

COMMONWEALTH OF MASSACHUSETTS



**CONTRACT DOCUMENTS
AND SPECIAL PROVISIONS**

PROPOSAL NO.	613466-128032
P.V. =	\$1,113,000.00
PLANS	NO

FOR

Scheduled Substructure Repairs L-10-017, L-10-020, A-10-020, A-10-012

in the Towns of

ARLINGTON - LEXINGTON

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

This Proposal to be opened and read: **WEDNESDAY, OCTOBER 16, 2024 at 2:00 P.M.**

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*** END OF DOCUMENT ***

DOCUMENT 00102

**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.

WEDNESDAY, OCTOBER 16, 2024 at 2:00 P.M. **

ARLINGTON - LEXINGTON

Scheduled Substructure Repairs L-10-017, L-10-020, A-10-020, A-10-012

****Date Subject to Change**

PROJECT VALUE = \$1,113,000.00

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

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

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

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

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

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

NOTICE TO CONTRACTORS (Continued)

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

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

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

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

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 7, 2024

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.

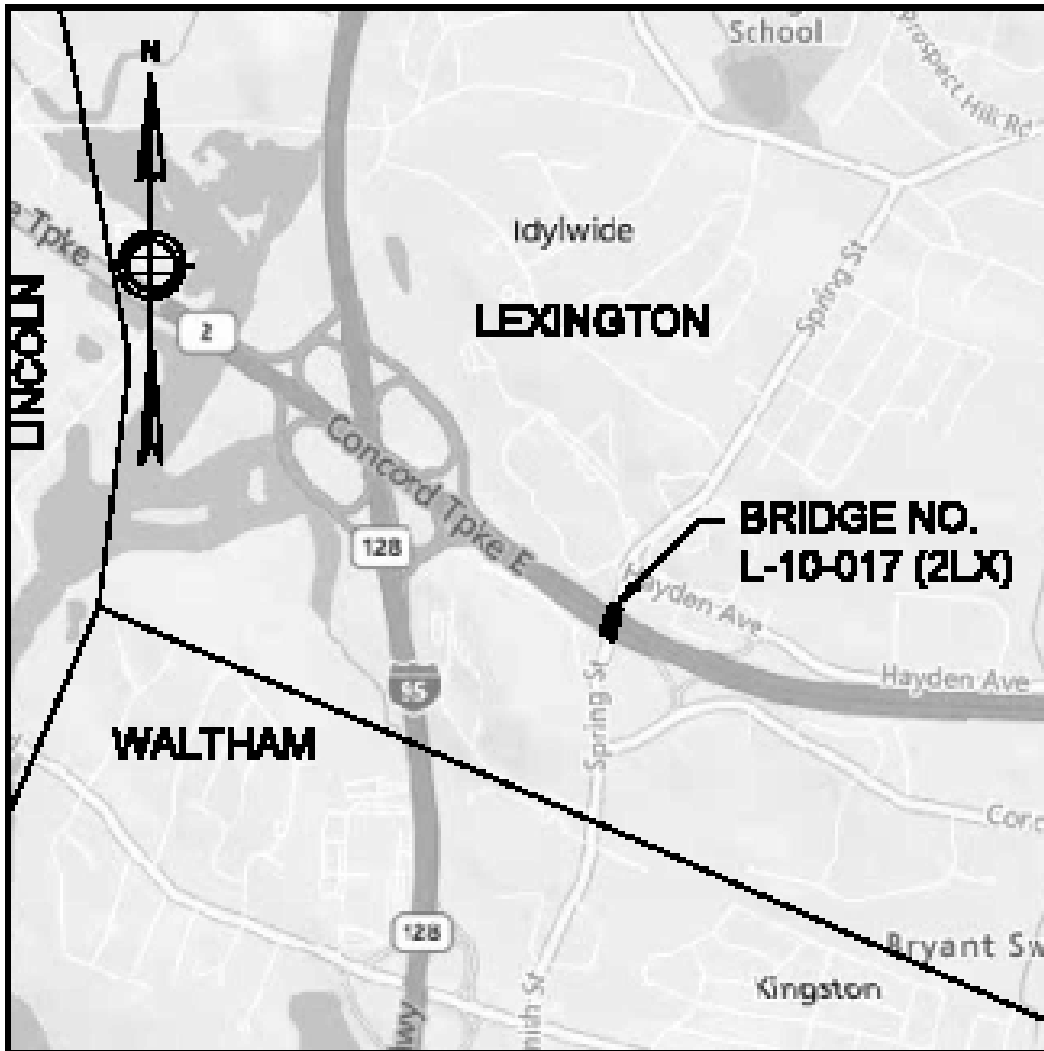
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DOCUMENT 00331

LOCUS MAP

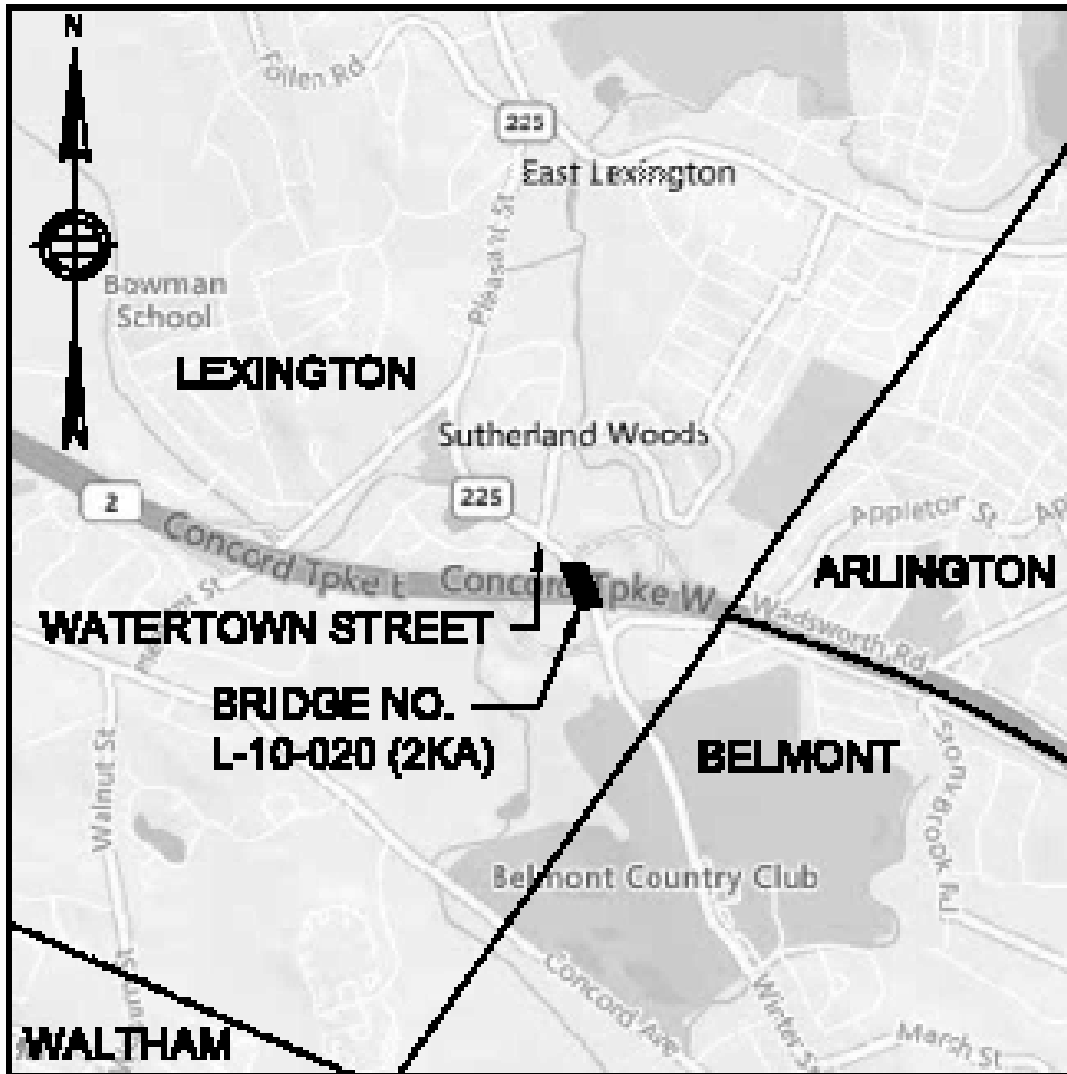
ARLINGTON - LEXINGTON

Scheduled Substructure Repairs L-10-017, L-10-020, A-10-020, A-10-012



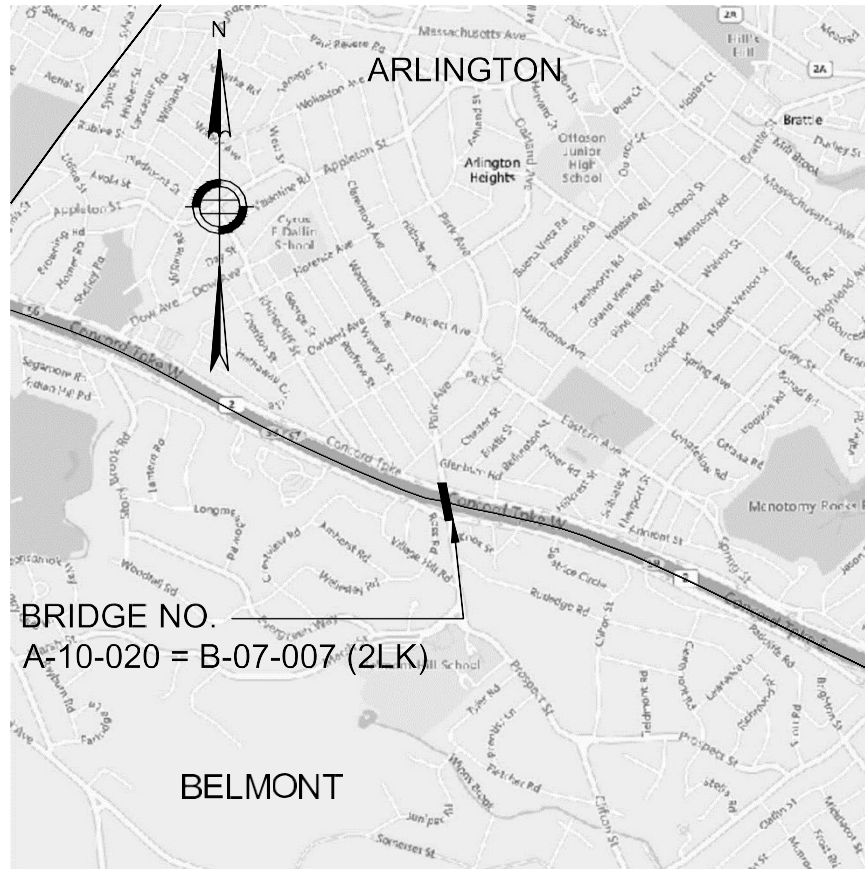
BRIDGE L-10-017

NOT TO SCALE



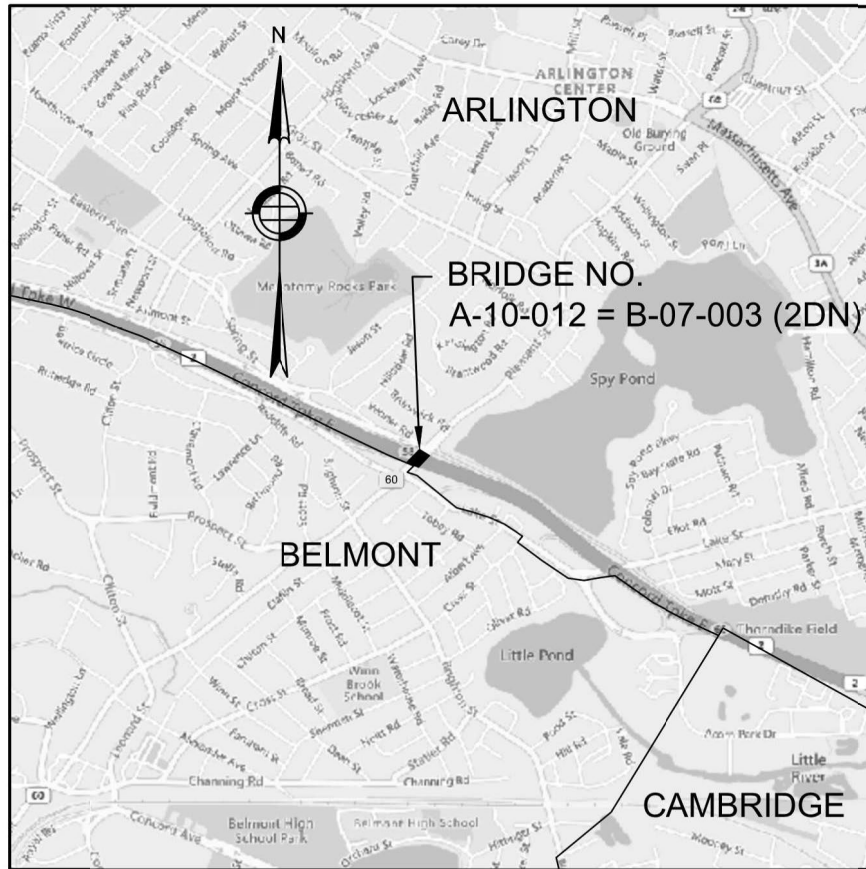
BRIDGE L-10-20

NOT TO SCALE



BRIDGE A-10-020

NOT TO SCALE



BRIDGE A-10-012

NOT TO SCALE



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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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 00718

SPECIAL PROVISION FOR PARTICIPATION BY MINORITY OR WOMEN'S BUSINESS ENTERPRISES AND SERVICE- DISABLED VETERAN- OWNED BUSINESS ENTERPRISES

(Implementing Chapter 102, Section 24 and Chapter 273, Section 124, of the Acts of 1994 and Chapter 56, Sections 1 to 5 of the Acts of 2010 and subsequent Acts)

Revised: September 27, 2021

I. PARTICIPATION

M/WBE PARTICIPATION GOAL

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

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

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

SDVOBE PARTICIPATION BENCHMARK

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

Design-Bid-Build Projects: SDVOBE Participation Goal ___%

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

II. POLICY

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

III. M/WBE and SDVOBE OBLIGATION

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

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

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

V. REQUIRED SUBCONTRACT PROVISIONS

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

VI. DEFINITIONS

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

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

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

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

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

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

1. The M/WBE or SDVOBE partner(s) shares in the ownership, control, management responsibilities, risks and profits of the joint venture; and
2. The Joint Venture has been approved by the Department for M/WBE or SDVOBE participation on the particular contract.

