 53663) require a National Pollutant Discharge Elimination System (NPDES) Remediation & Miscellaneous Contaminated Sites General Permit (RGP) for all contaminated construction site dewatering activities in Massachusetts (MAG910000) that will involve the discharge of water to classes of receiving waters designated in the Massachusetts Water Quality Standards (314 CMR 4.00). The application requires that operators of proposed new discharges seeking coverage under this general permit submit a Notice of Intent (NOI) to EPA New England post-marked at least 14 days prior to commencement of discharge. The Contractor is solely responsible for applying for and obtaining coverage under the NPDES Remediation General Permit from EPA and, if applicable, DEP, including the costs associated with sampling and analysis of groundwater and any application fees. The Contractor is required to submit a completed copy of the NOI to the Engineer and the Director of Environmental Programs, Construction Division, 10 Park Plaza, Boston, prior to commencement of discharge.

Upon permanent cessation of the discharges authorized by the RGP, the Contractor shall be responsible for submitting a Notice of Termination (NOT) to EPA New England within 30 days of the permanent cessation. The Contractor is required to submit to MassDOT a completed copy of the NOT within 14 days of the permanent cessation of the discharges authorized by the RGP. All costs and fees associated with the submission of the NOT will be the responsibility of the Contractor.

The Contractor shall be responsible for adhering to regulations, specifications, and recognized standard practices related to contaminated groundwater handling during dewatering activities. MassDOT shall not be responsible at any time for the Contractor's violation of pertinent local, state or federal regulations or endangerment of laborers and others. The Contractor shall comply with all rules regulations, laws, permits and ordinances of all authorities having jurisdiction including, but not limited to, Massachusetts Department of Environmental Protection (DEP), the U.S. Environmental Protection Agency (EPA), Federal Department of Transportation (DOT), Massachusetts Water Resources Authority (MWRA), the Commonwealth of Massachusetts and other applicable local, state and federal agencies governing this work.

ITEM 183.1 (Continued)

The Contractor shall be responsible for determining compliance with the requirements of any permit and for any sampling, testing, and disposal required in connection with said permits. MassDOT and the City/Town reserve the right to collect additional samples of dewatered groundwater to determine the Contractor's compliance with the Permit's requirements. All laboratory testing is to be performed by a DEP certified laboratory for all parameters being tested. Copies of all field and laboratory testing results, reports, etc. required by the permits must be supplied to the Engineer. MassDOT, DEP, and the permit-granting agency, where applicable, reserve the right to collect additional samples of discharged groundwater to verify compliance with permit requirements.

For the purpose of these specifications and to establish a basis for the bid, it is anticipated that granular-activated carbon will be the treatment medium for dewatered contaminated groundwater. The bidder shall factor into the payment item all costs associated with the testing and analyses that may be required by the permitting agency. In addition, any laboratory testing of groundwater is to be performed by a DEP certified laboratory for the parameters being tested. Copies of all field and laboratory testing results will be supplied to the Engineer. Bid price shall also include full compensation for labor, materials, maintenance, mobilization, rental and other related costs. Item 183.2 will be used for disposal of used granular-activated carbon canisters.

Submittals

Prior to initiating work, the Contractor shall submit an excavation dewatering plan to the MassDOT that includes a detailed description of the approach to dewatering, a description of methodology for sealing the excavation to minimize infiltration of groundwater, if deemed applicable to the work, anticipated treatment, discharge points, sampling frequency, required permits, transporters and waste facilities complete with license numbers, permit numbers, contact person, and address and telephone number that the Contractor plans to utilize for waste disposal. The plan shall be submitted for the record.

The Contractor shall submit to MassDOT for review, the proposed methods for dewatering and groundwater treatment and disposal for the various portions of the work to be done. The review shall be for methods only. The Contractor shall remain responsible for the maintenance, performance, structural integrity and safety of the systems installed for this work as well as regulatory compliance of the applicable local, state and federal discharge standards. The contractor shall provide all groundwater sampling and analyses, results and reports required by all applicable local, state and federal agencies. The Contractor shall submit to MassDOT for review all plans and documents that must be submitted to the EPA and DEP, including NOI, NOT, treatment system analytical reports and correspondence. Copies of all permits and approvals and lab analyses and test results associated with groundwater treatment and disposal must be submitted to MassDOT within 3 days of receipt by the Contractor.

ITEM 183.1 (Continued)**Establishment of Treatment Procedure**

Since concentrations of contaminants in groundwater cannot be easily assessed in the field, all groundwater extracted from the ground will be considered contaminated and will be initially pumped and stored into open settling tank(s) or a fractionation tank until it can be sampled and analyzed, unless otherwise directed by MassDOT. The Contractor will perform initial sampling and analyses of the groundwater to determine the need for a permit to dispose of contaminated groundwater. Based on the results of the initial sample analysis, which must be provided to the Engineer within twenty-four (24) hours of the time the samples are received by the laboratory, the Contractor will determine the necessity for treatment(s) and disposal procedures. Sampling must also be performed to meet applicable discharge criteria as set by the appropriate regulatory agencies for the permit obtained for disposal. All discharges must meet regulatory standards set forth in the permits required for discharge. For the purposes of the bidding process, it is anticipated that the treatment system will consist of sedimentation tanks, an oil water separator and liquid-phase granular activated carbon as the primary on-site treatment medium for dewatered contaminated groundwater. MassDOT may require additional treatment processes if such is determined necessary during the groundwater testing procedure. The Contractor shall integrate the additional treatment process into the treatment system, if necessary.

The Contractor shall provide all labor, equipment and appurtenances required to treat the groundwater, subject to the approval of MassDOT. Groundwater stored and tested but not requiring treatment or off-site disposal shall be discharged to a location subject to the approval of MassDOT without payment to the Contractor.

Treatment Units

The Contractor shall furnish all labor and materials, and shall install and operate temporary groundwater treatment and disposal system(s) as necessary to treat contaminated groundwater pumped from excavations during construction activities under the Contract. Such systems shall be capable of treating groundwater to meet applicable discharge criteria as set by the appropriate regulatory agencies.

The Contractor or their Environmental Consultant shall operate, maintain and modify the selected treatment system, and conduct the necessary monitoring and reporting of influent, midpoint and effluent results, as required by the discharge permit for the disposal option selected.

Method of Measurement

Provide a treatment system that meets permit discharge requirements, mobilize it to the site, provide copies of laboratory analytical data indicating that the system is performing appropriately to meet permit requirements, and demobilize it from the site. This includes management and disposal of wastes generated during treatment prior to discharging such as activated carbon, etc. Work under Item 183.1 is based upon the number of gallons disposed or contaminated groundwater pumped through the granular-activated carbon (Item 183.2) as the medium for the treatment of contaminated groundwater that is found in pipe trenches, manhole excavations, catch basin excavations, that need to be dewatered.

ITEM 183.1 (Continued)**Basis of Payment**

Payment shall be made at the unit price bid per gallon of groundwater pumped, stored, treated as needed and tested as required by discharge permits and regulatory requirements, which price shall be full compensation for all necessary labor and materials, mobilization, maintenance, demobilization of the appropriate unit(s), freight, rental costs, field and laboratory testing costs and permits. Costs associated with the disposal of granular-activated carbon shall be covered under Item 183.2.

ITEM 183.2 **DISPOSAL OF GRANULAR-ACTIVATED CARBON** **POUND**

Work under Item 183.2 is based upon the disposal of used granular-activated carbon as the treatment medium for contaminated groundwater (Item 183.1) that is found during excavations in which contaminated groundwater is encountered.

Basis of Payment

Payment shall be made at the unit price bid per pound of carbon that is properly disposed and replaced, as necessary, to meet treated water discharge requirements during dewatering operations at the site. Payment for Disposal of Granular Activated Carbon shall include compensation for all labor, equipment, materials, permits, characterization, sampling and on-site or laboratory analysis as needed or required by permits, for replacement and disposal of liquid-phase activated carbon for the on-site contaminated groundwater pumping, collection, treatment and treated water discharge system during the time period required to complete the work. No payments shall be made for replacing carbon which is spent due to the Contractor's failure to remove floating petroleum product or excess sediments prior to the groundwater entering the carbon treatment units. All other costs associated with treatment of contaminated groundwater will be covered under Item 183.1- Treatment of Contaminated Groundwater.

ITEM 184.1 **DISPOSAL OF TREATED WOOD PRODUCTS** **TON**

Work under this item shall include the transportation and disposal of all treated existing wood product as directed by the Engineer.

The timber components of the existing structure are suspected to be treated with creosote, pentachlorophenol and/or CCA. This item shall include all costs for sampling, laboratory testing, loading, transportation and disposal of the treated wood. The Contractor is required to submit disposal manifests to the Engineer prior to the completion of the project. All aspects of this Item are to be completed in accordance with state and federal regulations.

Compensation

Measurement and payment will be by the weight, in tons, of treated timber transported and accepted at a licensed facility. The work shall be considered full compensation for all labor, tools, equipment, materials, testing, loading, transportation, approvals, and permits necessary for the completion of the work.

ITEM 220.6**SANITARY STRUCTURE REBUILT****FOOT**

The work to be done under this Item shall conform to the relevant provisions of Subsection 220 of the Standard Specifications and the following:

This work includes rebuilding sanitary structures to the limits as required by the Engineer.

For sanitary structures that in the opinion of the Engineer, need to be rebuilt, the casting and deteriorated masonry shall be removed until a clean, sound base is obtained upon which concrete blocks or brick may be set to rebuild the structure.

The castings shall be reset to the existing grade in areas outside the limits of pavement milling. In areas of pavement milling, the castings shall be set to the proposed grade based on the grading plans and thickness of proposed surface course.

Method of Measurement

Item 220.6 will be measured for payment by the Foot of sanitary structure rebuilt.

Basis of Payment

Item 220.6 will be paid for at the contract unit price per Foot. This price shall include all labor, materials, equipment, and incidental costs required to complete the work.

ITEM 220.8**SANITARY STRUCTURE REMODELED****EACH**

The work under this Item shall conform to the relevant provisions of Subsection 220 of the Standard Specifications and the following:

The work under this item includes excavation, protection of the existing manhole, a masonry core, watertight sealing, backfilling, compaction, and site restoration.

The Contractor shall take every precaution and care not to damage the structural condition of the existing sanitary structure. The Contractor will be fully responsible for any damage to the existing sanitary structure resulting from their work.

The bricks for sanitary structures shall be sound, hard and uniformly burned brick, regular and uniform in shape and size, of compact texture and satisfactory to the Engineer.

The bricks used under this Item shall comply with ASTM Standard Specifications for sewer brick, made from clay or shale, Designation C-32-63 or Grade SA, hard brick, except that the mean of five tests for absorption shall not exceed 8 percent by weight.

Rejected brick shall be immediately removed from the work and brick satisfactory to the Engineer substituted.

ITEM 220.8 (Continued)**Method of Measurement**

Item 220.8 will be measured for payment by the Each sanitary structure remodeled, complete in place.

Basis of Payment

Item 220.8 will be paid for at the Contract unit price per Each, which price shall include all labor, materials, equipment, and incidental costs required to complete the work. Payment will include the cost of excavation, protection of the existing manhole, backfilling, compaction, and final grading.

ITEM 222.3 FRAME AND GRATE (OR COVER) MUNICIPAL STANDARD **EACH**

The work under this Item shall conform to the relevant provisions of Subsections 201 and 220 of the Standard Specifications, and the following:

This work shall include furnishing new castings.

MassDOT Standard Frame and Cover (Type A) 24-inch diameter shall be placed on new structures as specified or where existing frame and covers are determined by the Engineer to be broken or unacceptable. Covers supplied for drain manholes shall have the word "DRAIN" cast into the cover in 3-inch letters.

Frame and grates shall conform to AASHTO-M105 Class 30. Catch basin frames shall be 3 flange. Grates shall have a two-directional or "grid pattern" type. Grates at low point locations must be able to accept flow from any direction. All grates shall be suitable for use on facilities where bicycle travel is legally allowed.

The standard frame height shall be eight (8) inches. Four (4) inch frames will be allowed only at locations where shallow outlet pipes preclude the use of 8-inch frames on a case-by-case basis.

Frame and Grate (or Cover) Municipal Standard shall be provided from an approved vendor listed on the MassDOT Qualified Construction Materials List.

Method of Measurement

Item 222.3 will be measured for payment by the Each frame and grate (or cover). Each Frame and Grate or Frame and Cover shall be measured as a single unit.

Basis of Payment

Item 222.3 will be paid for at the contract unit price per Each. This price shall include all labor, materials, equipment, and incidental costs required to complete this work.

The installation of these castings on new structures shall be incidental to Items 201., 202., 202.2, and 204.

The installation of these castings on existing structures shall be incidental to Items 220., 220.2, 220.3, 220.5, 220.6, 220.7, and 220.8.

<u>ITEM 303.06</u>	<u>6 INCH DUCTILE IRON WATER PIPE (MECHANICAL JOINT)</u>	<u>FOOT</u>
<u>ITEM 303.12</u>	<u>12 INCH DUCTILE IRON WATER PIPE (MECHANICAL JOINT)</u>	<u>FOOT</u>
<u>ITEM 309.</u>	<u>DUCTILE IRON FITTINGS FOR WATER PIPE</u>	<u>POUND</u>
<u>ITEM 347.075</u>	<u>¾ INCH COPPER TUBING TYPE K</u>	<u>FOOT</u>
<u>ITEM 350.06</u>	<u>6 INCH GATE AND GATE BOX</u>	<u>EACH</u>
<u>ITEM 357.06</u>	<u>6 INCH GATE BOX</u>	<u>EACH</u>
<u>ITEM 363.075</u>	<u>¾ INCH CORPORATION COCK</u>	<u>EACH</u>
<u>ITEM 370.4</u>	<u>12 X 6 INCH TAPPING SLEEVE, VALVE AND BOX</u>	<u>EACH</u>
<u>ITEM 371.12</u>	<u>12 INCH COUPLING</u>	<u>EACH</u>
<u>ITEM 376.</u>	<u>HYDRANT</u>	<u>EACH</u>
<u>ITEM 381.01</u>	<u>SERVICE BOX (MUNICIPAL STANDARD)</u>	<u>EACH</u>
<u>ITEM 384.</u>	<u>CURB STOP</u>	<u>EACH</u>

The work under these Items shall conform to the relevant provisions of Subsection 301 of the Standard Specifications and the following:

The work includes furnishing and installing all materials required to remove existing water system components and install new water system components as shown on the plans and at any locations where the existing pipes are found to conflict with proposed work.

City of Agawam Water Materials and Procedures

The Contractor shall acknowledge and utilize the City of Agawam Water Materials & Procedures. Materials and construction methods associated with water distribution system improvements shall conform to the relevant sections of the document. Any deviations in material, or construction methods, shall be approved by the City of Agawam Department of Public Works as part of the shop drawing submittal process.

Approval of Materials

All shop drawings shall be submitted to the Engineer for approval. Shop drawings shall consist of manufacturer's scale drawings, cuts or catalogs, including descriptive literature and complete characteristics and specifications, and code requirements.

Shop drawings shall be submitted for the type of joint, fittings, couplings, hydrant, gates, valve boxes, filling rings, restrained joints, and lining and coating in accordance with specifications.

The manufacturer shall furnish as part of the shop drawing submittal the Engineer with an affidavit stating that valve(s), hydrants conform to the applicable requirements of the applicable AWWA Standard and the Engineer's specifications, and that all tests specified therein have been performed and all test requirements have been met and the test date. A copy of the Affidavit of Compliance shall be delivered to the construction site attached to each valve and/or hydrant furnished. The Affidavit shall be attached to the valve or hydrant inside a waterproof pouch.

ITEMS 303.06 through 384. (Continued)**Connections to Existing Mains**

The Contractor shall make all connections to the existing mains as indicated on the drawings and as herein specified. The Contractor shall develop a program for the construction and putting into service of the new work subject to the approval of the Engineer. All work involving cutting into and connecting to the existing work shall be planned so as to interfere with operation of the existing facilities for the shortest possible time and when the demands on the system best permit such interference even to the extent of working outside of normal working hours to meet these requirements. The Contractor shall have all possible preparatory work done prior to making the connection and shall provide all labor, tools, material, and equipment required to do the work in one continuous operation.

The Contractor shall have no claim for additional compensation, by reason of delay or inconvenience, for adapting his operations to the needs of the City's water supply. No damages shall be claimed by the Contractor for delays in dewatering pipelines nor shall any damages be claimed because of water leaking through closed valves after dewatering is completed. Under no circumstances shall any customers be without water for a period of more than 4 hours without prior approval of the City. Existing pipeline that is not to be abandoned but is damaged by the Contractor during the work shall be replaced by him at his own expense in a manner approved by the Engineer.

Method of Measurement and Basis of Payment

Items 303.06, 303.12, and 347.075 will be measured and paid for at the respective contract unit price per Each. This price shall include all labor, materials, equipment, and incidental costs required to complete the work.

Unless otherwise noted, all earthworks shall be included under any item requiring excavation. Unless otherwise noted, each item specified or shown on the drawings shall be furnished and installed in accordance with the technical section whether a specific applicable payment item exists or not. The prices for those items which involve excavation shall include compensation for disposal of surplus excavated material, and installation of all necessary sheeting and bracing. In all items involving excavation, the price shall be based on doing the entire excavation in earth. Where rock is excavated, the price therefor shall be in addition to the cost of excavating the earth, and no deduction shall be made in the amount for earth excavation.

The price for all pipe items for water mains and fittings, hydrants and valves, and service connections shall constitute full compensation for earth excavation, sheeting, dewatering, bedding, furnishing, laying, jointing, testing pipe, and backfilling. The cost of making connections to existing water mains and abandoning existing water mains shall be incidental to the project.

Water mains, including all fittings noted on plans, compacted select backfill, couplings, joint and thrust restraints, and concrete backing, shall be measured per Foot of water main installed. Measurement shall not include valves. The laying length of all valves shall be taken as 12 inches and, for each valve; this length shall be subtracted from the length of pipe measured. Insulation for underground pipelines shall be considered incidental to the pipeline replacement.

ITEMS 303.06 through 384. (Continued)

Additional fittings required but not noted on the plans shall be measured per Pound. The weight of fittings up through 64-inch size shall be measured as compact ductile iron fittings, body weight only.

Hydrants shall be measured per Each hydrant installed, relocated, or removed. Valves shall be measured per Each. The cost of making connections to existing mains, and the cost of joint restraints, couplings shall be incidental to the cost of the project. Concrete backing shall be measured and paid under Item 903. The cost of removing abandoned valves and/or valve boxes shall be considered incidental to the project. New valve boxes associated with hydrant relocations shall be paid per Each. The existing valve box associated with the relocated hydrant shall be discarded with prior approval from the City and considered incidental to the new valve box furnished and installed.

ITEM 358.1
ITEM 376.3

GATE BOX REMOVED AND STACKED
HYDRANT – REMOVED AND STACKED

EACH
EACH

The work under these Items shall conform to the relevant provisions of Subsections 201 and 301 of the Standard Specifications, and the following:

The removal and stacking of existing hydrants, gates, and gate boxes shall be in accordance with the following:

All excavation necessary to remove existing hydrants, gates, and gate boxes shall be as required by the Engineer.

The Contractor shall stack old hydrants, gates, and gate boxes at the City of Agawam Department of Public Services yard at 1000 Suffield Street in Agawam.

Method of Measurement

Items 358.1 and 376.3 will be measured for payment respectively by the Each gate box or hydrant removed and properly stacked.

Basis of Payment

Items 358.1 and 376.3 will be paid for at the respective Contract unit price per Each, which price shall include all labor, tools, equipment, materials, municipal coordination, and incidental costs required to complete the work.

ITEM 470.3 **MODIFIED HOT MIX ASPHALT BERM TYPE 2** **TON**

The work under this item shall conform to the relevant provisions of Subsection 470 of the Standard Specifications and the following:

The work shall include the furnishing and installing HMA berm at the locations specified on the plans. Dimensions of the modified berm shall be consistent with the Construction Detail provided as part of the contract drawings.

Method of Measurement

Item 470.3 will be measured for payment by the Ton and shall be the actual quantity complete in place and accepted by the Engineer.

Basis of Payment

Item 470.3 will be paid for at the contract unit price per Ton, which shall include sweeping the underlying surface, transportation, delivery, placement, and compaction.

ITEM 504.2 **GRANITE CURB TYPE VA – SPLAYED END** **EACH**

The work under this item shall conform to the relevant provisions of Subsection 501 of the Standard Specifications and the following:

The work shall include furnishing and installing curb transition sections at the locations shown on the plans to match into proposed or existing edge treatments.

The curbing shall be Type VA and shall have a minimum length of six feet (6'-0").

The curb shall be sawcut to match into the proposed adjacent granite curb at one end, and the opposite end shall match into the existing hot mix asphalt berm or granite edging as shown on the plans.

Method of Measurement

Item 504.2 will be measured for payment by the Each granite curb type VA - splayed end installed, complete in place.

Basis of Payment

Item 504.2 will be paid for at the Contract unit price per Each, which price 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.

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

Compensation

Silt sacks will be measured and paid at the Contract unit price per each, complete in place, which price shall include all labor, materials, equipment and incidental costs required to complete the work. No separate payment will be made for removal and disposal of the sediment from the insert, but all costs in connection therewith shall be included in the Contract unit price bid.

ITEM 705.1
ITEM 706.1**FLAGSTONE WALK REMOVED AND RESET**
BRICK WALK REMOVED AND RELAID**SQUARE YARD**
SQUARE YARD

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

It is the intention of this special provision that the reset brick or flagstone walks at the new locations shall conform as close as possible in every detail to the existing walks.

The work under these items include removing and relaying walks at the back of the proposed sidewalk as shown on the plans in order to transition the existing walkways to the proposed sidewalk and accommodate any grade changes resulting from the proposed roadway and sidewalk construction. Lines and grades shall be consistent with the new sidewalk construction as shown on the plans and established by the Engineer.

The existing brick/flagstone walks shall be reused where possible. Re-laid brick/flagstone walks shall be similar in appearance to the walks which are removed, or which about a new or reconstructed walk.

If existing bricks/flagstones are broken or if new units are necessary to relay the walks, the new bricks/flagstones shall be of similar color and texture as the existing. If excess bricks / stones are present, the contractor shall ask if property owner would like to take possession of materials. If so, the contractor shall neatly stack excess materials at a location designated by the property owner. Unwanted materials shall become property of the contractor.

All existing units shall be thoroughly cleaned before being set. The units shall be of the same color and texture as the existing.

All walks shall be laid on an 8" gravel foundation. If the existing base is of another material, that material may be used subject to the approval of the Engineer.

Cement mortar used to reset the bricks/flagstones shall conform to Material Specification M4.02.15.

Method of Measurement

Items 705.1 and 706.1 will be measured for payment respectively by the Square Yard.

Basis of Payment

Items 705.1 and 706.1 will be paid for at the respective contract unit prices per Square Yard. This price shall include all labor, materials, removing, resetting or furnishing and installing bricks/flagstones, cleaning, cement concrete / asphalt base courses, equipment, and incidentals necessary to complete the work.. Excess bricks/flagstones not accepted by the property owner shall be disposed of by the Contractor without additional compensation.

Gravel for base material will be paid for under Item 151.

Compaction of subgrade material will be paid for under Item 170.

ITEM 740. ENGINEER'S FIELD OFFICE AND EQUIPMENT (TYPE A) MONTH

The work under this Item shall conform to the relevant provisions of Subsection 740 of the Standard Specifications and the following:

Two computer systems and printer system meeting minimum requirements set forth below including installation, maintenance, power, paper, disks, and other supplies shall be provided at the Resident Engineer's Office:

All equipment shall be UL approved and Energy Star compliant.

The Computer System shall meet the following minimum criteria or better:

Processor:	Intel, 3.5 GHz
System Memory (RAM):	12 GB
Hard Drive:	500 GB
Optical Drive:	DVD-RW/DVD+RW/CD-RW/CD+RW
Graphics Card:	8 GB
Network Adapter:	10/100 Mbit/s
USB Ports:	6 USB 3.0 ports
Keyboard:	Generic
Mouse:	Optical mouse with scroll, MS-Mouse compliant
Video/Audio	the computer system shall be capable of allow video calling and recording:
Video camera	shall be High Definition 1080p widescreen capable video calling and recording with built in microphone. The microphone system shall capture natural audio while filtering out background noise.
Audio	shall be stereo multimedia speaker system delivering premium sound.
OS:	Latest Windows Professional with all security updates
Web Browser:	Latest Internet Explorer with all security updates
Applications:	Latest MS Office Professional with all security updates Latest Adobe Acrobat Professional with all security updates Latest Autodesk AutoCAD LT Antivirus software with all current security updates maintained through the life of the contract.
Monitors:	Two 27" LED with Full HD resolution. Max. resolution 1920 x 1080
Flash drives:	2 (two) - 128GB USB 3.0
Internet access:	High Speed (min. 24 mbps) internet access with wireless router.

ITEM 740. (Continued)

The Multifunction Printer System shall meet the following minimum criteria or better:

Color laser printer, fax, scanner, email and copier all in one with the following minimum capabilities:

- Estimated volume 8,000 pages per month
- LCD touch panel display
- 50 page reversing automatic document feeder
- Reduction/enlargement capability
- Ability to copy and print 11" x 17" paper size
- email and network pc connectivity
- Microsoft and Apple compatibility
- ability to overwrite latent images on hard drive
- 600 x 600 dpi capability
- 30 pages per minute print speed (color),
- 4 Paper Trays Standard (RADF) (not including the bypass tray)
- Automatic duplexing
- Finisher with staple functions
- Standard Ethernet. Print Controller
- Scan documents to PDF, PC and USB
- ability to print with authenticated access protection

The Contractor shall supply a maintenance contract for next day service, and all supplies (toner, staples, paper) necessary to meet estimated monthly usage.

The Engineer's Field Office and the equipment included herein including the computer system, and printer shall remain the property of the Contractor at the completion of the project. Disks, flash drives, and card readers with cards shall become the property of the Department.

Compensation for this work will be made at the contract unit price per month which price includes full compensation for all services and equipment, and incidentals necessary to provide equipment, maintenance, insurance as specified and as directed by the Engineer.

ITEM 756. NPDES STORM WATER POLLUTION PREVENTION PLAN LUMP SUM

This Item addresses the preparation and implementation of a Storm Water Pollution Prevention Plan required by the National Pollutant Discharge Elimination System (NPDES) and applicable Construction General Permit (CGP) issued by the U.S. Environmental Protection Agency (EPA).

Pursuant to the Federal Clean Water Act, construction activities which disturb one acre or more are required to apply to the EPA for coverage under the NPDES General Permit for Storm Water Discharges from Construction Activities. The Contractor shall be fully responsible for compliance with the most recently issued CGP and any subsequent revisions. Should a fine or penalty be assessed against it, or MassDOT, as a result of a local, state, or federal enforcement action due to non-compliance with the CGP, the Contractor shall take full responsibility.

The NPDES CGP requires the submission of a Notice of Intent (NOI) to the EPA prior to the start of construction (defined as any activity which disturbs land, including clearing and grubbing). There is a fourteen (14) day review period commencing from the date on which EPA enters the Notice into their database. Based on the review of the NOI, EPA may require additional information, including but not limited to, the submission of the Storm Water Pollution Prevention Plan (SWPPP) for review. Work may not commence on the project until final authorization has been granted by EPA. Any additional time required by EPA for review of submittals will not constitute a basis for claim of delay.

ITEM 756. (Continued)

In addition, if the project discharges to an Outstanding Resource Water, vernal pool, or is within a coastal ACEC as identified by the Massachusetts Department of Environmental Protection (DEP), a separate notification to DEP is required. DEP may also require submission of the Storm Water Pollution Prevention Plan for review and approval. Filing fees associated with the notification to DEP and, if required, the SWPPP filing to DEP shall be paid by the Contractor.

The CGP also requires the preparation and implementation of a SWPPP in accordance with the afore-mentioned statutes and regulations. The Plan will include the CGP conditions and detailed descriptions of controls of erosion and sedimentation to be implemented during construction. The contractor shall prepare the SWPPP and update it as necessary. The Contractor shall submit the Plan to the Engineer for approval at least four (4) weeks prior to any site activities. It is the responsibility of the Contractor to comply with the CGP conditions and the conditions of any state Wetlands Protection Act Order, Water Quality Certification, Corps of Engineers Section 404 Permit and other environmental permits applicable to the project and to include in the SWPPP the methods and means necessary to comply with applicable conditions of said permits.

It is the responsibility of the Contractor to complete the SWPPP in accordance with the EPA CGP, provide all information required, and obtain any and all certifications as required by the CGP. Any amendments to the SWPPP required by site conditions, schedule changes, revised work, regulations, construction methodologies, and the like are the responsibility of the Contractor. Amendments will require the approval of the Engineer prior to implementation.

In addition to the CGP requirements for inspections, MassDOT requires inspection of all erosion controls and site conditions on a weekly basis. Inspections are also required at portions of sites that discharge to sediment or nutrient impaired or high quality waters per the CGP when each incidence of rainfall exceeding 0.25 inches in twenty-four hours or after snowmelt discharge from a storm event that produces 3.25 inches or more of snow within twenty-four hours occurs. The CGP requires that inspections be performed by a qualified individual as outlined in the CGP. MassDOT requires proof of completion of a 4 hour minimum sedimentation and erosion control training class current to the latest CGP. This individual can be, but not limited to, someone that is either a certified inspector, certified professional, or certified storm water inspector. The documentation shall be included as an appendix in the SWPPP. The inspector's qualifications shall be submitted to the Engineer for approval prior to beginning any work. This individual shall be on-site during construction to perform these inspections. In addition, if the Engineer determines at any time that the inspector's performance is inadequate, the Contractor shall provide an alternate inspector. Written weekly inspection forms, storm event inspection forms, and Monthly Summary Reports must be completed and provided to the Engineer. Monthly Summary Reports must include a summary of construction activities undertaken during the reporting period, general site conditions, erosion control maintenance and corrective actions taken, the anticipated schedule of construction activities for the next reporting period, any SWPPP amendments, and representative photographs.

ITEM 756. (Continued)

The Contractor is responsible for preparation of the Plan, all SWPPP certifications, inspections, reports and any and all corrective actions necessary to comply with the provisions of the CGP. The Standard Specifications require adequate erosion control for the duration of the Contract. All control measures must be properly selected, installed, and maintained in accordance with manufacturer specifications and good engineering practices. If periodic inspections or other information indicates a control has been used inappropriately or is no longer adequate, it is the responsibility of the Contractor to replace or modify the control for site conditions at no additional cost to the Department. Contractor must maintain all control measures and other protective measures in effective operating conditions and shall consider replacement of erosion controls for each construction season.

This Item addresses acceptable completion of the SWPPP, any revisions/amendments required during construction, and preparation of monthly reports. In addition, any erosion controls beyond those specified in bid items which are selected by the Contractor to facilitate and/or address the Contractor's schedule, methods and prosecution of the work shall be considered incidental to this item.

The CGP provides specific requirements for temporary and final stabilization. This shall be incorporated into the project schedule. The permit defines specific deadline requirements for Initial Stabilization ("immediately", i.e., no later than the end of the next work day following the day when earth-disturbing activities have temporarily or permanently ceased) and for Complete Stabilization Activities (no later than 14 calendar days after the initiation of stabilization). Stabilization criteria for vegetative and non-vegetative measures are provided in the CGP.

The CGP requires the submission of a Notice of Termination (NOT) from all operators when final stabilization has been achieved, as well as removal and proper disposal of all construction materials, waste and waste handling devices, removal of all equipment and construction vehicles, removal of all temporary stormwater controls, etc. Approval of final stabilization by the Engineer and confirmation of submission of the NOT will be required prior to submission of the Resident Engineer's Final Estimate. The permittee shall use EPA's website to prepare and submit the NOT.

Compensation

Payment for all work under this Item shall be made at the contract unit price, lump sum, which shall include all work detailed above, including Plan preparation, required revisions, revisions/addenda during construction, monthly reports and filing fees.

Payment of fifty (50) % of the contract price shall be made upon acceptance of the NPDES Stormwater Pollution Prevention plan. Payment of forty (40) % of the contract price shall be made in equal installments over the expected duration of stormwater pollution prevention measures. Payment of the final ten (10) % of the contract price shall be paid upon satisfactory submission of a Notice of termination (NOT) when final stabilization has been achieved.

ITEM 784. HEDGE SHRUB REPLACEMENT 4-5 FEET HT EACH

The work under this item shall conform to the relevant provisions of Subsection 771 of the Standard Specifications, all supplemental specifications, and the following:

CONSTRUCTION METHODS

Aged Pine Bark Mulch as specified under Item 767.6 shall be incidental to each planting item including all trees and shrubs. All trees planted in open tree pits or planted tree pits shall receive Aged Pine Bark Mulch for the entire size of the tree pit.

Item 784. Replacement Hedge Shrub 4-5 Feet Ht. is a contingency item. If the Arborist determines that pruning existing hedges (Item 102.25) is not feasible, then this Item 784. shall be used to replace existing hedges. Shrubs shall be installed at a height of four to five feet and spaced at 30 inches on center at the direction of the Arborist. Replacement shrubs may include upright Yews, Arborvitae, or a deciduous species. Final selection of shrubs shall be by the Arborist based on availability at the time of construction and suitability to the site conditions. The Contractor's bid price shall account for the procurement cost of any of these identified shrub genuses.

Water

All plants shall be watered during planting and all plants shall be watered at least twice each week during weeks where the average daily temperature exceeds 55°F and when precipitation is less than 1 in., as determined by local National Weather Service data. Watering shall be sufficient to provide moist soil to a depth of 6 in., as determined by the Engineer. If soil is sufficiently moist, as determined by the Engineer, the required watering may be reduced.

Trees will require a minimum of 10 gallons of water each, and shrubs a minimum of 5 gallons per plant per watering. Watering may be achieved using individual drip irrigation bags.

Trees or shrubs planted after October 15 shall be thoroughly watered at the time of planting, after which subsequent watering will not be required until following season.

Water, including hose, water truck, and all other watering equipment required for the work, shall be furnished by the contractor at no additional cost. All plants injured or work damaged due to the lack of water or the use of too much water shall be the contractor's responsibility to correct. The Contractor shall maintain a watering log for all plants installed on the project, indicating dates of watering and weather events. Log shall be submitted for final payment.

Method of Measurement

Item 784. will be measured for payment by the Each hedge replaced, complete in place.

Basis of Payment

Item 784. will be paid for at the contract unit price per Each. This price shall include all labor, materials, delivery, excavation for rootball, planting media, soil amendments, fertilizers, watering, stakes, guys, and incidental costs required to complete the work.

ITEM 820.15 HIGHWAY LIGHTING – OVERHEAD REMOVED AND RESET EACH

The work under this item shall conform to the relevant provisions of Subsection 820 of the Standard Specifications, and the following:

Work under this item includes the removal and resetting of overhead light fixtures mounted to utility poles.

The existing/proposed utility pole modifications will be performed by the respective utility companies.

The Contractor shall coordinate removing and resetting the overhead lighting fixtures with the utility companies and the City of Agawam.

The Contractor shall pay all disconnect/reconnect fees and should coordinate with respective Contractors performing the utility pole and overhead wire relocations to ensure secondary wires placed at new poles include the pig tails necessary to connect in the relocated overhead highway lighting.

The Contractor shall exercise caution when removing the lighting fixtures. Any damage to the lighting fixtures caused by the Contractor's negligence shall be repaired, by the Contractor, at no additional cost to the Owner.

The Contractor shall reset the lighting fixtures at pole locations as noted on the Plans. The Contractor shall ensure the lighting fixtures are in full operation as part of this Item. The Contractor shall provide any additional hardware, wiring, or any other materials required to install the lighting fixtures and have them be operational, and per the requirements of the utility companies.

All work shall be performed by a licensed electrician in the State of Massachusetts, qualified to work on Eversource poles in electrical space. Utility pole set and ownership of equipment shall be confirmed as part of the initial utility coordination once Notice to Proceed (NTP) is issued.

The Contractor shall be made aware that disconnect/reconnect request to Eversource could impact schedule for the relocation of the poles. Work on the Contractor's portion must be completed in a timely manner to allow the next utility in line to relocate.

Method of Measurement

Item 820.15 will be measured for payment by the Each overhead light fixture removed and reset.

Item 820.15 will be paid for at the contract unit price per Each. This price shall include all labor, materials, stacking, installation, wiring, hardware, and incidental costs required to complete the work.

No additional payment will be made for removing and resetting multiple fixtures on the same pole as this shall be considered one unit.

<u>ITEM 824.201</u>	<u>RECTANGULAR RAPID FLASHING BEACON (SOLAR)</u>	<u>LUMP SUM</u>
	<u>LOCATION 1</u>	
<u>ITEM 824.202</u>	<u>RECTANGULAR RAPID FLASHING BEACON (SOLAR)</u>	<u>LUMP SUM</u>
	<u>LOCATION 2</u>	

The work under these items shall conform to the relevant provisions of Section 800 of the Standard Specifications and the following:

The work includes furnishing and installing a solar-powered, pedestrian actuated, rectangular rapid flashing beacon (RRFB) system at the follow locations shown in the plans. RRFB's are intended to provide supplemental warning to approaching vehicles of the potential for pedestrians to be crossing in an adjacent crosswalk.

Location 1 – Maple Street at Oak Hill Avenue

Location 2 – Maple Street at Moore Street

Materials

An RRFB system shall, at a minimum, consist of the following items, which shall be included in the lump sum bid:

- (2) concrete foundations
- (2) 15' traffic signal posts and pedestals
- (2) APS pushbutton systems
- (4) dual rectangular yellow LED beacons in NEMA enclosures with side-pilot LED indicators
- (2) 9"x12" R10-25 (PUSH BUTTON TO TURN ON WARNING LIGHTS) signs
- (4) 36"x36" W11-2 (Pedestrian) signs
- (2) 24"x12" W16-7PR and (2) 24"x12" W16-7PL (Diagonal Downward Arrow) signs
- (2) solar panels
- (2) NEMA Type 3R or higher enclosures to house:
 - o Electrical components, including wiring and solid-state circuit boards
 - o On-board user interface
 - o Battery
 - o Frequency hopping spread spectrum (or other alternate FCC approved) wireless activation unit with a minimum 150' range
- All mounting and supporting hardware and wiring necessary to complete a working system.

RRFB controller and LED beacons, APS pushbutton systems, and traffic signal posts and pedestals shall be listed on the Qualified Traffic Control Equipment List. Pedestals shall be cast iron.

All hot dipped galvanized steel signal components including posts, bases, caps and hardware, and control cabinet, shall be powder coated "Gloss Black" as described herein.

ITEM 824.201 and ITEM 824.202 (Continued)

The light intensity of the LED beacons during daytime conditions shall meet the minimum specifications for Class 1 yellow peak luminous intensity in the Society of Automotive Engineers (SAE) Standard J595 (Directional Flashing Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles) dated January 2005. An automatic signal dimming device shall be included to reduce the brilliance of the LED beacons during nighttime conditions.

All signs shall be MUTCD-compliant. R10-25 signs shall have a black border and legend on a white background. W11-2, W16-7PR, and W16-7PL signs shall have a black border and legend on a fluorescent yellow-green background. All sign sheeting materials shall be per Subsection 828.41.

R10-25 signs may be integrated into the APS pushbutton system as a single unit or mounted separately on Type A aluminum.

W11-2, W16-7PR, and W16-7PL signs shall be Type A aluminum per Subsection 828.42.

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

The solar panels shall be affixed to an aluminum plate and bracket, adjustable at an angle of 45° to 60° and each assembly shall be mounted on a 360° rotatable pole cap mount to facilitate adjustment for maximum solar collection and optimal battery strength. The solar panel assemblies shall be rated for 90 mph wind conditions.

The batteries shall conform to Battery Council International specifications and have a capacity allowing up to 30 days of autonomy without sunlight and varying with ambient temperature and number of activations. The batteries shall be rated for a minimum lifespan of 3 years. Batteries shall be replaceable independently of other components.

The solar panels and battery shall have a minimum operating temperature range of -40° to 122°F (-40° to 50°C).

The Contractor shall provide shop drawings and calculations to confirm solar panel sizing and battery/solar energy storage will meet the functional requirements of the system.

Functional Requirements

The RRFB system shall remain dark until pedestrian actuation.

Upon actuation, all LED beacons shall activate and flash in a rapidly flashing sequence. Each sequence shall last 800 milliseconds and there shall be 75 sequences per minute. The sequence shall be the same for each pair of LED beacons in an enclosure and shall be as follows:

1. The RRFB indication on the left-hand side shall be illuminated for approximately 50 milliseconds.
2. Both RRFB indications shall be dark for approximately 50 milliseconds.

ITEM 824.201 and ITEM 824.202 (Continued)

3. The RRFB indication on the right-hand side shall be illuminated for approximately 50 milliseconds.
4. Both RRFB indications shall be dark for approximately 50 milliseconds.
5. The RRFB indication on the left-hand side shall be illuminated for approximately 50 milliseconds.
6. Both RRFB indications shall be dark for approximately 50 milliseconds.
7. The RRFB indication on the right-hand side shall be illuminated for approximately 50 milliseconds.
8. Both RRFB indications shall be dark for approximately 50 milliseconds.
9. Both RRFB indications shall be illuminated for approximately 50 milliseconds.
10. Both RRFB indications shall be dark for approximately 50 milliseconds.
11. Both RRFB indications shall be illuminated for approximately 50 milliseconds.
12. Both RRFB indications 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 between 5 and 30 flashes per second.

All RRFB's within the system shall commence and cease operation simultaneously.

The length of the flashing cycle upon actuation and the minimum allowable time between actuations shall be per the plans. These settings shall be user-programmable through the on-board user interface. No-fee wireless (Wi-Fi, Bluetooth®, etc.) may be used as an alternative programming method.

Each APS pushbutton shall have a tactile arrow and locator tone. The tactile arrow shall be oriented to point in the direction of the crosswalk. The locator tone shall have a duration of 0.15 seconds or less and shall repeat at 1-second intervals. 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. The tone shall be audible whenever the LED modules are not active.

Upon activation of the LED modules, a speech message shall state, "Yellow lights are flashing." This message shall be stated twice. No vibrotactile or percussive indications shall be used.

If a pushbutton is pressed before the minimum time between actuation intervals is met, a speech message shall state, "Wait," and the locator tone shall resume until the LED modules activate.

Construction Methods

No work shall commence until the shop drawings are approved.

Layout and design of the RRFB system shall conform to the plans.

ITEM 824.201 and ITEM 824.202 (Continued)

Foundation installations shall be per Subsection 801.62. The top of the foundation shall be ¼” to 1” proud of the sidewalk and chamfered at 45 degrees. Gaps between the sidewalk and foundation shall be no larger than ¼” and grouted with preformed joint filler.

The Contractor shall diagnose and replace any part of the pedestrian activated warning system that is found to be defective in workmanship, material, or manner of functioning within six months of final acceptance by the Engineer. This requirement does not supersede the one-year warranty period on materials specified in Subsection 815.20.

Specific Requirements for Equipment Colors and Finishes

All hot dipped galvanized steel signal components including posts, bases, caps and hardware, and control cabinet, shall be powder coated “Gloss Black” to meet the following criteria.

Powder Coating Requirements for Galvanized Steel

Powder Coating shall be Black. The manufacturer shall certify that the powder coating, preparation, and pretreatments will be performed to meet the following criteria:

Powder Coating Requirements for Galvanized Steel

Powder Coating shall be “Polished Black”, 65% gloss. The manufacturer shall certify that the powder coating, preparation, and pretreatments will be performed to meet the following criteria:

- Powder Coating formulation shall be (TGIC) Polyester
- Finish shall be smooth 65% semi-gloss meeting ASTM BS2955
- Coatings shall have a minimum cured thickness of not less than 2.0 Mils (.002 inches)
- Salt Spray Resistance of the final product shall have zero undercutting @ 500 hours of exposure based on test methods that meet or exceed ASTM B-117.
- The finished coating shall pass 2H Pencil hardness testing based on ASTM D-3363
- The finished coating shall have adhesion properties that meet ASTM D-3359/Method B – Rating result shall be not less than 5B. (Note: The owner reserves the right to perform adhesion testing on site using test method A or B)
- Impact Resistance of the finished coating shall meet ASTM D-2794
- Flexibility of the powder coating when fully cured shall meet ASTM D-522 over a ¼” mandrel.
- Abrasive Resistance Qualities shall meet or exceed ASTM D4060 requirements

Substrate preparation for galvanized metals prior to coating application shall be as follows:

Powder Coated Galvanized Steel surfaces shall be pre-treated with a Phosphate Conversion Coating meeting BS3189/1959, Class C for zinc phosphate using a five-stage process including alkali de-grease, rinse, zinc phosphate (applied by either spray or dip), followed by two rinses.

ITEM 824.201 and ITEM 824.202 (Continued)

Substrate preparation for Aluminum components prior to coating application shall be as follows:

Powder Coated Aluminum surfaces shall be pre-treated with a Chromate Conversion Coating. The coating weight shall be 0.1-0.5g/m². Chromate Conversion Coating shall be applied using a five-stage process including alkali de-grease, rinse, chromate conversion followed by two rinses. The treated surfaces shall be powder coated as soon as the pre-treatment is dry.

Quality Control

The powder coating facilities shall be owned and operated by the pole manufacturer to ensure a quality coating system.

Basis of Payment

Items 824.201 through 824.202 will be paid at the respective Lump Sum price. This price shall include all items necessary to install and operate the RRFB at each approach of the respective crosswalk, including signal assemblies, concrete foundations, anchor posts, poles, arrays of RRFB indications, push button assemblies, push button extension arms, controller unit(s), antennas, mounting hardware, batteries, conduit, components, and all labor, materials, equipment and incidental costs required to complete the work.

Warning signs and instructional signs mounted on the signal post with the RRFB will be paid for under Item 832.

ITEM 852.11
ITEM 852.12

TEMPORARY PEDESTRIAN BARRICADE
TEMPORARY PEDESTRIAN CURB RAMP

FOOT
EACH

Work under these items consist of furnishing, deploying, maintaining in proper operating conditions, and removing temporary pedestrian barricades and temporary pedestrian ramps as part of a Temporary Pedestrian Access Route (TPAR) in order to guide pedestrians around a fully- or partially-closed sidewalk. These devices are intended to prevent pedestrians from entering the work area and to prevent pedestrians from inadvertently entering the vehicle travel lane by providing visual and physical separation between each space.

Materials

The Temporary Pedestrian Barricade shall have a continuous bottom rail or edge no more than two (2) inches above the ground and eight (8) inches in height (minimum) to accommodate cane users, have a smooth and continuous hand railing along the top edge no less than 32 inches above the ground and not obstruct or project into the pedestrian path of travel. Barricade walls shall be nearly vertical and generally within the same plane.

If exposed to traffic, Temporary Pedestrian Barricades shall be crashworthy.

ITEM 852.11 and ITEM 852.12(Continued)

The Temporary Pedestrian Curb Ramp shall provide a 48 inch minimum width, with a firm, stable, and non-slip surface. Protective edging with a two (2) inch minimum height shall be installed when the curb ramp or landing platform has a vertical drop of six (6) inches or greater.

The Temporary Pedestrian Curb Ramp walkway and landing area surface shall be of a solid, continuous, contrasting color abutting up to the existing sidewalk.

If a Temporary Pedestrian Curb Ramp leads to a crosswalk, a detectable warning pad must be used at the base of the ramp; if it leads to a protected path that does not conflict with vehicular traffic then a detectable pad shall not be used.

Construction Methods

The Temporary Pedestrian Barricade shall be placed in an area that will provide pedestrians with a TPAR on a smooth, continuous hard surface for its entirety. The geometry and alignment of the facility shall meet the applicable requirements of the “Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities” and the Massachusetts Architectural Access Board.

The recommended width of the TPAR is 60 inches, but if constraints exist a minimum clear width of 48 inches shall be provided along its entirety. If a 60 inch width cannot be accommodated in full, a 60 inch by 60 inch passing space shall be provided every 200 feet or less along the TPAR.

Turning areas shall be 60 inches by 60 inches minimum.

Lateral joints between any surfaces shall not exceed 0.5 inches. Lateral edges may be vertical up to 0.25 inches high and shall be beveled at 1V:2H between 0.25 inches and 0.5 inches.

The TPAR shall be kept clear of debris, snow, and ice and the Temporary Pedestrian Barricades and Temporary Pedestrian Curb Ramps shall not obstruct drainage.

Removal and/or resetting of Temporary Pedestrian Barricades and Temporary Pedestrian Curb Ramps shall be considered incidental.

Compensation

Payment for Temporary Pedestrian Barricades will be made at the contract price per foot installed in place, including all incidental items. This price shall include the cost of furnishing, installing, resetting, removal, and maintaining in good working condition.

Payment for Temporary Pedestrian Curb Ramps will be made at the contract price per each unit installed in place, including all incidental items. This price shall include the cost of furnishing, installing, resetting, removal, and maintaining in good working condition.

ITEM 864.1 HIGH FRICTION GREEN SURFACE TREATMENT SQUARE FOOT

The work under this Item shall include the application of a high friction surface treatment, at the locations shown on the Plans. The surface treatment shall be green color. Samples of color shades shall be submitted to the Engineer for selection of the actual color to be used.

Material must be specifically designed for application onto asphalt or non-bituminous concrete surfaces such as cement concrete. Material must have a balance of properties that will ensure adhesion and movement on a flexible pavement, while providing excellent durability and color stability. Key properties include wear and crack resistance, color retention, adhesion, minimal water absorption and increased friction properties.

The material shall be a durable, colorized, slip resistant and skid resistant coating suitable for delineating areas for preferential use, such as bicycle lanes, bus lanes and other vehicular or pedestrian traffic uses.

The daytime chromaticity coordinates for the color used for green colored pavement shall be as follows:

1		2		3		4	
x	y	x	y	x	y	x	y
0.230	0.754	0.266	0.500	0.367	0.500	0.444	0.555

The daytime luminance factor (Y) shall be at least 7, but no more than 35.

The nighttime chromaticity coordinates for the color used for green colored pavement shall be as follows:

1		2		3		4	
x	y	x	y	x	y	x	y
0.230	0.754	0.366	0.540	0.450	0.500	0.479	0.520

A Certificate of Analysis from an independent recognized testing laboratory confirming performance as outlined above shall be made available upon request.

The Contractor shall install the high friction surface treatment in accordance with all manufacturers’ installation and materials specifications. Copies of the manufacturer’s installation procedures and materials specifications shall be provided to the Engineer for approval before placement of the surface treatment is allowed.

The high friction surface treatment must be composed of a two component, epoxy-modified, acrylic, waterborne coating specifically design for application onto asphalt or non-bituminous concrete surfaces such as cement concrete, and is specially formulated to provide a safe, durable, long lasting color and texture to the pavement surface.

ITEM 864.1 (Continued)

Table 1: Typical Properties of coating		
Characteristic	Test Specification	Coating
Solids by volume	ASTM D 2697	55%
Solids by weight	ASTM D 2369	68.90%
Density	ASTM D 1475	13.34 lbs/gal

Material must be environmentally safe and meet EPA requirements for Volatile Organic Compounds (VOC).

The material shall be applied to the pavement surface using the method outlined in the product Application Instructions.

The pavement surface shall be dry and free from all foreign matter. Material shall be applied with a minimum of 3 spray passes.

Thickness (approx.)				
Spray Passes	Wet		Dry	
	mm	mil	mm	mil
3	0.65	25.7	0.36	14.1
4	0.87	34.3	0.48	18.9

Each coating application shall be spray applied and broomed to work the material into the surface. Subsequent layers shall be sprayed and rolled, using a 1 inch to 1.5 inch nap roller or sprayed and broomed.

Each additional layer of coating material shall be the same color as the first and shall be allowed to dry completely before applying the next layer.

One container of coating will yield one layer covering approximately 700 square feet. See table below.

Spray Passes	Approx. coverage per unit	Approx. coverage per layer	Recommendation
3	225 ft ²	675 ft ²	Coating not subjected to vehicular traffic
4	175 ft ²	700 ft ²	Coating subjected to vehicular traffic

Coating must be 100% dry before opening to traffic. Air temperature, relative humidity and time will affect dry time. Substrate temperature and ambient wind conditions can also affect dry times. Reference the table below for typical dry times.

ITEM 864.1 (Continued)

Coating Dry Times (Typical)		
Air Temperature	Relative Humidity	Time to dry (approx.)
60° F (15°C)	80%	8 hours
81° F (27°C)	57%	4 hours
120° F (49°C)	5%	2 hours

Performance Properties of Coating

Characteristic	Test Specification	Coating	
Dry Time (to record)	ASTM D 5895	35 min	
	23° C; 37% RH		
Taber Wear Abrasion	ASTM D 4060	0.98 g/1000 cycles	
Dry H-10 wheel	1 day cure		
Taber Wear Abrasion	ASTM D 4060	3.4 g/100 cycles	
Wet H-10 wheel	7 day cure		
Accelerated Weathering Environment	ASTM G 15	$\Delta E=0.49$ (brick color)	
	2,000 hrs (CIE Units)		
Hydrophobicity Water Absorption	ASTM D 570	8.3% (9 days immersion)	
Shore Hardness	ASTM D 2240	63 Type D	
Mandrel Bend	ASTM D 522-93A	¼ in @ 21° C	
Permeance	ASTM D 1653	3.45 g/m ² /hr (52 mils)	
VOC	EPA-24	18.7 g/l	
	ASTM D3960-05		
Adhesion to Asphalt	ASTM D 4541	Substrate Failure	
Friction Wet	ASTM E 303	WP* coated	64
	British Pendulum Tester	WP* uncoated	57
		AC** coated	73
	AC** uncoated	60	

*WP - test conducted on asphalt pavement in wheel path.

**AC - test conducted on asphalt pavement adjacent to curb.

Method Of Measurement

Item 864.1 will be measured for payment by the Square Foot, complete in place.

Basis Of Payment

Item 864.1 will be paid for at the contract unit price per Square Foot. This price shall include all labor, materials, equipment, and incidental costs required to complete the work.

<u>ITEM 868.106</u>	<u>6 INCH WET REFLECTIVE RECESSED WHITE LINE (THERMOPLASTIC)</u>	<u>FOOT</u>
<u>ITEM 868.112</u>	<u>12 INCH WET REFLECTIVE RECESSED WHITE LINE (THERMOPLASTIC)</u>	<u>FOOT</u>
<u>ITEM 869.106</u>	<u>6 INCH WET REFLECTIVE RECESSED YELLOW LINE (THERMOPLASTIC)</u>	<u>FOOT</u>

The work under these items shall conform to the relevant provisions of Subsection 860 of the Standard Specifications and the following:

Work shall consist of grooving a slot in the pavement surface and the furnishing and installation of wet reflective thermoplastic pavement markings.

Materials

Wet reflective thermoplastic pavement markings shall consist of a liquid binder, first drop beads or elements to provide dry and wet retroreflectivity, and second drop glass beads to improve the durability of the pavement marking, reduce track-free times, and provide supplementary dry retroreflectivity.

The Contractor shall use one of the following binders or approved equivalents:

1. Ennis-Flint Hydrocarbon Thermoplastic
2. Integrated Traffic Systems iTherm® Hydrocarbon
3. Ozark Materials Hydrocarbon Thermoplastic; or
4. SWARCO Hydrocarbon Thermoplastic.

The Contractor shall use one of the following first drop beads or elements, or approved equivalents:

1. 3M™ All Weather Series 90S Elements
2. Ennis-Flint HP300 Glass Beads
3. Potters VISIMAX® Glass Bead System; or
4. SWARCO MEGALUX-BEADS®.

Second drop beads shall be manufactured from glass of a composition that is highly resistant to traffic wear and to the effects of weathering. If coating is required to meet the performance requirements, the second drop beads shall be coated to ensure satisfactory embedment and adhesion. Second drop beads retained on a No. 40 U.S. Standard Mesh Sieve shall have a minimum crush strength of 30 lbs. when tested in accordance with ASTM D1213.

Second drop beads shall have a minimum refractive index of 1.51 when tested in accordance with AASHTO M247.

Second drop beads passing the No. 30 sieve shall have a minimum of 75 percent true spheres when tested in accordance with ASTM D1155. All second drop beads retained on the No. 20 and No. 30 sieves shall have a minimum of 80 percent true spheres as determined by ASTM D1155.

ITEM 868.106 through ITEM 869.106 (Continued)

Second drop beads shall meet the following gradation requirements when tested in accordance with ASTM D1214:

U.S. Standard Sieve No.	Percent Retained
20	3-10
30	15-35
50	45-75
70	0-10
Pan	0-5

CONSTRUCTION

Installation of Groove

Prior to cutting out the grooves for all recessed lines, the Contractor shall use a chalk line or other suitable method to layout the proposed pavement markings on the surface course so that the Engineer can inspect the locations. Once the Engineer has inspected and approved the proposed striping layout, the grooves for the proposed pavement markings may be cut. No pavement grooving shall be done without the prior approval of the Engineer. Groove position shall be a minimum of 4-inches from the edge of the pavement marking to any longitudinal pavement joints. The groove shall not be installed on bridge joints, on drainage structures, or in other areas identified by the Engineer. The groove shall not be installed continuously for intermittent pavement markings, but only where markings are to be applied.

The use of gang stacked diamond cutting blades to grind a smooth square slot is required for producing all grooves. The spacers between blade cuts shall be such that there will be less than a 10 mil rise in the finished groove between the blades. The acceptability of the surface texture will be determined by the Engineer.

The diamond grinder shall have an articulating head so that the slots are installed correctly on grades and super elevated sections.

Grooves that are ground deeper or wider than the specified allowable limits shall be repaired per the direction of the Engineer at no additional cost. Grooves that are ground too shallow, too narrow, or with unacceptable rises between blade cuts shall be reground to the correct size, depth, and surface finish at no additional cost. Slots ground out of alignment shall be patched using an approved method and materials.

Grooves shall be 1 inch \pm ¼ inch wider than the pavement marking material. Groove depth shall be 150 mils \pm 5 mils, unless otherwise approved by the Engineer. Depth shall be consistent across the full width of the groove. Depth plates shall be provided by the Contractor to the Engineer to assure that desired groove depth is achieved.

ITEM 868.106 through ITEM 869.106 (Continued)

Grooves shall be clean, dry and free of laitance, oil, dirt, grease, paint or other foreign contaminants. Shrouds and a vacuum apparatus shall be included as part of the grinder to remove larger pieces of pavement that are ground out. If water is used to clean the groove or the grooving process takes place during rainfall, a minimum of 24 hours of dry time is required prior to the placement of pavement markings.

After the depth, width, length, and surface condition has been approved by the Engineer, an air lance shall be used to remove fine particles from the groove. Air compressors shall initially be blown out away from the application area to prevent compressor condensation build-up from entering the groove. The Contractor shall prevent traffic from traversing the grooves and re-clean grooves, as necessary, prior to application of pavement markings at no additional cost to the Department.

All grooves must be given final approval by the Engineer prior to the placement of pavement markings.

Installation of Wet Reflective Thermoplastic

Installation of wet reflective thermoplastic pavement markings shall conform to the Manufacturer's specifications and the following:

Application rate for binder and all beads and elements shall consider final pavement surface composition and smoothness in advance of application to ensure proper wet film thickness and embedment of all beads and elements. The Contractor shall provide the Engineer with documentation from the Manufacturer with all recommended application rates in advance of any pavement marking installation.

The minimum uniform wet thickness for the thermoplastic binder shall be 90 mils \pm 5 mils. The line thickness shall be met across at least the middle $\frac{2}{3}$ of the pavement marking width. Depth plates shall be provided by the Contractor to the Engineer to assure that desired thickness is achieved.

The finished white color shall be free from tint, with good opacity and visibility under both daylight and artificial light. The finished yellow color shall be defined by Federal Test Standard

595 - Color Chip Number 13538, using Federal Test Standard 141 (Method 4252). The finished lines shall be uniform in color and have clean, well-defined edges.

First and second drop beads and/or elements shall be applied in a manner that does not induce rolling or bouncing, to ensure that exposed portions of beads are free of binder material. Beads and elements should be embedded in the binder to a depth of approximately 50% of their diameter.

Drop rate for first drop bead or element shall be per the Manufacturer's specifications.

Drop rate for second drop glass bead shall be 6.4-10.2 lbs. per gallon.

ITEM 868.106 through ITEM 869.106 (Continued)

Newly installed pavement markings shall be protected from tracking during the setting period per Subsection 860.63.

Once the installed pavement markings have been open for traffic for a minimum of 48 hours, the Contractor shall perform retroreflectance readings per the measurement and sampling procedures contained in ASTM D7585 (Standard Practice for Evaluating Retroreflective Pavement Markings Using Portable Hand-Operated Instruments) using the Referee Evaluation Protocol found in section 6.4. The following tests shall be performed during the measurement and sampling process:

1. ASTM E1710 (Standard Test Method for Measurement of Retroreflective Pavement Marking Materials with CEN-Prescribed Geometry Using a Portable Retroreflectometer); and
2. ASTM E2177 (Standard Test Method for Measuring the Coefficient of Retroreflected Luminance (RL) of Pavement Markings in a Standard Condition of Wetness).

The average initial retroreflectance readings shall exceed the following minimum values:

	*White Markings	*Yellow Markings
ASTM E1710 (Dry)	475 mcd/lux/m ²	375 mcd/lux/m ²
ASTM E2177 (Wet Recovery)	375 mcd/lux/m ²	300 mcd/lux/m ²

*Observation Angle = 1.05°, Entrance Angle = 88.8°

Pavement markings with measured average initial retroreflectance readings that do not meet the specified minimum values using the procedures outlined in subsection 6.4.5 of ASTM D7585 shall be removed by a method approved by the Engineer and reapplied at no additional cost.

Pavement Marking Asset Management

Upon completion of the pavement marking installation, the following data shall be tabulated by the Contractor:

1. Retroreflectance readings, including date(s), time(s), and location(s) where readings took place
2. Liquid binder type(s) and application rate
3. Reflective element type and drop rate
4. Date of groove installation
5. Lot, batch number, or any other material identifiers and manufacturing information
6. Date and time of final liquid marking installation
7. Highway location (including direction) of installation
8. Air and pavement temperature during application
9. Measured material application thickness, depth of groove; and
10. Any other pertinent information that may assist MassDOT with Quality Control.

ITEM 868.106 through ITEM 869.106 (Continued)

Results for all readings shall be provided within 10 business days of testing to the Engineer, with a second copy sent to:

State Traffic Engineer
Attention: Pavement Marking Installation & Testing
10 Park Plaza, Room 7210
Boston, MA 02116

The cost to prepare and submit this data shall be considered incidental to the cost of the items.

Method of Measurement

Item 868.106 through Item 869.106 will be measured for payment by the Foot. Applied lines are to be measured for payment based on the actual length of lines applied.

Basis Of Payment

Item 868.106 through Item 869.106 will be paid for at the respective Contract unit price per Foot. This price shall include all labor, materials, equipment, furnishing and maintaining in good working condition of all traffic management devices and site preparation, and incidental costs required to complete the work

ITEM 874.2**TRAFFIC SIGN REMOVED AND RESET****EACH**

The work under this item shall conform to the relevant provisions of Subsection 828 of the Standard Specifications, Drawing Number TR.1.2, and the following:

The work shall include removing and disposal of the existing sign supports, excavation of the existing foundations to a minimum depth of 12-inches below surface of sidewalk and driveways and 36-inches within new roadway areas.

Signs shall be installed to the locations shown on the Traffic Sign and Pavement Marking sheets in the Plans. The existing posts and signs shall not be removed until the new posts, signs, and structures replacing them are ready for installation or until the Engineer orders their removal.

Existing traffic signs that are removed and reset shall be installed on new traffic sign supports.

Method of Measurement

Items 874.2 will be measured for payment by the Each sign reset, complete in place.

Basis of Payment

Item 874.2 will be paid for at the contract unit price per Each. This price shall include all labor, materials, equipment, and incidental costs required to complete the work.

New traffic signposts will be paid under Item 847.1.

ITEM 874.41 **TRAFFIC SIGN REMOVED AND DISCARDED** **EACH**

The work under this Item shall conform to the relevant provisions of Subsection 828 of the Standard Specifications and the following:

Work under this item shall include the dismantling, removal and satisfactory disposal of the existing roadside traffic sign and street sign posts as directed by the Engineer, or his designee including the removal and disposal of the signs and their foundations.

The work shall include removing the supports, excavating the existing foundation, the disposal of the concrete and supports, the backfilling with compacted gravel of the holes resulting from the excavation and removal of the supports and the replacement, in kind, of any surface material disturbed.

The existing posts and signs shall not be removed until the new posts and signs and structures replacing them are ready for installation or until the Engineer orders their removal.

Method of Measurement

Item 874.41 will be measured for payment by the Each, traffic sign removed and properly discarded.

Basis of Payment

Item 874.41 will be paid for at the Contract unit price per Each, which price shall include all labor, materials, equipment, excavation and disposal of the existing foundations, supplying and placing of gravel backfill and compaction, and the restoration or replacement in kind of disturbed surfaces and all incidental costs required to complete the work.

DOCUMENT A00802

DETAIL SHEETS

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CITY OF: AGAWAM, MA
ROAD: MAPLE STREET

YEAR - 2024
SUBMITTAL DATE - AUGUST 15, 2024

Excavation

Earth Excavation 1,932 CY
Class "A" Trench Excavation 25 CY
Class "A" Rock Excavation 20 CY

Gravel

Gravel Borrow 1,511 CY
Gravel Borrow for Backfilling 84 CY

PROPOSED PAVEMENT FINE MILLING AND OVERLAY

AREA = 9,135 SY

SURFACE COURSE: 1.75" SUPERPAVE SURFACE COURSE-12.5 (SSC-12.5) OVER
0.375" STRESS ABSORBING MEMBRANE INTERLAYER
2.125" DEPTH PAVEMENT FINE MILLING

PROPOSED FULL DEPTH RECONSTRUCTION

AREA = 479 SY

SURFACE COURSE: 1.75" SUPERPAVE SURFACE COURSE-12.5 (SSC-12.5) OVER
INTERMEDIATE COURSE: 2.25" SUPERPAVE INTERMEDIATE COURSE-19.0 (SIC-19.0) OVER
BASE COURSE: 4.5" SUPERPAVE BASE COURSE-37.5 (SBC-37.5) OVER
SUB-BASE: 4" DENSE GRADED CRUSHED STONE OVER
SUB-BASE: 8" GRAVEL BORROW TYPE b

**PROPOSED FULL DEPTH MINOR BOX WIDENING
(LESS THAN 4' WIDE)**

AREA = 416 SY

SURFACE COURSE: 1.75" SUPERPAVE SURFACE COURSE-12.5 (SSC-12.5) OVER
INTERMEDIATE COURSE: 2.25" SUPERPAVE INTERMEDIATE COURSE-19.0 (SIC-19.0) OVER
BASE COURSE: 6" CEMENT CONCRETE BASE COURSE OVER
SUB-BASE: 8" GRAVEL BORROW TYPE b

**PROPOSED CEMENT CONCRETE SIDEWALKS / WALKS /
PEDESTRIAN CURB RAMPS**

AREA = 774 SY

WALK SURFACE: 4" CEMENT CONCRETE AIR ENTRAINED 4000 PSI, 3/4" 610
OVER
BASE COURSE: 8" GRAVEL BORROW TYPE b

PROPOSED CEMENT CONCRETE SIDEWALKS AT DRIVEWAYS / AREA = 40 SY
CEMENT CONCRETE DRIVEWAY

WALK SURFACE: 6" CEMENT CONCRETE AIR ENTRAINED 4000 PSI, 3/4" 610
OVER

BASE COURSE: 8" GRAVEL BORROW TYPE b

PROPOSED HMA SHARED USE PATH / HMA WALK AREA = 2,242 SY

SURFACE COURSE: 1.25" SUPERPAVE SURFACE COURSE-9.5 (SCC-9.5) OVER

INTERMEDIATE COURSE: 1.75" SUPERPAVE SURFACE COURSE-12.5 (SSC-12.5) OVER

BASE COURSE: 8" GRAVEL BORROW TYPE b

PROPOSED HMA SHARED USE PATH AT DRIVEWAY / AREA = 1,351 SY
HMA DRIVEWAY

SURFACE COURSE: 1.5" SUPERPAVE SURFACE COURSE-9.5 (SCC-9.5) OVER

INTERMEDIATE COURSE: 2.5" SUPERPAVE SURFACE COURSE-12.5 (SSC-12.5) OVER

BASE COURSE: 8" GRAVEL BORROW TYPE b

PROPOSED BARK MULCH AREA = 22 SY

SURFACE COURSE: 4" AGED PINE BARK MULCH

PROPOSED LAWN, GRASS, AND SLOPES AREA = 2,510 SY

SURFACE COURSE: 4" LOAM AND SEED

PROPOSED GRAVEL DRIVEWAYS AREA = 7 SY

SURFACE COURSE: 8" GRAVEL BORROW TYPE b

ALL ITEMS NOT COMPLETELY DESCRIBED AND LOCATED ON THE PLANS ARE TO
BE DETAILED AS SHOWN BELOW.

ITEM 102.1 TREE TRIMMING

ITEM TO BE USED AS DIRECTED BY THE ENGINEER FOR UTILITY POLE RELOCATIONS, AND ADA CLEARANCE OVER SIDEWALKS.

ITEM 102.511 TREE PROTECTION – ARMORING & PRUNING

AS REQUIRED BY THE TREE ARBORIST AND THE ENGINEER AND THE FOLLOWING LOCATIONS:

Tree Dia. (in.)	Baseline	Station	Offset	Side
18	MAPLE	12+86	31.8	LT
24	MAPLE	18+15	30.2	LT
24	MAPLE	18+39	29.7	LT
24	MULBERRY	150+55	18.2	RT
24	MAPLE	38+35	16.2	LT
24	MAPLE	42+50	20.0	LT

ITEM 102.513 AIR EXCAVATION FOR ROOT PRUNING

ITEM TO BE USED AS REQUIRED BY THE ENGINEER.

ITEM 102.521 TREE AND PLANT PROTECTION FENCE

ITEM TO BE USED AS REQUIRED BY THE ENGINEER.

ITEM 102.55 ARBORIST

ITEM TO BE USED FOR PERSONNEL TO PROVIDE OVERSIGHT FOR TREE DISPOSITION AND CONSTRUCTION SERVICES RELATIVE TO LANDSCAPING AND AS REQUIRED BY THE ENGINEER.

ITEM 103. TREE REMOVED – DIAMETER UNDER 24 INCHES

AS REQUIRED BY THE TREE ARBORIST AND THE ENGINEER AND THE FOLLOWING LOCATIONS:

Tree Dia. (in.)	Baseline	Station	Offset	Side
12	MAPLE	11+75	20.9	RT
12	MAPLE	27+27	21.1	LT
6	MAPLE	28+08	22.3	LT
12	MAPLE	28+45	22.4	LT
18	MAPLE	29+42	22.6	LT
20	SCHERPA	160+51	18.1	RT
18	MAPLE	30+18	23.1	LT

ITEM 105. STUMP REMOVED

AS REQUIRED BY THE TREE ARBORIST AND THE ENGINEER AND THE FOLLOWING LOCATIONS:

Tree Dia. (in.)	Baseline	Station	Offset	Side
24	MAPLE	19+44	28.4	LT
24	MAPLE	29+00	20.6	LT

ITEM 120. EARTH EXCAVATION

ESTIMATED QUANTITY IS FOR ALL CUT ASSUMED TO BE NEEDED FOR EARTHWORK RELATED TO ROADWAY CONSTRUCTION, SIDEWALKS, DRIVEWAYS, AND AS REQUIRED BY THE ENGINEER

ITEM 121. CLASS A ROCK EXCAVATION

ITEM TO BE USED AS REQUIRED BY THE ENGINEER.

ITEM 141. CLASS A TRENCH EXCAVATION

ITEM TO BE USED AS REQUIRED BY THE ENGINEER.

ITEM 141.1 TEST PIT FOR EXPLORATION

FOR SUBSURFACE EXPLORATION TO DETERMINE POTENTIAL UTILITY CONFLICTS AND OTHER OBSTRUCTIONS FOR EXECUTION OF PROPOSED WORK, LOCATION OF EXISTING GAS MAINS AND STRUCTURES, AND AS DIRECTED BY THE ENGINEER.

ITEM 142. CLASS B TRENCH EXCAVATION

TO BE USED IF DRAINAGE TRENCH EXCEEDS THE DEPTH SPECIFIED IN THE STANDARD SPECIFICATIONS AND AS REQUIRED BY THE ENGINEER.

ITEM 144. CLASS B ROCK EXCAVATION

REQUIRED FOR BOULDERS ENCOUNTERED IN EXCAVATION FOR DRAIN STRUCTURES AND PIPES AS DIRECTED BY THE ENGINEER.

ITEM 146. **DRAINAGE STRUCTURE REMOVED**

Baseline	Station	Offset	Side	Type	Quantity
MAPLE	15+92	16.2	LT	CB	1
MAPLE	19+35	17.6	LT	CB	1
MAPLE	22+47	16.5	LT	CB	1
MAPLE	29+27	16.0	LT	CB	2
MAPLE	32+72	21.3	LT	CB	1
MAPLE	34+11	23.7	LT	CB	1
MAPLE	37+37	16.4	RT	CB	1

ITEM 182.1 **INSPECTION AND TESTING FOR ASBESTOS**
FOR TESTING OF SUSPECTED ASBESTOS IN UNDERGROUND CONDUIT.

ITEM 182.2 **REMOVAL OF ASBESTOS**
FOR REMOVAL AND DISPOSAL OF ASBESTOS MATERIAL.

ITEM 201. CATCH BASIN

AS REQUIRED BY THE ENGINEER AND AT THE FOLLOWING LOCATIONS:

Baseline	Station	Offset	Side	Struct #
MAPLE	11+29	11.0	LT	CB 2
MAPLE	13+76	11.0	LT	CB 4
MAPLE	15+99	13.1	LT	CB 5
MAPLE	16+44	11.6	LT	CB 7
MAPLE	18+75	11.0	LT	CB 8
MAPLE	19+34	11.7	LT	CB 10
MAPLE	20+84	11.0	LT	CB 12
MAPLE	22+48	11.0	LT	CB 13
MAPLE	29+23	11.0	LT	CB 17
MAPLE	37+29	11.0	LT	CB 23
MAPLE	37+29	11.0	RT	CB 24
MAPLE	41+47	19.0	RT	CB 30

ITEM 202. MANHOLE

AS REQUIRED BY THE ENGINEER AND AT THE FOLLOWING LOCATIONS:

Baseline	Station	Offset	Side	Struct #
MAPLE	19+43	20.7	LT	#11
MAPLE	41+73	1.9	RT	#31

ITEM 202.2 MANHOLE (9 TO 14 FOOT DEPTH)

AS REQUIRED BY THE ENGINEER AND AT THE FOLLOWING LOCATIONS:

Baseline	Station	Offset	Side	Struct #
MAPLE	42+35	4.2	RT	#32

ITEM 204. GUTTER INLET

AS REQUIRED BY THE ENGINEER AND AT THE FOLLOWING LOCATIONS:

Baseline	Station	Offset	Side	Struct #
MAPLE	26+35	11.0	LT	GI #15
MAPLE	31+13	11.0	LT	GI #19
MAPLE	32+83	11.0	LT	GI #21

ITEM 220. DRAINAGE STRUCTURE ADJUSTED

ALL PROPOSED DRAINAGE STRUCTURES AS SHOWN ON THE DRAINAGE AND UTILITY PLANS AND AS REQUIRED BY THE ENGINEER

PARTICIPATING EXISTING STRUCTURES:

Baseline	Station	Offset	Side	Type
MAPLE	10+29	15.7	LT	CB
BEGLEY	100+32	13.5	RT	CB
OAK HILL	120+29	10.7	LT	CB
OAK HILL	120+31	10.7	RT	CB

NON-PARTICIPATING EXISTING STRUCTURES:

Baseline	Station	Offset	Side	Type
MAPLE	11+41	13.1	RT	CB
MAPLE	13+58	12.9	RT	CB
MAPLE	16+28	16.0	RT	CB
MAPLE	18+79	14.3	RT	CB
MAPLE	20+78	14.7	RT	CB
MAPLE	22+48	15.5	RT	CB
MAPLE	26+41	14.8	RT	CB
MAPLE	29+01	14.6	RT	CB
MAPLE	31+25	13.8	RT	CB
MAPLE	33+80	14.2	RT	CB
MAPLE	42+37	10.9	LT	CB

ITEM 220.2 DRAINAGE STRUCTURE REBUILT

ITEM TO BE USED AS REQUIRED BY THE ENGINEER.

ITEM 220.3 DRAINAGE STRUCTURE CHANGE IN TYPE

AS REQUIRED BY THE ENGINEER AND AT THE FOLLOWING LOCATIONS:

Baseline	STA.	LT/RT	Offset	Struct #
MAPLE	11+31	LT	17.4	CIT #1
MAPLE	13+27	LT	11.0	CIT #3
MAPLE	16+26	LT	18.1	CIT #6
MAPLE	16+44	LT	17.1	CIT #6A
MAPLE	18+78	LT	17.2	CIT #9
MAPLE	20+79	LT	16.9	CIT #28
MAPLE	26+41	LT	16.9	CIT #16
MAPLE	31+25	LT	15.7	CIT #20
MAPLE	37+32	LT	18.0	CIT #25

ITEM 220.5 DRAINAGE STRUCTURE REMODELED

AS REQUIRED BY THE ENGINEER AND AT THE FOLLOWING LOCATIONS:

EXISTING STRUCTURES

Baseline	Station	LT/RT	Offset	Type
MAPLE	18+88.81	LT	20.5	DMH
MAPLE	20+88.46	LT	20.2	DMH
MAPLE	22+60.32	LT	18.3	DMH
MAPLE	26+49.06	LT	15.9	DMH
MAPLE	29+36.31	LT	17.0	DMH
MAPLE	32+77.80	LT	16.9	DMH
MAPLE	34+01.33	LT	19.6	DMH
MAPLE	37+47.2	RT	5.5	DMH
MAPLE	37+54.7	LT	16.7	DMH
MAPLE	40+88.90	RT	21.6	DMH
MAPLE	42+35.06	RT	11.3	DMH
MAPLE	18+88.81	LT	20.5	CB

PROPOSED STRUCTURES

Baseline	STA.	LT/RT	Offset	Type
MAPLE	37+29	LT	11.0	CB
MAPLE	37+29	RT	11.0	CB

ITEM 220.7 SANITARY STRUCTURE ADJUSTED

ASSUME ALL EXISTING SANITARY STRUCTURES SHALL BE ADJUSTED TO FINAL GRADE AS REQUIRED BY THE ENGINEER.