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

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

- (a) Manufactures goods from raw materials or substantially alters them before resale, or
- (b) Provides and maintains a storage facility for materials used in the work, consistent with normal industry practice.

"Department" means the Massachusetts Department of Transportation (MassDOT).

"SDO" means the Massachusetts Supplier Diversity Office.

VII. ELIGIBILITY of M/WBEs

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

1. SDO Directory of Certified M/WBEs: The Supplier Diversity Office publishes a Directory of certified MBE and WBEs. This Directory can be obtained from SDO at <https://www.sdo.osd.state.ma.us/>. This site lists those firms which have been certified as minority owned (MBEs) or women owned (WBEs) in accordance with the criteria of 425 CMR 2.00 et seq to participate as M/WBEs on state funded contracts. It also lists the kinds of work in which each firm engages but does not constitute an endorsement of the quality or performance of any business and does not represent Department subcontractor approval.
2. Application for Certification by the Department for a Particular Project: A firm which has (1) submitted a fully completed M/WBE application to SDO at least 30 days previously, (2) has provided in a timely manner, any additional information which may have been requested by SDO, and (3) can provide evidence, satisfactory to the Department, of a bidder's conditional commitment to subcontract with the firm, if certified, may apply directly to the MassDOT Office of Civil Rights to be certified for participation on the particular contract.
3. Joint Venture Approval: To obtain recognition as an approved joint venture between M/WBEs and non-M/WBEs, the Joint Venture must provide to the MassDOT Office of Civil Rights, at least 14 business days before the bid opening date, the Joint Venture Affidavit Document B00847, and a copy of the Joint Venture Agreement, which shall include a detailed breakdown of the following:
 - (a) Capital participation by the M/WBE,
 - (b) Specific equipment to be provided to the Joint Venture by the M/WBE,
 - (c) Specific responsibilities of the M/WBE in the management of the Joint Venture,
 - (d) Workforce and specific skills to be provided to the Joint Venture by the M/WBE, and
 - (e) Percentage distribution to the M/WBE of the projected profit or loss incurred by the Joint Venture.
 - (f) The Joint Venture shall provide all such additional information as may be requested by the Department for the purpose of determining joint venture eligibility.

VIII. ELIGIBILITY of SDVOBEs

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

1. VetBiz Database: The website, located at www.VetBiz.gov, listing verified service- disabled veteran- owned businesses.
2. Joint Venture Approval: To obtain recognition as an approved joint venture between SDVOBEs and non-SDVOBEs, the joint venture must provide to the MassDOT Office of Civil Rights, at least 14 business days before the bid opening date, an application for joint venture participation approval, and a copy of the Joint Venture Agreement, which shall include a detailed breakdown of the following:
 - (a) Capital participation by the SDVOBE,
 - (b) Specific equipment to be provided to the joint venture by the SDVOBE,
 - (c) Specific responsibilities of the SDVOBE in the management of the Joint Venture,
 - (d) Workforce and specific skills to be provided to the joint venture by the SDVOBE, and

- (e) Percentage distribution to the SDVOBE of the projected profit or loss incurred by the Joint Venture.
- (f) The Joint Venture shall provide all such additional information as may be requested by the Department for the purpose of determining joint venture eligibility.

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

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

1. If a firm has been determined to be an eligible MBE, WBE or SDVOBE, the total dollar value of the contract performed by the M/WBE or SDVOBE is counted toward the applicable goal as follows:
 - a. Except as provided below, in Section IX (1)(g), work performed by a M/WBE or a SDVOBE Prime Contractor shall not be counted toward the M/WBE or SDVOBE goal, and all Prime Contractors, including M/WBE or SDVOBE Prime Contractors, must comply with the M/WBE and SDVOBE requirements of this Contract.
 - b. For a M/WBE or SDVOBE material supplier, sixty percent (60%) of the amount to be paid for materials and supplies required under this Contract shall be credited toward the goal.
 - c. For a M/WBE or SDVOBE who provides a bonafide service such as professional, technical, consultant or managerial services and assistance in the procurement of essential personnel, facilities, equipment, materials, or supplies required for performance of the contract, reasonable fees or commissions charged for the service shall be listed, but the cost of items themselves shall not be credited.
 - d. For a M/WBE or SDVOBE hauler, trucker, or delivery service, which is not also the manufacturer of or a regular dealer in the materials and supplies, reasonable fees charged for delivery of materials and supplies required on the job site shall be credited; the cost of the materials and supplies themselves shall not be credited.
 - e. For a M/WBE or SDVOBE who provides any bonds or insurance specifically required for the performance of the contract, reasonable fees or commissions charged for such service shall be listed, but the face amount or actual premium paid for the bond or insurance shall not be credited.
 - f. The Department shall determine if the fees or commissions listed in accordance with paragraphs (c), (d), and (e) are not excessive as compared with fees or commissions customarily allowed for similar services.
 - g. That portion of the contract total dollar value equal to the percentage of ownership and control of the M/WBE partner(s) or SDVOBE partner(s) in an approved Joint Venture shall be counted toward the Contract goal, except that credit for M/WBE and SDVOBE participation in an approved Prime Joint Venture shall not exceed one half of the Contract goal.

X. JOINT CHECK POLICY

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

2. In the event that a Contractor, M/WBE or SDVOBE Subcontractor desires to use a joint check, MassDOT will require prior notice and will closely monitor the arrangement for compliance. MassDOT may allow a joint check arrangement and give credit to a Contractor for use of the M/WBE or SDVOBE where one or more of the following conditions exist:
 - The use of a joint check is in fact required by this type of vendor or supplier as a standard industry practice that applies to all Contractors (M/WBEs, SDVOBE and non-M/WBEs or non-SDVOBEs); or is required by a specific vendor or supplier;
 - Payment for supplies or materials would be delayed for an unreasonably extended period without the joint check arrangement;
 - The M/WBE or SDVOBE (or any of its Subcontractors) has a pattern or history of not paying a vendor or supplier within a reasonable time or has not established enough of a credit history with the supplier or vendor; and/or
 - The presence of severe adverse economic conditions, where credit resources may be limited and such practices may be necessary or required to effect timely payments.
3. Other factors MassDOT may consider:
 - Whether there is a requirement by the Prime Contractor that a M/WBE or SDVOBE should use a specific vendor or supplier to meet their Subcontractor specifications;
 - Whether there is a requirement that a M/WBE or SDVOBE use the Prime Contractor's negotiated price;
 - The independence of the M/WBE or SDVOBE;
 - Whether approval has been sought prior to use of a joint check arrangement; and
 - Whether any approved joint check arrangement has exceeded a reasonable period of use;
 - The operation of the joint check arrangement; and
 - Whether the M/WBE or SDVOBE has made an effort to establish alternate arrangements for following periods (i.e., the M/WBE or SDVOBE must show it can, or has, or why it has not, established or increased a credit line with the vendor or supplier).

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

XI. JOINT CHECK PROCEDURES

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

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

XII. AWARD DOCUMENTATION AND PROCEDURES

1. The two lowest bidders/the two bidders with the lowest price per quality score point, including any M/WBE bidder or SDVOBE bidder, shall submit, by the close of business on the third business day after the bid opening, a completed Schedule of M/WBE and SDVOBE participation, in the form attached, which shall list:
 - a. The full company name, address and telephone number of each M/WBE or SDVOBE with whom the bidder intends to make a commitment;
 - b. The Contract item(s), by number(s) and quantity(ies), if applicable, or specific description of other business activity to be performed by each M/WBE or SDVOBE as set forth in the Letters of Intent. The bidder shall list only firms which have the capacity to perform, manage and supervise the work proposed in accordance with the requirements of Section XII of these Special Provisions.
 - c. The total dollar amount to be paid to each M/WBE or SDVOBE. (Bidders are cautioned that at least one half of the participation goal must be met with Contract work.)
 - d. The total dollar amount to be paid to each M/WBE or SDVOBE which is eligible for credit toward the M/WBE or SDVOBE goal under the crediting rules set out in Section IX.
 - e. The total creditable M/WBE or SDVOBE participation as a percentage of the total bid price.
2. All firms listed on the Schedule must be currently certified.
3. The two lowest bidders/the two bidders with the lowest price per quality score point shall submit with their Schedules of Participation, fully completed, signed Letters of Intent from each of the M/WBEs or SDVOBEs listed on the Schedule. The Letters of Intent shall be in the form attached and shall identify specifically the contract activity the M/WBE or SDVOBE proposes to perform, expressed as contract item number, if applicable, description of the activity, quantity, unit price and total price. In the event of discrepancy between the Schedule and the Letter of Intent, the Letter of Intent shall govern.

4. Evidence of good faith efforts will be evaluated by the Department in the selection of the lowest responsible bidder/best value bidder. All information requested by the Department for the purpose of evaluating the bidder's efforts to achieve the goal must be provided within three calendar days and must be accurate and complete in every detail. The apparent low bidder's/best value bidder's attainment of the M/WBE or SDVOBE goal or a satisfactory demonstration of good faith efforts is a prerequisite for Award of the Contract.
5. Failure to meet, or to demonstrate good faith efforts to meet, the requirements of these Special Provisions shall render a bid non-responsive. Therefore, in order to be eligible for award, the bidder (1) must list on the Schedule of Participation, and provide the required Letters of Intent for, M/WBE or SDVOBE participation which meets or exceeds the Contract goal in accordance with the terms of these Special Provisions or (2) must demonstrate, to the satisfaction of the Department, that good faith efforts were made to achieve the goal.
6. If the Department finds that the percentage of M/WBE or SDVOBE participation submitted by the bidder on its Schedule does not meet the Contract goal, or that the Letters of Intent were not timely filed, and that the bidder has not demonstrated good faith efforts to comply with these requirements, it shall propose that the bidder be declared ineligible for Award. In that case, the bidder may request administrative reconsideration. Such requests must be sent in writing within three calendar days of receiving notice of proposed ineligibility to: The Office of the General Counsel, Massachusetts Department of Transportation, 10 Park Plaza, Boston, MA, 02116.
7. If, after administrative reconsideration, the Department finds that the bidder has not shown that sufficient good faith efforts were made to comply with the requirements of these Special Provisions it shall reject the bidder's proposal and may retain the proposal guaranty.
8. Actions which constitute evidence of good faith efforts to meet the M/WBE or SDVOBE goals include, but are not limited to, all of the following examples:
 - a. Efforts made to select portions of the work proposed to be performed by M/WBEs or SDVOBEs in order to increase the likelihood of achieving the stated goal, including, where appropriate, but not limited to, breaking down contracts into economically feasible units to facilitate M/WBE and SDVOBE participation. The value of such work is required to at least equal the M/WBE and SDVOBE goal.
 - b. Reasonable written notification prior to the opening of bids soliciting individual M/WBEs or SDVOBEs interested in participation in the contract as subcontractors, regular dealers, manufacturers, consultants, or service providers and identifying the specific items or type of work being solicited.
 - c. Written notification to M/WBE or SDVOBE economic development assistance agencies and organizations which provide assistance in recruitment and placement of M/WBEs and SDVOBEs, describing the type of work, supplies or services being considered for M/WBE or SDVOBE subcontracting on this contract.
 - d. Efforts made to negotiate with M/WBEs or SDVOBEs for specific items of work including evidence of:
 - (1) The names, addresses, telephone numbers of M/WBEs or SDVOBEs who were contacted, the dates of initial contact and whether initial solicitations of interest were followed up by contacts with M/WBEs or SDVOBEs to determine with certainty whether the M/WBEs or SDVOBEs were interested. Personal or phone contacts are expected.
 - (2) A description of the information provided by the M/WBEs or SDVOBEs regarding the plans and specifications and estimated quantities for portions of the work to be performed.
 - (3) A statement of why additional agreements with M/WBEs or SDVOBEs were not reached.
 - (4) Documentation of each M/WBE or SDVOBE contacted but rejected and the reasons for the rejection.
 - e. Absence of any agreements between the Contractor and the M/WBE or SDVOBE in which M/WBE or SDVOBE promises not to provide subcontracting quotations to other bidders.
 - f. Efforts made to assist the M/WBEs or SDVOBEs that need assistance in obtaining bonding, insurance, or lines of credit required by the Contractor.