NON-PARTICIPATING:

Baseline	Station	Offset	Side
MAPLE	10+92	1.7	RT
MAPLE	13+50	0.9	RT
MAPLE	16+13	3.0	RT
MAPLE	18+05	1.8	RT
MAPLE	19+14	2.0	RT
MAPLE	21+18	1.3	RT
MAPLE	21+84	2.3	RT
MAPLE	23+08	0.4	RT
MAPLE	26+65	0.6	LT
MAPLE	27+09	1.1	LT
MAPLE	31+16	3.9	LT
MAPLE	32+81	6.9	RT
MAPLE	32+93	1.3	LT
MAPLE	32+99	5.2	RT
MAPLE	34+04	7.7	RT
MAPLE	34+16	4.2	LT
MAPLE	34+33	7.8	RT
MAPLE	35+88	2.2	LT

ITEM 220.8 SANITARY STRUCTURE REMODELED

AS REQUIRED BY THE ENGINEER AND AT THE FOLLOWING LOCATIONS:

PARTICIPATING:

Baseline	Station	Offset	Side
MAPLE	37+70	1.4	LT
MAPLE	40+89	21.8	RT

ITEM 223.2 FRAME AND GRATE (OR COVER) REMOVED AND DISCARDED

FRAME AND COVER TO BE REMOVED AND DISCARDED AS ASSOCIATED WITH ITEMS 146., 220., 220.3, 220.7, AND AS REQUIRED BY THE ENGINEER.

ITEM 224.12 12 INCH HOOD

FOR USE ON 12-INCH DIAMETER OUTLET PIPES IN PROPOSED CATCH BASINS AND AS REQUIRED BY THE ENGINEER.

ITEM 227.4 MASONRY PLUG

ITEM FOR USE IN ASSOCIATION WITH THE ABANDONMENT OF EXISTING DRAINAGE PIPE AND AS DIRECTED BY THE ENGINEER.

ITEM 350.06 6 INCH GATE AND GATE BOX

FOR USE AS INDICATED ON THE DRAINAGE AND UTILITY PLANS AND AS REQUIRED BY THE ENGINEER.

PARTICIPATING:

Baseline	STA.	LT/RT	Offset
MAPLE	34+88	LT	16.3

NON-PARTICIPATING:

Baseline	STA.	LT/RT	Offset
MAPLE	10+50	RT	12.0

ITEM 357.06 6 INCH GATE BOX

FOR USE AS INDICATED ON THE DRAINAGE AND UTILITY PLANS AND AS REQUIRED BY THE ENGINEER.

PARTICIPATING:

Baseline	STA.	LT/RT	Offset
MAPLE	11+42	LT	19.3
MAPLE	13+87	LT	20.0
MAPLE	19+38	LT	19.5
MAPLE	23+69	LT	14.6
MAPLE	26+68	LT	21.2
MAPLE	29+60	LT	22.5
MAPLE	32+87	LT	26.5

NON-PARTICIPATING:

Baseline	STA.	LT/RT	Offset
MAPLE	10+50	RT	12.0
MAPLE	11+55	LT	8.0

ITEM 358. GATE BOX ADJUSTED

PARTICIPATING:

Baseline	STA.	LT/RT	Quantity
MAPLE	11+42	LT	1
MAPLE	29+60	LT	1
MAPLE	34+08	LT	1
MAPLE	37+55	LT	2
MAPLE	37+55	RT	1
MAPLE	37+63	LT	2
BRIDGE	180+35	LT	2
BRIDGE	180+51	LT	2
BRIDGE	180+54	LT	1

NON-PARTICIPATING:

Baseline	STA.	LT/RT
MAPLE	10+50	RT
MAPLE	11+04	LT
MAPLE	11+15	LT
MAPLE	11+55	RT
MAPLE	11+70	RT
MAPLE	13+63	LT
MAPLE	13+87	LT
MAPLE	16+21	LT
MAPLE	17+91	LT

ITEM 358. **GATE BOX ADJUSTED** (Continued)

NON-PARTICIPATING:

Baseline	STA.	LT/RT
MAPLE	19+03	LT
MAPLE	19+38	LT
MAPLE	21+20	LT
MAPLE	23+69	LT
MAPLE	26+50	RT
MAPLE	26+60	LT
MAPLE	26+66	LT
MAPLE	26+70	LT
MAPLE	27+37	LT
MAPLE	29+10	LT
MAPLE	31+42	RT
MAPLE	31+55	RT
MAPLE	32+81	LT
MAPLE	33+18	LT
MAPLE	36+77	LT
MAPLE	42+56	RT

ITEM 358.1 **GATE BOX REMOVED AND STACKED**

PARTICIPATING

Baseline	STA.	LT/RT
MAPLE	35+00	LT

NON-PARTICIPATING

Baseline	STA.	LT/RT
MAPLE	11+55	RT
MAPLE	11+70	RT
MAPLE	31+42	RT
MAPLE	26+50	RT

ITEM 376. **HYDRANT**

Baseline	STA.	LT/RT
MAPLE	34+88	LT

ITEM 376.2 **HYDRANT – REMOVED AND RESET**

Baseline	STA.	LT/RT
MAPLE	11+42	LT
MAPLE	13+87	LT
MAPLE	19+38	LT
MAPLE	23+69	LT
MAPLE	26+68	LT
MAPLE	29+60	LT
MAPLE	32+87	LT

ITEM 376.3 **HYDRANT – REMOVED AND STACKED**

Baseline	STA.	LT/RT
MAPLE	35+00	LT

ITEM 517. **GRANITE CURB CORNER TYPE B**

FOR USE AT DRIVEWAY OPENINGS AS SHOWN ON THE CONSTRUCTION PLANS AND AS DIRECTED BY THE ENGINEER.

Baseline	STA.	LT/RT	Offset
MAPLE	42+79	RT	21.2

ITEM 820.15 **HIGHWAY LIGHTING – OVERHEAD REMOVED AND RESET**

REMOVAL AND RESETTING OF OVERHEAD HIGHWAY LIGHTING AS SHOWN ON THE DRAINAGE & UTILITY PLANS AND AS DIRECTED BY THE ENGINEER.

Baseline	STA.	LT/RT
MAPLE	12+09	LT
MAPLE	13+76	LT
MAPLE	15+89	LT
MAPLE	18+83	LT
MAPLE	20+94	LT
MAPLE	24+96	LT
MAPLE	26+79	LT
MAPLE	30+06	LT
MAPLE	39+01	LT

ITEM 901. 4000 PSI, 1.5 INCH, 565 CEMENT CONCRETE

FOR USE ALSO TO REPLACE EXISTING STAIRS DISTURBED OR DESTROYED AND REPAIR OF EXISTING RETAINING WALLS DISTURBED BY CONSTRUCTION ACTIVITIES. ALSO FOR USE FOR REPLACEMENT OF STAIRS AT 31 MAPLE STREET, AND AS REQUIRED BY THE ENGINEER.

ITEM 903. 3000 PSI, 1.5 INCH, 470 CEMENT CONCRETE

FOR USE FOR THRUST BLOCKS FOR NEW HYDRANTS AND RESETS AS REQUIRED BY THE ENGINEER.

ITEM 904. 4000 PSI, 3/4 INCH, 610 CEMENT CONCRETE

ITEM TO BE USED AS REQUIRED BY THE ENGINEER.

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DOCUMENT A00807

**CITY OF
AGAWAM**

**CONSTRUCTION
STANDARDS**

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Proposal No. 610652-128108
TOWN OF AGAWAM
WATER MATERIALS & PROCEDURES
REVISED: FEBRUARY 2021

NOTE: ALL MATERIALS ARE TO BE NORTH AMERICAN PRODUCED AND NSF 61 CERTIFIED

WATER MAIN:	ZINC COATED DUCTILE IRON - CLASS 52, CEMENT LINED DOUBLE THICKNESS, TYTON OR FASTITE JOINT (AWWA C104/A21.4, AWWA C111/A21.11, AWWA C150/A21.50, AWWA C151/A21.51, ISO 8179)
WATER MAIN FITTINGS:	ZINC COATED DUCTILE IRON CLASS 350, CEMENT LINED DOUBLE THICKNESS – MECHANICAL JOINT w/ MEGALUG (AWWA C110/A21.10, AWWA C153/A21.53, ISO 8179)
RESTRAINT SYSTEM:	MEGALUG SERIES 1100 & SERIES 1700 RESTRAINT HARNESS OR APPROVED EQUAL RESTRAINT LENGTHS NEEDS TO BE DESIGNED BY PROFESSIONAL ENGINEER
GATE VALVES:	AWWA C515, RESILIENT-SEATED, DUCTILE IRON BODY, MECHANICAL JOINT, EPOXY COATED, STAINLESS BOLTS & NUTS, NRS, OPEN LEFT AMERICAN FLOW CONTROL SERIES 2500; OR KENNEDY VALVE KS-RW; OR CLOW VALVE CO. MODEL 2638; OR MUELLER CO. MODEL A-2361; OR APPROVED EQUAL
VALVE BOXES:	5 1/4" X 60", 2 PIECE SLIDING TYPE W/TOP FLANGE (TYLER-UNION 32U-7126 OR APPROVED EQUAL) NO KNOBS, BELLED BASE, DOMESTIC ORGIN TOTAL WEIGHT = 100 LBS (BASE, TOP AND COVER) COVER MARKED "WATER" (TYLER UNION 145325 OR APPROVED EQUAL)
HYDRANTS:	MECHANICAL JOINT EPOXY COATED ELBOW FULLY RESTRAINED 5 1/4" V.O., 5 1/2' BURY, OPEN LEFT, COLOR: ANSI SAFETY YELLOW – PANTONE 109 (FACTORY PAINTED) 2-2 1/2" OUTLETS, 1-4 1/2" OUTLET AMERICAN FLOW CONTROL: AMERICAN-DARLING B-84-B-5 KENNEDY VALVE: GUARDIAN K81-A/D MUELLER SUPER CENTURION 250
WATER SERVICES:	COPPER TUBING TYPE "K"
<u>NOTE:</u>	****ALL MATERIAL IS TO BE "<u>NO LEAD</u>" TO COMPLY WITH THE FEDERAL "<u>REDUCTION OF LEAD IN DRINKING WATER ACT</u>", UNLESS SPECIFICALLY EXEMPTED****
CORPORATION:	BALL VALVE, CC THREAD x COMPRESSION - (FORD FB1000-X-Q-NL OR APPROVED EQUAL)
CURB STOPS:	BALL VALVE, QUICK COMPRESSION x QUICK COMPRESSION - (FORD B4 4-XXX-Q-NL OR APPROVED EQUAL)
COUPLINGS:	QUICK COMPRESSION x QUICK COMPRESSION - (FORD C44-XX-Q-NL OR APPROVED EQUAL)
BEFORE WATER METER:	FLARE X MALE IRON PIPE ADAPTOR – (FORD C28-XX-NL OR APPROVED EQUAL) & FEMALE IRON PIPE, FULL PORT BALL VALVE – (NIBCO T-FP-600A-LF OR APPROVED EQUAL)
CURB BOXES:	4 1/2' - 5 1/2' ERIE BOX, 2 HOLE COVER, 30" ROD – 304 STAINLESS STEEL (FORD ROD-30-SS OR APPROVED EQUAL)
PRESSURE TEST:	MUST PRECEDE CHLORINATION, TEST FOR 2 HOURS AT 1.5 TIMES STATIC PRESSURE (150 PSI MIN.PRESSURE) - SEE ATTACHED DETAILED METHOD
CHLORINATION:	USE LIQUID CHLORINE - CONTINUOUS FEED METHOD – SEE ATTACHED DETAILED CHLORINATION METHOD. ****USE OF QUICK TABS IS PROHIBITED****

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PROJECT UTILITY COORDINATION FORM

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Project Utilities Coordination (PUC) Form

CONTACTS AND GENERAL UTILITY INFORMATION

5/13/2024
Revision
Date:

City/Town: Agawam	Project File #: 610652	PUC Completed by: Paul Kelly	Utility Pole Set: Eversource
Route/Street: Maple St	Resident Engineer:	Mass DOT PM: Dan Wilk	Scheduled Ad Date: 6/29/2024
			Total Poles Relocated: 42

9/30/2024
PRINTED

Consultant:		Contact:		Office #		Office #		Cell #		Email										
Tighe and Bond		Alexander Fagnand								Alexander.D.Fagnand-ADFagnand@tgbabond.com										
Utility Company	Contact	Office #	Cell #	Email	Scope, Budget, Duration Submitted	Yes	No	Reimbursement	Notes	Potential for District Initiated Early Relocation *	YES	NO	YES	NO	Utilities On Bridge/Structure	NO	NO	Utilities Underground (UG) /Aerial (OH)	UG	OH
Eversource	Nicholas Langone	413-478-5808		Nicholas.Langone<nicholas.langone@eversource.com>	X	X		X		X			X		X			X		
Crown Castle	Chris Stevens	978-881-4543		Christopher.Stevens@crowncastle.com	X	X		X		X			X		X			X		
Comcast	Joe Chafer	413-233-6989		Joseph.Chafer@comcast.com	X	X		X		X			X		X			X		
Verizon	Paul Styspeck	413-575-7058		Paul.M.Styspeck@verizon.com	X	X		X		X			X		X			X		
Eversource Gas	Bryan Meccariello	413-784-2208		bryan.meccariello@eversource.com	X	X		X		X			X		X			X		

Utility Relocation Notes for MassDOT Contractor
 Unless otherwise noted by Contract, the MassDOT Contractor is to provide the District Construction Office with 7 Calendar Days advance notification in order to validate the current progress and provide the required 30 Days advance notice-to-proceed for the first Utility - and each subsequent Utility. These advance notifications are to be identified in the Contractor's Schedules (Pre-Con preparation, Baseline, Subnets, and Updated/Monthly Schedules) as specified in Subsection 8.02 (of DBB Contracts) and/or Section 9 (of DB Contracts). Note: The durations included below do not include these lead-times. See Additional 'Important Basis notes for Contractor' - on last PUC Form page.

Additional notes:

Suggested Sequence of Relocation (Based on Consultant proposed construction staging)
 The sequence as detailed on the following pages is based on the consultants proposed staging plan. This information was compiled through meetings that included all of the utilities listed below along with the designer and the (Insert Municipality here). The information provided is the best available information prior to project advertisement.

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PUC FORM - CONTINUED

Is 'enabling' (prep) work, by the Contractor, necessary prior to the start of the first series of utility relocations:

Yes	No
X	

Has any of the Utility work been identified to work concurrently

Yes	No
X	

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RESPONSIBLE PARTY	DESCRIPTION - Utility Relocation Phases, Tasks and Activities	Estimated Duration (Work Days) by Utilities (Lead time not included)	Concurrent / Exclusive Utility Work				Access Restrict & Limitations of Operations Notes
			Exclusive Utility on site	Concurrent Utilities with other Utilities on site	Contractor Off-Site operations on-site No Contractor physical construction	Contractor Concurrent on-site - but NOT in the same vicinity	
C = Contractor U = Utility Co.	Enabling work by the Contractor - Contractor to perform tree removal and clearing and grubbing as required on the plans. Contractor needs to verify and approve proposed utility pole locations with RE.						Should an AR be considered for the Contractor?
	UTILITY OPERATIONS - Aerial relocation					Potential Access Restrict (Yes/No)	
	Eversource						
	u Eversource sets new Utility Poles, Guy Wires and Anchors	6	X			X	No
	u Eversource installs conductors	6	X			X	No
	u Eversource installs Equipment	8	X			X	No
	Subtotal	20					
	UTILITY OPERATIONS - Aerial relocation						
	Comcast						
	u Crown Castle transfers to new poles	2	X			X	No
	Subtotal	2					
	UTILITY OPERATIONS - Aerial relocation						
	Comcast						
	u Comcast Place new strand 3522'	3	X			X	No
	u Comcast Place new coax 3522'	3	X			X	No
	u Comcast Delash 2 fibers 3522' each	7	X			X	No
	u Comcast relash 2 fibers 3522' each	7	X			X	No
	u Comcast Splice new coax	7	X			X	No
	u Comcast Wreck out old strand and coax	3	X			X	No
	Subtotal	30					
	UTILITY OPERATIONS - Aerial relocation						
	Verizon						
	u Verizon transfers to new poles	86	X			X	No
	Subtotal	86					
	UTILITY OPERATIONS - Aerial relocation						
	Eversource						
	u Eversource Removes old utility poles and attachments	6	X			X	No
	Subtotal	6					
	Enabling work by the Contractor - Contractor places binder course and sidewalk fine grading						
	UTILITY OPERATIONS - Underground relocation						
	Eversource Gas						
	u Eversource Gas adjusts affected gas gates	3		X		X	No
	Subtotal	3					
	Total	147					

IMPORTANT BASIS NOTES - FOR CONTRACTOR

- Unless otherwise specified in the MassDOT Construction Contract, or unless specifically noted within this PUC Form, these durations (herein) are based upon the Contractor providing *unimpeded access* to the Utility company to perform Utility relocations (see Note 5 - Access).
- "Concurrent Utilities" operations noted herein, are to signify those Utility Company operations that can be worked concurrently (e.g. Utility A and Utility B work on-site together) - MassDOT and the Contractor are to prepare NTPs to Utilities accordingly.
- "Potential Access Restraints" noted within this PUC Form are for planning purposes. See MassDOT Contract for Contractual Access Restraints (refer to Subsections 8.02, 8.03, and/or 8.06 for Design Bid Build Contracts and Volume II Section 9 for Design Build Contracts).

RESPONSIBLE PARTY	DESCRIPTION - Utility Relocation Phases, Tasks and Activities	Estimated Duration (Work Days) by Utilities (Lead time not included)				Concurrent / Exclusive Utility Work Contractor note: In planning and executing the work, the Access Restraints listed in the Special Provisions, takes precedence over the checklist in these 4 columns.			Access Restraint & Limitations of Operations Notes	
		Exclusive Utility on site	Concurrent Utilities	Contractor Off-Site	Contractor Concurrent	Potential Access Restraint (Yes/No)	Should an AR be considered for the Contractor?	Reason/Note (optional)		
C = Contractor U = Utility Co.	4	Utility non-work periods - For planning purposes, the durations above contain some non work days (contingency) for New England conditions (precipitation, high temperatures, snow, ice). Gas line work however, typically has a seasonal restriction and can NOT be installed from 15-November to 15-March. Municipally Owned Electric and Gas Utilities are also restricted from proceeding from 15-November to 15-March. The Contractor shall (and the CTD plan) reflect this calendar restriction within the schedule (unless otherwise note).	Utility working with no other utilities in vicinity	Utility working with other utilities on site	No Contractor physical construction operations on-site (while Utility is Contractor and Utility are working on-site - but NOT in the same vicinity					
	5	Access - Unless otherwise noted in the Contract, and in addition to the 'enabling' notes above, the Contractor must provide safe and unimpeded access (for trucks, lifts, cranes, etc.) to the Utilities, to allow for the proposed relocation(s) - including but not limited to snow removal, clearing and grubbing, guard rail removal, barrier removal, tree removal, and grading.								
	6	For all MassDOT construction contracts issued after January 2014, the new Utility Coordination/documentation specification is required. This is Section 8.14 in Design-Bid-Build Contracts (see Design-Build index reference for applicable section #).								
	7	Prior to starting any and all enabling work for Utilities, the Contractor is to plan in advance with submittals and approved durations.								
	8	* Potential District Initiated Early Utility Relocation - if noted herein, the District reserves the right to initiate early utility relocation in advance of the Contract NTP. In submitting a bid price and in the development/basis of the Baseline Schedule, the Contractor shall not plan the Work with the potential benefit of any form of 'early utility relocation.' As a requirement of the Baseline submission, unless otherwise noted in this Specification, the earliest that the first Utility company is to receive the 30 days advance notification to mobilize to the site, will be 7 calendar days after the pre-construction meeting and never sooner than 7 days after the Contract NTP.								
	9									



**WORK
ZONE
SAFETY**

Temporary Traffic Control

*Typical Details and
Massachusetts Guidelines
for MassDOT, Municipalities,
Utilities, and Contractors*

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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-requesting, 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.

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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.

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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.

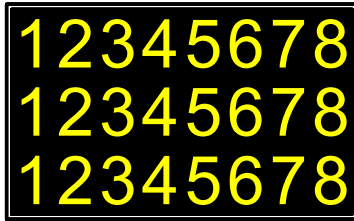
USE OF THIS GUIDE

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:

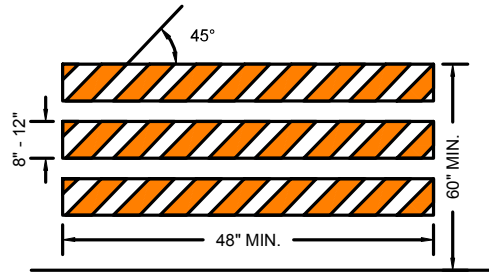
- 1) Turn to the Index. Consider the type of operations and the type of roadway upon which work will occur.
- 2) Select the figure that most closely matches the conditions where you plan to work. Remember that all diagrams represent minimum standards.
- 3) Read the title of the illustration to ensure 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.



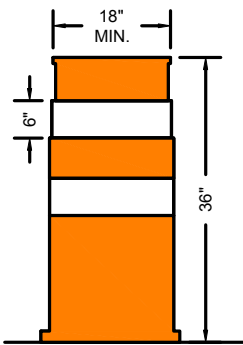
SIGN



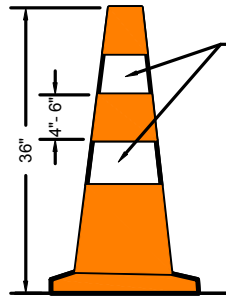
PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)



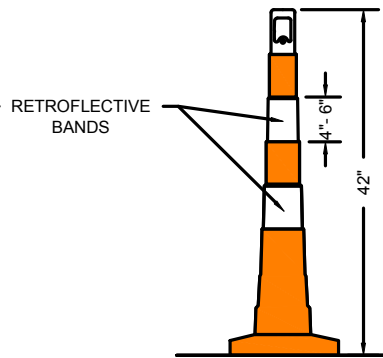
TYPE III BARRICADE



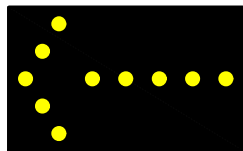
DRUM



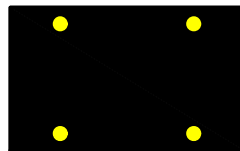
CONES



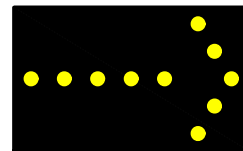
Cones may be used for all daytime operations. For night work, drums should be used to form the taper(s) and cones can be used along the tangent section of the work setup.



LEFT

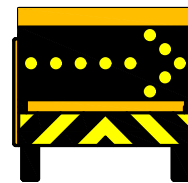


CAUTION



RIGHT

ARROW BOARD (WITH MODE)



TRUCK MOUNTED ATTENUATORS

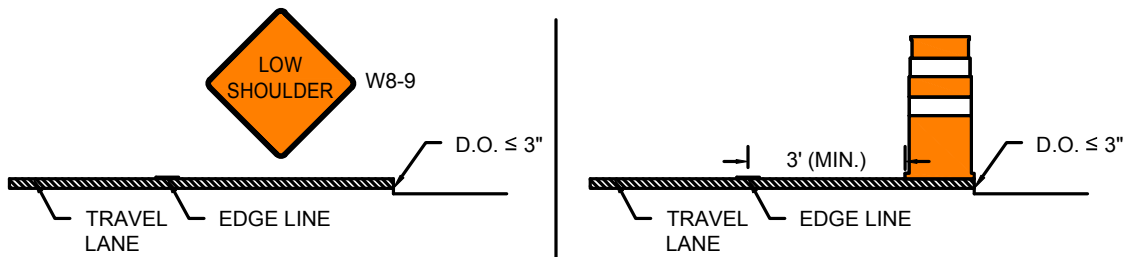
Truck Mounted Attenuators (TMA) shall be positioned between the start of the work area and the end of the designated buffer zone. The TMAs are to be positioned in each temporarily closed lane. This includes shoulders (≥ 8 feet) whether combined with a travel lane closure or being closed alone. These 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

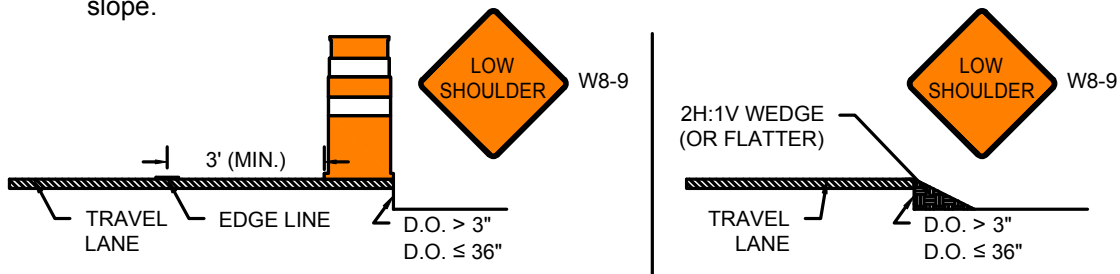
Note that this guidance is adopted from the Roadside Design Guide, 4th Edition.

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.

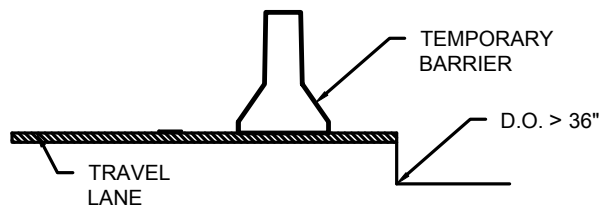
- Shoulder drop-offs 3" or less adjacent to a shoulder or active travel lane should be mitigated by:
 - ✓ A W8-9 (LOW SHOULDER) sign in advance of and at regular intervals throughout the treatment; or
 - ✓ The placement of drums on the traffic side of the drop-off.



- 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.





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Work Zone Safety
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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

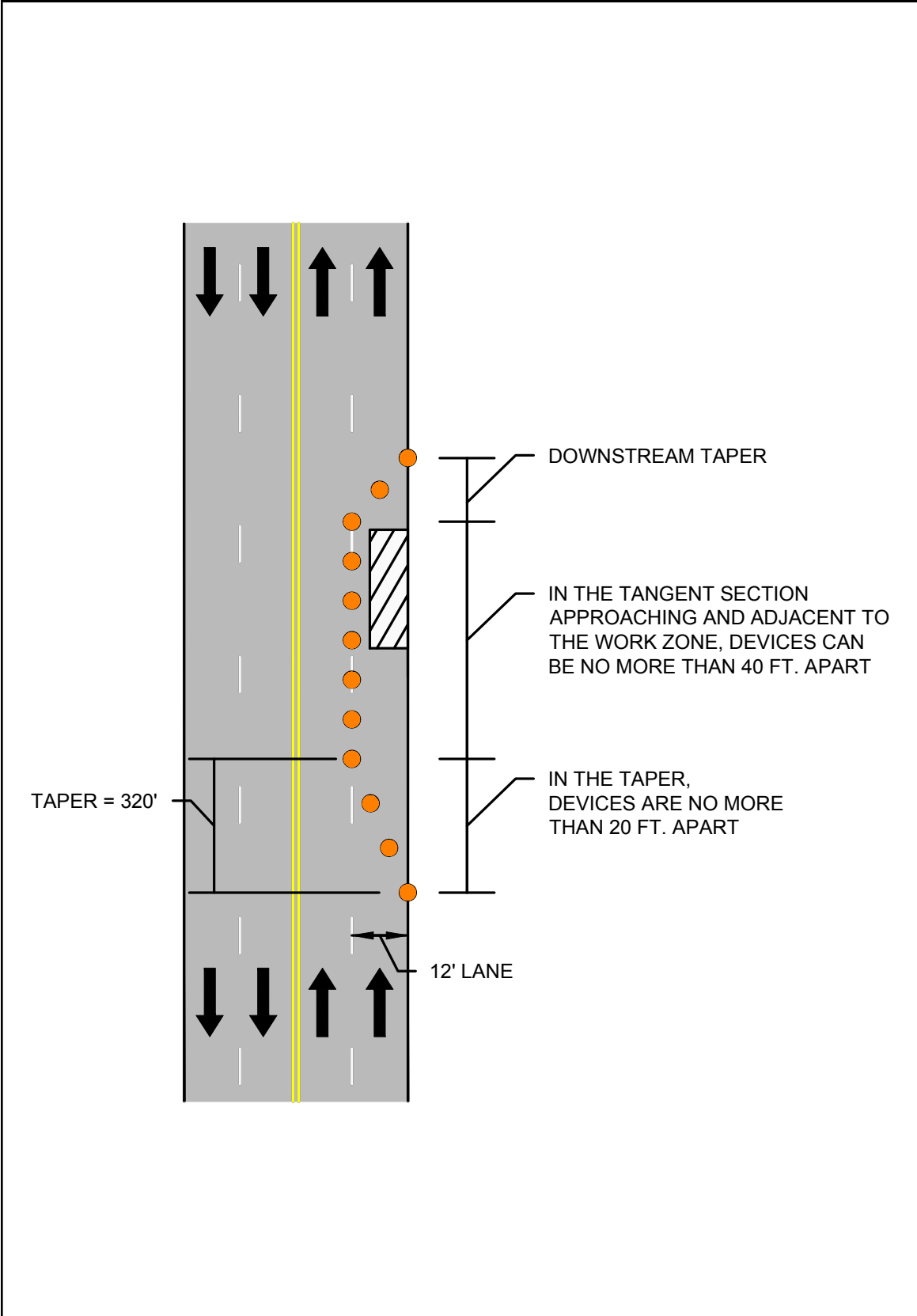
NOTES


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



 <p>PAGE 14</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>FLAGGING GUIDANCE</p>
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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.

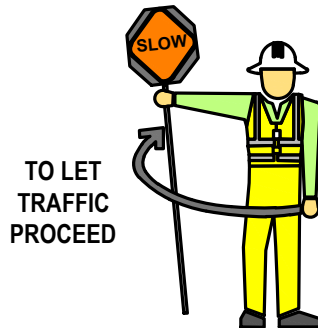


Properly Trained Flaggers

- 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.



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.

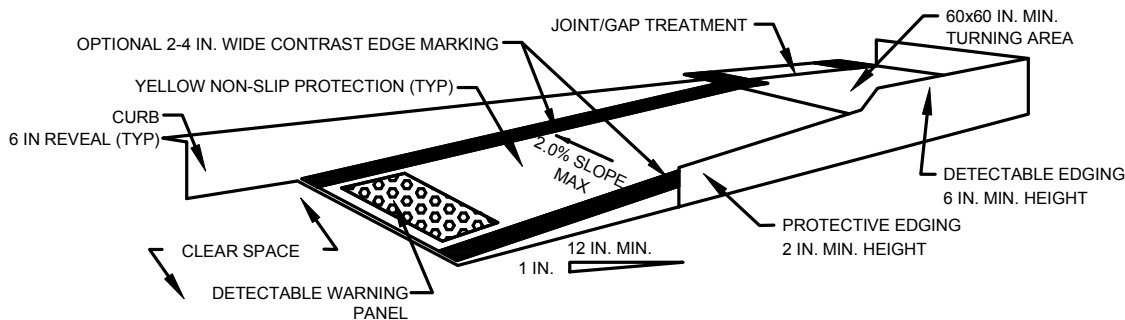


Proper Advance Warning Signs

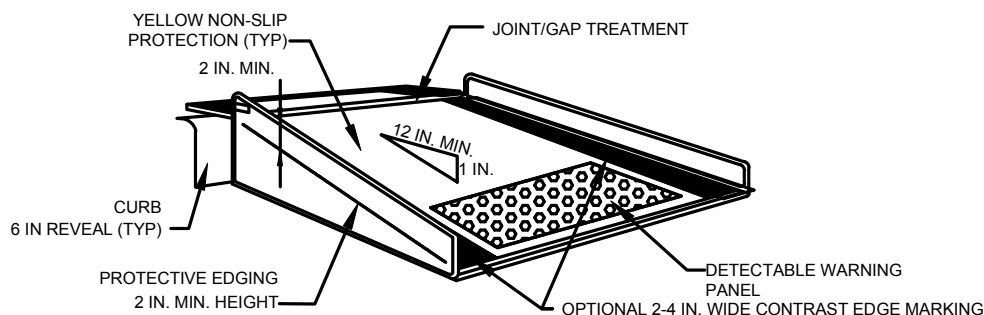
- Always use warning signs.
- Allow for reaction distance from signs.
- Remove signs if no longer necessary or not flagging.
- Use free hand in up-and-down motion to help slow traffic.



FIGURE 4
TYPICAL PEDESTRIAN DEVICES
(1 OF 2)
NOT TO SCALE



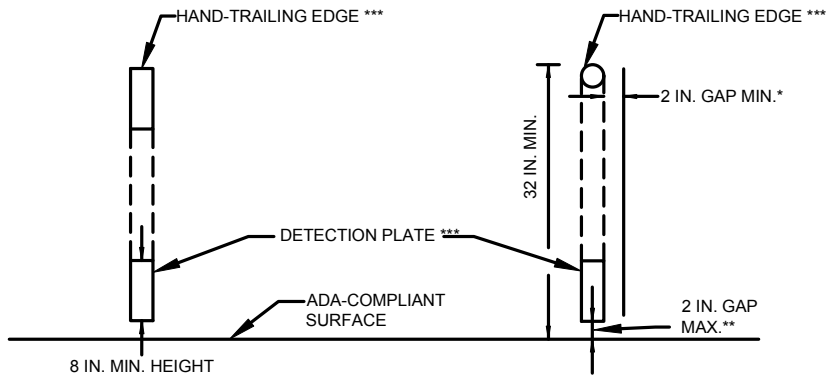
TEMPORARY CURB RAMP-PARALLEL TO CURB



TEMPORARY CURB RAMP-PERPENDICULAR TO CURB

NOTES:

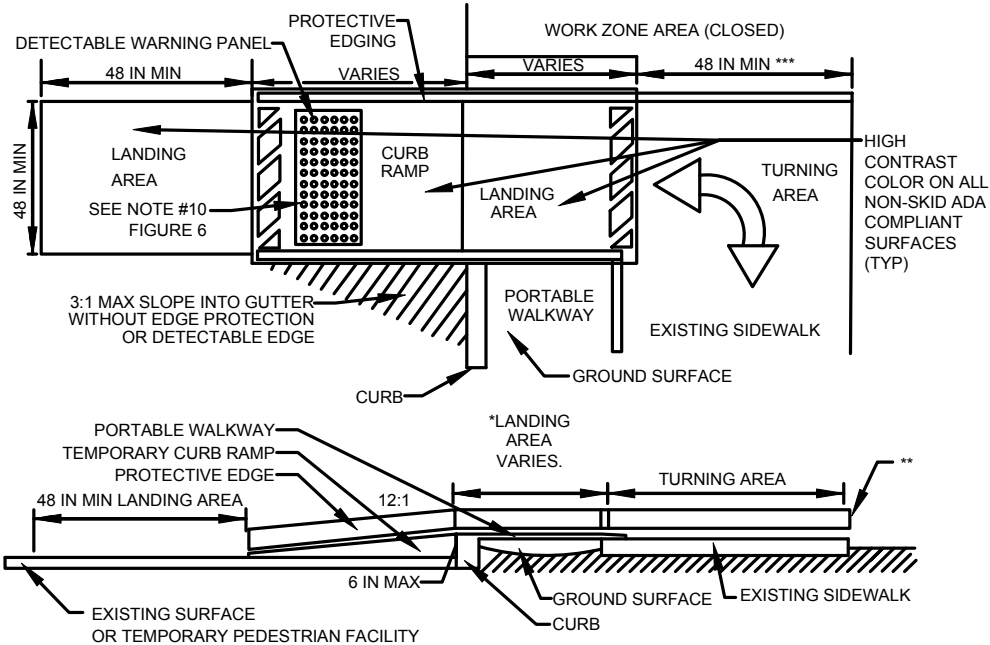
1. CURB RAMPS SHALL BE 60 IN. MINIMUM WIDTH WITH A FIRM, STABLE, AND NON-SLIP SURFACE.
2. PROTECTIVE EDGING WITH A 2 IN. MINIMUM HEIGHT SHALL BE INSTALLED WHEN THE CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6 IN. OR GREATER OR HAS A SIDE APRON SLOP STEEPER THAN 1:3 (33%). PROTECTIVE EDGING 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.





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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.

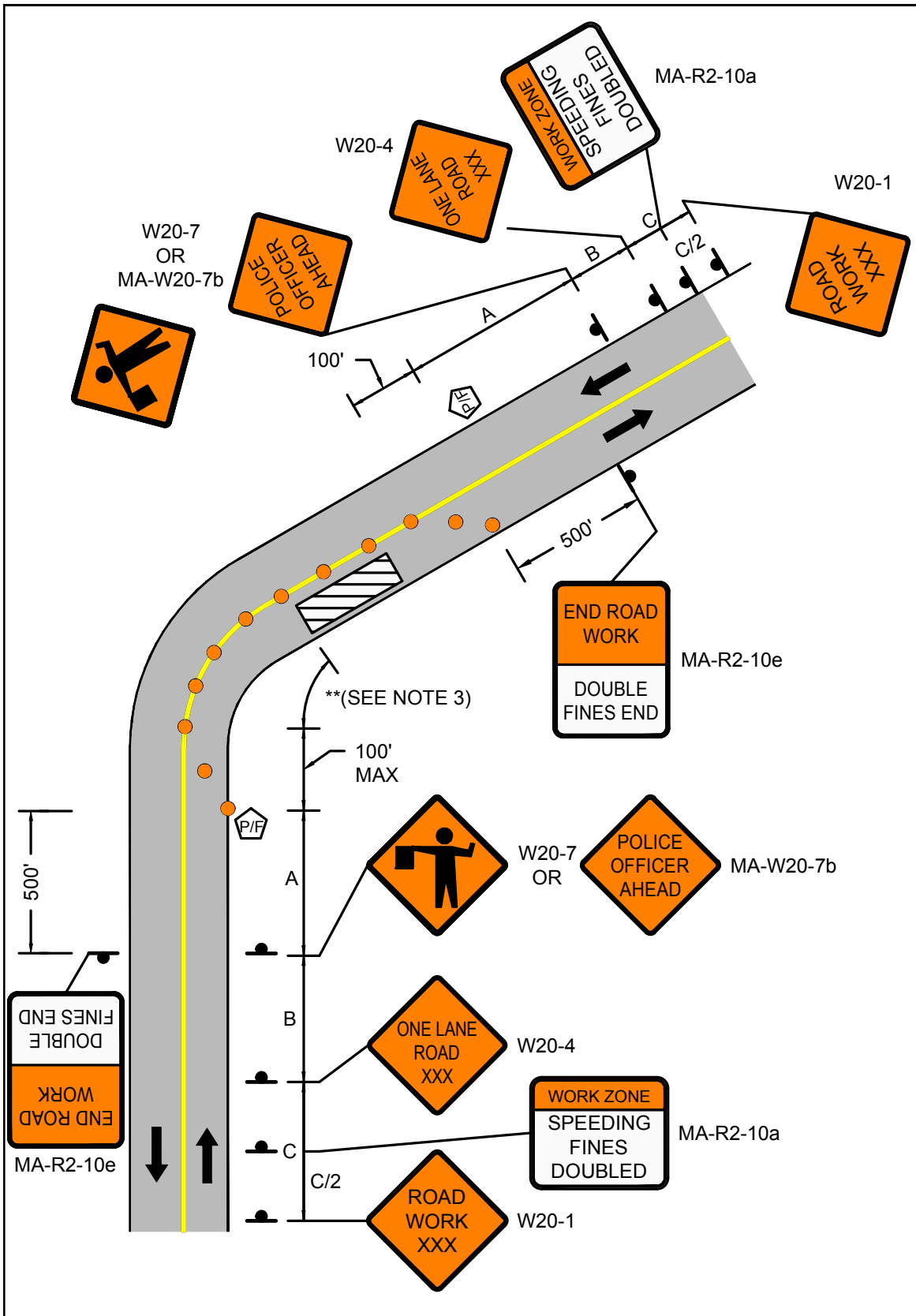
NOTES


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

-  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



 <p>Massachusetts Department of Transportation Highway Division</p> <p>PAGE 19</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>FIGURE 6 STATIONARY OPERATIONS TWO LANE UNDIVIDED ROADWAY HALF OF ROADWAY CLOSED WORK NEAR CURVE</p>
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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

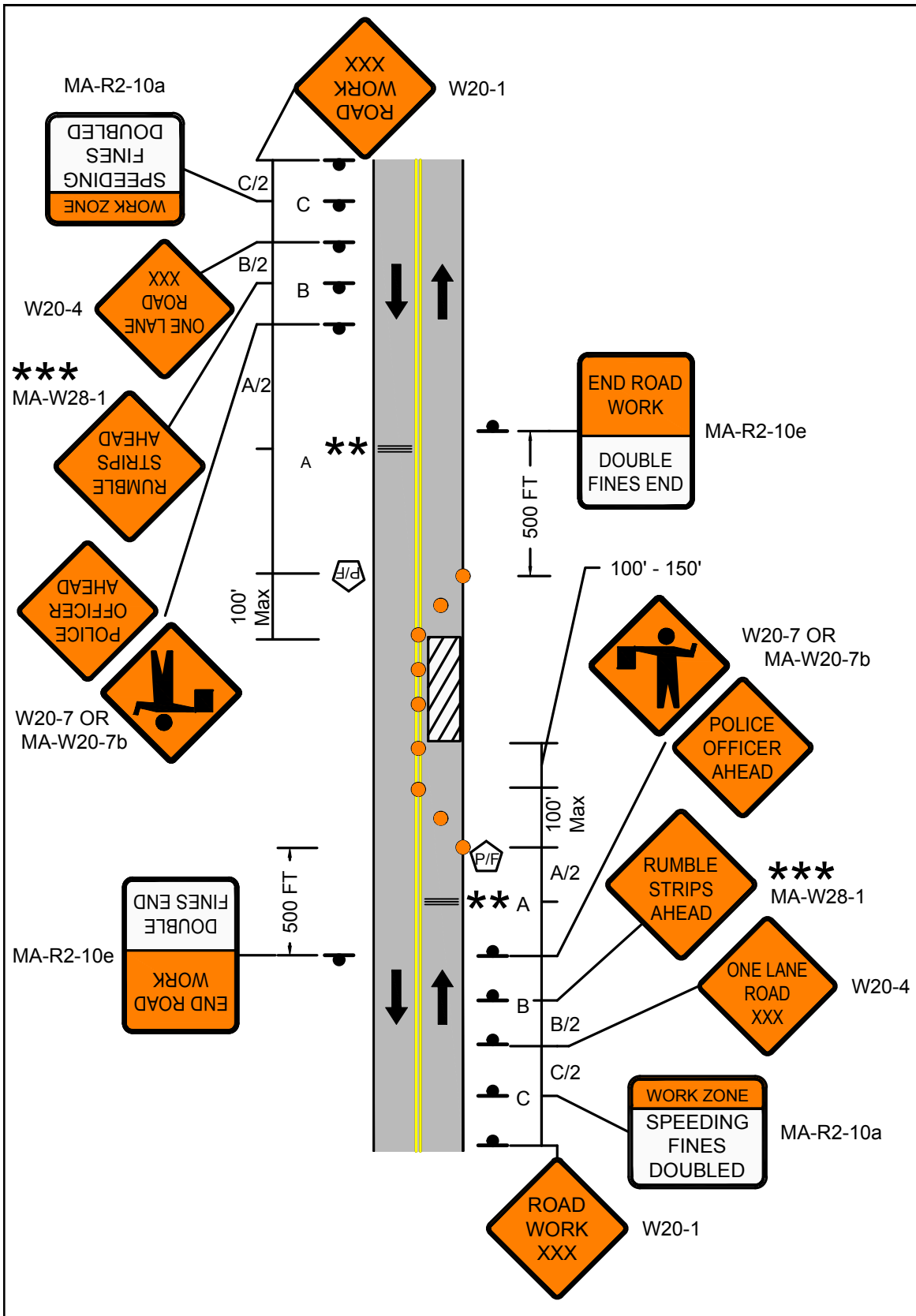
NOTES


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



 <p>Massachusetts Department of Transportation Highway Division</p> <p>PAGE 21</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>FIGURE 7 STATIONARY OPERATIONS TWO LANE UNDIVIDED ROADWAY HALF OF ROADWAY CLOSED</p>
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Work Zone Safety
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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.

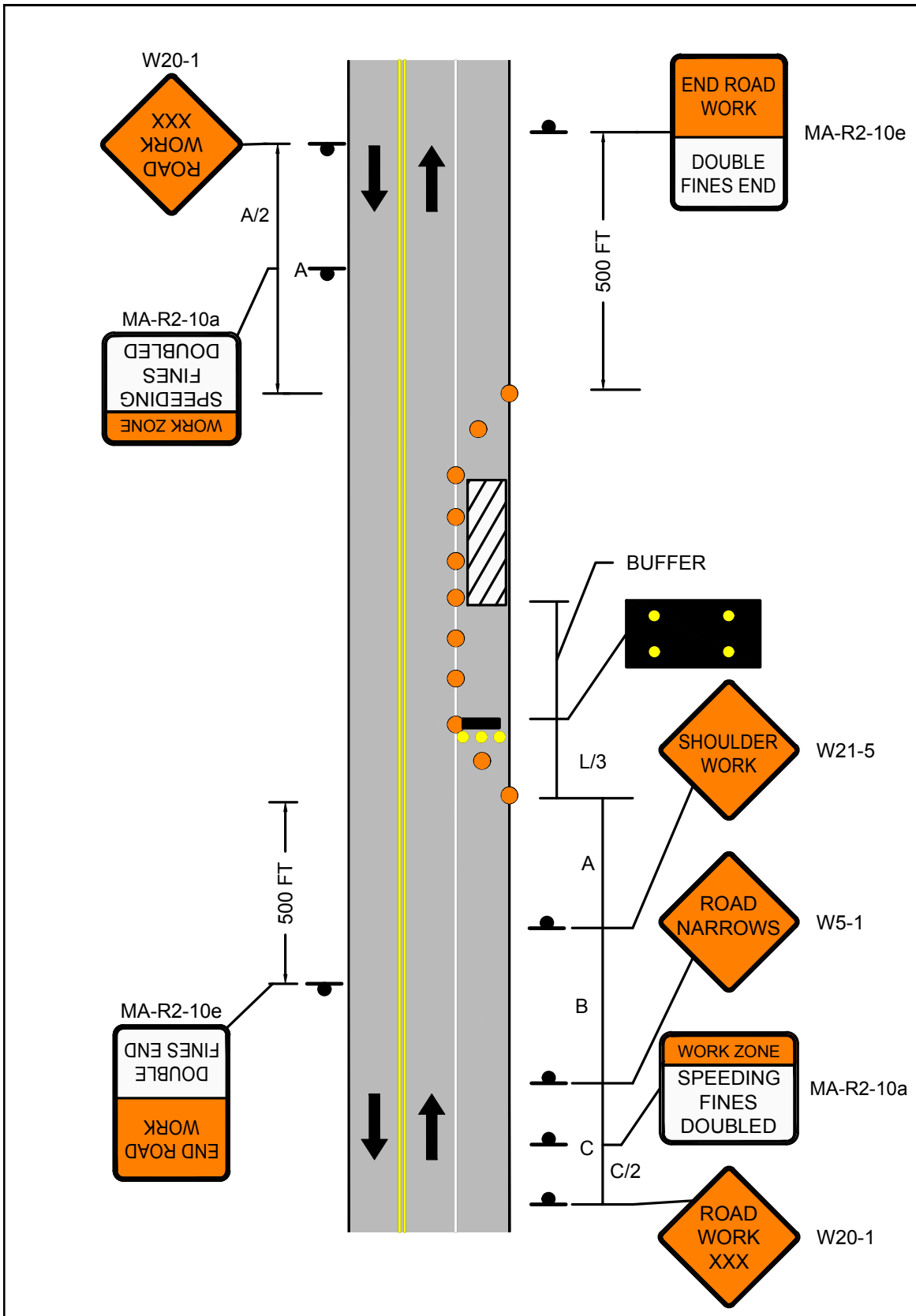
NOTES


1. MA-R2-10a at C/2 and A/2.

LEGEND

-  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



 <p>Massachusetts Department of Transportation Highway Division</p> <p>PAGE 23</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>FIGURE 8 STATIONARY OPERATIONS TWO LANE UNDIVIDED ROADWAY SHOULDER CLOSED</p>
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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

-  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

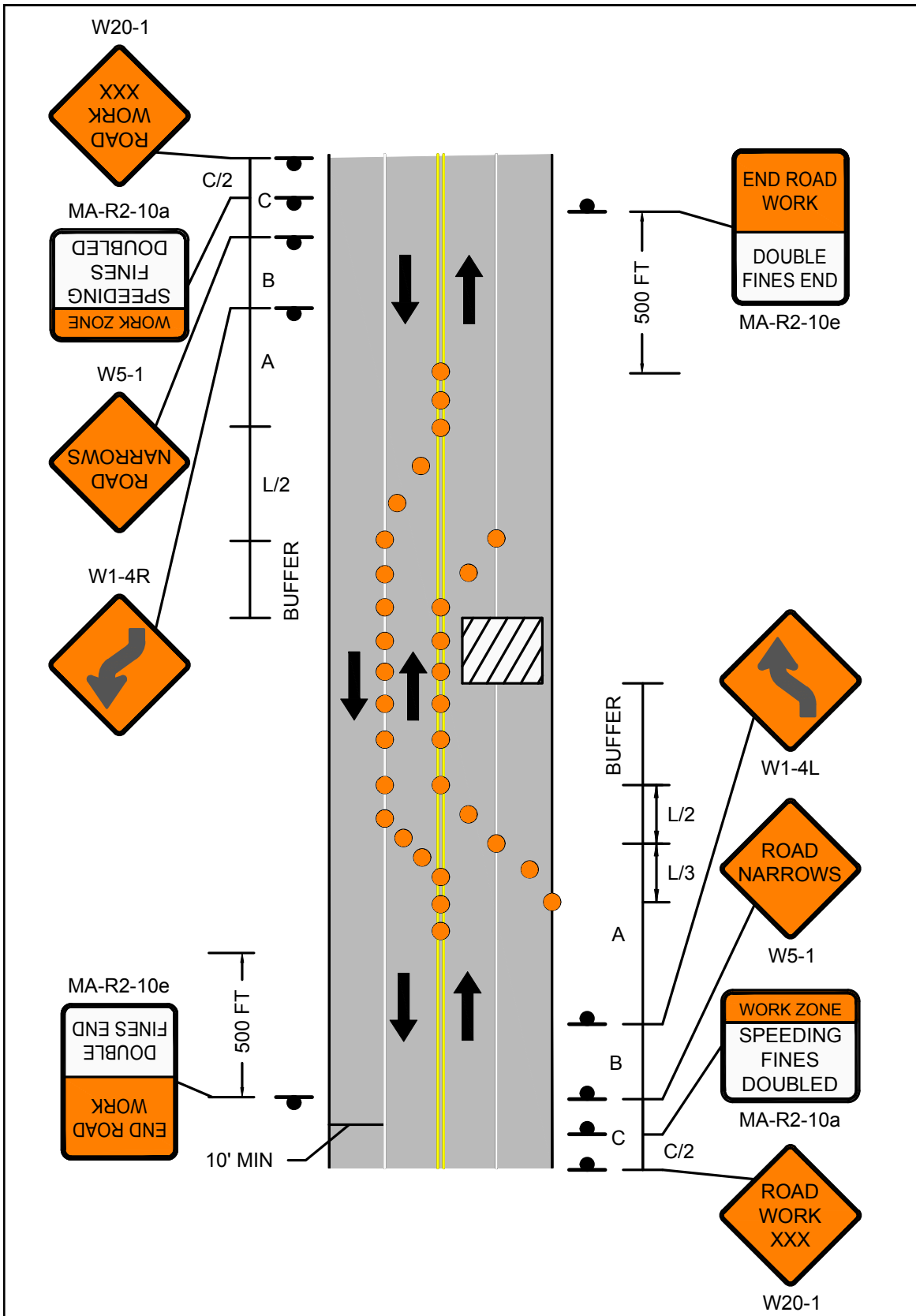



FIGURE 9
 STATIONARY OPERATIONS
 TWO LANE UNDIVIDED ROADWAY
 WITH TRAVERSABLE SHOULDER
 HALF OF ROADWAY CLOSED
 MAINTAIN TWO-WAY TRAFFIC



 MASSACHUSETTS DEPARTMENT OF TRANSPORTATION Highway Division PAGE 26	Work Zone Safety Standard Details and Drawings	STATIONARY OPERATIONS FOUR LANE UNDIVIDED ROADWAY RIGHT LANE CLOSED
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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

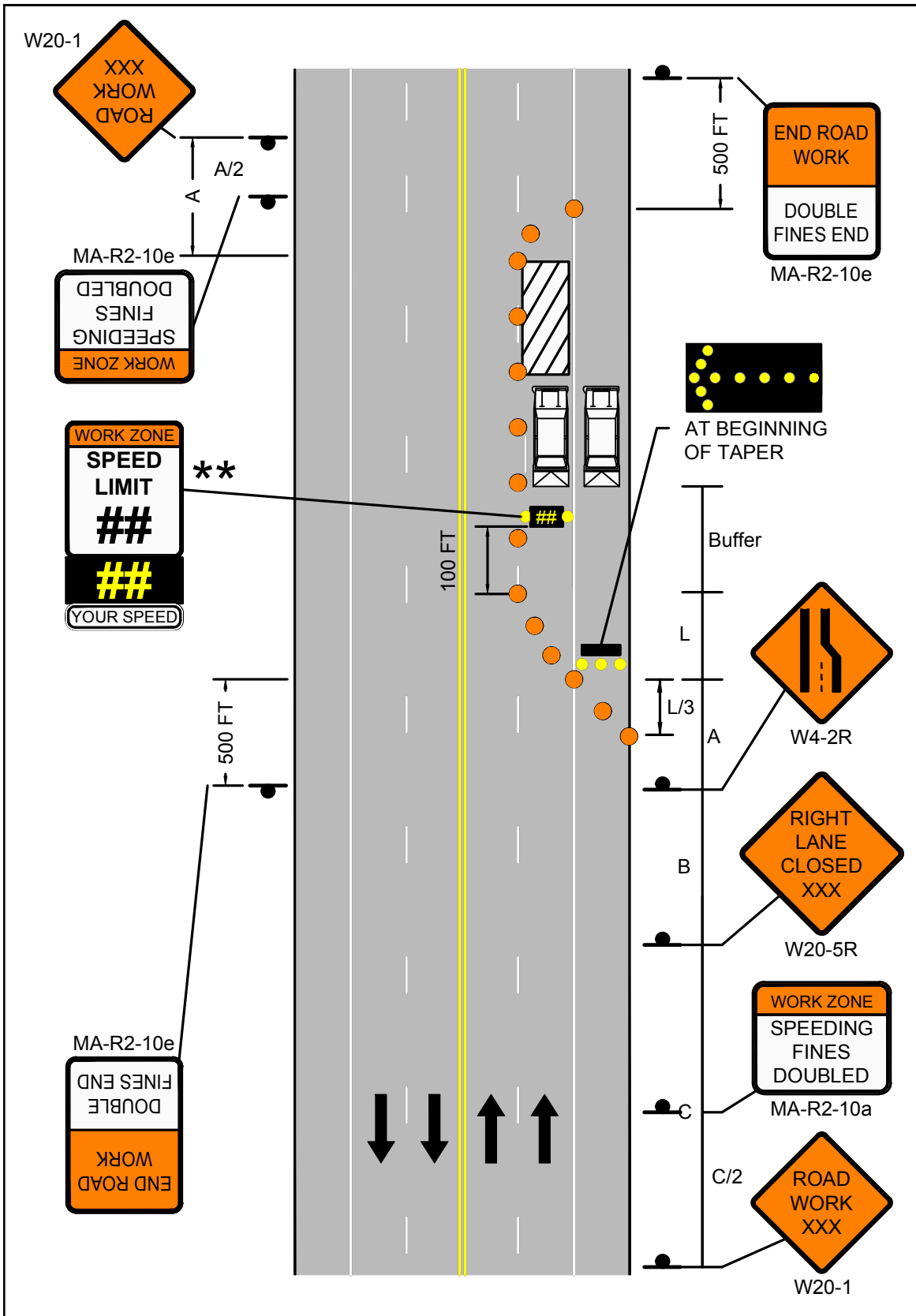
NOTES


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



 <p>PAGE 27</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>FIGURE 10 STATIONARY OPERATIONS FOUR LANE UNDIVIDED ROADWAY RIGHT LANE CLOSED</p>
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Work Zone Safety
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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.

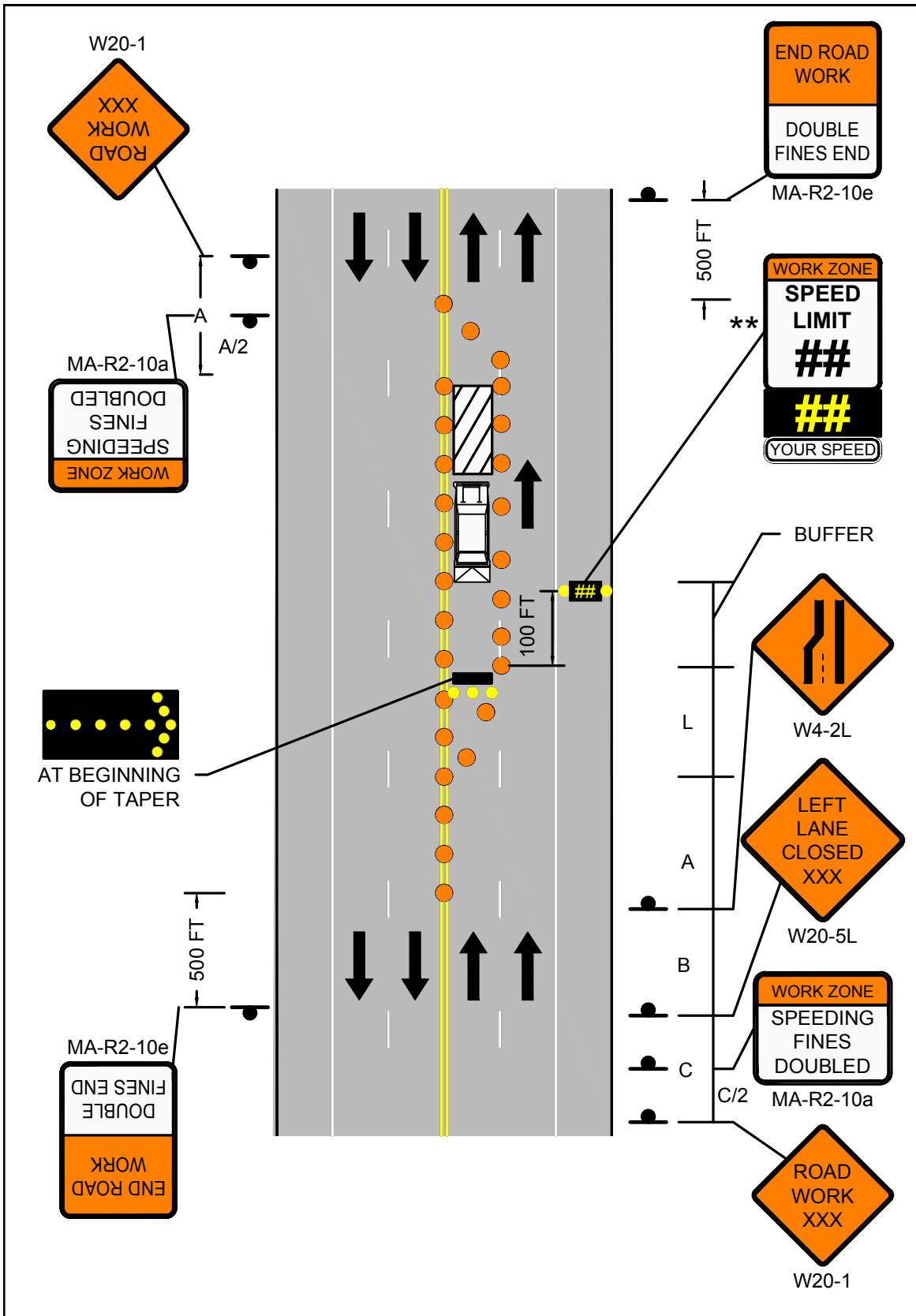
NOTES


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



 <p>PAGE 29</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>FIGURE 11 STATIONARY OPERATIONS FOUR LANE UNDIVIDED ROADWAY LEFT LANE CLOSED</p>
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 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
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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

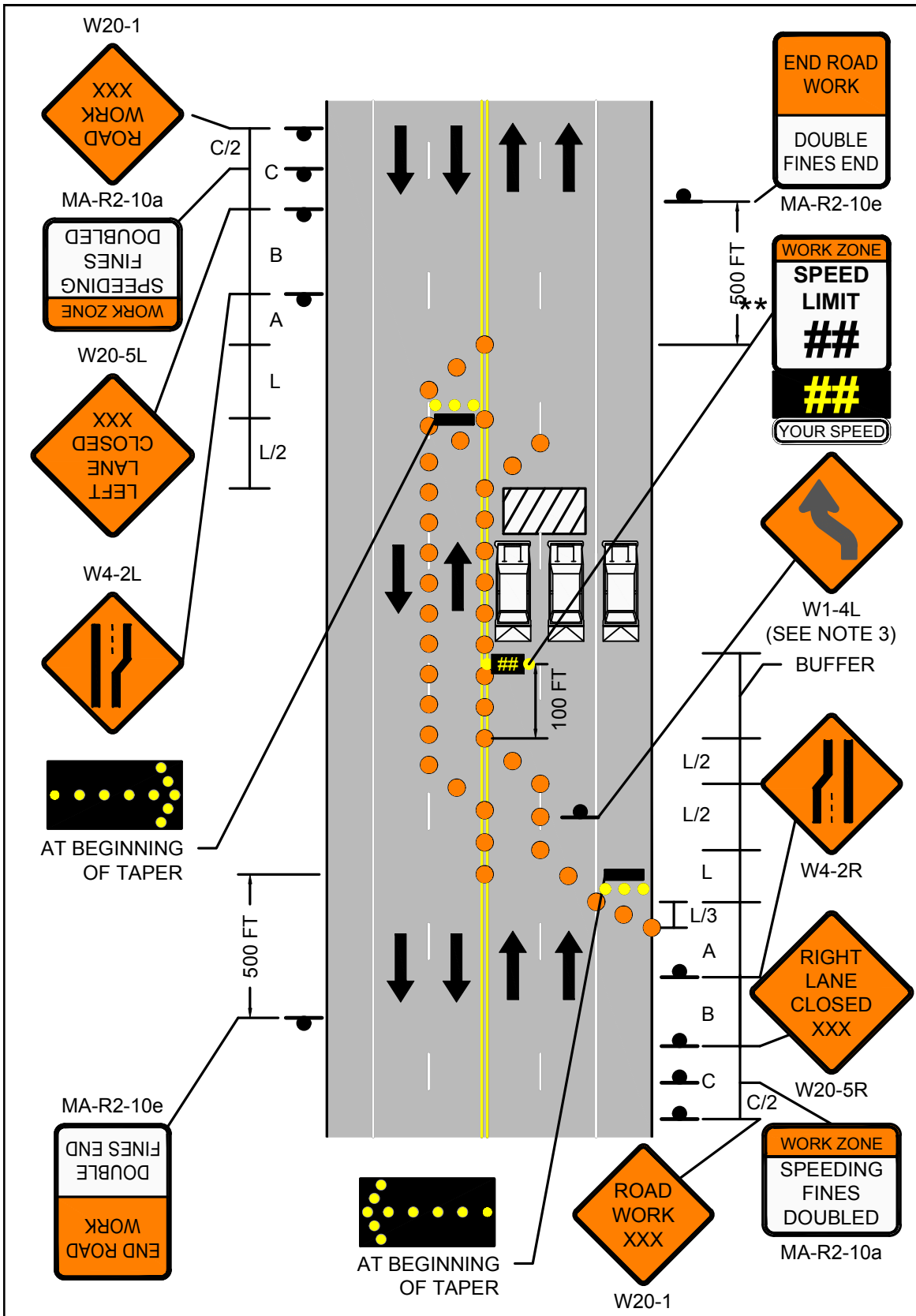
NOTES


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

-  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



 <p>PAGE 31</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>FIGURE 12 STATIONARY OPERATIONS FOUR LANE UNDIVIDED ROADWAY HALF OF ROADWAY CLOSED</p>
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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

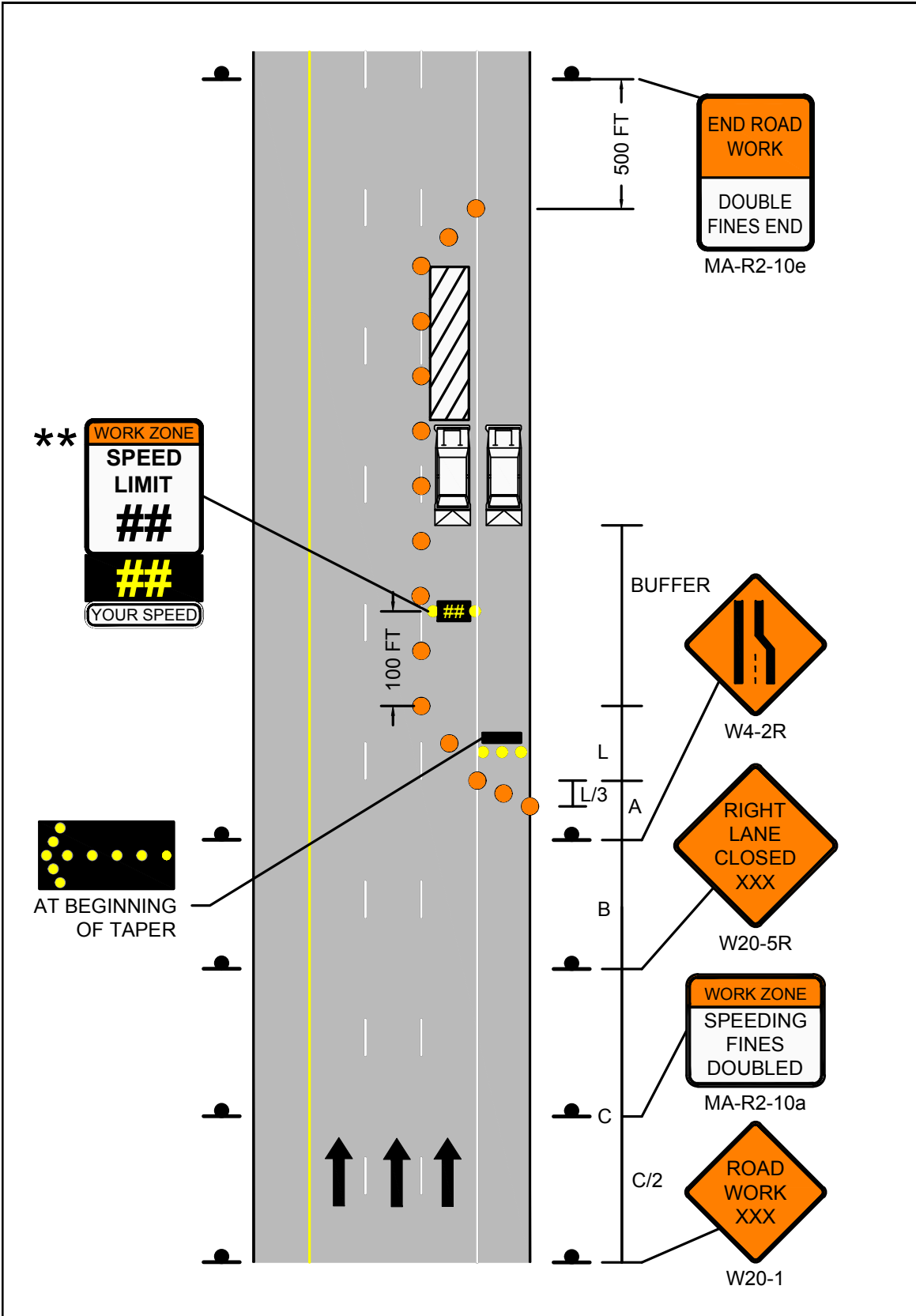
NOTES


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



 <p>Massachusetts Department of Transportation Highway Division</p> <p>PAGE 33</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>FIGURE 13 STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY RIGHT LANE CLOSED</p>
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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

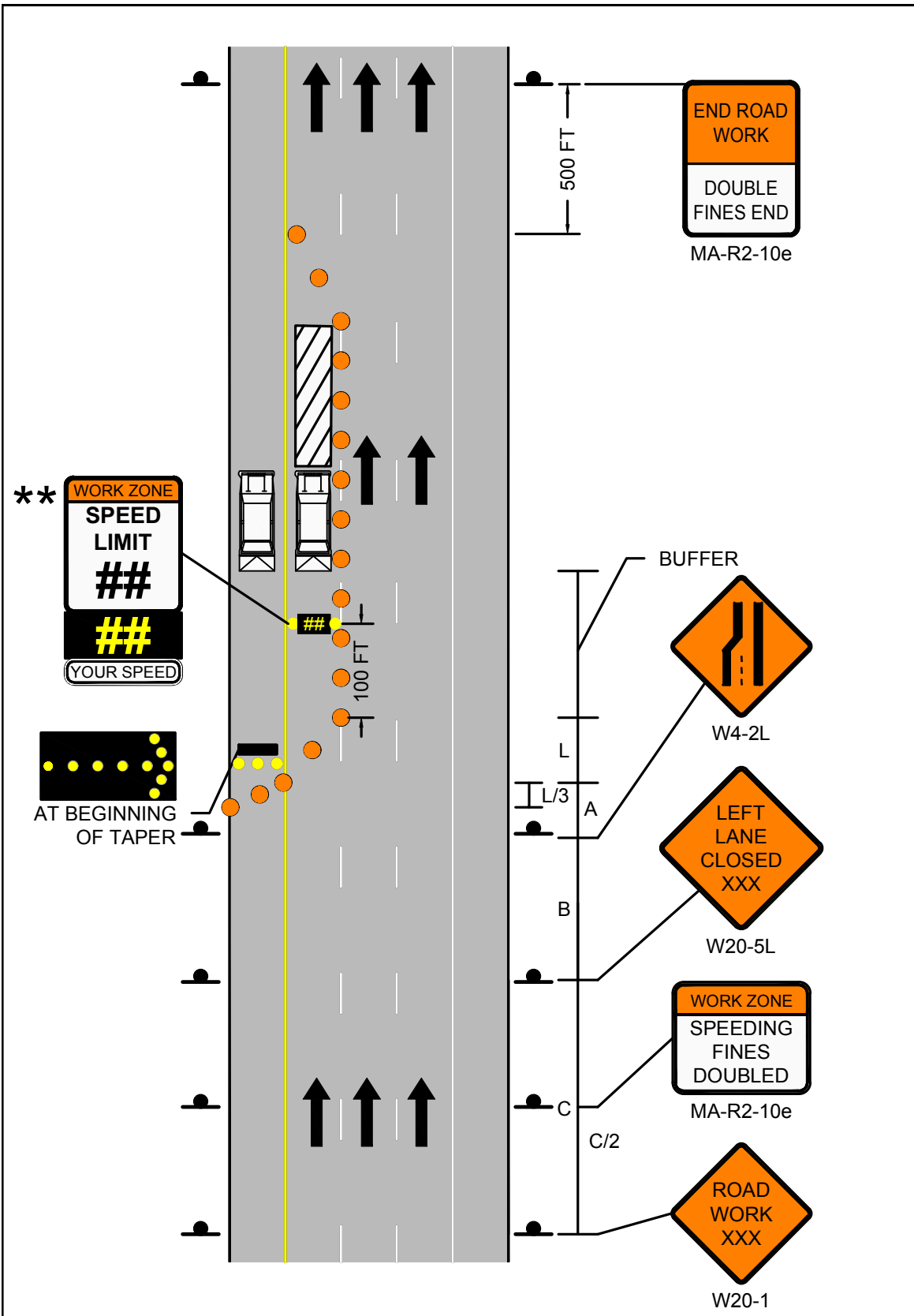
NOTES


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



 PAGE 36	Work Zone Safety Standard Details and Drawings	STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY CENTER LANE OR RIGHT/CENTER LANES CLOSED
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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

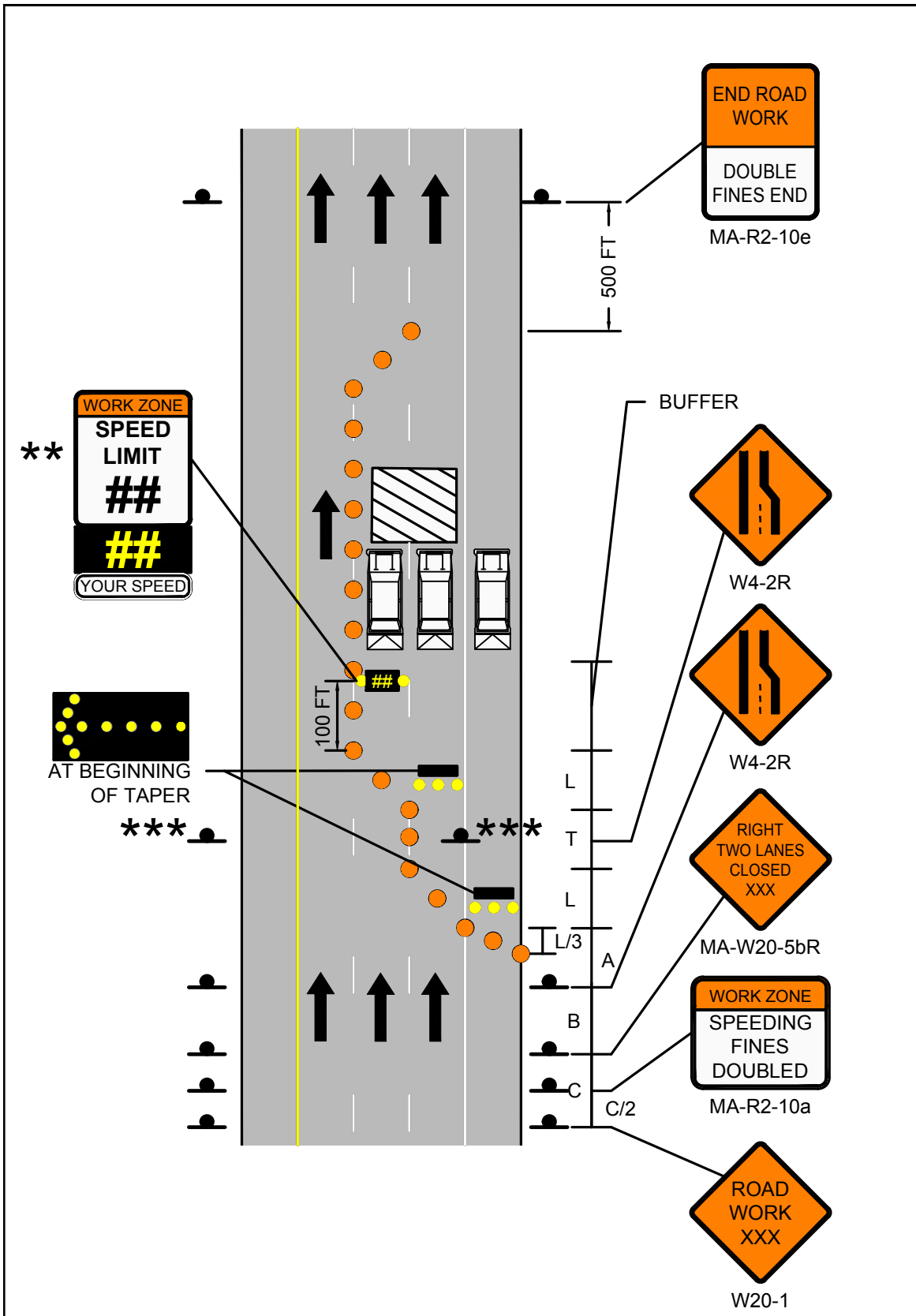
NOTES


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



 <p>Massachusetts Department of Transportation Highway Division</p> <p>PAGE 37</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>FIGURE 15 STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY CENTER LANE OR RIGHT/CENTER LANES CLOSED</p>
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 <p>Massachusetts Department of Transportation Highway Division</p> <p>PAGE 38</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY CENTER LANE OR LEFT/CENTER LANES CLOSED</p>
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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

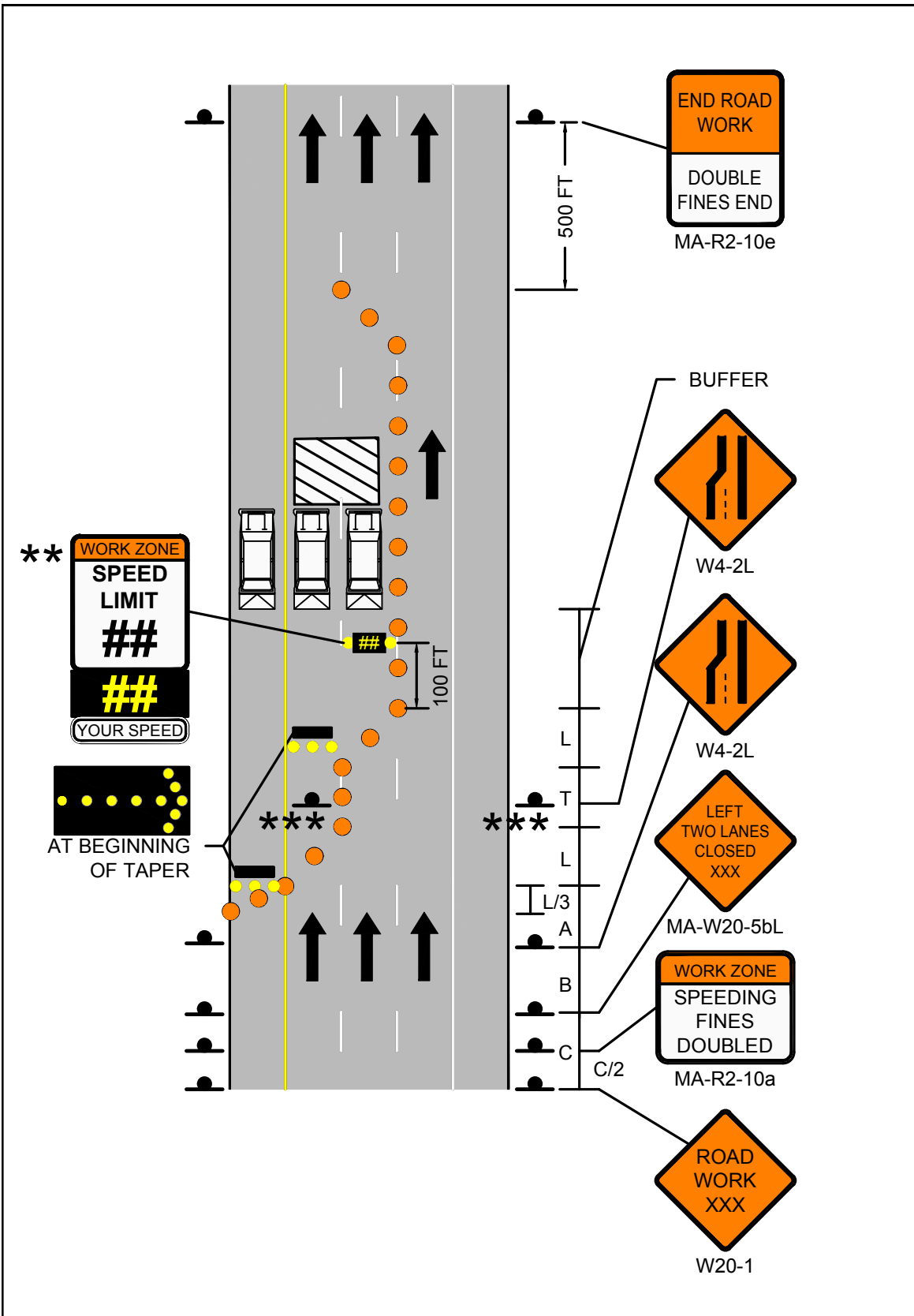
NOTES


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



 <p>Massachusetts Department of Transportation Highway Division</p> <p>PAGE 39</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>FIGURE 16 STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY CENTER LANE OR LEFT/CENTER LANES CLOSED</p>
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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.