- g. Documentation that qualified M/WBEs or SDVOBEs are not available, or are not interested.
 - h. Attendance at any meeting scheduled by the Department to encourage better Contractor-M/WBE or Contractor- SDVOBE relationships and/or to inform M/WBEs or SDVOBEs of forthcoming M/WBE or SDVOBE utilization opportunities.
 - i. Advertisement, in general circulation media, in trade association publications and in disadvantaged business enterprise-focused media, of interest in utilizing M/WBEs or SDVOBEs and the area of interest.
 - j. Efforts to effectively use the services of available minority community organizations; women organizations, veteran organizations, minority, women disadvantaged and veteran contractor's groups; local, state and federal disadvantaged business assistance offices; and other organizations that provide assistance in recruitment and placement of M/WBEs or SDVOBEs.
9. The demonstration of good faith efforts must establish that the Contractor has actively and aggressively sought out M/WBEs or SDVOBEs to participate in the project and has taken all actions which could be reasonably expected to achieve the goal. Examples of circumstances or actions not acceptable as reasons for failure to meet the M/WBE or SDVOBE goal, include, but are not limited to:
- a. The M/WBE or SDVOBE was unable to provide performance and/or payment bonds.
 - b. The M/WBEs or SDVOBEs commercially reasonable bid was rejected based on price.
 - c. The M/WBE or SDVOBE would not agree to perform items of work at the unit bid price.
 - d. The Contractor does not want to subcontract a percentage of the work sufficient to meet the goal.
 - e. Solicitation by mail or fax only.

XIII. COMPLIANCE

1. All activity performed by a M/WBE or SDVOBE for credit toward the Contract goal must be performed, managed and supervised by the M/WBE or SDVOBE. Prime Contractor shall not enter into, or condone, any other arrangement.
2. The Prime Contractor shall not perform with its own organization, or assign to any other business, any activity designated for the M/WBEs or SDVOBEs named on the Schedule submitted by the Prime Contractor under Section IX, or under Section XII(6), without the approval of the Department in accordance with the requirements of Sections XIII(6) and XIII(10).
3. The Department may suspend payment for any activity which was not performed by the M/WBE or SDVOBE to whom the activity was committed on the approved Schedule of Participation, or which was not performed in accordance with the requirements of Section XIII(1).
4. The Department retains the right to approve or disapprove all subcontractors. Requests by the Prime Contractor for approval of participation by a M/WBE or SDVOBE subcontractor for credit toward the Contract goal must include, in addition to any other requirements for subcontractor approval, the following:
 - a. A copy of the proposed subcontract. The subcontract must be for at least the dollar amount, and for the work described, in the Prime Contractor's Schedule of Participation.
 - b. A resume stating the qualifications and experience of the M/WBE or SDVOBE superintendent and/or foreperson who will supervise the on-site work. A new resume will be required for any change in supervisory personnel during the progress of the work.
 - c. A Schedule of Operations indicating when the M/WBE or SDVOBE is expected to perform the work.

- d. A list of (1) equipment owned by the M/WBE or SDVOBE to be used on the Project, and (2) equipment to be leased by the M/WBE or SDVOBE for use on the Project.
 - e. A list of: (1) all projects (public and private) which the M/WBE or SDVOBE is currently performing, (2) all projects (public and private) to which the M/WBE or SDVOBE is committed, (3) all projects (public and private) to which the M/WBE or SDVOBE intends to make a commitment. For each contract, list the contracting organization, the name and telephone number of a contact person for the contracting organization, the dollar value of the work, a description of the work, and the M/WBEs or SDVOBEs work schedule for each project.
5. If, pursuant to the subcontractor approval process, the Department finds that a M/WBE or SDVOBE subcontractor does not have sufficient experience or resources to perform, manage and supervise work of the kind proposed in accordance with the requirements of Section XIII(1), approval of the M/WBE or SDVOBE subcontractor may be denied. In the event of such denial, the Prime Contractor shall proceed in accordance with the requirements of Sections XIII(6) and XIII(10).
 6. If, for reasons beyond its control, the Prime Contractor cannot comply with its M/WBE or SDVOBE commitment in accordance with the Schedule of participation submitted under Section IX and the terms of these Special Provisions, the Prime Contractor shall submit to the Department the reasons for its inability to comply with its obligations under Section I and shall submit, and request approval for, a revised Schedule of Participation. If approved by the Department, the revised Schedule shall govern the Prime Contractor's performance in meeting its obligations under these special provisions.
 7. A Prime Contractor's compliance with the participation goal in Section I shall be determined by reference to the required percentage of the total Contract price, including any additions and modifications thereto, provided, however, that no decrease in the dollar amount of a bidder's commitment to any M/WBE or SDVOBE shall be allowed without the approval of the Department.
 8. If the Contract amount is increased, the Prime Contractor shall submit a revised Schedule of Participation in accordance with Sections XIII(6) and XIII(10).
 9. In the event of the decertification of a M/WBE or SDVOBE participating or scheduled to participate on the contract for credit toward the goal, the Contractor shall proceed in accordance with Sections XIII(6) and XIII(10).
 10. The Prime Contractor shall notify the Department immediately of any facts which come to its attention indicating that it may or will be unable to comply with any aspect of its M/WBE or SDVOBE obligation under this Contract.
 11. Any notice required by these Special Provisions shall be given in writing to the Resident Engineer and the district designated Compliance Officer with a copy to the Director of Compliance, Office of Diversity and Civil Rights, 10 Park Plaza, Room 3170, Boston MA 02116.
 12. The Prime Contractor and its subcontractors shall comply with the Department's Electronic Reporting System Requirements (Contract Document 00821) and submit all information required by the Department related to the M/WBE Special Provisions and SDVOBE Special Provisions through the Equitable Business Opportunity Solution (EBO). The Department reserves the right to request reports in the format it deems necessary anytime during the performance of the Contract.
 13. The Contractor shall pay each M/WBE or SDVOBE for satisfactory performance of its Contract no later than 10 days from receipt of payment for the work from the Department. Any delay or postponement of payment to the M/WBEs or SDVOBEs must be for good cause and only with the prior approval of the Department.
 14. The Department may withhold the Contractor's next periodic payment if each M/WBE or SDVOBE is not paid in accordance with Section XIII(13).
 15. The Department may require specific performance of the Prime Contractor's commitment under the Contract by requiring the Prime Contractor to subcontract with a M/WBE or SDVOBE for any contract or specialty item.

XIV. SANCTIONS

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

1. Retain, in connection with final acceptance and final payment, an amount determined by multiplying the total contract amount by the percentage in Section I, less the amount paid to approved M/WBEs or SDVOBEs for work performed under the Contract in accordance with the provisions of Section X. The Prime Contractor shall have the right to appeal such retention of funds in accordance with the provisions of M.G.L. c. 30A s.10.
2. Suspend, terminate or cancel this Contract, in whole or in part, and call upon the Prime Contractor's surety to perform all terms and conditions in the Contract.
3. In accordance with 720 CMR 5.05(1)(f), modify or revoke the Prime Contractor's Prequalification status or recommend that the Prime Contractor not receive award of a pending Contract. The Prime Contractor may appeal the determination of the Prequalification Committee in accordance with the provisions of 720 CMR 5.07.
4. Initiate debarment proceedings under M.G.L. c.29 §29F.

XV. FURTHER INFORMATION

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

XVI. LIST OF ADDITIONAL DOCUMENTS

1. The following documents shall be completed and signed by the bidder and designated M/WBEs or SDVOBEs in accordance with Section XII - Award Documentation and Procedures. These documents must be returned by the bidder to MassDOT's Bid Document Distribution Center:
 - Schedule of M/WBEs (Document B00842) or SDVOBE Participation (Document B00844)
 - Letter of Intent: M/WBEs (Document B00843) or SDVOBE (Document B00845)
 - M/WBEs or SDVOBE Joint Check Arrangement Approval Form (Document B00846), if Contractor and M/WBE or SDVOBE plan, or if M/WBE or SDVOBE is required to use a Joint Check (when applicable)
2. The following document shall be signed and returned by Contractor and Subcontractors/M/WBEs or SDVOBEs to the MassDOT District Office overseeing the Project, as applicable:
 - Contractor/Subcontractor Certification Form (Document No. 00859) (a checklist of other documents to be included with every subcontract (M/WBEs or SDVOBEs and non-M/WBEs or SDVOBEs alike)).
3. The following document shall be provided to MassDOT's Office of Civil Rights and Prequalification Office at least fourteen (14) business days before the bid opening date:
 - Joint Venture Affidavit of M/WBE or SDVOBE/Non-M/WBE or Non-SDVOBE (Document B00847)
4. The following document shall be provided to MassDOT's District Office of Civil Rights within 30 calendar days after the work of the DBE is completed, or no later than 30 calendar days after the work of the DBE is on a completed and processed CQE. This document shall be completed and submitted by the Prime Contractor:
 - Certificate of Completion by a Minority/Women or Disadvantaged Business Enterprise (M/W/DBE) (Form No. CSD-100)

** END OF DOCUMENT **

DOCUMENT 00761

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

Revised: 02/09/16

I. Instructions for Certification - Primary Covered Transactions:

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

1. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the MassDOT's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.
2. The certification in this clause is a material representation of fact upon which reliance was placed when the MassDOT determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available, the MassDOT may terminate this transaction for cause of default.
3. The prospective primary participant shall provide immediate written notice to the MassDOT if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the MassDOT for assistance in obtaining a copy of those regulations.
5. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the MassDOT.
6. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," provided by the MassDOT, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the "Lists of Parties Excluded From Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration and the Debarment Lists compiled by both the Massachusetts Office of the Attorney General and the Department of Capital Asset Management and Maintenance (DCAMM) and published separately in the Central Register.
8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
9. Except for transactions authorized under paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available, the MassDOT may terminate this transaction for cause or default.

* * * * *

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

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

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal, State or local department or agency;
2. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
3. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 2 of this certification; and
4. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

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

* * * * *

II. Instructions for Certification - Lower Tier Covered Transactions:

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

1. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available the MassDOT may pursue available remedies, including suspension and/or debarment.
2. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.
3. The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the MassDOT for assistance in obtaining a copy of those regulations.
4. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the MassDOT.
5. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
6. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List and the Debarment Lists.

7. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
8. Except for transactions authorized under paragraph 4 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, the MassDOT may pursue available remedies, including suspension and/or debarment.

* * * * *

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

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

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

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DOCUMENT 00811

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

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

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

Base Price

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

Period Price

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

Price Adjustment Determination, Calculation and Payment

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

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

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

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

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

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

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DOCUMENT 00812

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

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

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

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

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

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

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

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

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

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

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DOCUMENT 00813

SPECIAL PROVISIONS

PRICE ADJUSTMENTS FOR STRUCTURAL STEEL AND REINFORCING STEEL

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

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DOCUMENT 00821

ELECTRONIC REPORTING REQUIREMENTS
CIVIL RIGHTS PROGRAMS AND CERTIFIED PAYROLL

Implemented on March 2, 2009

Revised June 04, 2019

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

Contractor and Sub-Contractor EBO User Certification

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

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

Vetting of Firms and Designated Firm Individuals

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

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

Interim Reporting Requirements

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

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DOCUMENT 00859

CONTRACTOR/SUBCONTRACTOR CERTIFICATION FORM ‡

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

_____ (Contractor) Date: _____

_____ (Subcontractor) District Approved Subcontractor

Contract No: 128032 Project No. 613466 Federal Aid No.: NFA

Location: ARLINGTON - LEXINGTON

Project Description: Scheduled Substructure Repairs L-10-017, L-10-020, A-10-020, A-10-012

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 than two week before the anniversary of the Notice to Proceed date of the contract to allow for adequate processing by the Department of Labor Standards (DLS). The effective date for the new rates will be the anniversary date of the contract (i.e. the notice to proceed date), regardless of the date of issuance on the schedule from DLS.