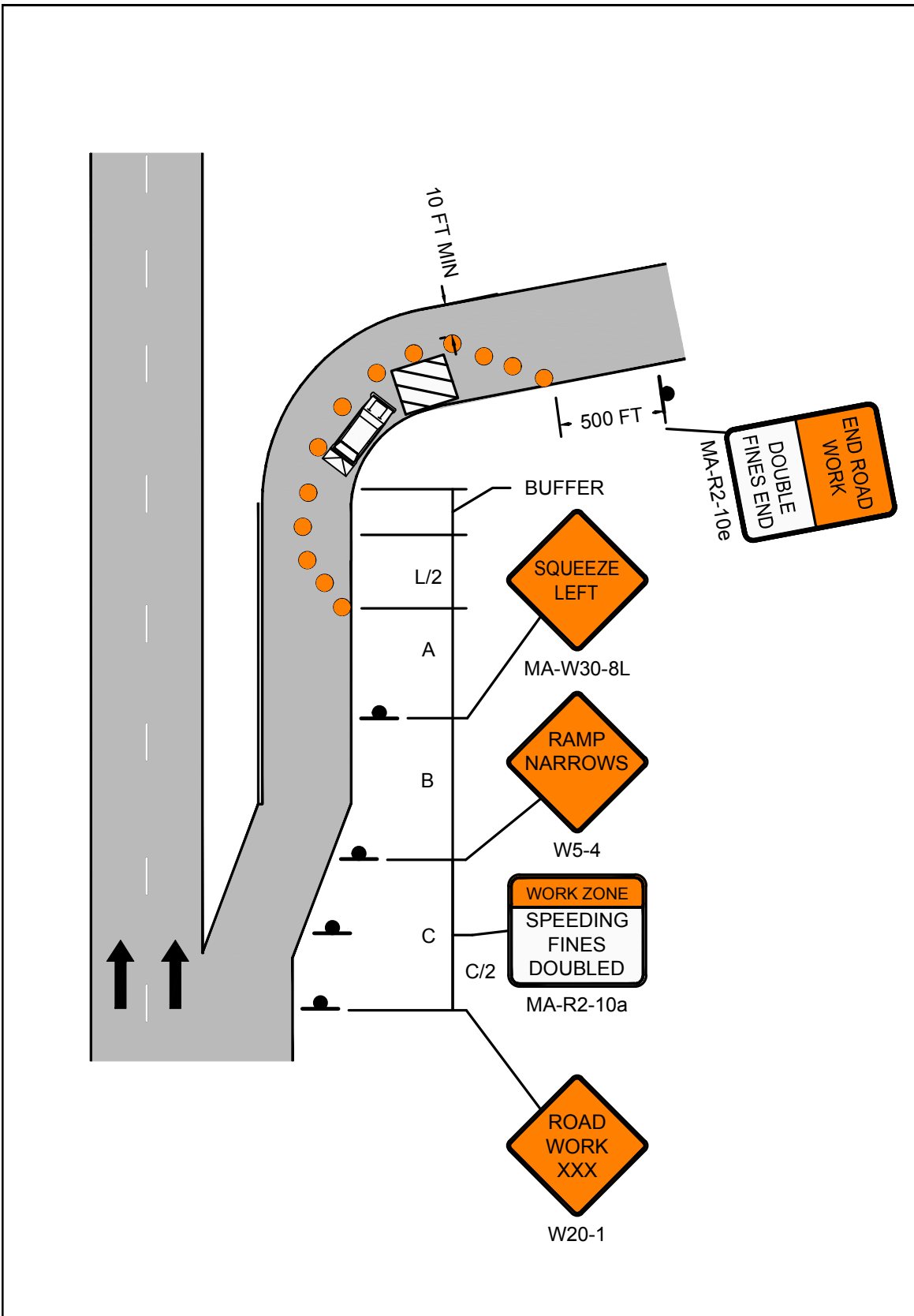
NOTES


1. MA-R2-10a LOCATED AT C/2.

LEGEND

-  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



 <p>PAGE 41</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>FIGURE 17 STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY RIGHT SIDE OF OFF RAMP CLOSED</p>
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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.

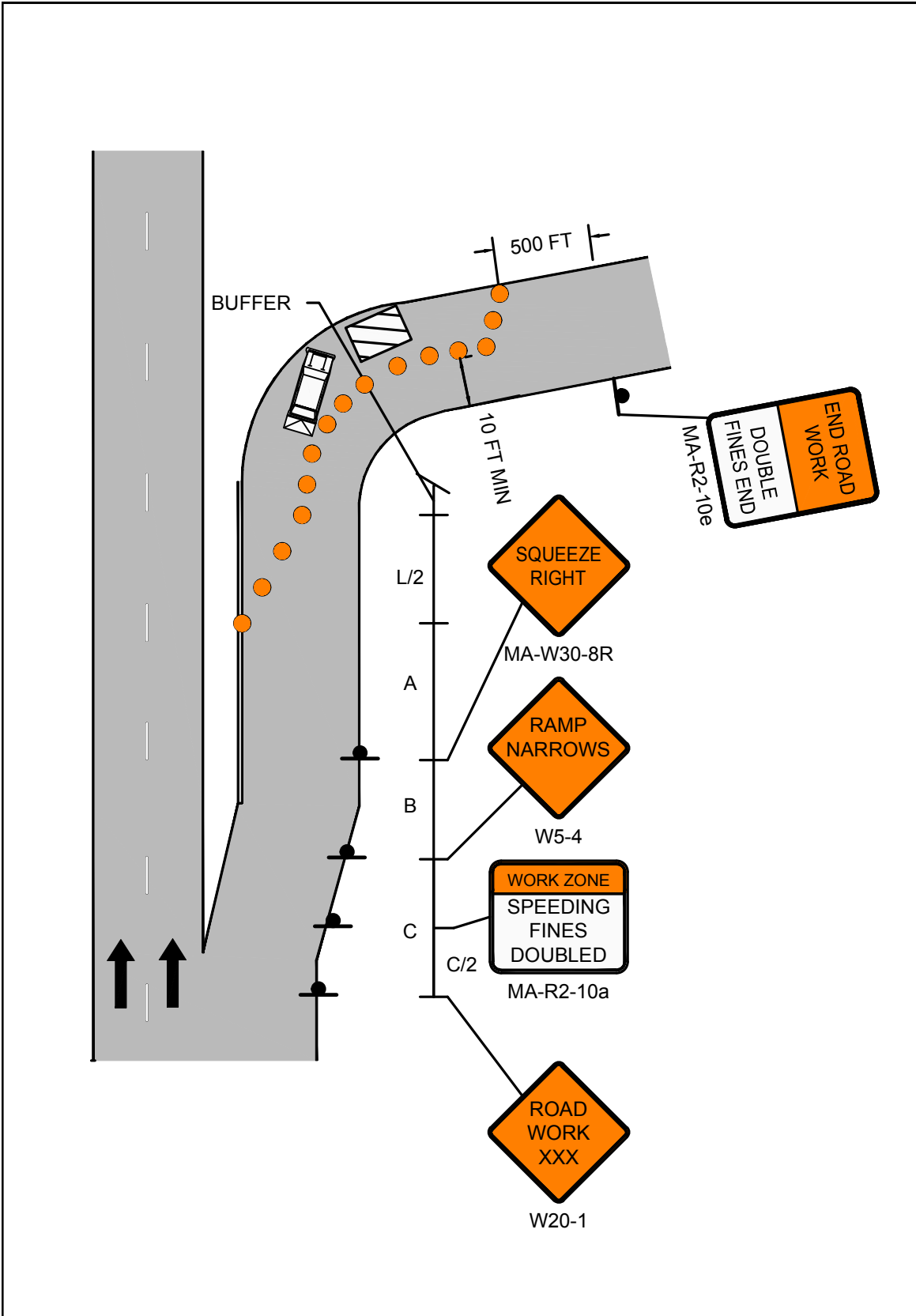
NOTES


1. MA-R2-10a LOCATED AT C/2.

LEGEND

-  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



	<p>Work Zone Safety Standard Details and Drawings</p>	<p>FIGURE 18 STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY LEFT SIDE OF OFF RAMP CLOSED PAGE 43</p>
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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

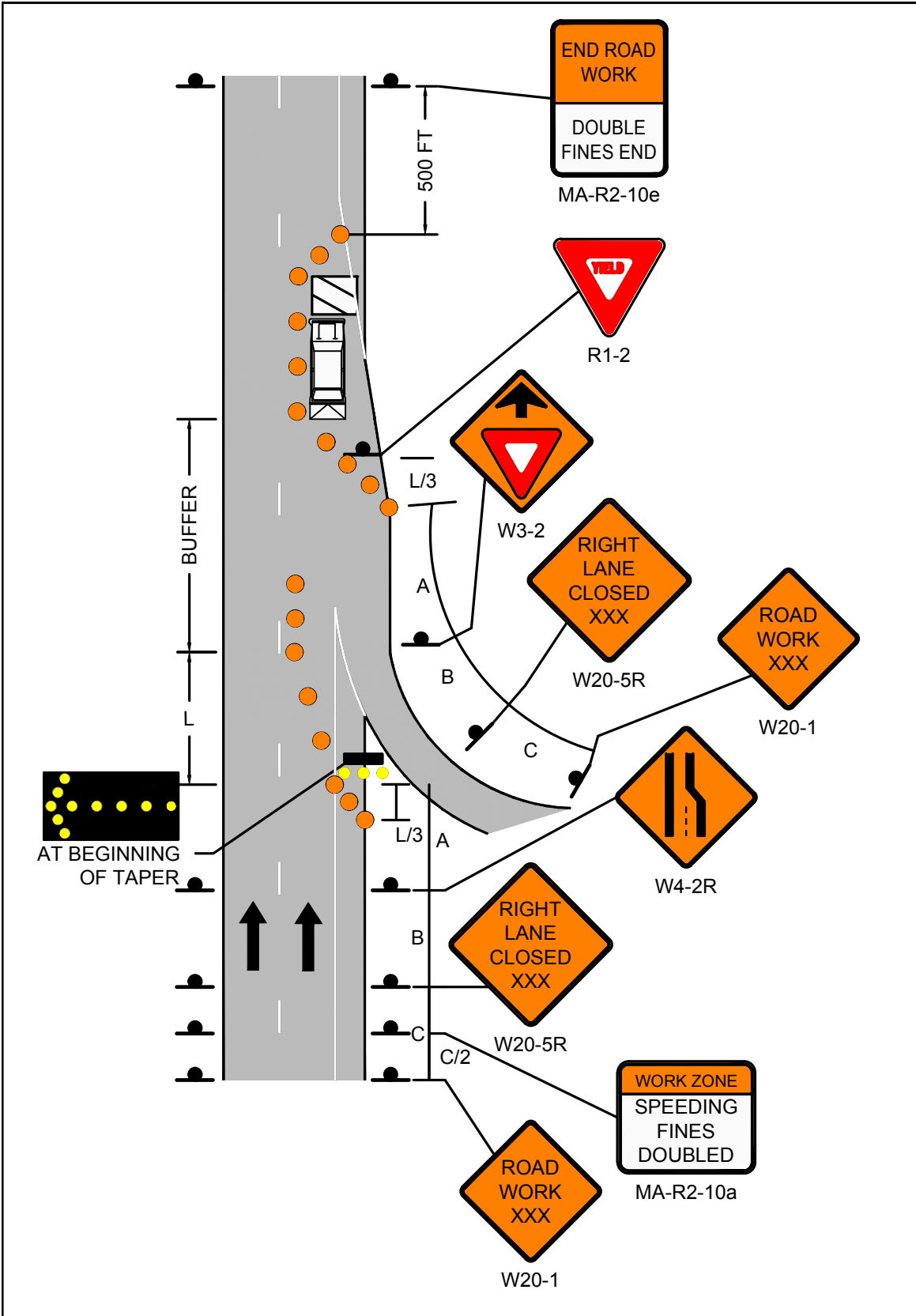
NOTES


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



 <p>PAGE 45</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>FIGURE 19 STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY ROADWORK BEYOND ON RAMP</p>
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 <p>Massachusetts Department of Transportation Highway Division</p> <p>PAGE 46</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY ROADWORK BEYOND OFF RAMP</p>
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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

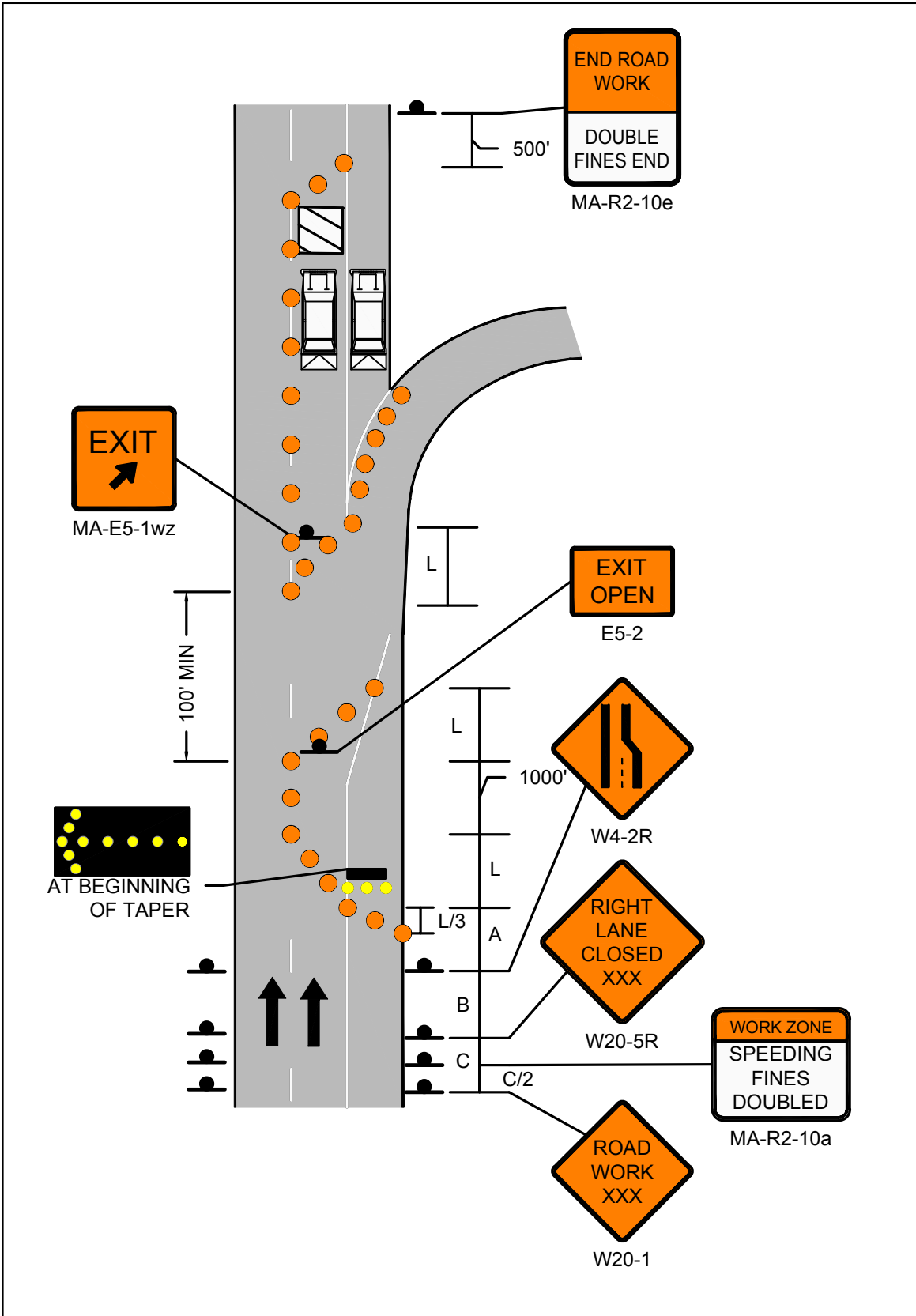
NOTES


1. MA-R2-10a LOCATED AT C/2.

LEGEND

-  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



 <p>PAGE 47</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>FIGURE 20 STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY ROADWORK BEYOND OFF RAMP</p>
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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

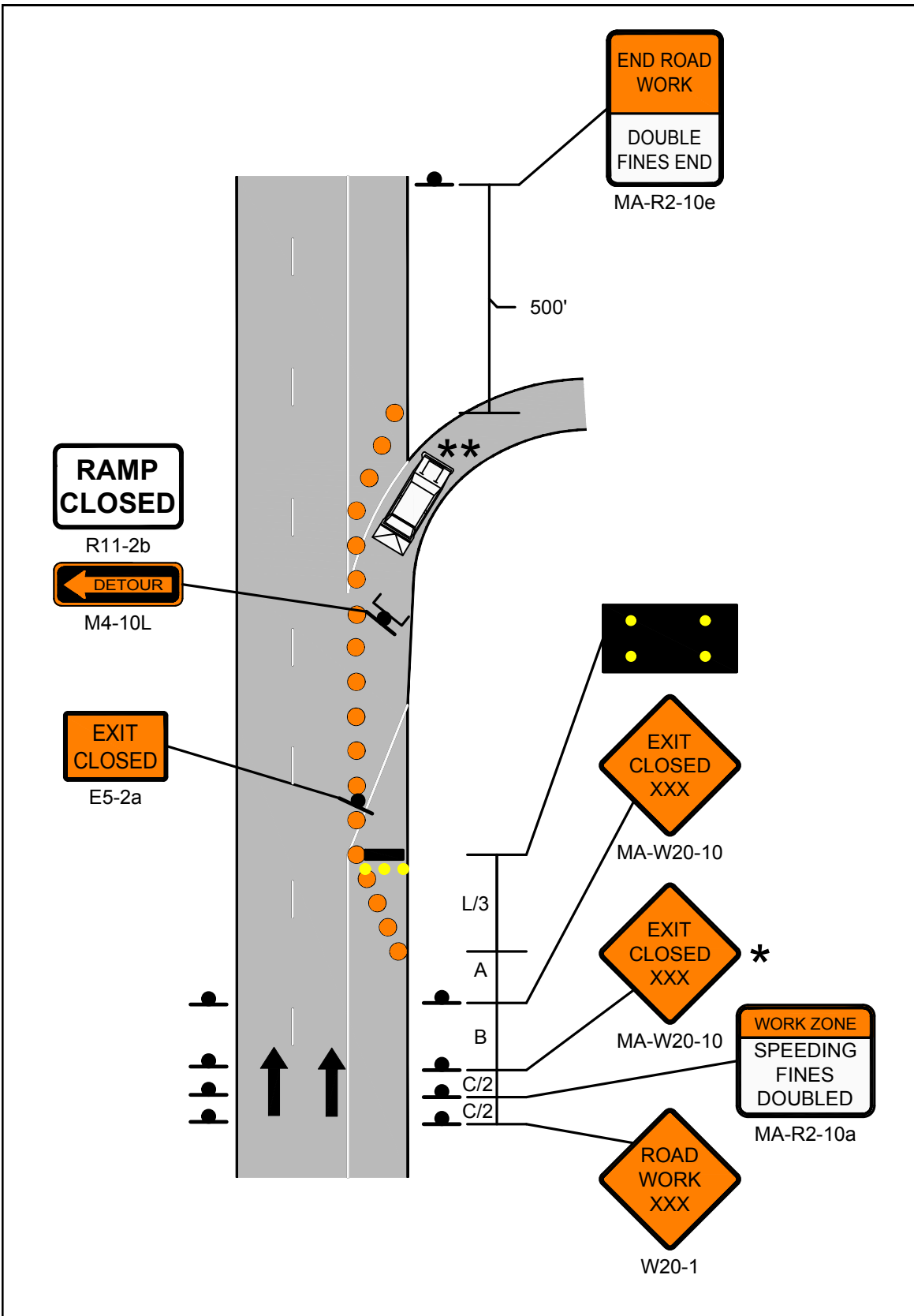
NOTES

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





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

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

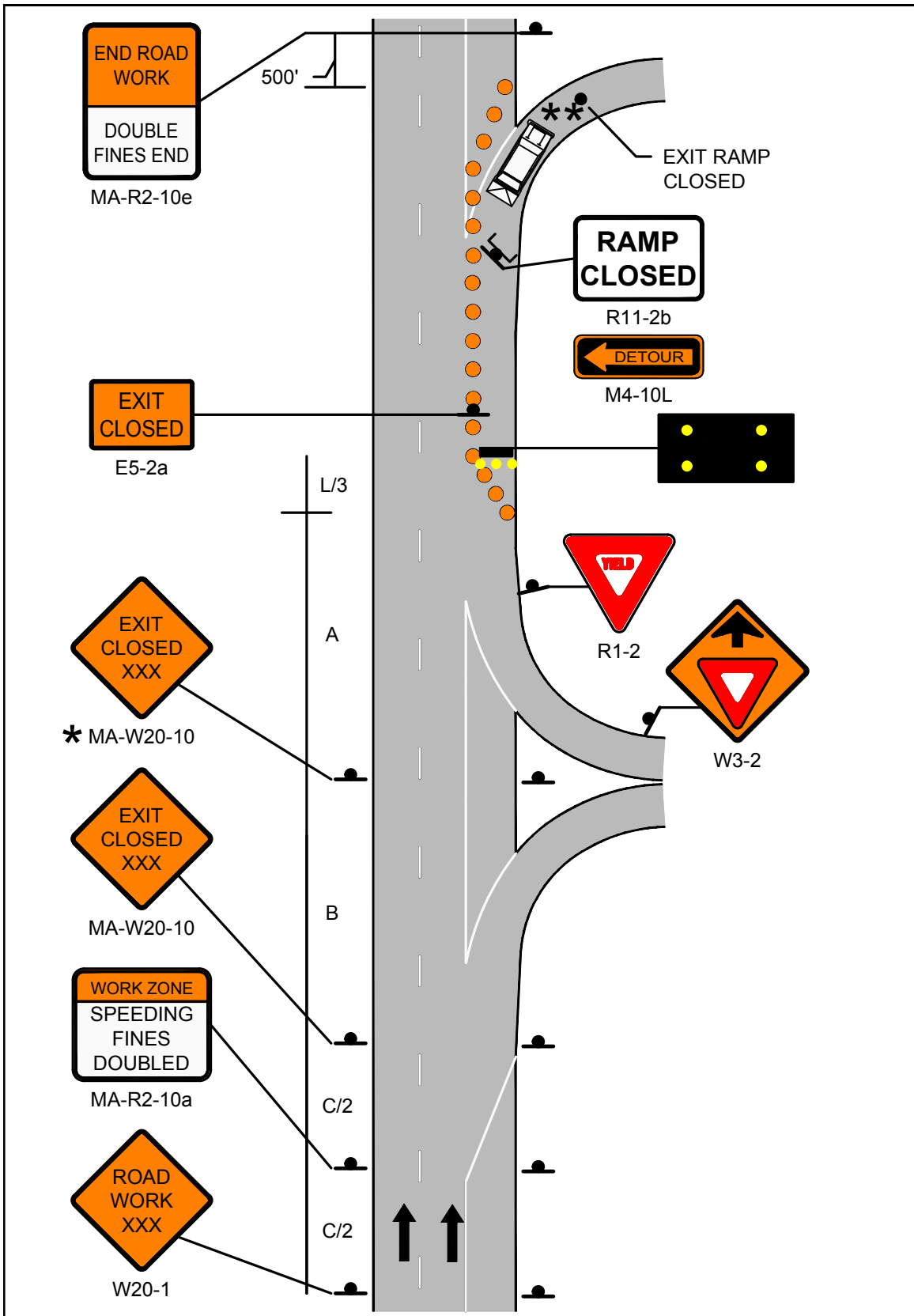
NOTES


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
-  TEMPORARY PORTABLE RUMBLE STRIP
-  TYPE III BARRICADE

NOT TO SCALE



 <p>PAGE 51</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>FIGURE 22 MULTILANE DIVIDED ROADWAY TYPICAL CLOVERLEAF RAMP CLOSURE</p>
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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

-  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

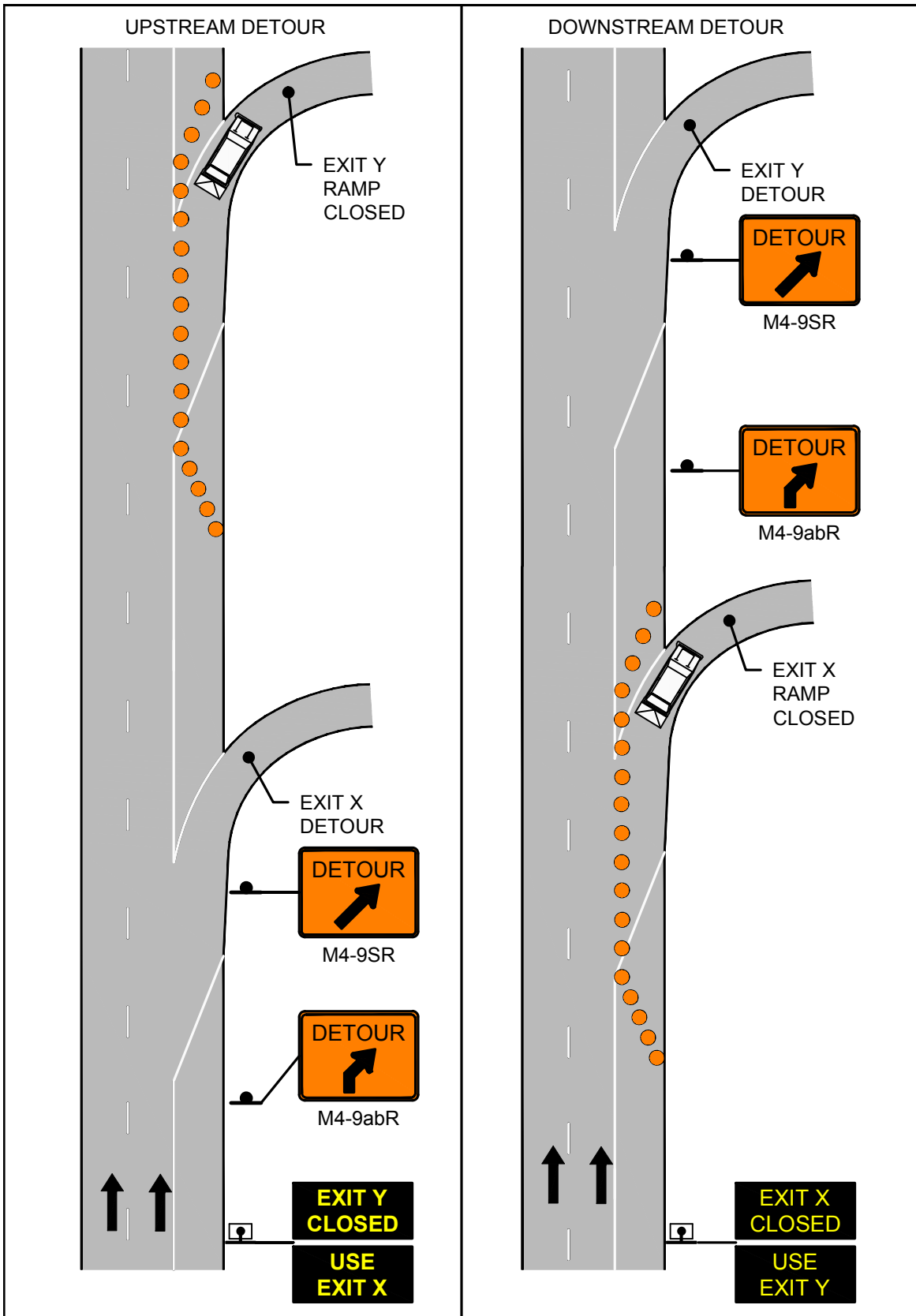


FIGURE 23
MULTILANE DIVIDED ROADWAY
TYPICAL RAMP CLOSURE
ADVANCE SIGNING



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

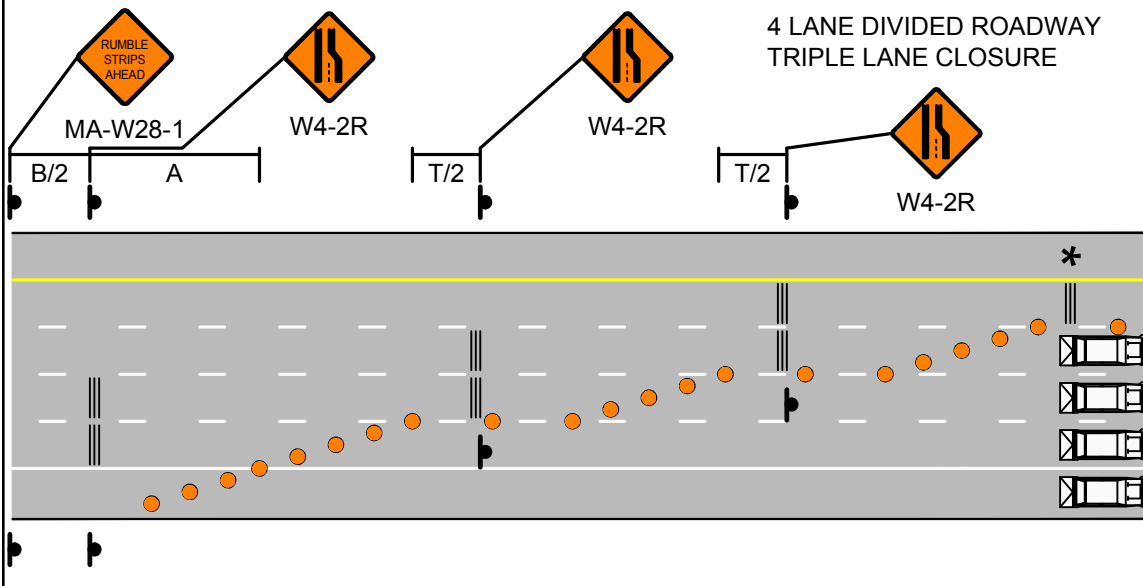
NOTES

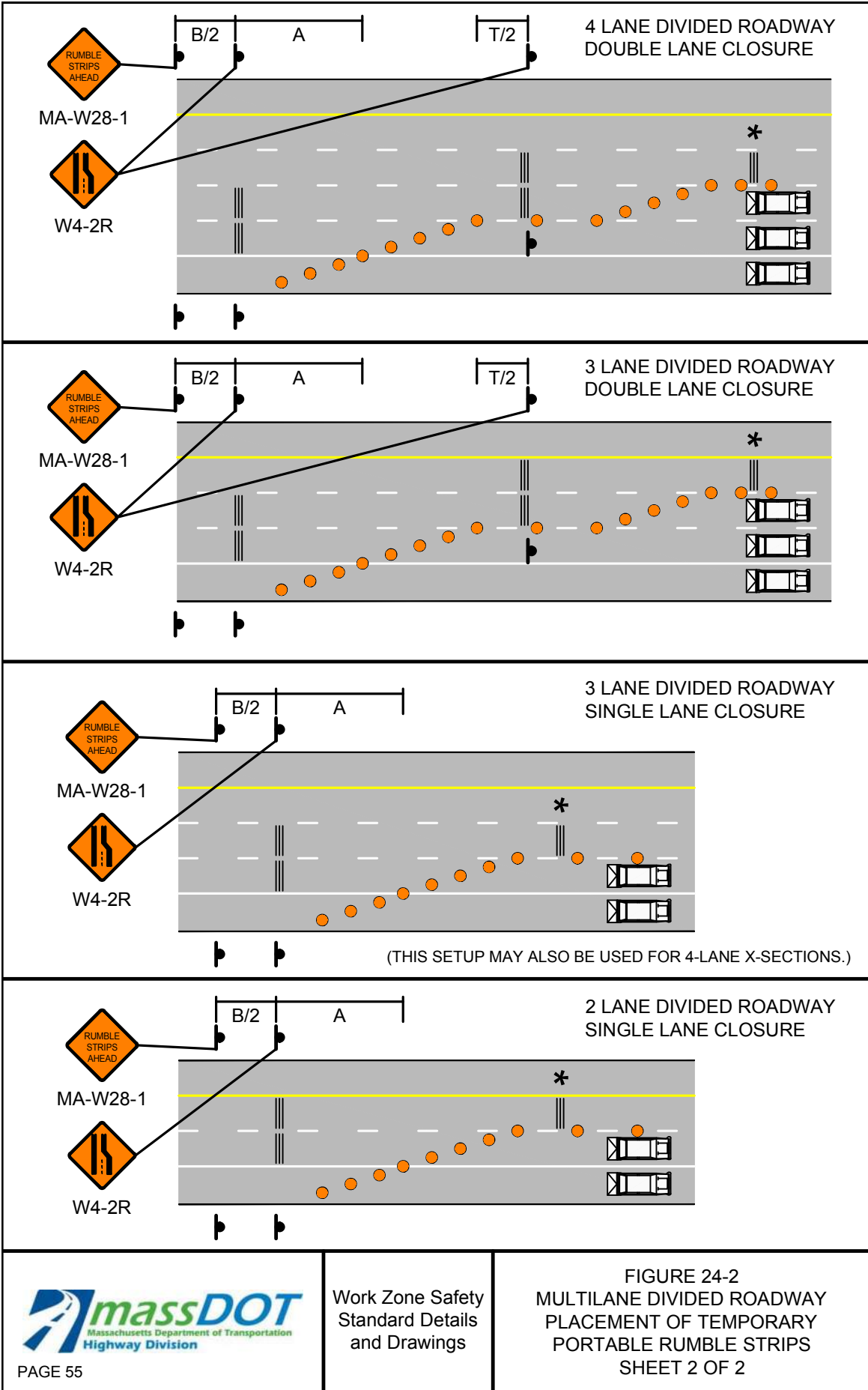
1. THE INTENTION OF THESE DETAILS IS ONLY TO DEPICT THE PLACEMENT OF TEMPORARY PORTABLE RUMBLE STRIPS (TPRS) IN RELATIONSHIP TO THE TAPER AND THE BUFFER OF A SINGLE- OR MULTI-LANE CLOSURE. THE DEPICTION OF THE NUMBER AND SPACING OF ALL OTHER TRAFFIC CONTROL DEVICES IS NOT TO SCALE. REFER TO OTHER DETAILS 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

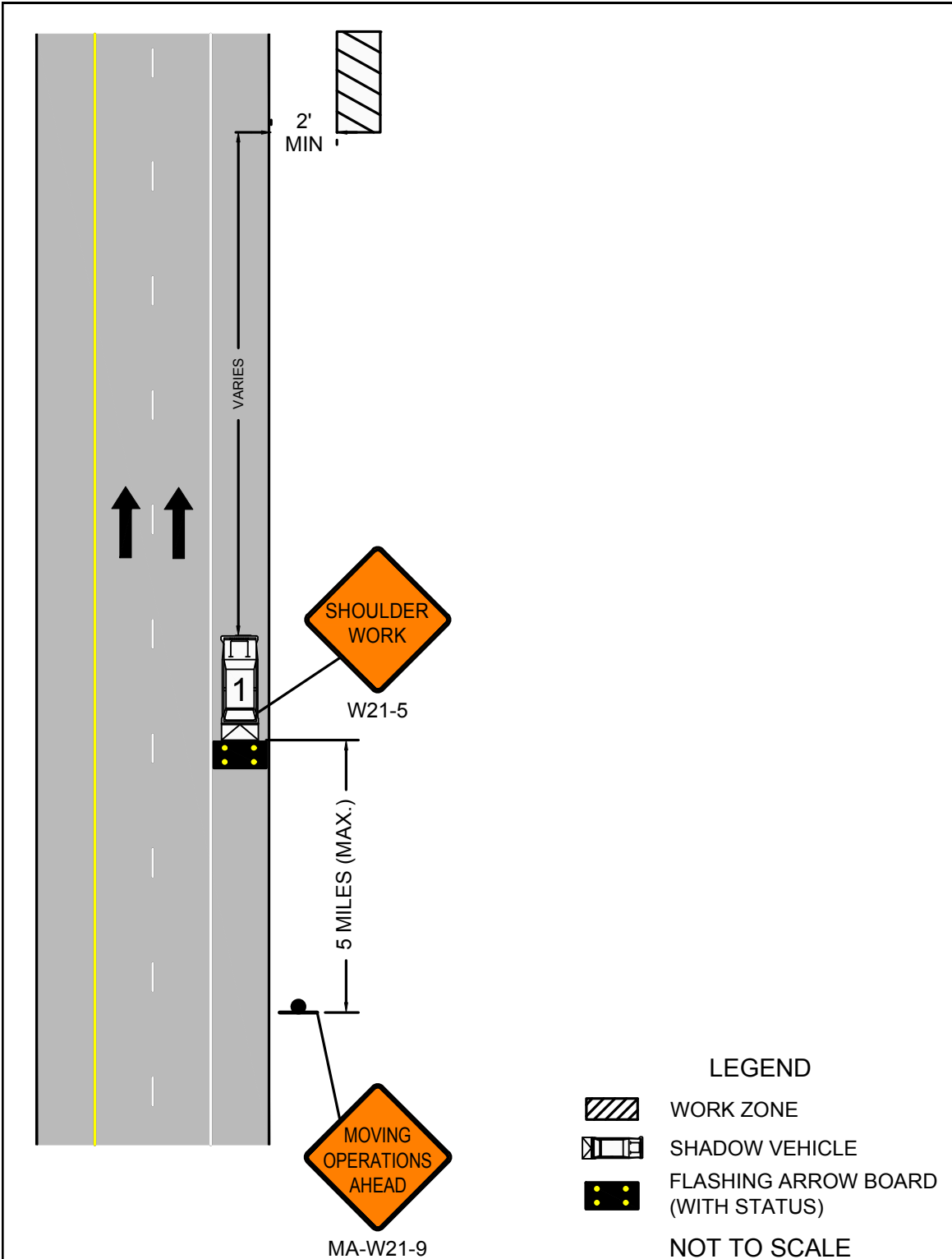




 <p>PAGE 56</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>NOTES FOR MOBILE OPERATIONS</p>
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Notes for Mobile Operations

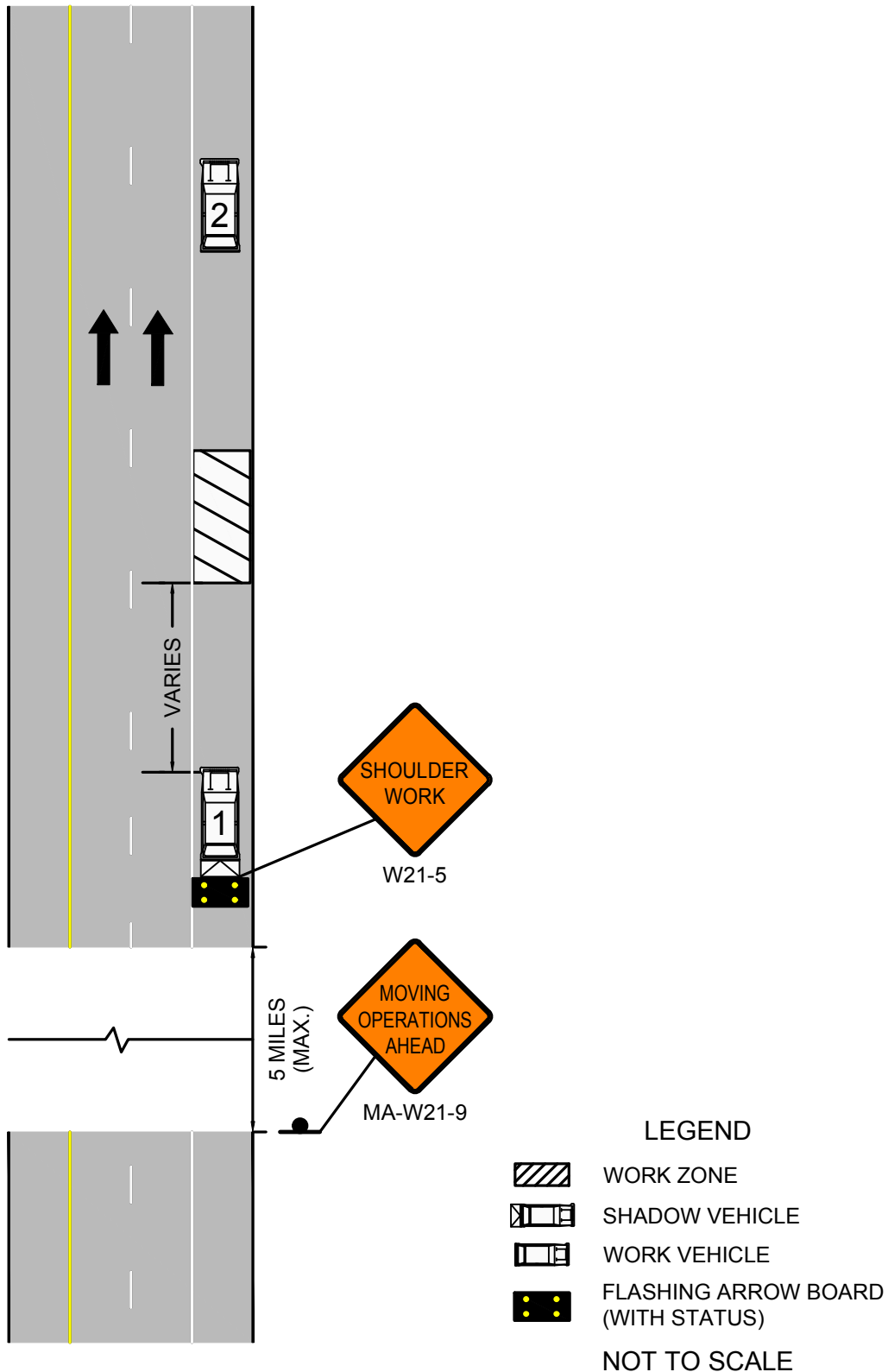
- Unless otherwise stated, these notes shall apply to all Mobile Operation setups.
 - Additional, setup-specific notes may be found on individual sheets.
1. The Supervisor shall travel the designated roadway prior to scheduling the work to ensure that sufficient and appropriate traffic control devices 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.