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

*** END OF DOCUMENT ***

DOCUMENT 00861

STATE PREVAILING WAGE RATES

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MAURA HEALEY
Governor

KIM DRISCOLL
Lt. Governor

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

Prevailing Wage Rates

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

LAUREN JONES
Secretary

MICHAEL FLANAGAN
Director

Awarding Authority: MassDOT Highway
Contract Number: 128032 **City/Town:** ARLINGTON
Description of Work: ARLINGTON-LEXINGTON: Scheduled Substructure Repairs L-10-017, L-10-020, A-10-020, A-10-012
Job Location: Along sections of Route 2

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 A</i>	08/01/2024	\$41.05	\$14.91	\$18.67	\$0.00	\$74.63
	12/01/2024	\$41.05	\$14.91	\$20.17	\$0.00	\$76.13
	06/01/2025	\$42.05	\$14.91	\$20.17	\$0.00	\$77.13
	08/01/2025	\$42.05	\$15.41	\$20.17	\$0.00	\$77.63
	12/01/2025	\$42.05	\$15.41	\$21.78	\$0.00	\$79.24
	06/01/2026	\$43.05	\$15.41	\$21.78	\$0.00	\$80.24
	08/01/2026	\$43.05	\$15.91	\$21.78	\$0.00	\$80.74
	12/01/2026	\$43.05	\$15.91	\$23.52	\$0.00	\$82.48
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	08/01/2024	\$40.88	\$14.91	\$18.67	\$0.00	\$74.46
	12/01/2024	\$40.88	\$14.91	\$20.17	\$0.00	\$75.96
	06/01/2025	\$41.12	\$14.91	\$20.17	\$0.00	\$76.20
	08/01/2025	\$41.12	\$15.41	\$20.17	\$0.00	\$76.70
	12/01/2025	\$41.12	\$15.41	\$21.78	\$0.00	\$78.31
	06/01/2026	\$43.12	\$15.41	\$21.78	\$0.00	\$80.31
	08/01/2026	\$43.12	\$15.91	\$21.78	\$0.00	\$80.81
	12/01/2026	\$43.12	\$15.91	\$23.52	\$0.00	\$82.55
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	08/01/2024	\$41.24	\$14.91	\$18.67	\$0.00	\$74.82
	12/01/2024	\$41.24	\$14.91	\$20.17	\$0.00	\$76.32
	06/01/2025	\$42.24	\$14.91	\$20.17	\$0.00	\$77.32
	08/01/2025	\$42.24	\$15.41	\$20.17	\$0.00	\$77.82
	12/01/2025	\$42.24	\$15.41	\$21.78	\$0.00	\$79.43
	06/01/2026	\$43.24	\$15.41	\$21.78	\$0.00	\$80.43
	08/01/2026	\$43.24	\$15.91	\$21.78	\$0.00	\$80.93
	12/01/2026	\$43.24	\$15.91	\$23.52	\$0.00	\$82.67
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 1)</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 1</i>	06/01/2024	\$46.13	\$9.65	\$18.40	\$0.00	\$74.18
	12/01/2024	\$47.60	\$9.65	\$18.40	\$0.00	\$75.65
	06/01/2025	\$49.10	\$9.65	\$18.40	\$0.00	\$77.15
	12/01/2025	\$50.60	\$9.65	\$18.40	\$0.00	\$78.65
	06/01/2026	\$51.40	\$9.65	\$18.40	\$0.00	\$79.45
	12/01/2026	\$53.65	\$9.65	\$18.40	\$0.00	\$81.70
	06/01/2027	\$55.25	\$9.65	\$18.40	\$0.00	\$83.30
	12/01/2027	\$56.85	\$9.65	\$18.40	\$0.00	\$84.90
	06/01/2028	\$58.53	\$9.65	\$18.40	\$0.00	\$86.58
	12/01/2028	\$60.20	\$9.65	\$18.40	\$0.00	\$88.25
For apprentice rates see "Apprentice- LABORER"						
AIR TRACK OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i>	06/01/2024	\$46.23	\$9.65	\$18.40	\$0.00	\$74.28
	12/01/2024	\$47.70	\$9.65	\$18.40	\$0.00	\$75.75
	06/01/2025	\$49.20	\$9.65	\$18.40	\$0.00	\$77.25
	12/01/2025	\$50.70	\$9.65	\$18.40	\$0.00	\$78.75
	06/01/2026	\$52.25	\$9.65	\$18.40	\$0.00	\$80.30
	12/01/2026	\$53.75	\$9.65	\$18.40	\$0.00	\$81.80
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i>	06/01/2024	\$41.80	\$14.50	\$11.05	\$0.00	\$67.35
	12/01/2024	\$42.80	\$14.50	\$11.05	\$0.00	\$68.35
	06/01/2025	\$43.80	\$14.50	\$11.05	\$0.00	\$69.35
	12/01/2025	\$44.80	\$14.50	\$11.05	\$0.00	\$70.35
ASPHALT RAKER <i>LABORERS - ZONE 1</i>	06/01/2024	\$45.63	\$9.65	\$18.40	\$0.00	\$73.68
	12/01/2024	\$47.10	\$9.65	\$18.40	\$0.00	\$75.15
	06/01/2025	\$48.60	\$9.65	\$18.40	\$0.00	\$76.65
	12/01/2025	\$50.10	\$9.65	\$18.40	\$0.00	\$78.15
	06/01/2026	\$51.65	\$9.65	\$18.40	\$0.00	\$79.70
	12/01/2026	\$53.15	\$9.65	\$18.40	\$0.00	\$81.20
	06/01/2027	\$54.75	\$9.65	\$18.40	\$0.00	\$82.80
	12/01/2027	\$56.35	\$9.65	\$18.40	\$0.00	\$84.40
	06/01/2028	\$58.03	\$9.65	\$18.40	\$0.00	\$86.08
	12/01/2028	\$59.70	\$9.65	\$18.40	\$0.00	\$87.75
For apprentice rates see "Apprentice- LABORER"						
ASPHALT RAKER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i>	06/01/2024	\$45.73	\$9.65	\$18.40	\$0.00	\$73.78
	12/01/2024	\$47.20	\$9.65	\$18.40	\$0.00	\$75.25
	06/01/2025	\$48.70	\$9.65	\$18.40	\$0.00	\$76.75
	12/01/2025	\$50.20	\$9.65	\$18.40	\$0.00	\$78.25
	06/01/2026	\$51.75	\$9.65	\$18.40	\$0.00	\$79.80
	12/01/2026	\$53.25	\$9.65	\$18.40	\$0.00	\$81.30
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$56.03	\$15.30	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.48	\$15.30	\$16.40	\$0.00	\$89.18
	06/01/2025	\$58.78	\$15.30	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.23	\$15.30	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.53	\$15.30	\$16.40	\$0.00	\$93.23
	12/01/2026	\$62.98	\$15.30	\$16.40	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$56.03	\$15.30	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.48	\$15.30	\$16.40	\$0.00	\$89.18
	06/01/2025	\$58.78	\$15.30	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.23	\$15.30	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.53	\$15.30	\$16.40	\$0.00	\$93.23
	12/01/2026	\$62.98	\$15.30	\$16.40	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 1</i>	06/01/2024	\$45.63	\$9.65	\$18.40	\$0.00	\$73.68
	12/01/2024	\$47.10	\$9.65	\$18.40	\$0.00	\$75.15
	06/01/2025	\$48.60	\$9.65	\$18.40	\$0.00	\$76.65
	12/01/2025	\$50.10	\$9.65	\$18.40	\$0.00	\$78.15
	06/01/2026	\$51.65	\$9.65	\$18.40	\$0.00	\$79.70
	12/01/2026	\$53.15	\$9.65	\$18.40	\$0.00	\$81.20
	06/01/2027	\$54.75	\$9.65	\$18.40	\$0.00	\$82.80
	12/01/2027	\$56.35	\$9.65	\$18.40	\$0.00	\$84.40
	06/01/2028	\$58.03	\$9.65	\$18.40	\$0.00	\$86.08
	12/01/2028	\$59.70	\$9.65	\$18.40	\$0.00	\$87.75

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 1</i>	06/01/2024	\$46.13	\$9.65	\$18.40	\$0.00	\$74.18
	12/01/2024	\$47.60	\$9.65	\$18.40	\$0.00	\$75.65
	06/01/2025	\$49.10	\$9.65	\$18.40	\$0.00	\$77.15
	12/01/2025	\$50.60	\$9.65	\$18.40	\$0.00	\$78.65
	06/01/2026	\$51.40	\$9.65	\$18.40	\$0.00	\$79.45
	12/01/2026	\$53.65	\$9.65	\$18.40	\$0.00	\$81.70
	06/01/2027	\$55.25	\$9.65	\$18.40	\$0.00	\$83.30
	12/01/2027	\$56.85	\$9.65	\$18.40	\$0.00	\$84.90
	06/01/2028	\$58.53	\$9.65	\$18.40	\$0.00	\$86.58
	12/01/2028	\$60.20	\$9.65	\$18.40	\$0.00	\$88.25
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i>	06/01/2024	\$46.23	\$9.65	\$18.40	\$0.00	\$74.28
	12/01/2024	\$47.70	\$9.65	\$18.40	\$0.00	\$75.75
	06/01/2025	\$49.20	\$9.65	\$18.40	\$0.00	\$77.25
	12/01/2025	\$50.70	\$9.65	\$18.40	\$0.00	\$78.75
	06/01/2026	\$52.25	\$9.65	\$18.40	\$0.00	\$80.30
	12/01/2026	\$53.75	\$9.65	\$18.40	\$0.00	\$81.80
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 (BOSTON)</i>	08/01/2024	\$64.50	\$11.49	\$23.59	\$0.00	\$99.58
	02/01/2025	\$65.80	\$11.49	\$23.59	\$0.00	\$100.88
	08/01/2025	\$67.95	\$11.49	\$23.59	\$0.00	\$103.03
	02/01/2026	\$69.30	\$11.49	\$23.59	\$0.00	\$104.38
	08/01/2026	\$71.50	\$11.49	\$23.59	\$0.00	\$106.58
	02/01/2027	\$72.90	\$11.49	\$23.59	\$0.00	\$107.98

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Boston

Effective Date - 08/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$32.25	\$11.49	\$23.59	\$0.00	\$67.33
2	60	\$38.70	\$11.49	\$23.59	\$0.00	\$73.78
3	70	\$45.15	\$11.49	\$23.59	\$0.00	\$80.23
4	80	\$51.60	\$11.49	\$23.59	\$0.00	\$86.68
5	90	\$58.05	\$11.49	\$23.59	\$0.00	\$93.13

Effective Date - 02/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$32.90	\$11.49	\$23.59	\$0.00	\$67.98
2	60	\$39.48	\$11.49	\$23.59	\$0.00	\$74.56
3	70	\$46.06	\$11.49	\$23.59	\$0.00	\$81.14
4	80	\$52.64	\$11.49	\$23.59	\$0.00	\$87.72
5	90	\$59.22	\$11.49	\$23.59	\$0.00	\$94.30

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$55.41	\$15.30	\$16.40	\$0.00	\$87.11
	12/01/2024	\$56.85	\$15.30	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.13	\$15.30	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.57	\$15.30	\$16.40	\$0.00	\$91.27
	06/01/2026	\$60.85	\$15.30	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.29	\$15.30	\$16.40	\$0.00	\$93.99

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"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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"					
CARBIDE CORE DRILL OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2024	\$45.63	\$9.65	\$18.40	\$0.00	\$73.68
	12/01/2024	\$47.10	\$9.65	\$18.40	\$0.00	\$75.15
	06/01/2025	\$48.60	\$9.65	\$18.40	\$0.00	\$76.65
	12/01/2025	\$50.10	\$9.65	\$18.40	\$0.00	\$78.15
	06/01/2026	\$51.65	\$9.65	\$18.40	\$0.00	\$79.70
	12/01/2026	\$53.15	\$9.65	\$18.40	\$0.00	\$81.20
	06/01/2027	\$54.75	\$9.65	\$18.40	\$0.00	\$82.80
	12/01/2027	\$56.35	\$9.65	\$18.40	\$0.00	\$84.40
	06/01/2028	\$58.03	\$9.65	\$18.40	\$0.00	\$86.08
	12/01/2028	\$59.70	\$9.65	\$18.40	\$0.00	\$87.75
For apprentice rates see "Apprentice- LABORER"						
CARPENTER <i>CARPENTERS -ZONE 2 (Eastern Massachusetts)</i>	09/01/2024	\$48.37	\$9.83	\$19.97	\$0.00	\$78.17
	03/01/2025	\$49.62	\$9.83	\$19.97	\$0.00	\$79.42
	09/01/2025	\$50.87	\$9.83	\$19.97	\$0.00	\$80.67
	03/01/2026	\$52.12	\$9.83	\$19.97	\$0.00	\$81.92
	09/01/2026	\$53.37	\$9.83	\$19.97	\$0.00	\$83.17
	03/01/2027	\$54.62	\$9.83	\$19.97	\$0.00	\$84.42

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - CARPENTER - Zone 2 Eastern MA

Effective Date - 09/01/2024

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

Effective Date - 03/01/2025

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

Notes:

Apprentice to Journeyworker Ratio:1:5

CARPENTER WOOD FRAME	10/01/2023	\$25.55	\$7.02	\$4.80	\$0.00	\$37.37
CARPENTERS-ZONE 3 (Wood Frame)	10/01/2024	\$26.65	\$7.02	\$4.80	\$0.00	\$38.47
	10/01/2025	\$27.75	\$7.02	\$4.80	\$0.00	\$39.57
	10/01/2026	\$28.85	\$7.02	\$4.80	\$0.00	\$40.67

All Aspects of New Wood Frame Work

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - CARPENTER (Wood Frame) - Zone 3

Effective Date - 10/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$15.33	\$7.02	\$0.00	\$0.00	\$22.35
2	60	\$15.33	\$7.02	\$0.00	\$0.00	\$22.35
3	65	\$16.61	\$7.02	\$1.00	\$0.00	\$24.63
4	70	\$17.89	\$7.02	\$1.00	\$0.00	\$25.91
5	75	\$19.16	\$7.02	\$4.80	\$0.00	\$30.98
6	80	\$20.44	\$7.02	\$4.80	\$0.00	\$32.26
7	85	\$21.72	\$7.02	\$4.80	\$0.00	\$33.54
8	90	\$23.00	\$7.02	\$4.80	\$0.00	\$34.82

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

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 BRICKLAYERS LOCAL 3 (BOSTON)	01/01/2024	\$49.33	\$13.00	\$23.57	\$1.30	\$87.20
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Apprentice - CEMENT MASONRY/PLASTERING - Eastern Mass (Boston)

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.67	\$13.00	\$15.93	\$0.00	\$53.60
2	60	\$29.60	\$13.00	\$18.57	\$1.30	\$62.47
3	65	\$32.06	\$13.00	\$19.57	\$1.30	\$65.93
4	70	\$34.53	\$13.00	\$20.57	\$1.30	\$69.40
5	75	\$37.00	\$13.00	\$21.57	\$1.30	\$72.87
6	80	\$39.46	\$13.00	\$22.57	\$1.30	\$76.33
7	90	\$44.40	\$13.00	\$23.57	\$1.30	\$82.27