NOTES

1. IF THE WORK AREA IS SUFFICIENTLY AWAY FROM THE EDGE OF ROADWAY (20' MINIMUM) THEN SIGNS AND VEHICLES MAY NOT BE REQUIRED.





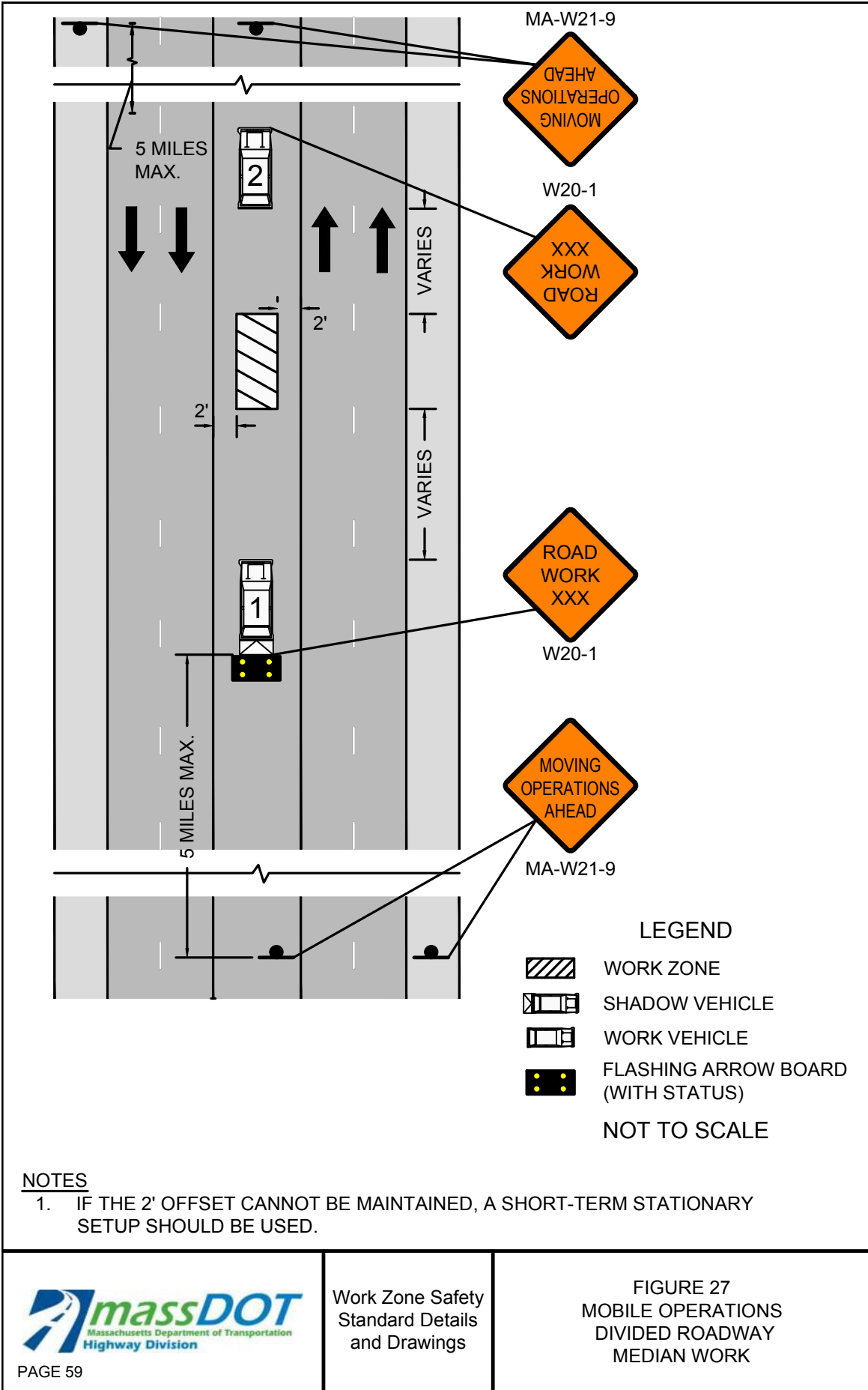
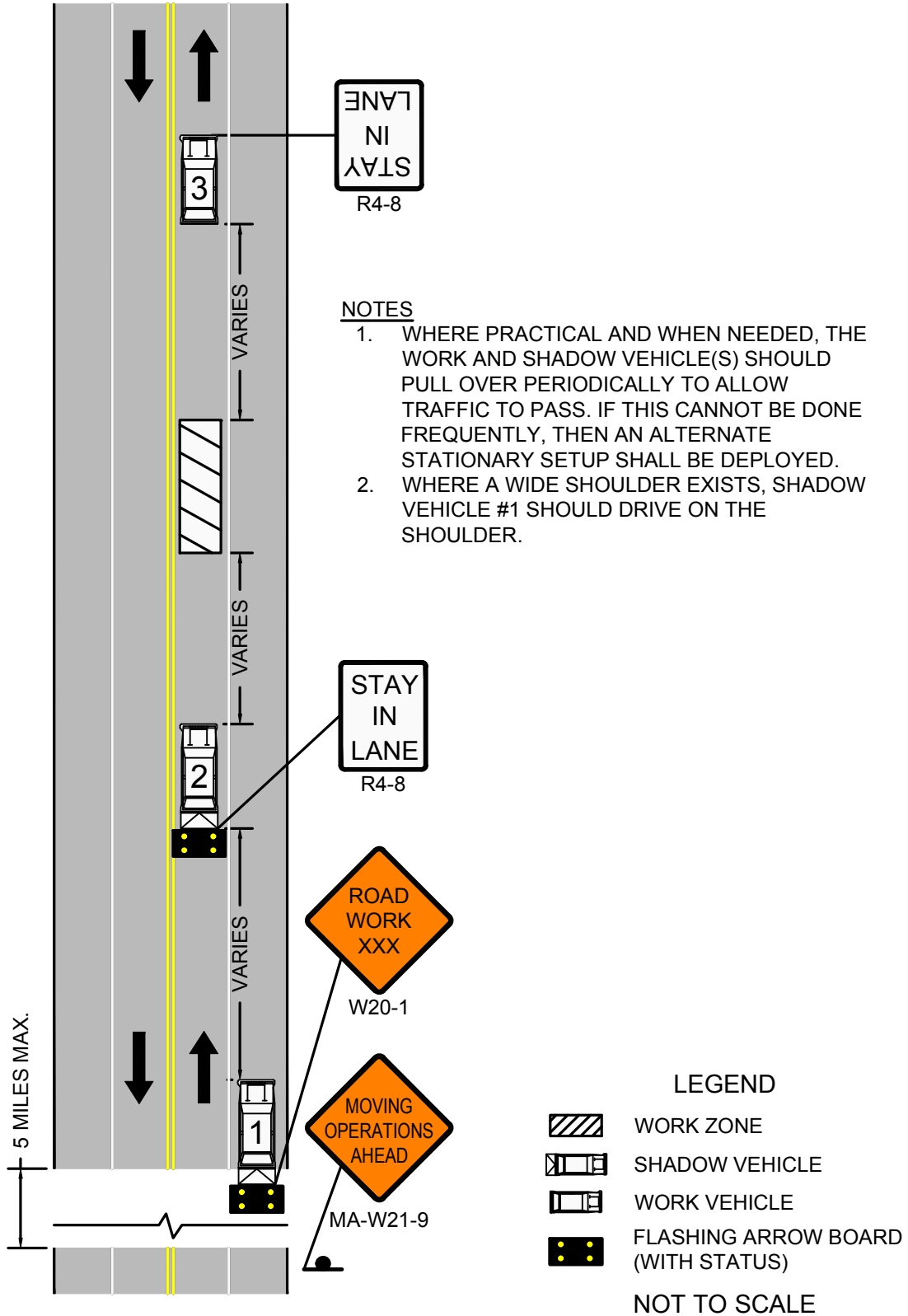




FIGURE 28
MOBILE OPERATIONS
UNDIVIDED TWO LANE ROADWAY
HALF OF ROADWAY CLOSED



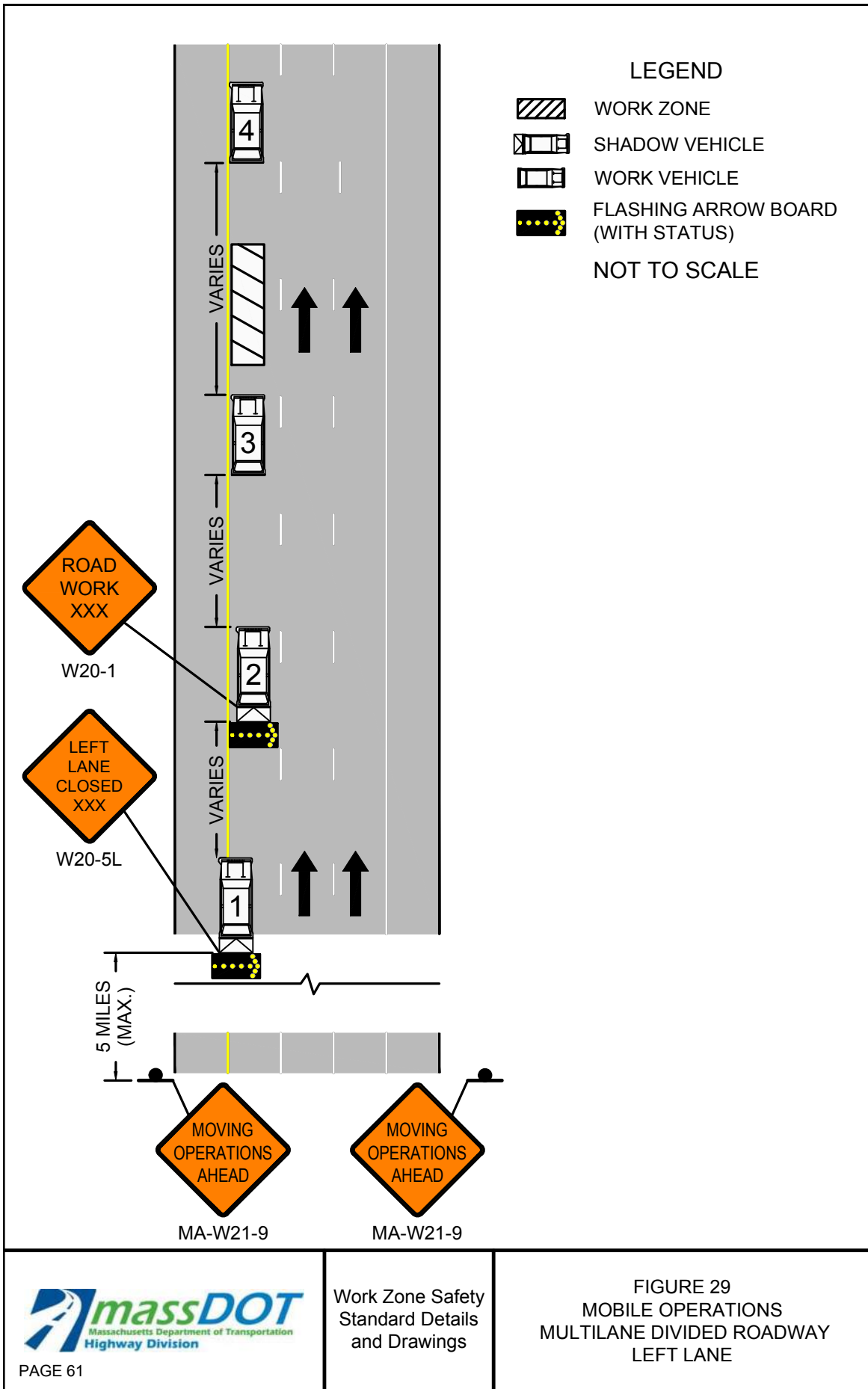
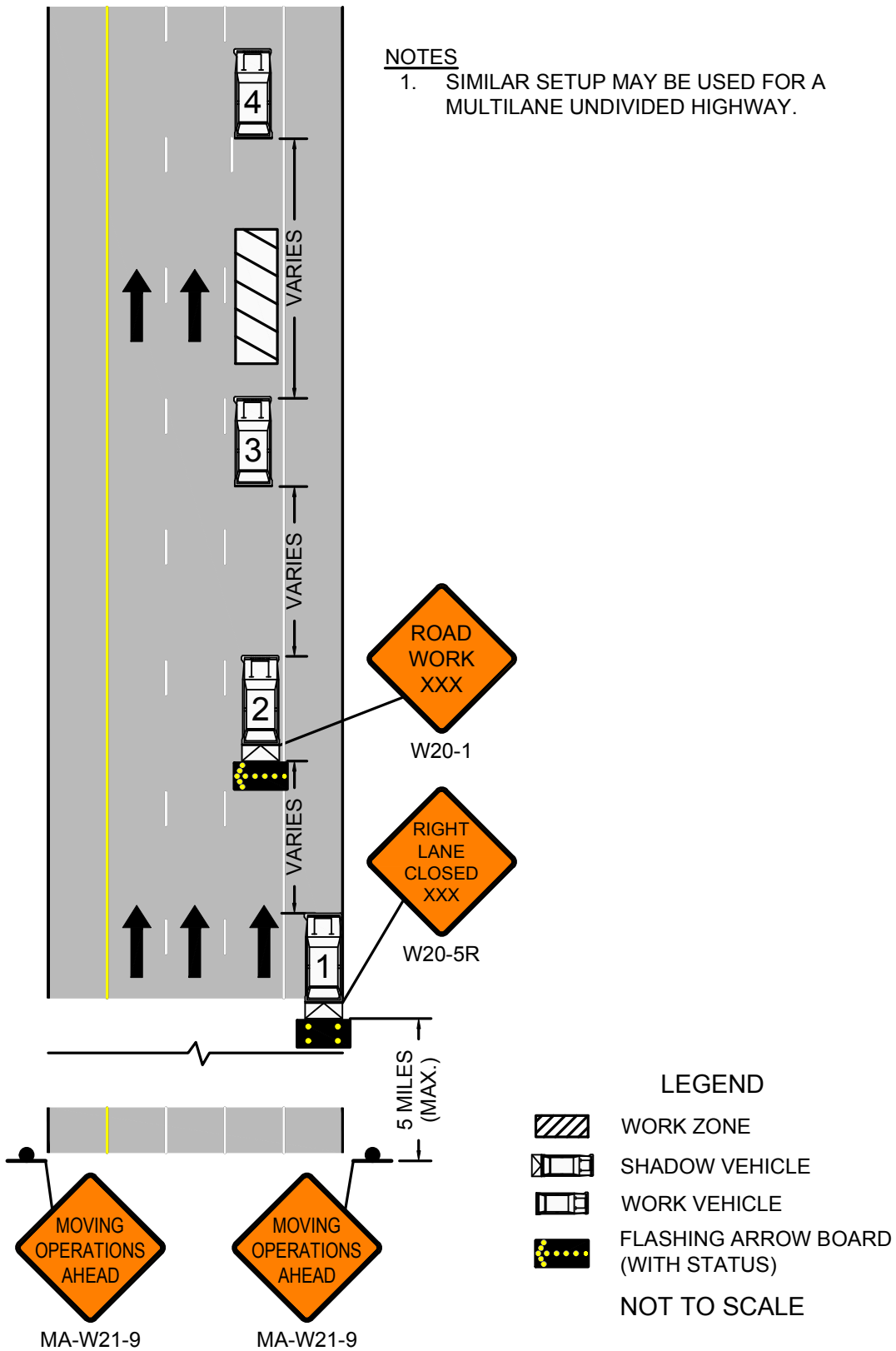
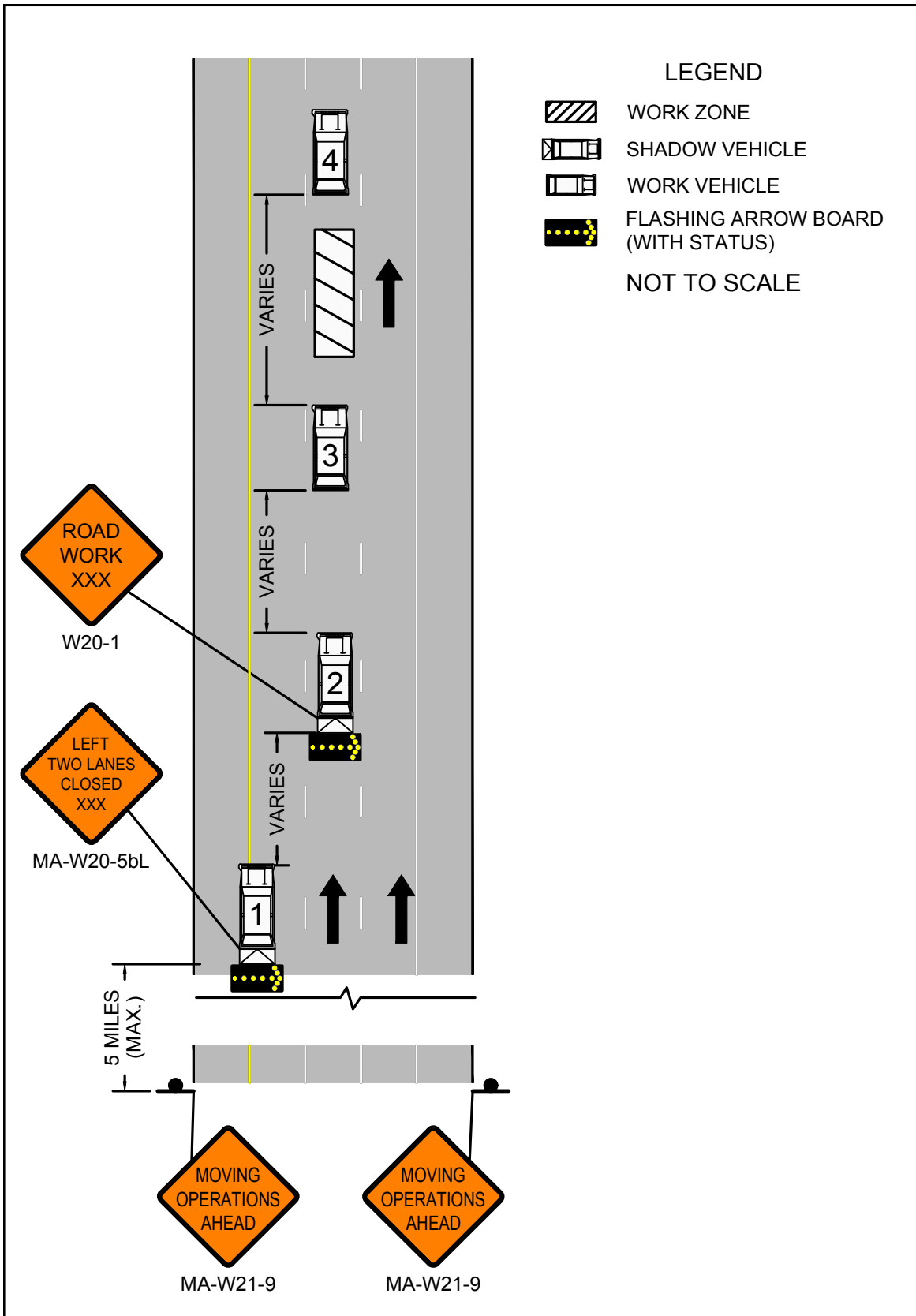
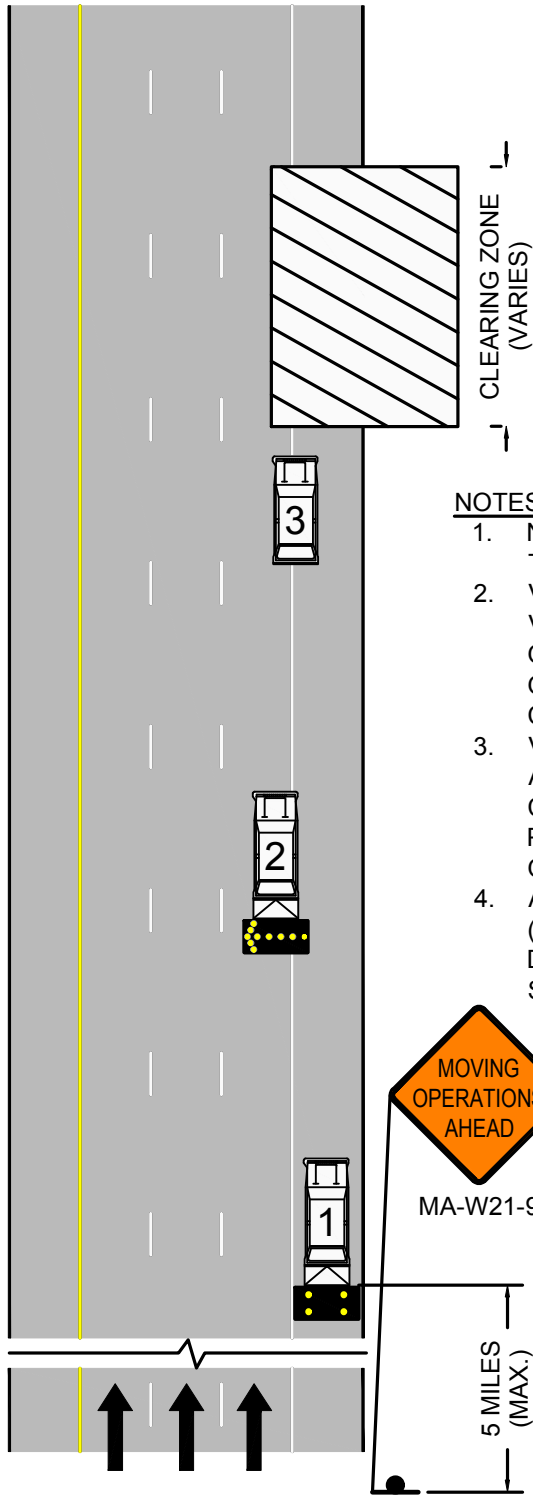




FIGURE 30
MOBILE OPERATIONS
MULTILANE DIVIDED ROADWAY
RIGHT LANE







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

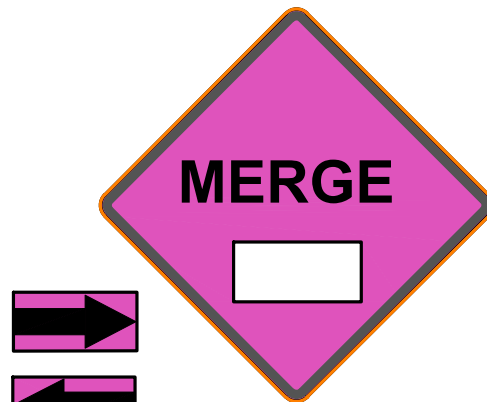
Notes for Traffic Emergency or Incident Operations

- 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")



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MA-W4-2aR/L





 <p>PAGE 65</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>NOTES FOR TRAFFIC EMERGENCY/ INCIDENT OPERATIONS</p>
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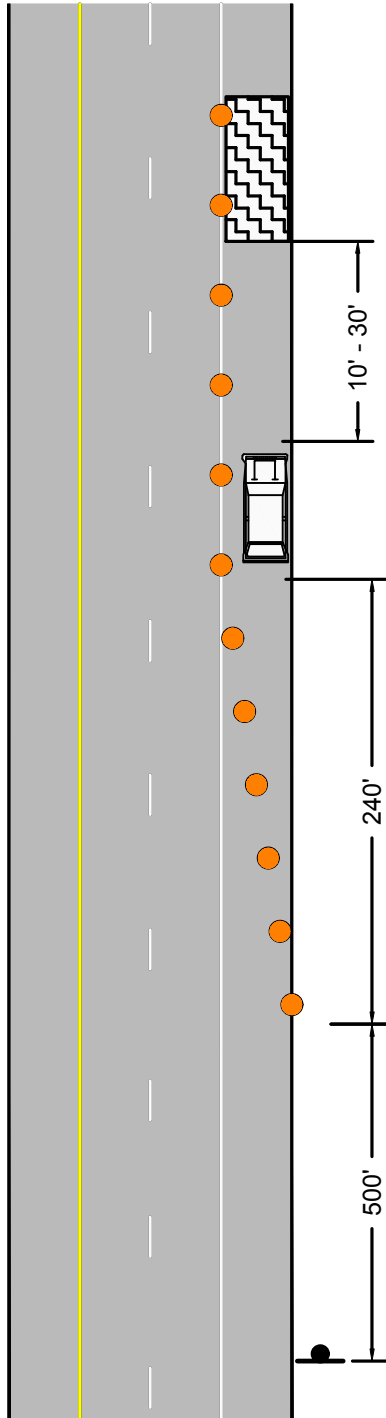


FIGURE 33
EMERGENCY RESPONSE
ANY ROADWAY
SHOULDER ENCROACHMENT

LEGEND

-  EMERGENCY AREA
-  CHANNELIZATION DEVICE
-  EMERGENCY RESPONSE VEHICLE

NOT TO SCALE



ORDER OF RESPONSE ACTIVITIES

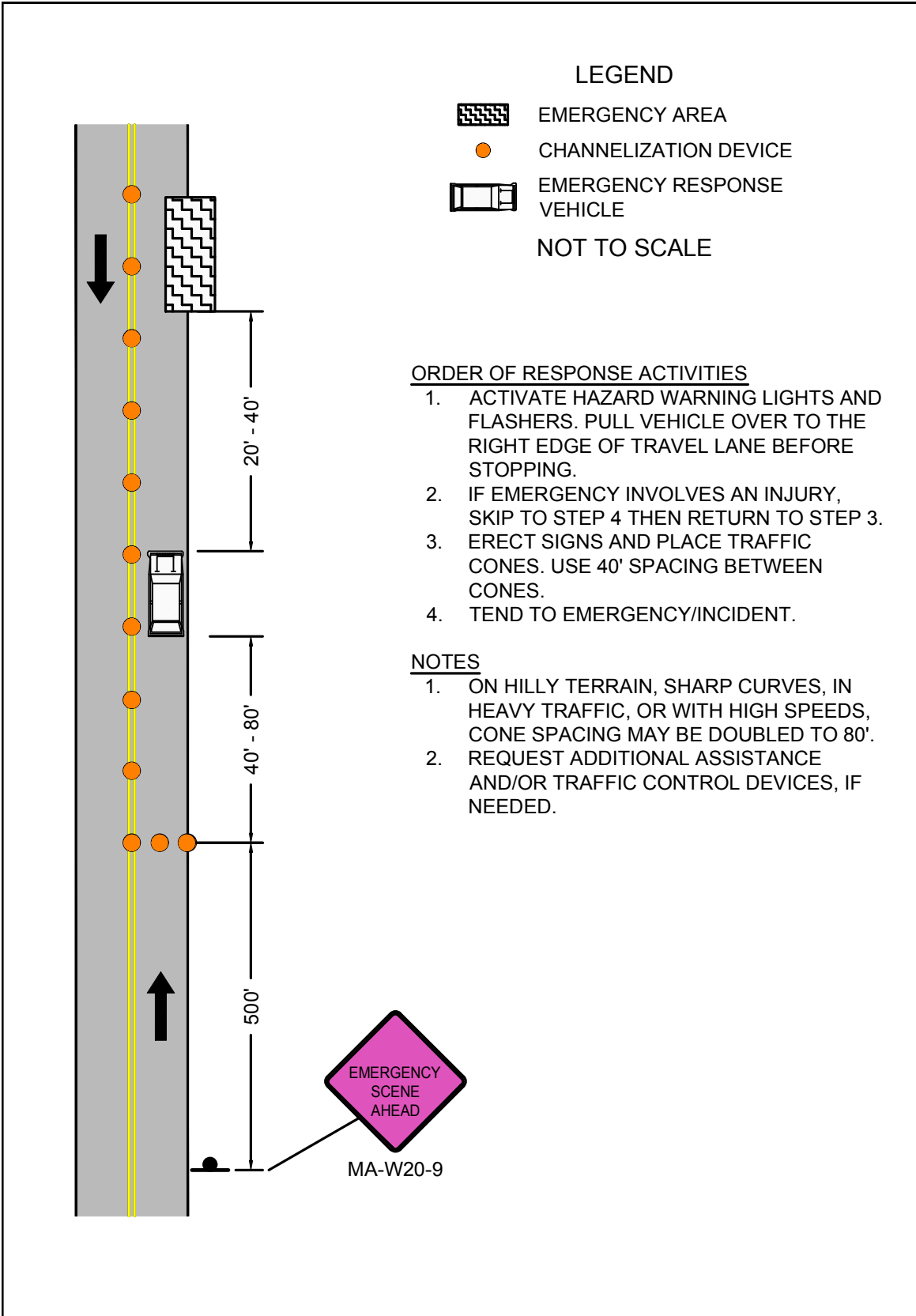
1. ACTIVATE HAZARD WARNING LIGHTS AND FLASHERS. PULL VEHICLE OVER TO THE RIGHT EDGE OF TRAVEL LANE BEFORE STOPPING.
2. IF EMERGENCY INVOLVES AN INJURY, SKIP TO STEP 4 THEN RETURN TO STEP 3.
3. ERECT SIGNS AND PLACE TRAFFIC CONES. USE 40' SPACING BETWEEN CONES.
4. TEND TO EMERGENCY/INCIDENT.

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.



MA-W20-9







 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
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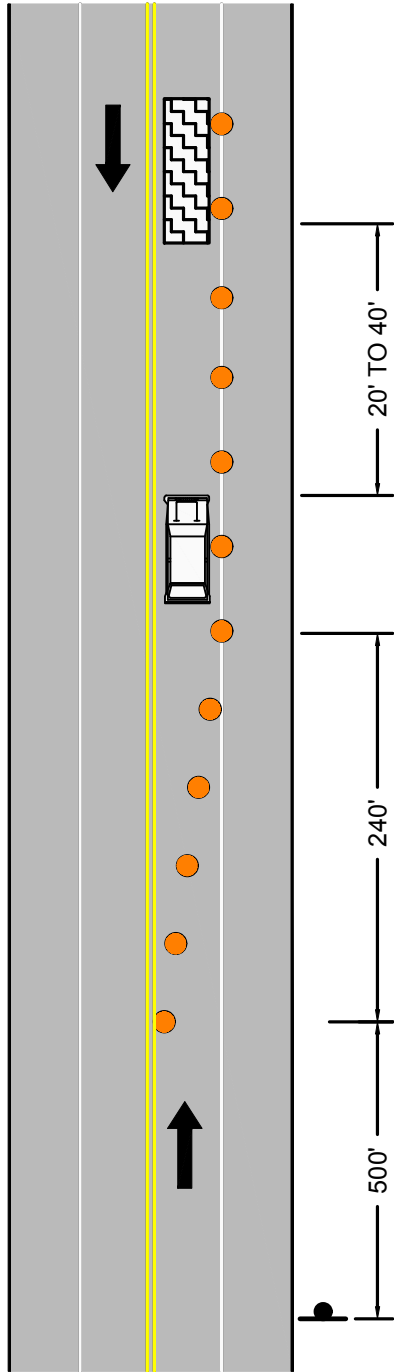


FIGURE 35
EMERGENCY RESPONSE
TWO LANE ROADWAY
TRAVERSABLE SHOULDER
SINGLE LANE ENCROACHMENT

LEGEND

-  EMERGENCY AREA
-  CHANNELIZATION DEVICE
-  EMERGENCY RESPONSE VEHICLE

NOT TO SCALE

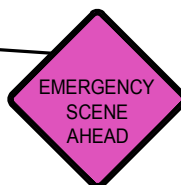


ORDER OF RESPONSE ACTIVITIES

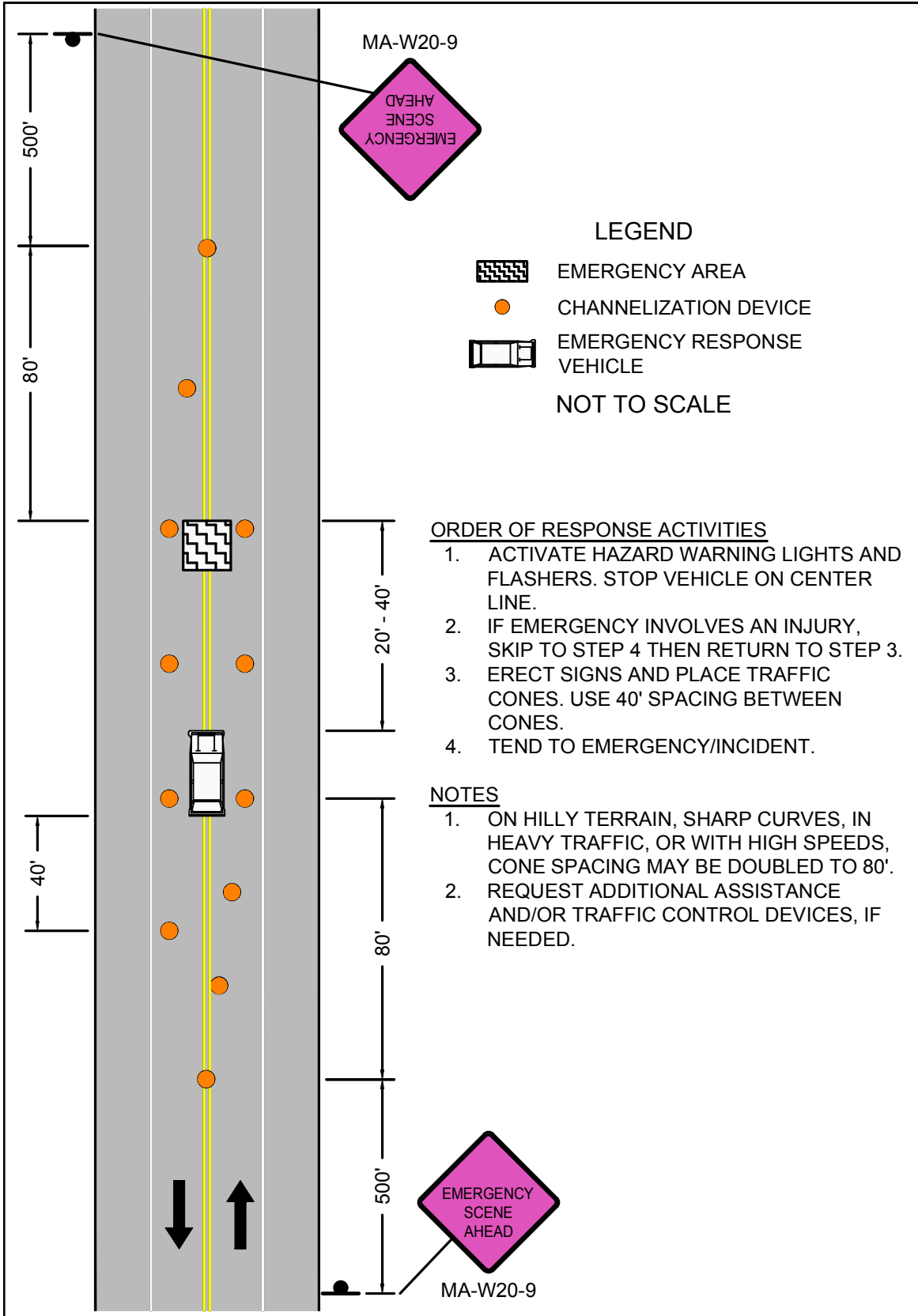
1. ACTIVATE HAZARD WARNING LIGHTS AND FLASHERS. PULL VEHICLE OVER TO THE LEFT EDGE OF TRAVEL LANE BEFORE STOPPING.
2. IF EMERGENCY INVOLVES AN INJURY, SKIP TO STEP 4 THEN RETURN TO STEP 3.
3. ERECT SIGNS AND PLACE TRAFFIC CONES. USE 40' SPACING BETWEEN CONES.
4. TEND TO EMERGENCY/INCIDENT.