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

Apprentice to Journeyworker Ratio:1:3

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CHAIN SAW OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2024	\$45.63	\$9.65	\$18.40	\$0.00	\$73.68
	12/01/2024	\$47.10	\$9.65	\$18.40	\$0.00	\$75.15
	06/01/2025	\$48.60	\$9.65	\$18.40	\$0.00	\$76.65
	12/01/2025	\$50.10	\$9.65	\$18.40	\$0.00	\$78.15
	06/01/2026	\$51.65	\$9.65	\$18.40	\$0.00	\$79.70
	12/01/2026	\$53.15	\$9.65	\$18.40	\$0.00	\$81.20
	06/01/2027	\$54.75	\$9.65	\$18.40	\$0.00	\$82.80
	12/01/2027	\$56.35	\$9.65	\$18.40	\$0.00	\$84.40
	06/01/2028	\$58.03	\$9.65	\$18.40	\$0.00	\$86.08
	12/01/2028	\$59.70	\$9.65	\$18.40	\$0.00	\$87.75
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$57.15	\$15.30	\$16.40	\$0.00	\$88.85
	12/01/2024	\$58.63	\$15.30	\$16.40	\$0.00	\$90.33
	06/01/2025	\$59.96	\$15.30	\$16.40	\$0.00	\$91.66
	12/01/2025	\$61.43	\$15.30	\$16.40	\$0.00	\$93.13
	06/01/2026	\$62.76	\$15.30	\$16.40	\$0.00	\$94.46
	12/01/2026	\$64.24	\$15.30	\$16.40	\$0.00	\$95.94
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$36.17	\$15.30	\$16.40	\$0.00	\$67.87
	12/01/2024	\$37.12	\$15.30	\$16.40	\$0.00	\$68.82
	06/01/2025	\$37.97	\$15.30	\$16.40	\$0.00	\$69.67
	12/01/2025	\$38.92	\$15.30	\$16.40	\$0.00	\$70.62
	06/01/2026	\$39.78	\$15.30	\$16.40	\$0.00	\$71.48
	12/01/2026	\$40.73	\$15.30	\$16.40	\$0.00	\$72.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) <i>PAINTERS LOCAL 35 - ZONE 2</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 1	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"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: BACKHOE/LOADER/HAMMER OPERATOR <i>LABORERS - ZONE 1</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 1</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 1</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 1</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 1</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"						
DIRECTIONAL DRILL MACHINE OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$55.41	\$15.30	\$16.40	\$0.00	\$87.11
	12/01/2024	\$56.85	\$15.30	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.13	\$15.30	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.57	\$15.30	\$16.40	\$0.00	\$91.27
	06/01/2026	\$60.85	\$15.30	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.29	\$15.30	\$16.40	\$0.00	\$93.99
	For apprentice rates see "Apprentice- OPERATING ENGINEERS"					
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</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 1)</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 1)</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 1)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction) <i>DRAWBRIDGE - SEIU LOCAL 888</i>	07/01/2020	\$26.77	\$6.67	\$3.93	\$0.16	\$37.53
ELECTRICIAN <i>ELECTRICIANS LOCAL 103</i>	09/01/2024	\$63.78	\$13.00	\$22.26	\$0.00	\$99.04
	03/01/2025	\$64.98	\$13.00	\$22.30	\$0.00	\$100.28
	09/01/2025	\$66.89	\$13.00	\$22.36	\$0.00	\$102.25
	03/01/2026	\$68.09	\$13.00	\$22.39	\$0.00	\$103.48
	09/01/2026	\$70.00	\$13.00	\$22.45	\$0.00	\$105.45
	03/01/2027	\$71.19	\$13.00	\$22.49	\$0.00	\$106.68
	09/01/2027	\$73.11	\$13.00	\$22.54	\$0.00	\$108.65
	03/01/2028	\$74.31	\$13.00	\$22.58	\$0.00	\$109.89

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ELECTRICIAN - Local 103

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$25.51	\$13.00	\$0.77	\$0.00	\$39.28
2	40	\$25.51	\$13.00	\$0.77	\$0.00	\$39.28
3	45	\$28.70	\$13.00	\$16.69	\$0.00	\$58.39
4	45	\$28.70	\$13.00	\$16.69	\$0.00	\$58.39
5	50	\$31.89	\$13.00	\$17.20	\$0.00	\$62.09
6	55	\$35.08	\$13.00	\$17.70	\$0.00	\$65.78
7	60	\$38.27	\$13.00	\$18.21	\$0.00	\$69.48
8	65	\$41.46	\$13.00	\$18.71	\$0.00	\$73.17
9	70	\$44.65	\$13.00	\$19.22	\$0.00	\$76.87
10	75	\$47.84	\$13.00	\$19.74	\$0.00	\$80.58

Effective Date - 03/01/2025

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

Notes :
App Prior 1/1/03; 30/35/40/45/50/55/65/70/75/80

Apprentice to Journeyworker Ratio:2:3***

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - ELEVATOR CONSTRUCTOR - Local 4						
Effective Date - 01/01/2022						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$32.81	\$16.03	\$0.00	\$0.00	\$48.84
2	55	\$36.09	\$16.03	\$20.21	\$0.00	\$72.33
3	65	\$42.65	\$16.03	\$20.21	\$0.00	\$78.89
4	70	\$45.93	\$16.03	\$20.21	\$0.00	\$82.17
5	80	\$52.50	\$16.03	\$20.21	\$0.00	\$88.74

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

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER <i>ELEVATOR CONSTRUCTORS LOCAL 4</i>	01/01/2022	\$45.93	\$16.03	\$20.21	\$0.00	\$82.17
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i>	06/01/2024	\$45.73	\$9.65	\$18.40	\$0.00	\$73.78
	12/01/2024	\$47.20	\$9.65	\$18.40	\$0.00	\$75.25
	06/01/2025	\$48.70	\$9.65	\$18.40	\$0.00	\$76.75
	12/01/2025	\$50.20	\$9.65	\$18.40	\$0.00	\$78.25
	06/01/2026	\$51.75	\$9.65	\$18.40	\$0.00	\$79.80
	12/01/2026	\$53.25	\$9.65	\$18.40	\$0.00	\$81.30
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2024	\$50.79	\$15.00	\$16.40	\$0.00	\$82.19
	11/01/2024	\$52.08	\$15.00	\$16.40	\$0.00	\$83.48
	05/01/2025	\$53.52	\$15.00	\$16.40	\$0.00	\$84.92
	11/01/2025	\$54.81	\$15.00	\$16.40	\$0.00	\$86.21
	05/01/2026	\$56.25	\$15.00	\$16.40	\$0.00	\$87.65
	11/01/2026	\$57.54	\$15.00	\$16.40	\$0.00	\$88.94
	05/01/2027	\$58.97	\$15.00	\$16.40	\$0.00	\$90.37
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2024	\$52.37	\$15.00	\$16.40	\$0.00	\$83.77
	11/01/2024	\$53.67	\$15.00	\$16.40	\$0.00	\$85.07
	05/01/2025	\$55.12	\$15.00	\$16.40	\$0.00	\$86.52
	11/01/2025	\$56.42	\$15.00	\$16.40	\$0.00	\$87.82
	05/01/2026	\$57.87	\$15.00	\$16.40	\$0.00	\$89.27
	11/01/2026	\$59.17	\$15.00	\$16.40	\$0.00	\$90.57
	05/01/2027	\$60.62	\$15.00	\$16.40	\$0.00	\$92.02
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2024	\$24.91	\$15.00	\$16.40	\$0.00	\$56.31
	11/01/2024	\$25.67	\$15.00	\$16.40	\$0.00	\$57.07
	05/01/2025	\$26.52	\$15.00	\$16.40	\$0.00	\$57.92
	11/01/2025	\$27.28	\$15.00	\$16.40	\$0.00	\$58.68
	05/01/2026	\$28.13	\$15.00	\$16.40	\$0.00	\$59.53
	11/01/2026	\$28.89	\$15.00	\$16.40	\$0.00	\$60.29
	05/01/2027	\$29.74	\$15.00	\$16.40	\$0.00	\$61.14
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 103</i>	09/01/2024	\$63.78	\$13.00	\$22.26	\$0.00	\$99.04
	03/01/2025	\$64.98	\$13.00	\$22.30	\$0.00	\$100.28
	09/01/2025	\$66.89	\$13.00	\$22.36	\$0.00	\$102.25
	03/01/2026	\$68.09	\$13.00	\$22.39	\$0.00	\$103.48
	09/01/2026	\$70.00	\$13.00	\$22.45	\$0.00	\$105.45
	03/01/2027	\$71.19	\$13.00	\$22.49	\$0.00	\$106.68
	09/01/2027	\$73.11	\$13.00	\$22.54	\$0.00	\$108.65
03/01/2028	\$74.31	\$13.00	\$22.58	\$0.00	\$109.89	
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE <i>LOCAL 103</i> / COMMISSIONING <i>ELECTRICIANS</i>	09/01/2024	\$51.02	\$13.00	\$20.24	\$0.00	\$84.26
	03/01/2025	\$51.98	\$13.00	\$20.27	\$0.00	\$85.25
	09/01/2025	\$53.51	\$13.00	\$20.32	\$0.00	\$86.83
	03/01/2026	\$54.47	\$13.00	\$20.34	\$0.00	\$87.81
	09/01/2026	\$56.00	\$13.00	\$20.39	\$0.00	\$89.39
	03/01/2027	\$56.95	\$13.00	\$20.42	\$0.00	\$90.37
	09/01/2027	\$58.49	\$13.00	\$20.46	\$0.00	\$91.95
03/01/2028	\$59.45	\$13.00	\$20.49	\$0.00	\$92.94	
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$45.23	\$15.30	\$16.40	\$0.00	\$76.93
	12/01/2024	\$46.41	\$15.30	\$16.40	\$0.00	\$78.11
	06/01/2025	\$47.47	\$15.30	\$16.40	\$0.00	\$79.17
	12/01/2025	\$48.64	\$15.30	\$16.40	\$0.00	\$80.34
	06/01/2026	\$49.70	\$15.30	\$16.40	\$0.00	\$81.40
	12/01/2026	\$50.88	\$15.30	\$16.40	\$0.00	\$82.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i>	06/01/2024	\$27.01	\$9.65	\$18.40	\$0.00	\$55.06
	12/01/2024	\$27.01	\$9.65	\$18.40	\$0.00	\$55.06
	06/01/2025	\$28.09	\$9.65	\$18.40	\$0.00	\$56.14
	12/01/2025	\$28.09	\$9.65	\$18.40	\$0.00	\$56.14
	06/01/2026	\$29.21	\$9.65	\$18.40	\$0.00	\$57.26
	12/01/2026	\$29.21	\$9.65	\$18.40	\$0.00	\$57.26
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE 1</i>	09/01/2024	\$56.23	\$8.83	\$20.27	\$0.00	\$85.33
	03/01/2025	\$57.73	\$8.83	\$20.27	\$0.00	\$86.83
	09/01/2025	\$59.23	\$8.83	\$20.27	\$0.00	\$88.33
	03/01/2026	\$60.73	\$8.83	\$20.27	\$0.00	\$89.83
	09/01/2026	\$62.23	\$8.83	\$20.27	\$0.00	\$91.33
	03/01/2027	\$63.73	\$8.83	\$20.27	\$0.00	\$92.83

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - FLOORCOVERER - Local 2168 Zone I

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$25.30	\$8.83	\$1.76	\$0.00	\$35.89
2	45	\$25.30	\$8.83	\$1.76	\$0.00	\$35.89
3	55	\$30.93	\$8.83	\$3.52	\$0.00	\$43.28
4	55	\$30.93	\$8.83	\$3.52	\$0.00	\$43.28
5	70	\$39.36	\$8.83	\$16.75	\$0.00	\$64.94
6	70	\$39.36	\$8.83	\$16.75	\$0.00	\$64.94
7	80	\$44.98	\$8.83	\$18.51	\$0.00	\$72.32
8	80	\$44.98	\$8.83	\$18.51	\$0.00	\$72.32

Effective Date - 03/01/2025

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

Notes: Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER OPERATING ENGINEERS LOCAL 4	06/01/2024	\$56.03	\$15.30	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.48	\$15.30	\$16.40	\$0.00	\$89.18
	06/01/2025	\$58.78	\$15.30	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.23	\$15.30	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.53	\$15.30	\$16.40	\$0.00	\$93.23
	12/01/2026	\$62.98	\$15.30	\$16.40	\$0.00	\$94.68

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GENERATOR/LIGHTING PLANT/HEATERS OPERATING ENGINEERS LOCAL 4	06/01/2024	\$36.17	\$15.30	\$16.40	\$0.00	\$67.87
	12/01/2024	\$37.12	\$15.30	\$16.40	\$0.00	\$68.82
	06/01/2025	\$37.97	\$15.30	\$16.40	\$0.00	\$69.67
	12/01/2025	\$38.92	\$15.30	\$16.40	\$0.00	\$70.62
	06/01/2026	\$39.78	\$15.30	\$16.40	\$0.00	\$71.48
	12/01/2026	\$40.73	\$15.30	\$16.40	\$0.00	\$72.43

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) GLAZIERS LOCAL 35 (ZONE 2)	07/01/2024	\$46.76	\$9.95	\$23.95	\$0.00	\$80.66
	01/01/2025	\$47.96	\$9.95	\$23.95	\$0.00	\$81.86

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - GLAZIER - Local 35 Zone 2

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.38	\$9.95	\$0.00	\$0.00	\$33.33
2	55	\$25.72	\$9.95	\$6.66	\$0.00	\$42.33
3	60	\$28.06	\$9.95	\$7.26	\$0.00	\$45.27
4	65	\$30.39	\$9.95	\$7.87	\$0.00	\$48.21
5	70	\$32.73	\$9.95	\$20.32	\$0.00	\$63.00
6	75	\$35.07	\$9.95	\$20.93	\$0.00	\$65.95
7	80	\$37.41	\$9.95	\$21.53	\$0.00	\$68.89
8	90	\$42.08	\$9.95	\$22.74	\$0.00	\$74.77

Effective Date - 01/01/2025

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

HOISTING ENGINEER/CRANES/GRADALLS	06/01/2024	\$56.03	\$15.30	\$16.40	\$0.00	\$87.73
OPERATING ENGINEERS LOCAL 4	12/01/2024	\$57.48	\$15.30	\$16.40	\$0.00	\$89.18
	06/01/2025	\$58.78	\$15.30	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.23	\$15.30	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.53	\$15.30	\$16.40	\$0.00	\$93.23
	12/01/2026	\$62.98	\$15.30	\$16.40	\$0.00	\$94.68

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - OPERATING ENGINEERS - Local 4

Effective Date - 06/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$30.82	\$15.30	\$0.00	\$0.00	\$46.12
2	60	\$33.62	\$15.30	\$16.40	\$0.00	\$65.32
3	65	\$36.42	\$15.30	\$16.40	\$0.00	\$68.12
4	70	\$39.22	\$15.30	\$16.40	\$0.00	\$70.92
5	75	\$42.02	\$15.30	\$16.40	\$0.00	\$73.72
6	80	\$44.82	\$15.30	\$16.40	\$0.00	\$76.52
7	85	\$47.63	\$15.30	\$16.40	\$0.00	\$79.33
8	90	\$50.43	\$15.30	\$16.40	\$0.00	\$82.13

Effective Date - 12/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$31.61	\$0.00	\$0.00	\$0.00	\$31.61
2	60	\$34.49	\$15.30	\$16.40	\$0.00	\$66.19
3	65	\$37.36	\$15.30	\$16.40	\$0.00	\$69.06
4	70	\$40.24	\$15.30	\$16.40	\$0.00	\$71.94
5	75	\$43.11	\$15.30	\$16.40	\$0.00	\$74.81
6	80	\$45.98	\$15.30	\$16.40	\$0.00	\$77.68
7	85	\$48.86	\$15.30	\$16.40	\$0.00	\$80.56
8	90	\$51.73	\$15.30	\$16.40	\$0.00	\$83.43

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) SHEETMETAL WORKERS LOCAL 17 - A	08/01/2024	\$58.97	\$14.59	\$27.50	\$2.98	\$104.04
	02/01/2025	\$60.72	\$14.59	\$27.50	\$2.98	\$105.79
	08/01/2025	\$62.57	\$14.59	\$27.50	\$2.98	\$107.64
	02/01/2026	\$64.52	\$14.59	\$27.50	\$2.98	\$109.59

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (ELECTRICAL CONTROLS) ELECTRICIANS LOCAL 103	09/01/2024	\$63.78	\$13.00	\$22.26	\$0.00	\$99.04
	03/01/2025	\$64.98	\$13.00	\$22.30	\$0.00	\$100.28
	09/01/2025	\$66.89	\$13.00	\$22.36	\$0.00	\$102.25
	03/01/2026	\$68.09	\$13.00	\$22.39	\$0.00	\$103.48
	09/01/2026	\$70.00	\$13.00	\$22.45	\$0.00	\$105.45
	03/01/2027	\$71.19	\$13.00	\$22.49	\$0.00	\$106.68
	09/01/2027	\$73.11	\$13.00	\$22.54	\$0.00	\$108.65
	03/01/2028	\$74.31	\$13.00	\$22.58	\$0.00	\$109.89

For apprentice rates see "Apprentice- ELECTRICIAN"

HVAC (TESTING AND BALANCING - AIR) SHEETMETAL WORKERS LOCAL 17 - A	08/01/2024	\$58.97	\$14.59	\$27.50	\$2.98	\$104.04
	02/01/2025	\$60.72	\$14.59	\$27.50	\$2.98	\$105.79
	08/01/2025	\$62.57	\$14.59	\$27.50	\$2.98	\$107.64
	02/01/2026	\$64.52	\$14.59	\$27.50	\$2.98	\$109.59

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) <i>PIPEFITTERS LOCAL 537</i>	09/01/2024	\$67.08	\$12.70	\$21.80	\$0.00	\$101.58
	03/01/2025	\$68.88	\$12.70	\$21.80	\$0.00	\$103.38
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC <i>PIPEFITTERS LOCAL 537</i>	09/01/2024	\$67.08	\$12.70	\$21.80	\$0.00	\$101.58
	03/01/2025	\$68.88	\$12.70	\$21.80	\$0.00	\$103.38
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS <i>LABORERS - ZONE 1</i>	06/01/2024	\$46.13	\$9.65	\$18.40	\$0.00	\$74.18
	12/01/2024	\$47.60	\$9.65	\$18.40	\$0.00	\$75.65
	06/01/2025	\$49.10	\$9.65	\$18.40	\$0.00	\$77.15
	12/01/2025	\$50.60	\$9.65	\$18.40	\$0.00	\$78.65
	06/01/2026	\$51.40	\$9.65	\$18.40	\$0.00	\$79.45
	12/01/2026	\$53.65	\$9.65	\$18.40	\$0.00	\$81.70
	06/01/2027	\$55.25	\$9.65	\$18.40	\$0.00	\$83.30
	12/01/2027	\$56.85	\$9.65	\$18.40	\$0.00	\$84.90
	06/01/2028	\$58.53	\$9.65	\$18.40	\$0.00	\$86.58
	12/01/2028	\$60.20	\$9.65	\$18.40	\$0.00	\$88.25
For apprentice rates see "Apprentice- LABORER"						
HYDRAULIC DRILLS (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i>	06/01/2024	\$46.23	\$9.65	\$18.40	\$0.00	\$74.28
	12/01/2024	\$47.70	\$9.65	\$18.40	\$0.00	\$75.75
	06/01/2025	\$49.20	\$9.65	\$18.40	\$0.00	\$77.25
	12/01/2025	\$50.70	\$9.65	\$18.40	\$0.00	\$78.75
	06/01/2026	\$52.25	\$9.65	\$18.40	\$0.00	\$80.30
	12/01/2026	\$53.75	\$9.65	\$18.40	\$0.00	\$81.80
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
INSULATOR (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i>	09/01/2024	\$56.92	\$14.75	\$19.61	\$0.00	\$91.28
	09/01/2025	\$60.34	\$14.75	\$19.61	\$0.00	\$94.70
	09/01/2026	\$63.76	\$14.75	\$19.61	\$0.00	\$98.12

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 09/01/2024

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

Effective Date - 09/01/2025

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

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER	03/16/2024	\$53.97	\$8.35	\$26.70	\$0.00	\$89.02
<i>IRONWORKERS LOCAL 7 (BOSTON AREA)</i>						

Apprentice - IRONWORKER - Local 7 Boston

Effective Date - 03/16/2024

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

Notes:

Apprentice to Journeyworker Ratio:1:4

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
JACKHAMMER & PAVING BREAKER OPERATOR LABORERS - ZONE 1	06/01/2024	\$45.63	\$9.65	\$18.40	\$0.00	\$73.68
	12/01/2024	\$47.10	\$9.65	\$18.40	\$0.00	\$75.15
	06/01/2025	\$48.60	\$9.65	\$18.40	\$0.00	\$76.65
	12/01/2025	\$50.10	\$9.65	\$18.40	\$0.00	\$78.15
	06/01/2026	\$51.65	\$9.65	\$18.40	\$0.00	\$79.70
	12/01/2026	\$53.15	\$9.65	\$18.40	\$0.00	\$81.20
	06/01/2027	\$54.75	\$9.65	\$18.40	\$0.00	\$82.80
	12/01/2027	\$56.35	\$9.65	\$18.40	\$0.00	\$84.40
	06/01/2028	\$58.03	\$9.65	\$18.40	\$0.00	\$86.08
	12/01/2028	\$59.70	\$9.65	\$18.40	\$0.00	\$87.75

For apprentice rates see "Apprentice- LABORER"

LABORER LABORERS - ZONE 1	06/01/2024	\$45.38	\$9.65	\$18.40	\$0.00	\$73.43
	12/01/2024	\$46.85	\$9.65	\$18.40	\$0.00	\$74.90
	06/01/2025	\$48.35	\$9.65	\$18.40	\$0.00	\$76.40
	12/01/2025	\$49.85	\$9.65	\$18.40	\$0.00	\$77.90
	06/01/2026	\$51.40	\$9.65	\$18.40	\$0.00	\$79.45
	12/01/2026	\$52.90	\$9.65	\$18.40	\$0.00	\$80.95
	06/01/2027	\$54.50	\$9.65	\$18.40	\$0.00	\$82.55
	12/01/2027	\$56.10	\$9.65	\$18.40	\$0.00	\$84.15
	06/01/2028	\$57.78	\$9.65	\$18.40	\$0.00	\$85.83
	12/01/2028	\$59.45	\$9.65	\$18.40	\$0.00	\$87.50

Apprentice - LABORER - Zone 1

Effective Date - 06/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$27.23	\$9.65	\$18.40	\$0.00	\$55.28
2	70	\$31.77	\$9.65	\$18.40	\$0.00	\$59.82
3	80	\$36.30	\$9.65	\$18.40	\$0.00	\$64.35
4	90	\$40.84	\$9.65	\$18.40	\$0.00	\$68.89

Effective Date - 12/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$28.11	\$9.65	\$18.40	\$0.00	\$56.16
2	70	\$32.80	\$9.65	\$18.40	\$0.00	\$60.85
3	80	\$37.48	\$9.65	\$18.40	\$0.00	\$65.53
4	90	\$42.17	\$9.65	\$18.40	\$0.00	\$70.22

Notes:

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i>	06/01/2024	\$45.48	\$9.65	\$18.40	\$0.00	\$73.53
	12/01/2024	\$46.95	\$9.65	\$18.40	\$0.00	\$75.00
	06/01/2025	\$48.45	\$9.65	\$18.40	\$0.00	\$76.50
	12/01/2025	\$49.95	\$9.65	\$18.40	\$0.00	\$78.00
	06/01/2026	\$51.50	\$9.65	\$18.40	\$0.00	\$79.55
	12/01/2026	\$53.00	\$9.65	\$18.40	\$0.00	\$81.05

Apprentice - LABORER (Heavy & Highway) - Zone 1

Effective Date - 06/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$27.29	\$9.65	\$18.40	\$0.00	\$55.34
2	70	\$31.84	\$9.65	\$18.40	\$0.00	\$59.89
3	80	\$36.38	\$9.65	\$18.40	\$0.00	\$64.43
4	90	\$40.93	\$9.65	\$18.40	\$0.00	\$68.98

Effective Date - 12/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$28.17	\$9.65	\$18.40	\$0.00	\$56.22
2	70	\$32.87	\$9.65	\$18.40	\$0.00	\$60.92
3	80	\$37.56	\$9.65	\$18.40	\$0.00	\$65.61
4	90	\$42.26	\$9.65	\$18.40	\$0.00	\$70.31

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER: CARPENTER TENDER <i>LABORERS - ZONE 1</i>	06/01/2024	\$45.38	\$9.65	\$18.40	\$0.00	\$73.43
	12/01/2024	\$46.85	\$9.65	\$18.40	\$0.00	\$74.90
	06/01/2025	\$48.35	\$9.65	\$18.40	\$0.00	\$76.40
	12/01/2025	\$49.85	\$9.65	\$18.40	\$0.00	\$77.90
	06/01/2026	\$51.40	\$9.65	\$18.40	\$0.00	\$79.45
	12/01/2026	\$52.90	\$9.65	\$18.40	\$0.00	\$80.95
	06/01/2027	\$54.50	\$9.65	\$18.40	\$0.00	\$82.55
	12/01/2027	\$56.10	\$9.65	\$18.40	\$0.00	\$84.15
	06/01/2028	\$57.78	\$9.65	\$18.40	\$0.00	\$85.83
	12/01/2028	\$59.45	\$9.65	\$18.40	\$0.00	\$87.50