NOTES

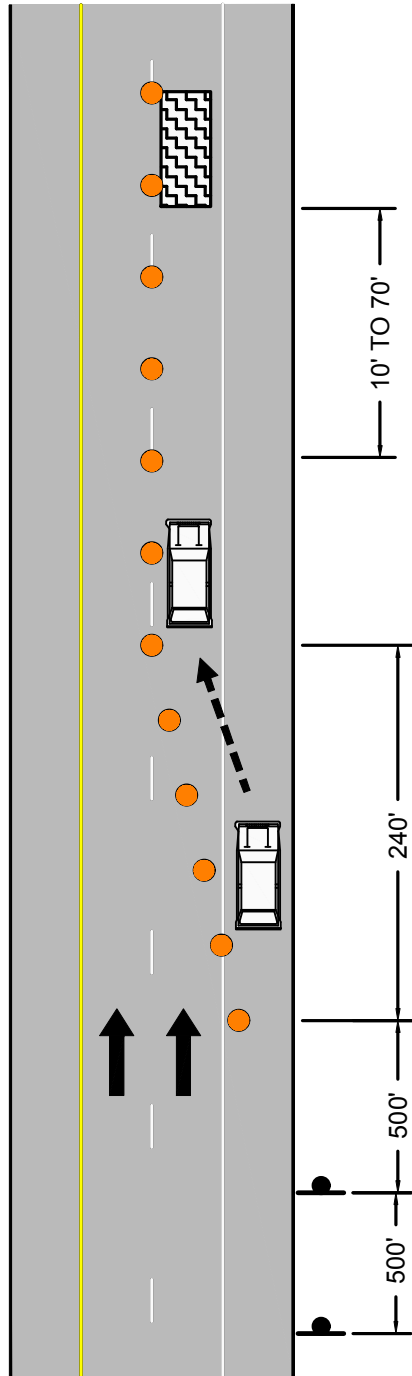
1. ON HILLY TERRAIN, SHARP CURVES, IN HEAVY TRAFFIC, OR WITH HIGH SPEEDS, CONE SPACING MAY BE DOUBLED TO 80'.
2. REQUEST ADDITIONAL ASSISTANCE AND/OR TRAFFIC CONTROL DEVICES, IF NEEDED.



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 <p>Massachusetts Department of Transportation Highway Division</p> <p>PAGE 69</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>FIGURE 36 EMERGENCY RESPONSE TWO LANE ROADWAY TRAVERSABLE SHOULDER CENTER OF ROADWAY</p>
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LEGEND

- EMERGENCY AREA
- CHANNELIZATION DEVICE
- EMERGENCY RESPONSE VEHICLE
- RESPONSE VEHICLE MOVEMENT

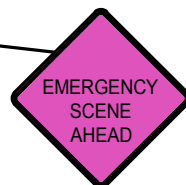
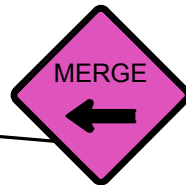
NOT TO SCALE

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.



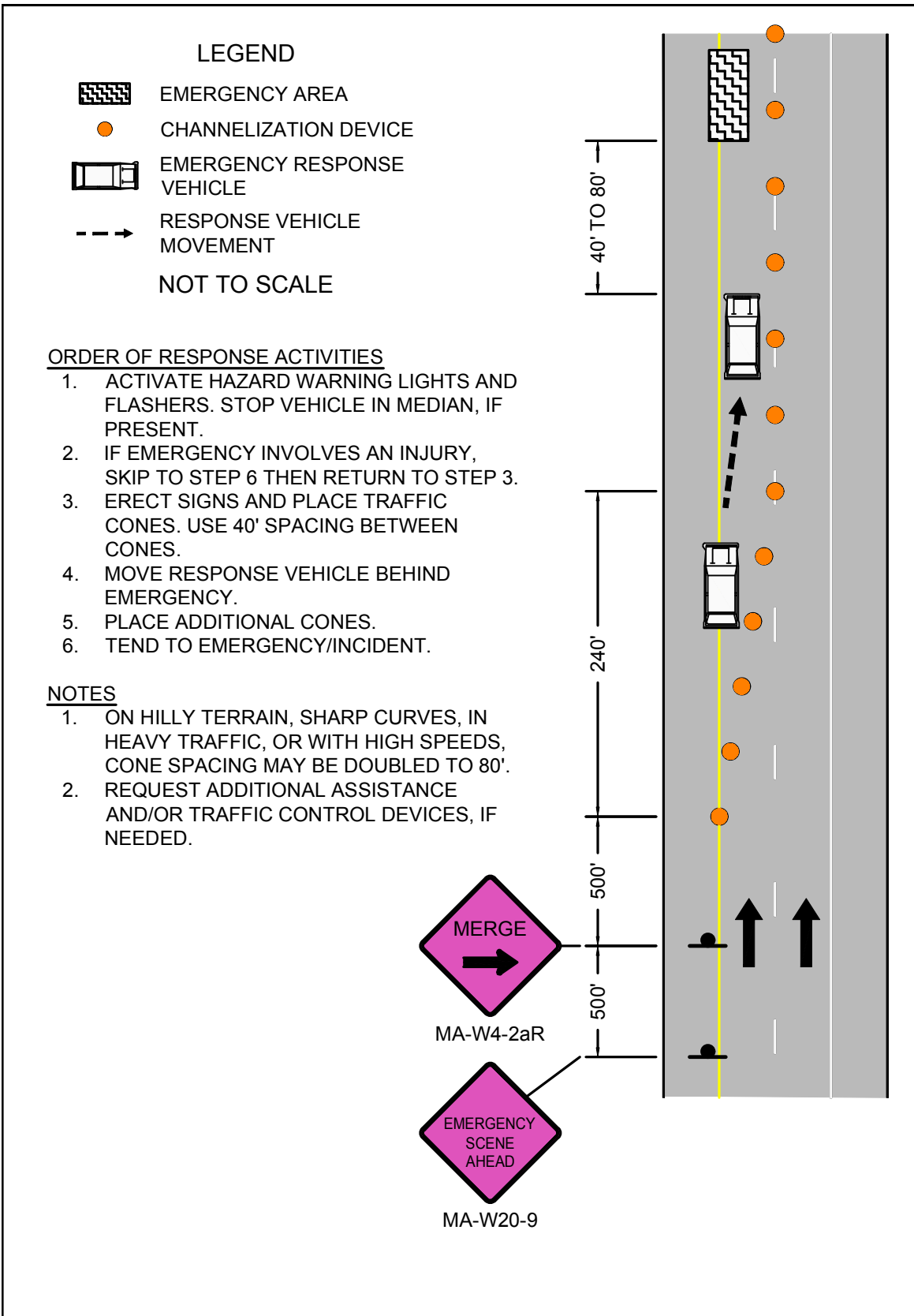
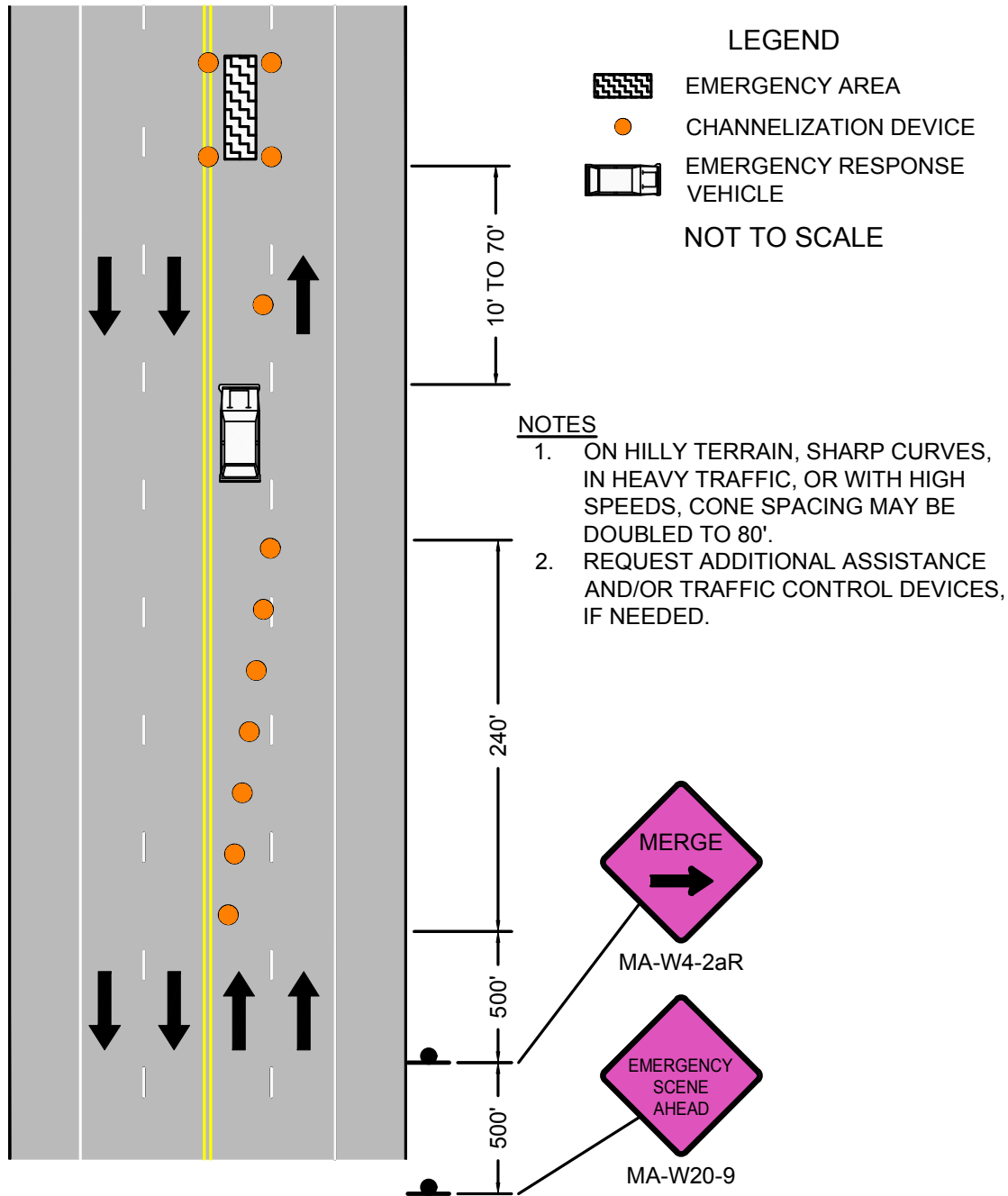


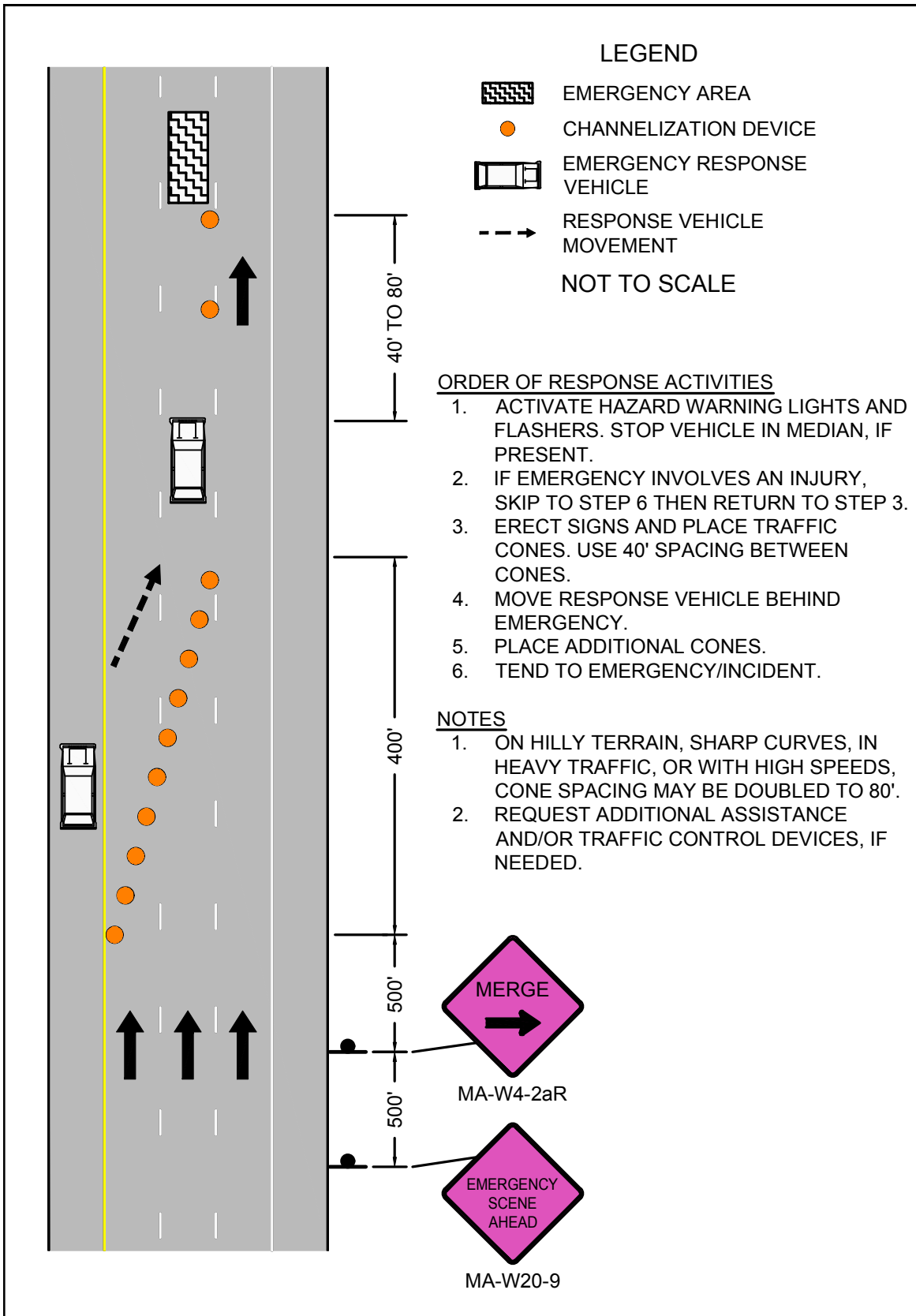


FIGURE 39
EMERGENCY RESPONSE
MULTILANE UNDIVIDED
ROADWAY
LEFT LANE



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.




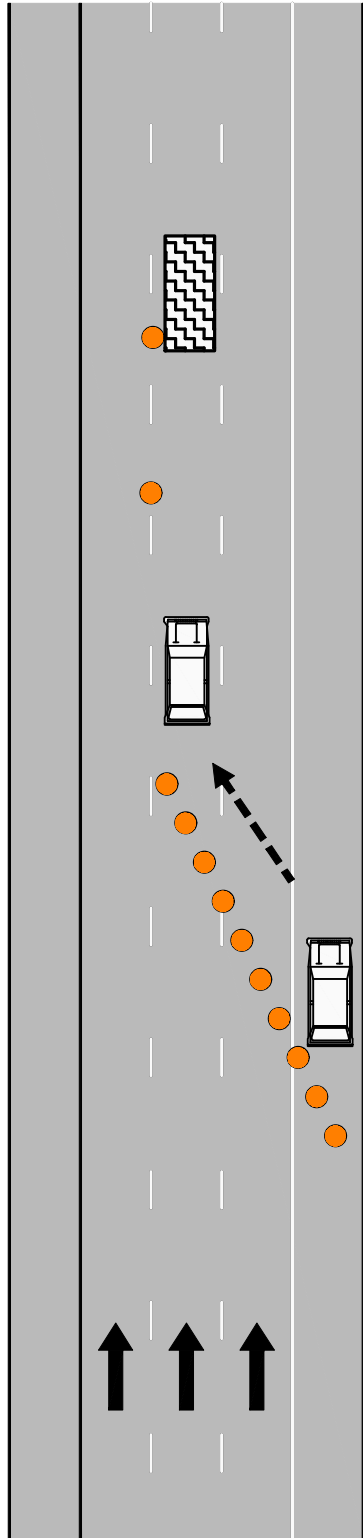




 <p>Massachusetts Department of Transportation Highway Division</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>FIGURE 40 EMERGENCY RESPONSE MULTILANE DIVIDED ROADWAY MIDDLE LANE APPROACH FROM LEFT</p>
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FIGURE 41
EMERGENCY RESPONSE
MULTILANE DIVIDED ROADWAY
MIDDLE LANE
APPROACH FROM RIGHT



LEGEND

-  EMERGENCY AREA
-  CHANNELIZATION DEVICE
-  EMERGENCY RESPONSE VEHICLE
-  RESPONSE VEHICLE MOVEMENT

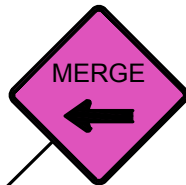
NOT TO SCALE

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

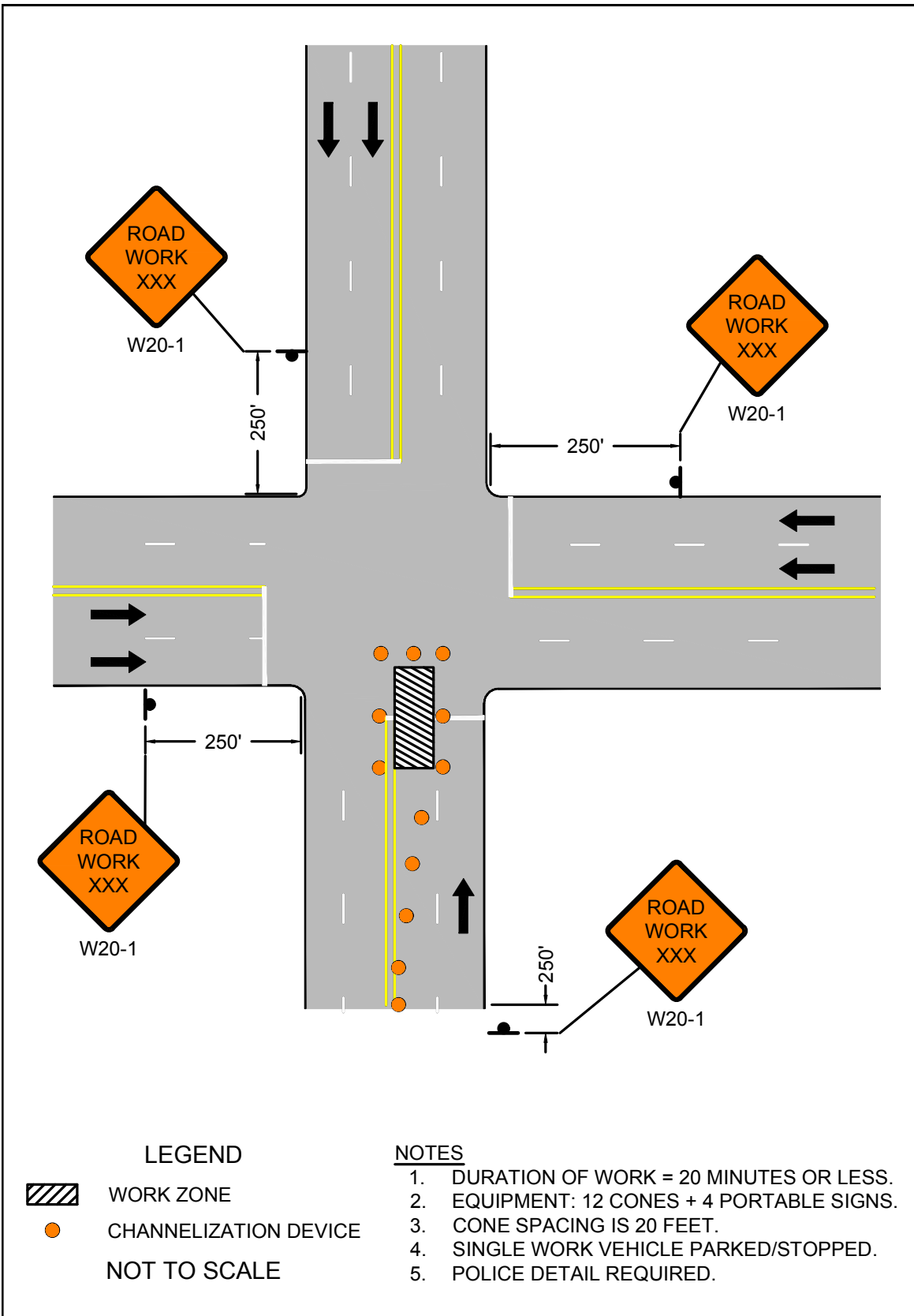
1. ON HILLY TERRAIN, SHARP CURVES, IN HEAVY TRAFFIC, OR WITH HIGH SPEEDS, CONE SPACING MAY BE DOUBLED TO 80'.
2. REQUEST ADDITIONAL ASSISTANCE AND/OR TRAFFIC CONTROL DEVICES, IF NEEDED.



MA-W4-2aL



MA-W20-9

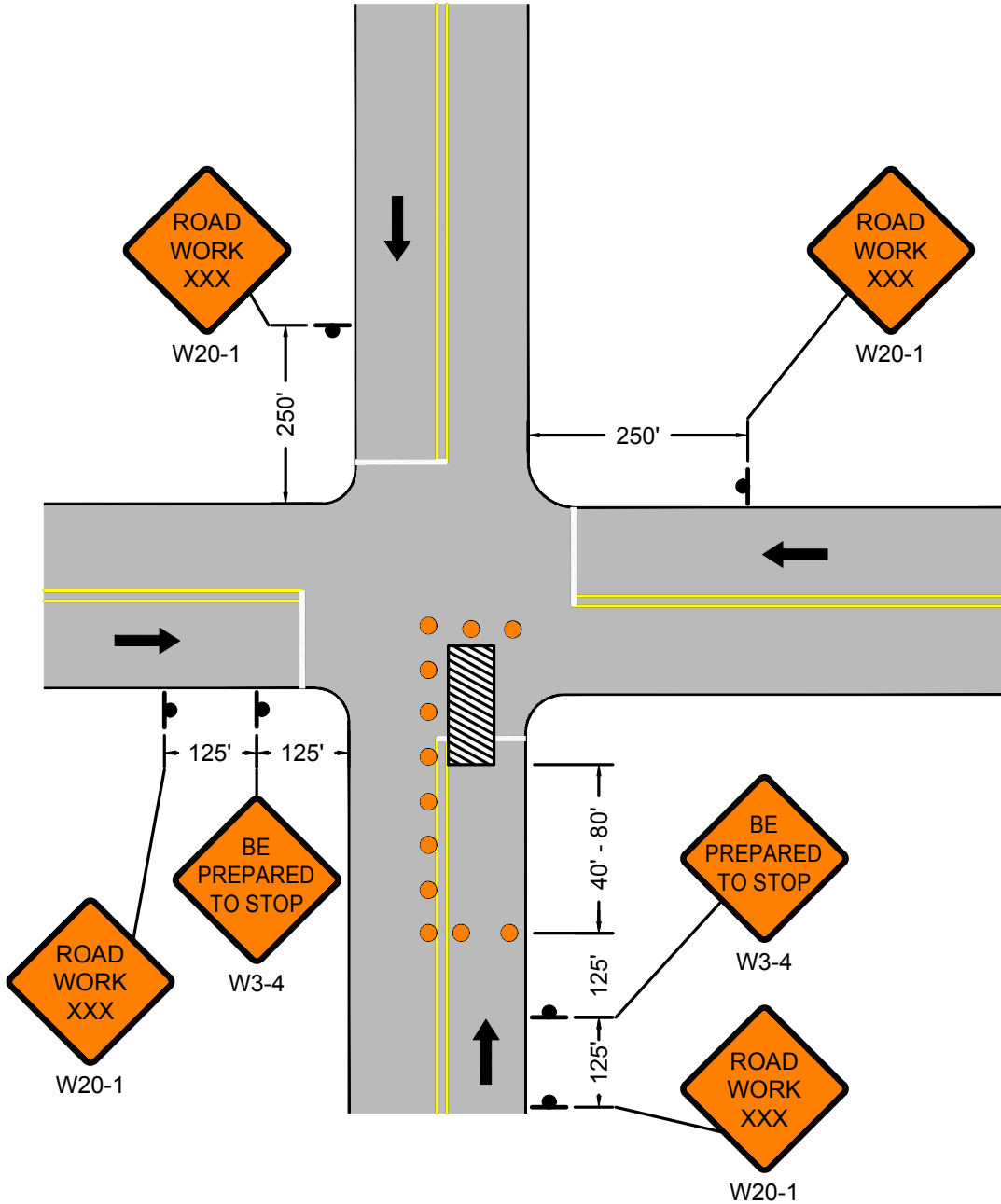






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Work Zone Safety Standard Details and Drawings

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.

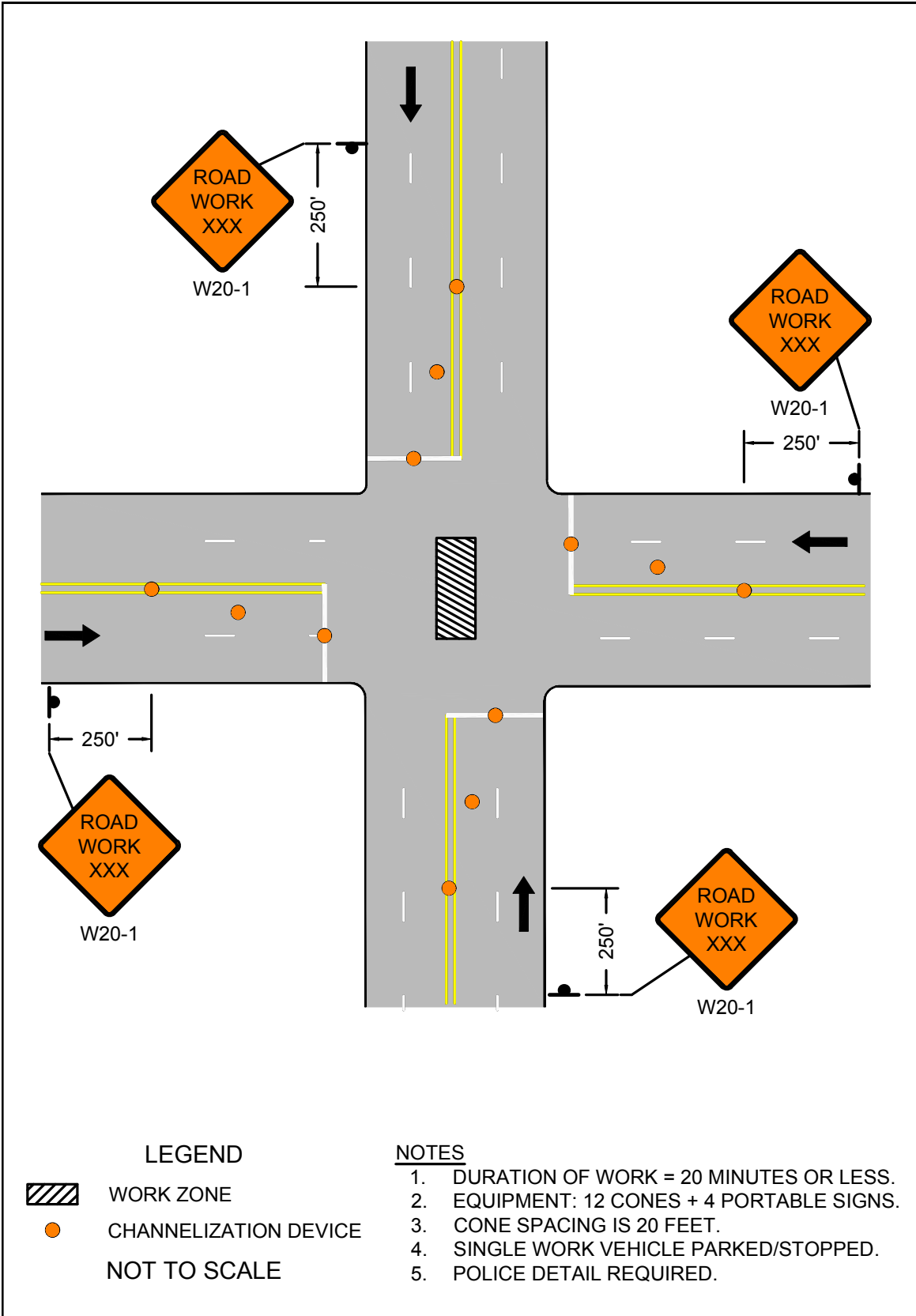
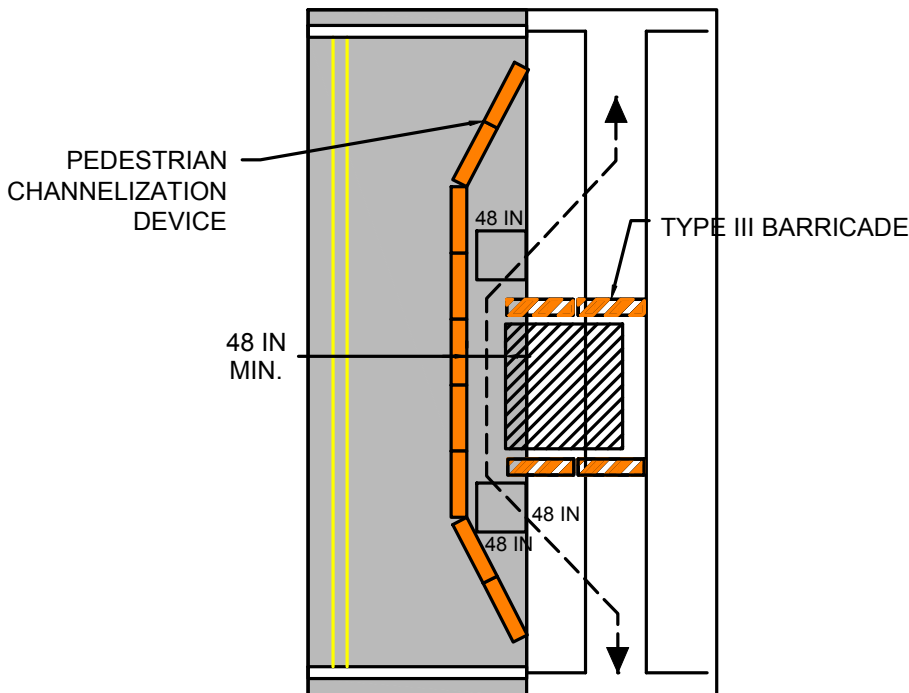


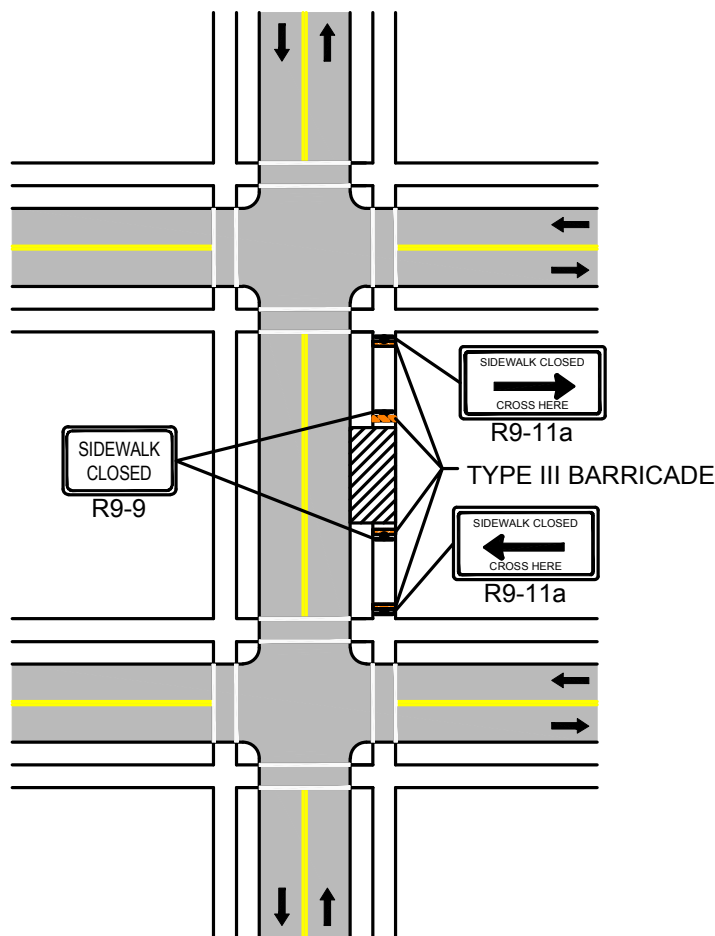


FIGURE 45
PEDESTRIAN BYPASS



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.





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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.

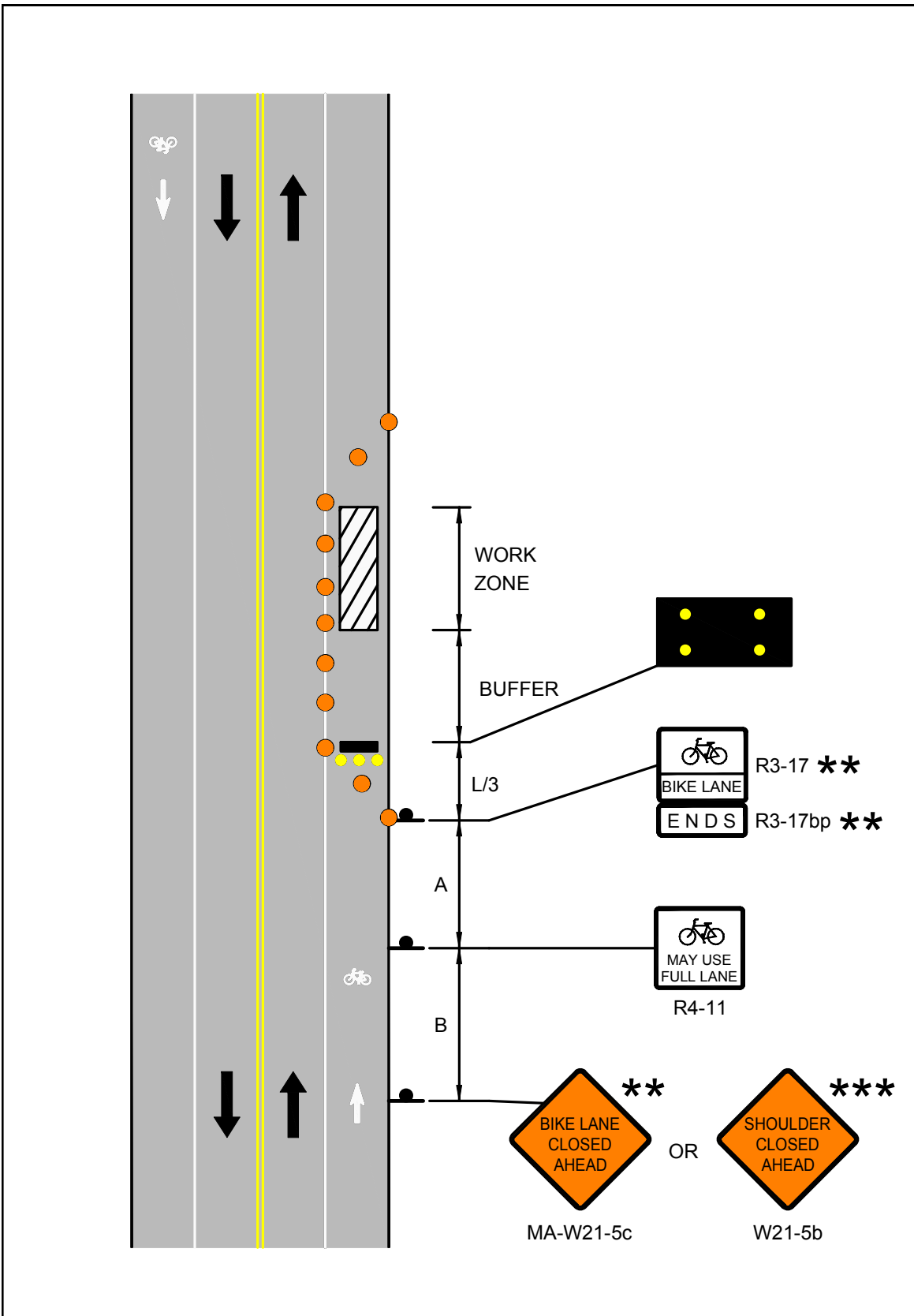
NOTES


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



 <p>PAGE 81</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>FIGURE 48 STATIONARY OPERATIONS BIKE LANE CLOSURE</p>
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Safety is everyone's business

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: AGAWAM Project File Number: 610652

Contract Number: 128108

Project Description: Robinson Park Elementary School Improvements (SRTS)

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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United States Department of the Interior



FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To:

January 17, 2023

Project code: 2023-0034689

Project Name: 610652 - AGAWAM- ROBINSON PARK ELEMENTARY SCHOOL
IMPROVEMENTS (SRTS)

IPaC Record Locator: 720-121232327

Subject: Consistency letter for the '610652 - AGAWAM- ROBINSON PARK ELEMENTARY SCHOOL IMPROVEMENTS (SRTS)' project under the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

To whom it may concern:

The U.S. Fish and Wildlife Service (Service) has received your request dated January 17, 2023 to verify that the **610652 - AGAWAM- ROBINSON PARK ELEMENTARY SCHOOL IMPROVEMENTS (SRTS)** (Proposed Action) may rely on the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat (PBO) to satisfy requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 *et seq.*).