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: CEMENT FINISHER TENDER <i>LABORERS - ZONE 1</i>	06/01/2024	\$45.38	\$9.65	\$18.40	\$0.00	\$73.43
	12/01/2024	\$46.85	\$9.65	\$18.40	\$0.00	\$74.90
	06/01/2025	\$48.35	\$9.65	\$18.40	\$0.00	\$76.40
	12/01/2025	\$49.85	\$9.65	\$18.40	\$0.00	\$77.90
	06/01/2026	\$51.40	\$9.65	\$18.40	\$0.00	\$79.45
	12/01/2026	\$52.90	\$9.65	\$18.40	\$0.00	\$80.95
	06/01/2027	\$54.50	\$9.65	\$18.40	\$0.00	\$82.55
	12/01/2027	\$56.10	\$9.65	\$18.40	\$0.00	\$84.15
	06/01/2028	\$57.78	\$9.65	\$18.40	\$0.00	\$85.83
	12/01/2028	\$59.45	\$9.65	\$18.40	\$0.00	\$87.50
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER <i>LABORERS - ZONE 1</i>	06/03/2024	\$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"						
LABORER: MASON TENDER <i>LABORERS - ZONE 1</i>	06/01/2024	\$45.63	\$9.65	\$18.40	\$0.00	\$73.68
	12/01/2024	\$47.10	\$9.65	\$18.40	\$0.00	\$75.15
	06/01/2025	\$48.60	\$9.65	\$18.40	\$0.00	\$76.65
	12/01/2025	\$50.10	\$9.65	\$18.40	\$0.00	\$78.15
	06/01/2026	\$51.65	\$9.65	\$18.40	\$0.00	\$79.70
	12/01/2026	\$53.15	\$9.65	\$18.40	\$0.00	\$81.20
	06/01/2027	\$54.75	\$9.65	\$18.40	\$0.00	\$82.80
	12/01/2027	\$56.35	\$9.65	\$18.40	\$0.00	\$84.40
	06/01/2028	\$58.03	\$9.65	\$18.40	\$0.00	\$86.08
	12/01/2028	\$59.70	\$9.65	\$18.40	\$0.00	\$87.75
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i>	06/01/2024	\$45.73	\$9.65	\$18.40	\$0.00	\$73.78
	12/01/2024	\$47.20	\$9.65	\$18.40	\$0.00	\$75.25
	06/01/2025	\$48.70	\$9.65	\$18.40	\$0.00	\$76.75
	12/01/2025	\$50.20	\$9.65	\$18.40	\$0.00	\$78.25
	06/01/2026	\$51.75	\$9.65	\$18.40	\$0.00	\$79.80
	12/01/2026	\$53.25	\$9.65	\$18.40	\$0.00	\$81.30
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 1</i>	06/01/2024	\$45.38	\$9.65	\$18.40	\$0.00	\$73.43
	12/01/2024	\$46.85	\$9.65	\$18.40	\$0.00	\$74.90
	06/01/2025	\$48.35	\$9.65	\$18.40	\$0.00	\$76.40
	12/01/2025	\$49.85	\$9.65	\$18.40	\$0.00	\$77.90
	06/01/2026	\$51.40	\$9.65	\$18.40	\$0.00	\$79.45
	12/01/2026	\$52.90	\$9.65	\$18.40	\$0.00	\$80.95
	06/01/2027	\$54.50	\$9.65	\$18.40	\$0.00	\$82.55
	12/01/2027	\$56.10	\$9.65	\$18.40	\$0.00	\$84.15
	06/01/2028	\$57.78	\$9.65	\$18.40	\$0.00	\$85.83
	12/01/2028	\$59.45	\$9.65	\$18.40	\$0.00	\$87.50
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 1</i>	06/01/2024	\$45.38	\$9.65	\$18.40	\$0.00	\$73.43
	12/01/2024	\$46.85	\$9.65	\$18.40	\$0.00	\$74.90
	06/01/2025	\$48.35	\$9.65	\$18.40	\$0.00	\$76.40
	12/01/2025	\$49.85	\$9.65	\$18.40	\$0.00	\$77.90
	06/01/2026	\$51.40	\$9.65	\$18.40	\$0.00	\$79.45
	12/01/2026	\$52.90	\$9.65	\$18.40	\$0.00	\$80.95
	06/01/2027	\$54.50	\$9.65	\$18.40	\$0.00	\$82.55
	12/01/2027	\$56.10	\$9.65	\$18.40	\$0.00	\$84.15
	06/01/2028	\$57.78	\$9.65	\$18.40	\$0.00	\$85.83
	12/01/2028	\$59.45	\$9.65	\$18.40	\$0.00	\$87.50
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 1</i>	06/01/2024	\$45.63	\$9.65	\$18.40	\$0.00	\$73.68
	12/01/2024	\$47.10	\$9.65	\$18.40	\$0.00	\$75.15
	06/01/2025	\$48.60	\$9.65	\$18.40	\$0.00	\$76.65
	12/01/2025	\$50.10	\$9.65	\$18.40	\$0.00	\$78.15
	06/01/2026	\$51.65	\$9.65	\$18.40	\$0.00	\$79.70
	12/01/2026	\$53.15	\$9.65	\$18.40	\$0.00	\$81.20
	06/01/2027	\$54.75	\$9.65	\$18.40	\$0.00	\$82.80
	12/01/2027	\$56.35	\$9.65	\$18.40	\$0.00	\$84.40
	06/01/2028	\$58.03	\$9.65	\$18.40	\$0.00	\$86.08
	12/01/2028	\$59.70	\$9.65	\$18.40	\$0.00	\$87.75
For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i>	06/01/2024	\$45.73	\$9.65	\$18.40	\$0.00	\$73.78
	12/01/2024	\$47.20	\$9.65	\$18.40	\$0.00	\$75.25
	06/01/2025	\$48.70	\$9.65	\$18.40	\$0.00	\$76.75
	12/01/2025	\$50.20	\$9.65	\$18.40	\$0.00	\$78.25
	06/01/2026	\$51.75	\$9.65	\$18.40	\$0.00	\$79.80
	12/01/2026	\$53.25	\$9.65	\$18.40	\$0.00	\$81.30
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	08/01/2024	\$49.32	\$11.49	\$21.62	\$0.00	\$82.43
	02/01/2025	\$50.36	\$11.49	\$21.62	\$0.00	\$83.47
	08/01/2025	\$52.08	\$11.49	\$21.62	\$0.00	\$85.19
	02/01/2026	\$53.16	\$11.49	\$21.62	\$0.00	\$86.27
	08/01/2026	\$54.92	\$11.49	\$21.62	\$0.00	\$88.03
	02/01/2027	\$56.04	\$11.49	\$21.62	\$0.00	\$89.15

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 08/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.66	\$11.49	\$21.62	\$0.00	\$57.77
2	60	\$29.59	\$11.49	\$21.62	\$0.00	\$62.70
3	70	\$34.52	\$11.49	\$21.62	\$0.00	\$67.63
4	80	\$39.46	\$11.49	\$21.62	\$0.00	\$72.57
5	90	\$44.39	\$11.49	\$21.62	\$0.00	\$77.50

Effective Date - 02/01/2025

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

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS, TILELAYERS & TERRAZZO MECH BRICKLAYERS LOCAL 3 - MARBLE & TILE	08/01/2024	\$64.52	\$11.49	\$23.56	\$0.00	\$99.57
	02/01/2025	\$65.82	\$11.49	\$23.56	\$0.00	\$100.87
	08/01/2025	\$67.97	\$11.49	\$23.56	\$0.00	\$103.02
	02/01/2026	\$69.32	\$11.49	\$23.56	\$0.00	\$104.37
	08/01/2026	\$71.52	\$11.49	\$23.56	\$0.00	\$106.57
	02/01/2027	\$72.92	\$11.49	\$23.56	\$0.00	\$107.97

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 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

MECH. SWEEPER OPERATOR (ON CONST. SITES) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$55.41	\$15.30	\$16.40	\$0.00	\$87.11
	12/01/2024	\$56.85	\$15.30	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.13	\$15.30	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.57	\$15.30	\$16.40	\$0.00	\$91.27
	06/01/2026	\$60.85	\$15.30	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.29	\$15.30	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MECHANICS MAINTENANCE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$55.41	\$15.30	\$16.40	\$0.00	\$87.11
	12/01/2024	\$56.85	\$15.30	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.13	\$15.30	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.57	\$15.30	\$16.40	\$0.00	\$91.27
	06/01/2026	\$60.85	\$15.30	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.29	\$15.30	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MILLWRIGHT (Zone 1) <i>MILLWRIGHTS LOCAL 1121 - Zone 1</i>	01/01/2024	\$48.03	\$10.08	\$21.72	\$0.00	\$79.83
	01/06/2025	\$50.53	\$10.08	\$21.72	\$0.00	\$82.33
	01/05/2026	\$53.03	\$10.08	\$21.72	\$0.00	\$84.83

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - MILLWRIGHT - Local 1121 Zone 1

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$26.42	\$10.08	\$5.64	\$0.00	\$42.14
2	65	\$31.22	\$10.08	\$6.66	\$0.00	\$47.96
3	75	\$36.02	\$10.08	\$19.16	\$0.00	\$65.26
4	85	\$40.83	\$10.08	\$20.18	\$0.00	\$71.09

Effective Date - 01/06/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$27.79	\$10.08	\$5.64	\$0.00	\$43.51
2	65	\$32.84	\$10.08	\$6.66	\$0.00	\$49.58
3	75	\$37.90	\$10.08	\$19.16	\$0.00	\$67.14
4	85	\$42.95	\$10.08	\$20.18	\$0.00	\$73.21

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 <i>LABORERS - ZONE 1</i>	06/01/2024	\$45.63	\$9.65	\$18.40	\$0.00	\$73.68
	12/01/2024	\$47.10	\$9.65	\$18.40	\$0.00	\$75.15
	06/01/2025	\$48.60	\$9.65	\$18.40	\$0.00	\$76.65
	12/01/2025	\$50.10	\$9.65	\$18.40	\$0.00	\$78.15
	06/01/2026	\$51.65	\$9.65	\$18.40	\$0.00	\$79.70
	12/01/2026	\$53.15	\$9.65	\$18.40	\$0.00	\$81.20
	06/01/2027	\$54.75	\$9.65	\$18.40	\$0.00	\$82.80
	12/01/2027	\$56.35	\$9.65	\$18.40	\$0.00	\$84.40
	06/01/2028	\$58.03	\$9.65	\$18.40	\$0.00	\$86.08
	12/01/2028	\$59.70	\$9.65	\$18.40	\$0.00	\$87.75

For apprentice rates see "Apprentice- LABORER"

OILER (OTHER THAN TRUCK CRANES,GRADALLS) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$24.71	\$15.30	\$16.40	\$0.00	\$56.41
	12/01/2024	\$25.37	\$15.30	\$16.40	\$0.00	\$57.07
	06/01/2025	\$25.97	\$15.30	\$16.40	\$0.00	\$57.67
	12/01/2025	\$26.63	\$15.30	\$16.40	\$0.00	\$58.33
	06/01/2026	\$27.22	\$15.30	\$16.40	\$0.00	\$58.92
	12/01/2026	\$27.89	\$15.30	\$16.40	\$0.00	\$59.59

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

OILER (TRUCK CRANES, GRADALLS) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$30.28	\$15.30	\$16.40	\$0.00	\$61.98
	12/01/2024	\$31.08	\$15.30	\$16.40	\$0.00	\$62.78
	06/01/2025	\$31.80	\$15.30	\$16.40	\$0.00	\$63.50
	12/01/2025	\$32.60	\$15.30	\$16.40	\$0.00	\$64.30
	06/01/2026	\$33.32	\$15.30	\$16.40	\$0.00	\$65.02
	12/01/2026	\$34.12	\$15.30	\$16.40	\$0.00	\$65.82

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
OTHER POWER DRIVEN EQUIPMENT - CLASS II <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$55.41	\$15.30	\$16.40	\$0.00	\$87.11
	12/01/2024	\$56.85	\$15.30	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.13	\$15.30	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.57	\$15.30	\$16.40	\$0.00	\$91.27
	06/01/2026	\$60.85	\$15.30	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.29	\$15.30	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS) <i>PAINTERS LOCAL 35 - ZONE 2</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

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	\$48.16	\$9.95	\$23.95	\$0.00	\$82.06
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. <i>PAINTERS LOCAL 35 - ZONE 2</i>	01/01/2025	\$49.36	\$9.95	\$23.95	\$0.00	\$83.26

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.08	\$9.95	\$0.00	\$0.00	\$34.03
2	55	\$26.49	\$9.95	\$6.66	\$0.00	\$43.10
3	60	\$28.90	\$9.95	\$7.26	\$0.00	\$46.11
4	65	\$31.30	\$9.95	\$7.87	\$0.00	\$49.12
5	70	\$33.71	\$9.95	\$20.32	\$0.00	\$63.98
6	75	\$36.12	\$9.95	\$20.93	\$0.00	\$67.00
7	80	\$38.53	\$9.95	\$21.53	\$0.00	\$70.01
8	90	\$43.34	\$9.95	\$22.74	\$0.00	\$76.03

Effective Date - 01/01/2025

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)	07/01/2024	\$46.22	\$9.95	\$23.95	\$0.00	\$80.12
PAINTERS LOCAL 35 - ZONE 2	01/01/2025	\$47.42	\$9.95	\$23.95	\$0.00	\$81.32

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.11	\$9.95	\$0.00	\$0.00	\$33.06
2	55	\$25.42	\$9.95	\$6.66	\$0.00	\$42.03
3	60	\$27.73	\$9.95	\$7.26	\$0.00	\$44.94
4	65	\$30.04	\$9.95	\$7.87	\$0.00	\$47.86
5	70	\$32.35	\$9.95	\$20.32	\$0.00	\$62.62
6	75	\$34.67	\$9.95	\$20.93	\$0.00	\$65.55
7	80	\$36.98	\$9.95	\$21.53	\$0.00	\$68.46
8	90	\$41.60	\$9.95	\$22.74	\$0.00	\$74.29

Effective Date - 01/01/2025

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, NEW) *	07/01/2024	\$46.76	\$9.95	\$23.95	\$0.00	\$80.66
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2	01/01/2025	\$47.96	\$9.95	\$23.95	\$0.00	\$81.86

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER - Local 35 Zone 2 - BRUSH NEW

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.38	\$9.95	\$0.00	\$0.00	\$33.33
2	55	\$25.72	\$9.95	\$6.66	\$0.00	\$42.33
3	60	\$28.06	\$9.95	\$7.26	\$0.00	\$45.27
4	65	\$30.39	\$9.95	\$7.87	\$0.00	\$48.21
5	70	\$32.73	\$9.95	\$20.32	\$0.00	\$63.00
6	75	\$35.07	\$9.95	\$20.93	\$0.00	\$65.95
7	80	\$37.41	\$9.95	\$21.53	\$0.00	\$68.89
8	90	\$42.08	\$9.95	\$22.74	\$0.00	\$74.77