Based on the information you provided (Project Description shown below), you have determined that the Proposed Action will have no effect on the endangered Indiana bat (*Myotis sodalis*) or the threatened Northern long-eared bat (*Myotis septentrionalis*). If the Proposed Action is not modified, **no consultation is required for these two species**. If the Proposed Action is modified, or new information reveals that it may affect the Indiana bat and/or Northern long-eared bat in a manner or to an extent not considered in the PBO, further review to conclude the requirements of ESA Section 7(a)(2) may be required.

For Proposed Actions that include bridge/culvert or structure removal, replacement, and/or maintenance activities: If your initial bridge/culvert or structure assessments failed to detect Indiana bats, but you later detect bats prior to, or during construction, please submit the Post Assessment Discovery of Bats at Bridge/Culvert or Structure Form (User Guide Appendix E) to this Service Office within 2 working days of the incident. In these instances, potential incidental take of Indiana bats may be exempted provided that the take is reported to the Service.

If the Proposed Action may affect any other federally-listed or proposed species and/or designated critical habitat, additional consultation between the lead Federal action agency and this Service Office is required. If the proposed action has the potential to take bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act may also be required. In either of these circumstances, please advise the lead Federal action agency accordingly.

The following species may occur in your project area and **are not** covered by this determination:

- Monarch Butterfly *Danaus plexippus* Candidate

Project Description

The following project name and description was collected in IPaC as part of the endangered species review process.

Name

610652 - AGAWAM- ROBINSON PARK ELEMENTARY SCHOOL IMPROVEMENTS (SRTS)

Description

610652 - AGAWAM- ROBINSON PARK ELEMENTARY SCHOOL IMPROVEMENTS (SRTS)

The Maple Street SRTS project will improve safety for students and residents who walk and bike in the Maple Street corridor from O'Brien's corner intersection to Walnut Street. A shared use path is proposed along the north side of Maple Street. Three Rapid Flash Beacon crossings are proposed at several locations along the corridor. ADA compliant curb cuts will be constructed as needed. A raised intersection with 3-way stop control is proposed at the intersection of Bridge and Maple Streets.

The proposed cross section varies along the corridor. The shared use path will be 10' wide when possible and 8' wide in constricted areas. The treebelt will be maximized to provide a buffer between pedestrians and bicyclists in order to increase comfort and safety.

There many at-grade crossings along the corridor including: side streets, driveways, and one restaurant/bar parking lot. Extra design and safety considerations will need to be made at these crossings. This may include but not be limited to extra pavement markings, signage, regrading, and other traffic calming measures.

The Town of Agawam anticipates local/chapter 90 funded milling/overlay work to occur either in conjunction with this project or shortly thereafter.

This project will fill a critical gap between the existing and soon to be installed bicycle and pedestrian infrastructure network. The project will connect to the locally funded sidewalk and bike lane infrastructure installed on Walnut and River Streets in 2018.

The upcoming O'Brien's Corner project will extend that infrastructure to the west to Springfield Street and just west of Rowley Street. MassDOT's Morgan Sullivan Bridge project will establish the connection from this project via Walnut Street to the Middle School on Main Street through a network of sidewalks, bike lanes, and separated bicycle facilities. The adjacent improvements will encourage more residents to bike and walk to and from their local destinations. This project will enable a large residential area to connect to the already planned/constructed infrastructure.

The Town of Agawam anticipates connecting the proposed shared use path in this project to Robinson Park School along the west side of Begley Street in a locally funded project in the near future. The DPW has been installing sidewalk along the south side of Maple Street during the 2019 construction season.

The goal of this project is to provide safer and more comfortable accommodations for all users and all modes of transportation in this corridor.

Monarch Butterfly: Candidate Species only, no conservation measures at this time.

Determination Key Result

Based on the information you provided, you have determined that the Proposed Action will have no effect on the endangered Indiana bat and/or the threatened Northern long-eared bat. Therefore, no consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required for these two species.

Qualification Interview

1. Is the project within the range of the Indiana bat^[1]?

[1] See [Indiana bat species profile](#)

Automatically answered

No

2. Is the project within the range of the Northern long-eared bat^[1]?

[1] See [Northern long-eared bat species profile](#)

Automatically answered

Yes

3. Which Federal Agency is the lead for the action?

A) *Federal Highway Administration (FHWA)*

4. Are *all* project activities limited to non-construction^[1] activities only? (examples of non-construction activities include: bridge/abandoned structure assessments, surveys, planning and technical studies, property inspections, and property sales)

[1] Construction refers to activities involving ground disturbance, percussive noise, and/or lighting.

No

5. Does the project include *any* activities that are **greater than** 300 feet from existing road/rail surfaces^[1]?

[1] Road surface is defined as the actively used [e.g. motorized vehicles] driving surface and shoulders [may be pavement, gravel, etc.] and rail surface is defined as the edge of the actively used rail ballast.

No

6. Does the project include *any* activities **within** 0.5 miles of a known Indiana bat and/or NLEB hibernaculum^[1]?

[1] For the purpose of this consultation, a hibernaculum is a site, most often a cave or mine, where bats hibernate during the winter (see suitable habitat), but could also include bridges and structures if bats are found to be hibernating there during the winter.

No

7. Is the project located **within** a karst area?

No

8. Is there *any* suitable^[1] summer habitat for Indiana Bat or NLEB **within** the project action area^[2]? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

[1] See the Service's [summer survey guidance](#) for our current definitions of suitable habitat.

[2] The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR Section 402.02). Further clarification is provided by the [User's Guide for the Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat](#).

No

9. Does the project include wetland or stream protection activities associated with compensatory wetland mitigation?

No

10. Does the project include slash pile burning?

No

11. Does the project include *any* bridge removal, replacement, and/or maintenance activities (e.g., any bridge repair, retrofit, maintenance, and/or rehabilitation work)?

No

12. Does the project include the removal, replacement, and/or maintenance of *any* structure other than a bridge? (e.g., rest areas, offices, sheds, outbuildings, barns, parking garages, etc.)

No

13. Will the project involve the use of **temporary** lighting *during* the active season?

Yes

14. Is there *any* suitable habitat **within** 1,000 feet of the location(s) where **temporary** lighting will be used?

No

15. Will the project install new or replace existing **permanent** lighting?

No

16. Does the project include percussives or other activities (**not including tree removal/trimming or bridge/structure work**) that will increase noise levels above existing traffic/background levels?

Yes

17. Will the activities that use percussives (**not including tree removal/trimming or bridge/structure work**) and/or increase noise levels above existing traffic/background levels be conducted *during* the active season^[1]?

[1] Coordinate with the local Service Field Office for appropriate dates.

Yes

18. Will *any* activities that use percussives (**not including tree removal/trimming or bridge/structure work**) and/or increase noise levels above existing traffic/background levels be conducted *during* the inactive season^[1]?

[1] Coordinate with the local Service Field Office for appropriate dates.

Yes

19. Are *all* project activities that are **not associated with** habitat removal, tree removal/trimming, bridge and/or structure activities, temporary or permanent lighting, or use of percussives, limited to actions that DO NOT cause any additional stressors to the bat species?

Examples: lining roadways, unlighted signage , rail road crossing signals, signal lighting, and minor road repair such as asphalt fill of potholes, etc.

Yes

20. Will the project raise the road profile **above the tree canopy**?

No

21. Is the location of this project consistent with a No Effect determination in this key?

Automatically answered

Yes, because the project action area is not within suitable Indiana bat and/or NLEB summer habitat and is outside of 0.5 miles of a hibernaculum.

22. Is the temporary lighting portion of this project consistent with a No Effect determination in this key?

Automatically answered

Yes, because the lighting will be more than 1,000 feet from the nearest suitable habitat

Determination Key Description: FHWA, FRA, FTA Programmatic Consultation For Transportation Projects Affecting NLEB Or Indiana Bat

This key was last updated in IPaC on December 01, 2022. Keys are subject to periodic revision.

This decision key is intended for projects/activities funded or authorized by the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and/or Federal Transit Administration (FTA), which may require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 of the Endangered Species Act (ESA) for the endangered **Indiana bat** (*Myotis sodalis*) and the threatened **Northern long-eared bat** (NLEB) (*Myotis septentrionalis*).

This decision key should only be used to verify project applicability with the Service's [February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects](#). The programmatic biological opinion covers limited transportation activities that may affect either bat species, and addresses situations that are both likely and not likely to adversely affect either bat species. This decision key will assist in identifying the effect of a specific project/activity and applicability of the programmatic consultation. The programmatic biological opinion is not intended to cover all types of transportation actions. Activities outside the scope of the programmatic biological opinion, or that may affect ESA-listed species other than the Indiana bat or NLEB, or any designated critical habitat, may require additional ESA Section 7 consultation.

IPaC User Contact Information

Agency: Massachusetts Department of Transportation

Name: Hana Isihara

Address: 10 Park Plaza

City: Boston

State: MA

Zip: 02116

Email hana.l.isihara@dot.state.ma.us

Phone: 6178964454

Lead Agency Contact Information

Lead Agency: Federal Highway Administration

DOCUMENT A00870

**MASSACHUSETTS
DIVISION OF FISHERIES AND WILDLIFE**

**NATURAL HERITAGE AND
ENDANGERED SPECIES
PROGRAM**

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DOCUMENT A00875

**POLICY DIRECTIVE P-22-001
AND
POLICY DIRECTIVE P-22-002**

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Number: P-22-001
Date: 9/23/22

POLICY DIRECTIVE

Jonathan Gulliver (signature on original)

HIGHWAY ADMINISTRATOR

Off-Site Stockpiling of Soil from MassDOT Construction Projects

Purpose

The purpose of this Policy Directive is to formally establish a policy and procedures for managing and stockpiling soil generated and transported from MassDOT construction projects. This Policy Directive does not supersede any Federal, State, or Local regulations.

Date of Effect

This Policy Directive is effective immediately for all projects, including active construction projects.

For active construction projects and for other projects advertised prior to October 15, 2022, changes to the contract documents needed to implement the requirements of this Policy Directive will be considered on a case-by-case basis and shall be approved by the District Highway Director, as necessary.

For projects advertised on or after October 15, 2022, MassDOT will include the requirements and implementation procedures of this Policy Directive in the construction contract documents.

Policy Requirements

This policy is intended to prevent the off-site relocation of excavated soil generated from MassDOT projects to areas near residential receptors and to control potential fugitive dusts and/or contaminants. To that end, excavated soil may not be moved from the project site without knowledge of the content of the material. Knowledge may include visual field observations for presence of staining, odor, and/or debris, screening with a photoionization detector (PID), laboratory analysis, and/or site history. Pavement millings and other non-soil materials are not subject to the requirements of this Policy Directive.

Moving soil from a MassDOT project site to a temporary off-site storage location must be approved in writing by the District Highway Director.

The Contractor must select a storage location that is at least 500 feet away from residential receptors, as defined herein to include, but not be limited to, residential dwellings, residentially

zoned property, schools, daycare facilities, playgrounds, parks, recreational areas, hospitals, elderly housing and convalescent facilities.

Temporary off-site storage of excavated soil from a MassDOT project is only permissible at a location approved and permitted by MassDOT. The temporary storage location should be located within the same municipality where the soil was excavated, where possible. Stockpiled soil must be securely covered, and appropriate measures must be taken to minimize fugitive dust and erosion.

Signs indicating the source of the soil, the date the soil was generated, and contact information must be erected and maintained until the stockpiled soils are transported to a disposal facility or reused on the project site.

Implementation Procedures

To ensure that off-site storage of excavated soils is managed properly on MassDOT projects, this policy requires the following:

1. Off-Site Stockpile Storage Locations

- a. The Contractor shall provide proposed off-site storage locations to the Engineer for approval at least 30 days prior to transporting soil off site. Off-site storage locations should be in the same municipality as the work site.
- b. The Contractor shall keep excavated soil on site until adequately characterized to the satisfaction of the Engineer.
- c. The Contractor shall provide notification of the approved off-site storage location to the local Board of Health and the Town Manager's/Mayor's Office at least 7-days prior to transporting soil off site.
- d. The Contractor shall provide the Engineer with at least 3-days' notice prior to transporting soil off site.
- e. For off-site storage locations on MassDOT property, the Contractor is required to obtain an Access Permit through the District Permits Office prior to storage of soil or other materials. MassDOT will issue these permits at no cost to the Contractor. Information to be submitted by the Contractor as part of the permit application shall include:
 - i. A description of material to be stored off-site, including available analytical data;
 - ii. A figure of the location with distances to residences and residential receptors; and
 - iii. Anticipated duration of temporary storage.
- f. Stockpile locations should not be within 500 feet of residential receptors (e.g., residential dwellings, residentially zoned property, schools, daycare facilities, playgrounds, parks, recreational areas, hospitals, elderly housing and convalescent facilities).
 - i. If the stockpile location must be within 500 feet of residential receptors, then soil must be less than RCS-1 (per 310 CMR 40.1600) and free of potentially hazardous or regulated items.

- g. For off-site storage locations on non-MassDOT property, the Contractor must notify the property owner(s) at least 7 days prior to transporting material.
- h. Exceptions to these rules will be reviewed by MassDOT and may be approved by the District Highway Director on a case-by-case basis.

2. Off-Site Stockpile Management

- a. The Contractor shall keep soil stockpiles on impermeable surfaces (e.g., asphalt or concrete) or on 10-mil polyethylene sheeting.
- b. The Contractor shall cover soil stockpiles with 10-mil polyethylene sheeting and surround with a berm made of hay bales, straw wattles, or similar.
 - i. Piles that are actively being worked on must be covered and re-secured at the end of the work shift.
- c. The Contractor shall label stockpiles with signs, including:
 - i. Location of origin (including any Release Tracking Numbers)
 - ii. Stockpile ID number (including MassDOT District office-assigned tracking ID, if different)
 - iii. Date of initial accumulation
 - iv. Applicable telephone numbers for the Contractor and MassDOT.
- d. The Contractor shall mitigate fugitive dust at storage locations under the direction of an appropriately trained/certified environmental professional.
- e. The Contractor shall remedy noncompliance with this policy within 48 hours.
- f. The Contractor shall remedy noncompliance with this policy on the SAME DAY for potentially hazardous material, as determined by the Engineer.
- g. The Contractor shall handle excavated soil according to federal, state, and local regulations.
- h. The Contractor shall use appropriate shipping documents for all movements of excavated soil on public roadways (e.g., Bill of Lading, Material Shipping Record, Manifest, Asbestos Waste Shipment Record, etc.).

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Number: P-22-002
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

AGAWAM

For: **Robinson Park Elementary School Improvements (SRTS)**

COMMONWEALTH OF MASSACHUSETTS

LOCATION

The work referred to herein is in the City of AGAWAM in Hampden County, in the Commonwealth of Massachusetts, and is shown by the locus map (Document 00331) in the Proposal Pamphlet, the work locations extend as follows:

Maple Street

Beginning – Station 10+25.00 +/-

Ending –Station 42+73.00 +/-

The contract prices shall include the furnishing of all materials (except as otherwise herein specified), the performing of all the labor requisite or proper, the providing of all necessary machinery, tools, apparatus and other means of construction, the doing of all the abovementioned work in the manner set forth, described and shown in the specifications and on the drawings for the work, and in the form of contract, and the completion thereof within **575 CALENDAR DAYS** upon receipt of a Notice to Proceed, except that if the completion date falls between December 1 and March 15 then the same number of days beyond December 1st will be extended after March 15th.

The Work of this project is described by the following Items and quantities.

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Project # 610652		Contract # 128108		
Location : AGAWAM				
Description : Robinson Park Elementary School Improvements (SRTS)				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
100.	1	SCHEDULE OF OPERATIONS - FIXED PRICE \$14000 AT Fourteen Thousand Seven Hundred Fifty Dollars LUMP SUM	\$14,750.00	\$14,750.00
102.1	500	TREE TRIMMING AT _____ PER FOOT		
102.25	150	HEDGE PRUNING AT _____ PER FOOT		
102.3	16	HERBICIDE TREATMENT OF INVASIVE PLANTS AT _____ PER HOUR		
102.33	16	INVASIVE PLANT MANAGEMENT STRATEGY AT _____ PER HOUR		
102.511	9	TREE PROTECTION - ARMORING AND PRUNING AT _____ EACH		
102.513	50	AIR EXCAVATION FOR ROOT PRUNING AT _____ PER FOOT		
102.521	200	TREE AND PLANT PROTECTION FENCE AT _____ PER FOOT		
102.55	40	ARBORIST AT _____ PER HOUR		

Project # 610652		Contract # 128108		
Location : AGAWAM				
Description : Robinson Park Elementary School Improvements (SRTS)				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
103.	7	TREE REMOVED - DIAMETER UNDER 24 INCHES AT _____ EACH		
105.	2	STUMP REMOVED AT _____ EACH		
119.	1	RODENT CONTROL AT _____ LUMP SUM		
120.	2,200	EARTH EXCAVATION AT _____ PER CUBIC YARD		
121.	20	CLASS A ROCK EXCAVATION AT _____ PER CUBIC YARD		
141.	25	CLASS A TRENCH EXCAVATION AT _____ PER CUBIC YARD		
141.1	100	TEST PIT FOR EXPLORATION AT _____ PER CUBIC YARD		
142.	10	CLASS B TRENCH EXCAVATION AT _____ PER CUBIC YARD		
144.	10	CLASS B ROCK EXCAVATION AT _____ PER CUBIC YARD		

Project # 610652		Contract # 128108		
Location : AGAWAM				
Description : Robinson Park Elementary School Improvements (SRTS)				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
146.	10	DRAINAGE STRUCTURE REMOVED AT _____ EACH		
151.	1,675	GRAVEL BORROW AT _____ PER CUBIC YARD		
151.2	90	GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES AT _____ PER CUBIC YARD		
156.	80	CRUSHED STONE AT _____ PER TON		
170.	6,000	FINE GRADING AND COMPACTING - SUBGRADE AREA AT _____ PER SQUARE YARD		
180.01	1	ENVIRONMENTAL HEALTH AND SAFETY PROGRAM AT _____ LUMP SUM		
180.02	48	PERSONAL PROTECTION LEVEL C UPGRADE AT _____ PER HOUR		
180.03	80	LICENSED SITE PROFESSIONAL SERVICES AT _____ PER HOUR		
181.11	2,500	DISPOSAL OF UNREGULATED SOIL AT _____ PER TON		

Project # 610652		Contract # 128108		
Location : AGAWAM				
Description : Robinson Park Elementary School Improvements (SRTS)				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
181.12	500	DISPOSAL OF REGULATED SOIL - IN-STATE FACILITY AT _____ PER TON		
181.13	100	DISPOSAL OF REGULATED SOIL - OUT-OF-STATE FACILITY AT _____ PER TON		
181.14	10	DISPOSAL OF HAZARDOUS WASTE AT _____ PER TON		
182.1	1	INSPECTION AND TESTING FOR ASBESTOS AT _____ LUMP SUM		
182.2	50	REMOVAL OF ASBESTOS AT _____ PER FOOT		
183.1	100	TREATMENT OF CONTAMINATED GROUNDWATER AT _____ PER GALLON		
183.2	100	DISPOSAL OF GRANULAR ACTIVATED CARBON AT _____ PER POUND		
184.1	10	DISPOSAL OF TREATED WOOD PRODUCTS AT _____ PER TON		
201.	16	CATCH BASIN AT _____ EACH		

Project # 610652		Contract # 128108		
Location : AGAWAM				
Description : Robinson Park Elementary School Improvements (SRTS)				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
202.	3	MANHOLE AT _____ EACH		
202.2	2	MANHOLE (9 TO 14 FOOT DEPTH) AT _____ EACH		
204.	5	GUTTER INLET AT _____ EACH		
220.	46	DRAINAGE STRUCTURE ADJUSTED AT _____ EACH		
220.2	20	DRAINAGE STRUCTURE REBUILT AT _____ PER FOOT		
220.3	11	DRAINAGE STRUCTURE CHANGE IN TYPE AT _____ EACH		
220.5	17	DRAINAGE STRUCTURE REMODELED AT _____ EACH		
220.6	10	SANITARY STRUCTURE REBUILT AT _____ PER FOOT		
220.7	20	SANITARY STRUCTURE ADJUSTED AT _____ EACH		

Project # 610652		Contract # 128108		
Location : AGAWAM				
Description : Robinson Park Elementary School Improvements (SRTS)				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
220.8	6	SANITARY STRUCTURE REMODELED AT _____ EACH		
222.3	65	FRAME AND GRATE (OR COVER) MUNICIPAL STANDARD AT _____ EACH		
223.2	45	FRAME AND GRATE (OR COVER) REMOVED AND DISCARDED AT _____ EACH		
224.12	13	12 INCH HOOD AT _____ EACH		
227.3	110	REMOVAL OF DRAINAGE STRUCTURE SEDIMENT AT _____ PER CUBIC YARD		
227.31	200	REMOVAL OF DRAINAGE PIPE SEDIMENT AT _____ PER FOOT		
227.4	5	MASONRY PLUG AT _____ PER SQUARE FOOT		
238.06	10	6 INCH DUCTILE IRON PIPE AT _____ PER FOOT		
238.10	250	10 INCH DUCTILE IRON PIPE AT _____ PER FOOT		

Project # 610652		Contract # 128108		
Location : AGAWAM				
Description : Robinson Park Elementary School Improvements (SRTS)				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
243.12	130	12 INCH REINFORCED CONCRETE PIPE CLASS IV AT _____ PER FOOT		
243.15	75	15 INCH REINFORCED CONCRETE PIPE CLASS IV AT _____ PER FOOT		
303.06	100	6 INCH DUCTILE IRON WATER PIPE (MECHANICAL JOINT) AT _____ PER FOOT		
303.12	55	12 INCH DUCTILE IRON WATER PIPE (MECHANICAL JOINT) AT _____ PER FOOT		
309.	550	DUCTILE IRON FITTINGS FOR WATER PIPE AT _____ PER POUND		
347.075	750	3/4 INCH COPPER TUBING TYPE K AT _____ PER FOOT		
350.06	4	6 INCH GATE AND GATE BOX AT _____ EACH		
357.06	10	6 INCH GATE BOX AT _____ EACH		
358.	39	GATE BOX ADJUSTED AT _____ EACH		

Project # 610652		Contract # 128108		
Location : AGAWAM				
Description : Robinson Park Elementary School Improvements (SRTS)				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
358.1	9	GATE BOX REMOVED AND STACKED AT _____ EACH		
363.075	28	3/4 INCH CORPORATION COCK AT _____ EACH		
370.4	1	12 X 6 INCH TAPPING SLEEVE, VALVE AND BOX AT _____ EACH		
371.12	2	12 INCH COUPLING AT _____ EACH		
376.	1	HYDRANT AT _____ EACH		
376.2	7	HYDRANT - REMOVED AND RESET AT _____ EACH		
376.3	1	HYDRANT - REMOVED AND STACKED AT _____ EACH		
381.01	33	SERVICE BOX (MUNICIPAL STANDARD) AT _____ EACH		
381.3	35	SERVICE BOX ADJUSTED AT _____ EACH		

Project # 610652		Contract # 128108		
Location : AGAWAM				
Description : Robinson Park Elementary School Improvements (SRTS)				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
384.	28	CURB STOP AT _____ EACH		
402.	75	DENSE GRADED CRUSHED STONE FOR SUB-BASE AT _____ PER CUBIC YARD		
415.2	10,100	PAVEMENT FINE MILLING AT _____ PER SQUARE YARD		
430.	475	CEMENT CONCRETE BASE COURSE AT _____ PER SQUARE YARD		
443.	6	WATER FOR ROADWAY DUST CONTROL AT _____ PER 1000 GALLONS		
450.22	175	SUPERPAVE SURFACE COURSE - 9.5 (SSC - 9.5) AT _____ PER TON		
450.23	1,325	SUPERPAVE SURFACE COURSE - 12.5 (SSC - 12.5) AT _____ PER TON		
450.32	125	SUPERPAVE INTERMEDIATE COURSE - 19.0 (SIC - 19.0) AT _____ PER TON		
450.42	150	SUPERPAVE BASE COURSE - 37.5 (SBC - 37.5) AT _____ PER TON		

Project # 610652		Contract # 128108		
Location : AGAWAM				
Description : Robinson Park Elementary School Improvements (SRTS)				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
451.	110	HMA FOR PATCHING AT _____ PER TON		
452.	6,500	ASPHALT EMULSION FOR TACK COAT AT _____ PER GALLON		
453.	600	HMA JOINT ADHESIVE AT _____ PER FOOT		
466.1	9,600	STRESS ABSORBING MEMBRANE INTERLAYER - 3/8 INCH AT _____ PER SQUARE YARD		
470.3	60	MODIFIED HOT MIX ASPHALT BERM TYPE 2 AT _____ PER TON		
472.	135	TEMPORARY ASPHALT PATCHING AT _____ PER TON		
482.4	50	SAWCUTTING PORTLAND CEMENT CONCRETE AT _____ PER FOOT		
482.5	125	SAWCUTTING ASPHALT PAVEMENT FOR BOX WIDENING AT _____ PER FOOT		
504.	2,400	GRANITE CURB TYPE VA4 - STRAIGHT AT _____ PER FOOT		

Project # 610652		Contract # 128108		
Location : AGAWAM				
Description : Robinson Park Elementary School Improvements (SRTS)				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
504.1	600	GRANITE CURB TYPE VA4 - CURVED AT _____ PER FOOT		
504.2	10	GRANITE CURB TYPE VA4 - SPLAYED END AT _____ EACH		
509.	150	GRANITE TRANSITION CURB FOR PEDESTRIAN CURB RAMPS - STRAIGHT AT _____ PER FOOT		
509.1	250	GRANITE TRANSITION CURB FOR PEDESTRIAN CURB RAMPS - CURVED AT _____ PER FOOT		
517.	2	GRANITE CURB CORNER TYPE B AT _____ EACH		
580.	150	CURB REMOVED AND RESET AT _____ PER FOOT		
594.	150	CURB REMOVED AND DISCARDED AT _____ PER FOOT		
628.304	2	TEMPORARY IMPACT ATTENUATOR, NON-REDIRECTIVE, TL-2 AT _____ EACH		
628.4	6	TEMPORARY IMPACT ATTENUATOR, REMOVED AND RESET AT _____ EACH		

Project # 610652		Contract # 128108		
Location : AGAWAM				
Description : Robinson Park Elementary School Improvements (SRTS)				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
669.	50	FENCE REMOVED AND STACKED AT _____ PER FOOT		
697.1	31	SILT SACK AT _____ EACH		
701.	525	CEMENT CONCRETE SIDEWALK AT _____ PER SQUARE YARD		
701.1	50	CEMENT CONCRETE SIDEWALK AT DRIVEWAYS AT _____ PER SQUARE YARD		
701.2	450	CEMENT CONCRETE PEDESTRIAN CURB RAMP AT _____ PER SQUARE YARD		
702.	300	HOT MIX ASPHALT SIDEWALK OR DRIVEWAY AT _____ PER TON		
705.1	5	FLAGSTONE WALK REMOVED AND RESET AT _____ PER SQUARE YARD		
706.1	5	BRICK WALK REMOVED AND RELAID AT _____ PER SQUARE YARD		
711.	2	BOUND REMOVED AND RESET AT _____ EACH		

Project # 610652		Contract # 128108		
Location : AGAWAM				
Description : Robinson Park Elementary School Improvements (SRTS)				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
715.	2	RURAL MAIL BOX REMOVED AND RESET AT _____ EACH		
740.	19	ENGINEERS FIELD OFFICE AND EQUIPMENT (TYPE A) AT _____ PER MONTH		
748.	1	MOBILIZATION AT _____ LUMP SUM		
751.1	350	LOAM FOR LAWNS AT _____ PER CUBIC YARD		
756.	1	NPDES STORMWATER POLLUTION PREVENTION PLAN AT _____ LUMP SUM		
765.	2,800	SEEDING AT _____ PER SQUARE YARD		
767.6	5	AGED PINE BARK MULCH AT _____ PER CUBIC YARD		
784.	5	HEDGE SHRUB REPLACEMENT 4-5 FEET HT AT _____ EACH		
820.15	10	HIGHWAY LIGHTING - OVERHEAD REMOVED AND RESET AT _____ EACH		

Project # 610652		Contract # 128108		
Location : AGAWAM				
Description : Robinson Park Elementary School Improvements (SRTS)				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
824.201	1	RECTANGULAR RAPID FLASHING BEACON (SOLAR), LOCATION NO. 1 AT _____ LUMP SUM		
824.202	1	RECTANGULAR RAPID FLASHING BEACON (SOLAR), LOCATION NO. 2 AT _____ LUMP SUM		
832.	260	WARNING-REGULATORY AND ROUTE MARKER - ALUMINUM PANEL (TYPE A) AT _____ PER SQUARE FOOT		
847.1	55	SIGN SUP (N/GUIDE)+RTE MKR W/1 BRKWAY POST ASSEMBLY - STEEL AT _____ EACH		
848.1	2	SIGN SUP (N/GUIDE)+RTE MKR W/2 BRKWAY POST ASSEMBLIES-STEEL AT _____ EACH		
852.	700	SAFETY SIGNING FOR TRAFFIC MANAGEMENT AT _____ PER SQUARE FOOT		
852.11	200	TEMPORARY PEDESTRAIN BARRICADE AT _____ PER FOOT		
852.12	10	TEMPORARY PEDESTRAIN CURB RAMP AT _____ EACH		
853.1	5	PORTABLE BREAKAWAY BARRICADE TYPE III AT _____ EACH		

Project # 610652		Contract # 128108		
Location : AGAWAM				
Description : Robinson Park Elementary School Improvements (SRTS)				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
853.2	50	TEMPORARY BARRIER (TL-2) AT _____ PER FOOT		
853.21	200	TEMPORARY BARRIER REMOVED AND RESET AT _____ PER FOOT		
854.016	7,500	TEMPORARY PAVING MARKINGS - 6 INCH (PAINTED) AT _____ PER FOOT		
854.036	1,800	TEMPORARY PAVING MARKINGS - 6 INCH (TAPE) AT _____ PER FOOT		
854.1	3,200	PAVEMENT MARKING REMOVAL AT _____ PER SQUARE FOOT		
856.	420	ARROW BOARD AT _____ PER DAY		
856.12	840	PORTABLE CHANGEABLE MESSAGE SIGN AT _____ PER DAY		
859.	450	REFLECTORIZED DRUM AT _____ PER DAY		
864.04	75	PAVEMENT ARROWS AND LEGENDS REFLECTORIZED WHITE (THERMOPLASTIC) AT _____ PER SQUARE FOOT		

Project # 610652		Contract # 128108		
Location : AGAWAM				
Description : Robinson Park Elementary School Improvements (SRTS)				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
864.1	1,000	HIGH FRICTION GREEN SURFACE TREATMENT AT _____ PER SQUARE FOOT		
868.106	5,850	6 INCH WET REFLECTIVE RECESSED WHITE LINE (THERMOPLASTIC) AT _____ PER FOOT		
868.112	3,450	12 INCH WET REFLECTIVE RECESSED WHITE LINE (THERMOPLASTIC) AT _____ PER FOOT		
869.106	6,140	6 INCH WET REFLECTIVE RECESSED YELLOW LINE (THERMOPLASTIC) AT _____ PER FOOT		
874.	34	STREET NAME SIGN AT _____ EACH		
874.2	6	TRAFFIC SIGN REMOVED AND RESET AT _____ EACH		
874.41	30	TRAFFIC SIGN REMOVED AND DISCARDED AT _____ EACH		
901.	15	4000 PSI, 1.5 INCH, 565 CEMENT CONCRETE AT _____ PER CUBIC YARD		
903.	15	3000 PSI, 1.5 INCH, 470 CEMENT CONCRETE AT _____ PER CUBIC YARD		

Project # 610652		Contract # 128108		
Location : AGAWAM				
Description : Robinson Park Elementary School Improvements (SRTS)				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
904.	10	4000 PSI, 3/4 INCH, 610 CEMENT CONCRETE AT _____ PER CUBIC YARD		
Total Qty:		87,685		

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DOCUMENT B00853

SCHEDULE OF PARTICIPATION BY DISADVANTAGED BUSINESS ENTERPRISES (DBES)

PRIME BIDDER: _____

DATE OF BID OPENING: _____ PROJECT NO.: 610652

FEDERAL AID PROJECT NO. TAP-SRS2(002)X

PROJECT LOCATION: AGAWAM

Name, Address, and Phone Number(s) of DBE	Name of Activity	(a)† DBE Contractor Activity Amount <i>Construction Work</i>	(b) DBE Other Business Amount <i>Services, Supplies, Material</i>	(c) Total amount eligible for credit under rules in Section 6 of Document 00719 - DBE Special Provisions
Total Bid Amount	TOTALS:	\$	\$	\$
\$	DBE Percentage of Total Bid:	%	%	%

†Column (a) must be at least one-half of the DBE participation goal. Attach additional sheets as necessary.

Is MassDOT Document B00855 (Joint Check Approval) being submitted for any of the above? Yes No
 Not Known at This Time

Will any of the contractors listed above be using a third party (i.e. manufacturer) to deliver materials or perform any portion of work by a third party? Yes No

CERTIFICATION: I HEREBY DECLARE, TO THE BEST OF MY KNOWLEDGE, THAT I HAVE READ THE SPECIAL PROVISIONS FOR PARTICIPATION BY DISADVANTAGED BUSINESS ENTERPRISES - DOCUMENT 00719. BOTH THIS SCHEDULE AND THE RELEVANT AND ACCOMPANYING LETTER(S) OF INTENT ARE IN FULL COMPLIANCE WITH THE PROVISIONS OF, AND IN ACCORDANCE WITH, TITLE 49 CODE OF FEDERAL REGULATIONS, PART 26 (49 CFR Part 26).

SIGNATURE: _____ DATE _____

NAME AND TITLE (PRINT): _____

EMAIL ADDRESS: _____ TEL NO.: _____

*** END OF DOCUMENT ***

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DOCUMENT B00854

DISADVANTAGED BUSINESS ENTERPRISES (DBE) PARTICIPATION
LETTER OF INTENT

(To be completed by the DBE – Page 1 of 2)

TO: _____ (Prime Bidder)

FROM: _____ (DBE Firm)

RE: PROJECT NO.: 610652 FEDERAL AID PROJECT NO.: TAP-SRS2(002)X

PROJECT LOCATION: AGAWAM

DATE OF BID OPENING: _____

I, _____, *Print Name* authorized signatory of the above-referenced DBE firm hereby declare:

1. My company is currently certified as a Disadvantaged Business Enterprise (DBE) by the Massachusetts Supplier Diversity Office (“SDO”), formerly known as the State Office of Minority and Women Business Assistance (SOMWBA), as a: (check all applicable, see Section 1 of the Special Provisions For Participation By Disadvantaged Business Enterprises, MassDOT Document 00719 additional guidance is available at Title 49, Code of Federal Regulations, Part 26.55 (49 CFR Part 26.55)):

- CONTRACTOR REGULAR DEALER BROKER
- MANUFACTURER TRUCKING OPERATIONS PROFESSIONAL SERVICES

2. My firm has the ability to manage, supervise and perform the activity described on page 2 of this Letter of Intent. If you are awarded the contract, my company intends to enter into a contract with your firm to perform the items of work or other activity described on the following sheet for the prices indicated.

3. There have been no changes affecting the ownership, control or independence of my company since my last certification review on _____, 20____. If any such change is planned or occurs prior to my company's completion of this proposed work, I will give prior written notification to your firm and to the Massachusetts Department of Transportation (“MassDOT”) Office of Civil Rights and SDO.

4. I have read the MassDOT proposal for the Project which may be entitled “Project Contract Documents and Special Provisions” or the draft “Contract” which includes MassDOT Document 00719, and acknowledge that my company will comply with that document and the requirements of 49 CFR Part 26.

5. For the purpose of obtaining subcontractor approval from MassDOT, my firm will provide to you:

A. The following construction work:

- (i) a resume, stating the qualifications and experience, of the superintendent or foreperson who will supervise on site-work;
- (ii) a list of equipment owned or leased by my firm for use on this project; and
- (iii) a list of all projects (public or private) upon which my firm is currently performing, is committed to perform, or intends to make a commitment to perform. I shall also include, for each project: the name and telephone number of a contact person for the contracting authority, person, or organization; the dollar value of the work; a description of the work; and my firm's work schedule for the project.

B. The following services, materials or supplies:

- (i) a written agreement and invoices for the materials or supplies, and any other documents evidencing the terms of providing such items;
- (ii) information concerning brokers fees and commissions for providing services or materials; and
- (iii) a statement concerning whether my firm intends or will be required to use a joint check arrangement; and any other documents that may be required by MassDOT.

DBE Company Authorized Signature

Date _____

**DISADVANTAGED BUSINESS ENTERPRISES (DBE) PARTICIPATION
LETTER OF INTENT
(To be completed by the DBE – Page 2 of 2)**

DATE OF BID OPENING: _____

PROJECT NUMBER: 610652

FEDERAL AID PROJECT NUMBER: TAP-SRS2(002)X

PROJECT LOCATION: AGAWAM

PRIME BIDDER: _____

DBE COMPANY NAME: _____

<u>Item number</u> if applicable	<u>NAICS</u> <u>Code</u>	<u>Description of Activity</u> with notations such as Services, or Brokerage, Installation Only, Material Only, or Complete	<u>Quantity</u>	<u>Unit Price</u>	<u>Amount</u>
TOTAL AMOUNT:					

Please give full explanations, attach additional sheets if necessary.

I HEREBY VERIFY THAT _____ WILL SOLELY
(DBE company name)
PERFORM THE WORK, OR PROVIDE THE SERVICES OR MATERIALS, AS DESCRIBED ABOVE.

DBE AUTHORIZED SIGNATURE: _____

NAME AND TITLE (PRINT): _____

TELEPHONE NUMBER: _____ FAX NUMBER: _____

EMAIL ADDRESS: _____

*** END OF DOCUMENT ***

Rev'd 9/20/19

DOCUMENT B00855

DBE JOINT CHECK ARRANGEMENT APPROVAL FORM

(to be submitted by Prime Contractor)

Contract No: 128108 Project No. 610652 Federal Aid No.: TAP-SRS2(002)X

Location: AGAWAM Bid Opening Date:

Project Description: Robinson Park Elementary School Improvements (SRTS)

We have received the attached request for the use of a joint check arrangement from _____, a DBE on the above- referenced Contract and _____, a Material Supplier/Vendor for the subject Contract. The DBE has complied with the requirements of 49 CFR Part 26.55(c)(1). In particular, the DBE 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 DBE) for payment of sums due pursuant to invoices from the Supplier/Vendor and DBE.

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 B00856

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 DBE, 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 DBE Venturer; (4) the commitment of management, supervisory and operative personnel employed by the DBE 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, DBE 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 ***