Effective Date - 01/01/2025

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT)	07/01/2024	\$44.82	\$9.95	\$23.95	\$0.00	\$78.72
PAINTERS LOCAL 35 - ZONE 2	01/01/2025	\$46.02	\$9.95	\$23.95	\$0.00	\$79.92

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.41	\$9.95	\$0.00	\$0.00	\$32.36
2	55	\$24.65	\$9.95	\$6.66	\$0.00	\$41.26
3	60	\$26.89	\$9.95	\$7.26	\$0.00	\$44.10
4	65	\$29.13	\$9.95	\$7.87	\$0.00	\$46.95
5	70	\$31.37	\$9.95	\$20.32	\$0.00	\$61.64
6	75	\$33.62	\$9.95	\$20.93	\$0.00	\$64.50
7	80	\$35.86	\$9.95	\$21.53	\$0.00	\$67.34
8	90	\$40.34	\$9.95	\$22.74	\$0.00	\$73.03

Effective Date - 01/01/2025

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY)	06/01/2024	\$45.48	\$9.65	\$18.40	\$0.00	\$73.53
LABORERS - ZONE 1 (HEAVY & HIGHWAY)	12/01/2024	\$46.95	\$9.65	\$18.40	\$0.00	\$75.00
	06/01/2025	\$48.45	\$9.65	\$18.40	\$0.00	\$76.50
	12/01/2025	\$49.95	\$9.65	\$18.40	\$0.00	\$78.00
	06/01/2026	\$51.50	\$9.65	\$18.40	\$0.00	\$79.55
	12/01/2026	\$53.00	\$9.65	\$18.40	\$0.00	\$81.05

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

PANEL & PICKUP TRUCKS DRIVER	08/01/2024	\$40.88	\$14.91	\$18.67	\$0.00	\$74.46
TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/01/2024	\$40.88	\$14.91	\$20.17	\$0.00	\$75.96
	06/01/2025	\$41.88	\$14.91	\$20.17	\$0.00	\$76.96
	08/01/2025	\$41.88	\$15.41	\$20.17	\$0.00	\$77.46
	12/01/2025	\$41.88	\$15.41	\$21.78	\$0.00	\$79.07
	06/01/2026	\$42.88	\$15.41	\$21.78	\$0.00	\$80.07
	08/01/2026	\$42.88	\$15.91	\$21.78	\$0.00	\$80.57
	12/01/2026	\$42.88	\$15.91	\$23.52	\$0.00	\$82.31

PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59
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PILE DRIVER LOCAL 56 (ZONE 1)

For apprentice rates see "Apprentice- PILE DRIVER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PILE DRIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59

Apprentice - PILE DRIVER - Local 56 Zone 1

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.54	\$9.40	\$23.12	\$0.00	\$57.06
2	60	\$29.44	\$9.40	\$23.12	\$0.00	\$61.96
3	70	\$34.35	\$9.40	\$23.12	\$0.00	\$66.87
4	75	\$36.80	\$9.40	\$23.12	\$0.00	\$69.32
5	80	\$39.26	\$9.40	\$23.12	\$0.00	\$71.78
6	80	\$39.26	\$9.40	\$23.12	\$0.00	\$71.78
7	90	\$44.16	\$9.40	\$23.12	\$0.00	\$76.68
8	90	\$44.16	\$9.40	\$23.12	\$0.00	\$76.68

Notes:
 % Indentured After 10/1/17; 45/45/55/55/70/70/80/80
 Step 1&2 \$34.01/ 3&4 \$41.46/ 5&6 \$62.80/ 7&8 \$69.25

Apprentice to Journeyworker Ratio:1:5

PIPEFITTER & STEAMFITTER <i>PIPEFITTERS LOCAL 537</i>	09/01/2024	\$67.08	\$12.70	\$21.80	\$0.00	\$101.58
	03/01/2025	\$68.88	\$12.70	\$21.80	\$0.00	\$103.38

Apprentice - PIPEFITTER - Local 537

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$26.83	\$12.70	\$9.05	\$0.00	\$48.58
2	45	\$30.19	\$12.70	\$21.80	\$0.00	\$64.69
3	60	\$40.25	\$12.70	\$21.80	\$0.00	\$74.75
4	70	\$46.96	\$12.70	\$21.80	\$0.00	\$81.46
5	80	\$53.66	\$12.70	\$21.80	\$0.00	\$88.16

Effective Date - 03/01/2025

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

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

Apprentice to Journeyworker Ratio:**

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PIPELAYER <i>LABORERS - ZONE 1</i>	06/01/2024	\$45.63	\$9.65	\$18.40	\$0.00	\$73.68
	12/01/2024	\$47.10	\$9.65	\$18.40	\$0.00	\$75.15
	06/01/2025	\$48.60	\$9.65	\$18.40	\$0.00	\$76.65
	12/01/2025	\$50.10	\$9.65	\$18.40	\$0.00	\$78.15
	06/01/2026	\$51.65	\$9.65	\$18.40	\$0.00	\$79.70
	12/01/2026	\$53.15	\$9.65	\$18.40	\$0.00	\$81.20
	06/01/2027	\$54.75	\$9.65	\$18.40	\$0.00	\$82.80
	12/01/2027	\$56.35	\$9.65	\$18.40	\$0.00	\$84.40
	06/01/2028	\$58.03	\$9.65	\$18.40	\$0.00	\$86.08
	12/01/2028	\$59.70	\$9.65	\$18.40	\$0.00	\$87.75
For apprentice rates see "Apprentice- LABORER"						
PIPELAYER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i>	06/01/2024	\$45.73	\$9.65	\$18.40	\$0.00	\$73.78
	12/01/2024	\$47.20	\$9.65	\$18.40	\$0.00	\$75.25
	06/01/2025	\$48.70	\$9.65	\$18.40	\$0.00	\$76.75
	12/01/2025	\$50.20	\$9.65	\$18.40	\$0.00	\$78.25
	06/01/2026	\$51.75	\$9.65	\$18.40	\$0.00	\$79.80
	12/01/2026	\$53.25	\$9.65	\$18.40	\$0.00	\$81.30
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
PLUMBERS & GASFITTERS <i>PLUMBERS & GASFITTERS LOCAL 12</i>	09/01/2024	\$69.54	\$14.32	\$19.11	\$0.00	\$102.97
	03/02/2025	\$71.34	\$14.32	\$19.11	\$0.00	\$104.77

Apprentice - PLUMBER/GASFITTER - Local 12

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$24.34	\$14.32	\$6.88	\$0.00	\$45.54
2	40	\$27.82	\$14.32	\$7.82	\$0.00	\$49.96
3	55	\$38.25	\$14.32	\$10.65	\$0.00	\$63.22
4	65	\$45.20	\$14.32	\$12.53	\$0.00	\$72.05
5	75	\$52.16	\$14.32	\$14.41	\$0.00	\$80.89

Effective Date - 03/02/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$24.97	\$14.32	\$6.88	\$0.00	\$46.17
2	40	\$28.54	\$14.32	\$7.82	\$0.00	\$50.68
3	55	\$39.24	\$14.32	\$10.65	\$0.00	\$64.21
4	65	\$46.37	\$14.32	\$12.53	\$0.00	\$73.22
5	75	\$53.51	\$14.32	\$14.41	\$0.00	\$82.24

Notes:

** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr
Step4 with lic\$69.00, Step5 with lic\$76.87

Apprentice to Journeyworker Ratio:**

PNEUMATIC CONTROLS (TEMP.) <i>PIPEFITTERS LOCAL 537</i>	09/01/2024	\$67.08	\$12.70	\$21.80	\$0.00	\$101.58
	03/01/2025	\$68.88	\$12.70	\$21.80	\$0.00	\$103.38

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PNEUMATIC DRILL/TOOL OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2024	\$45.63	\$9.65	\$18.40	\$0.00	\$73.68
	12/01/2024	\$47.10	\$9.65	\$18.40	\$0.00	\$75.15
	06/01/2025	\$48.60	\$9.65	\$18.40	\$0.00	\$76.65
	12/01/2025	\$50.10	\$9.65	\$18.40	\$0.00	\$78.15
	06/01/2026	\$51.65	\$9.65	\$18.40	\$0.00	\$79.70
	12/01/2026	\$53.15	\$9.65	\$18.40	\$0.00	\$81.20
	06/01/2027	\$54.75	\$9.65	\$18.40	\$0.00	\$82.80
	12/01/2027	\$56.35	\$9.65	\$18.40	\$0.00	\$84.40
	06/01/2028	\$58.03	\$9.65	\$18.40	\$0.00	\$86.08
	12/01/2028	\$59.70	\$9.65	\$18.40	\$0.00	\$87.75
For apprentice rates see "Apprentice- LABORER"						
PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i>	06/01/2024	\$45.73	\$9.65	\$18.40	\$0.00	\$73.78
	12/01/2024	\$47.20	\$9.65	\$18.40	\$0.00	\$75.25
	06/01/2025	\$48.70	\$9.65	\$18.40	\$0.00	\$76.75
	12/01/2025	\$50.20	\$9.65	\$18.40	\$0.00	\$78.25
	06/01/2026	\$51.75	\$9.65	\$18.40	\$0.00	\$79.80
	12/01/2026	\$53.25	\$9.65	\$18.40	\$0.00	\$81.30
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
POWDERMAN & BLASTER <i>LABORERS - ZONE 1</i>	06/01/2024	\$46.38	\$9.65	\$18.40	\$0.00	\$74.43
	12/01/2024	\$47.85	\$9.65	\$18.40	\$0.00	\$75.90
	06/01/2025	\$49.35	\$9.65	\$18.40	\$0.00	\$77.40
	12/01/2025	\$50.85	\$9.65	\$18.40	\$0.00	\$78.90
	06/01/2026	\$52.40	\$9.65	\$18.40	\$0.00	\$80.45
	12/01/2026	\$53.90	\$9.65	\$18.40	\$0.00	\$81.95
	06/01/2027	\$55.50	\$9.65	\$18.40	\$0.00	\$83.55
	12/01/2027	\$57.10	\$9.65	\$18.40	\$0.00	\$85.15
	06/01/2028	\$58.78	\$9.65	\$18.40	\$0.00	\$86.83
12/01/2028	\$60.45	\$9.65	\$18.40	\$0.00	\$88.50	
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i>	06/01/2024	\$46.48	\$9.65	\$18.40	\$0.00	\$74.53
	12/01/2024	\$47.95	\$9.65	\$18.40	\$0.00	\$76.00
	06/01/2025	\$49.45	\$9.65	\$18.40	\$0.00	\$77.50
	12/01/2025	\$50.95	\$9.65	\$18.40	\$0.00	\$79.00
	06/01/2026	\$52.50	\$9.65	\$18.40	\$0.00	\$80.55
	12/01/2026	\$54.00	\$9.65	\$18.40	\$0.00	\$82.05
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
POWER SHOVEL/DERRICK/TRENCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$56.03	\$15.30	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.48	\$15.30	\$16.40	\$0.00	\$89.18
	06/01/2025	\$58.78	\$15.30	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.23	\$15.30	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.53	\$15.30	\$16.40	\$0.00	\$93.23
	12/01/2026	\$62.98	\$15.30	\$16.40	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$55.41	\$15.30	\$16.40	\$0.00	\$87.11
	12/01/2024	\$56.85	\$15.30	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.13	\$15.30	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.57	\$15.30	\$16.40	\$0.00	\$91.27
	06/01/2026	\$60.85	\$15.30	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.29	\$15.30	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$36.17	\$15.30	\$16.40	\$0.00	\$67.87
	12/01/2024	\$37.12	\$15.30	\$16.40	\$0.00	\$68.82
	06/01/2025	\$37.97	\$15.30	\$16.40	\$0.00	\$69.67
	12/01/2025	\$38.92	\$15.30	\$16.40	\$0.00	\$70.62
	06/01/2026	\$39.78	\$15.30	\$16.40	\$0.00	\$71.48
	12/01/2026	\$40.73	\$15.30	\$16.40	\$0.00	\$72.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY MIX CONCRETE DRIVERS after 4/30/12 (Drivers Hired After 4/30/2012) <i>TEAMSTERS 25 (Metro) - Aggregate</i>	08/01/2022	\$30.40	\$11.91	\$15.25	\$0.00	\$57.56
READY-MIX CONCRETE DRIVER <i>TEAMSTERS 25 (Metro) - Aggregate</i>	08/01/2022	\$34.41	\$11.91	\$15.25	\$0.00	\$61.57
RECLAIMERS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$55.41	\$15.30	\$16.40	\$0.00	\$87.11
	12/01/2024	\$56.85	\$15.30	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.13	\$15.30	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.57	\$15.30	\$16.40	\$0.00	\$91.27
	06/01/2026	\$60.85	\$15.30	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.29	\$15.30	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2024	\$45.63	\$9.65	\$18.40	\$0.00	\$73.68
	12/01/2024	\$47.10	\$9.65	\$18.40	\$0.00	\$75.15
	06/01/2025	\$48.60	\$9.65	\$18.40	\$0.00	\$76.65
	12/01/2025	\$50.10	\$9.65	\$18.40	\$0.00	\$78.15
	06/01/2026	\$51.65	\$9.65	\$18.40	\$0.00	\$79.70
	12/01/2026	\$53.15	\$9.65	\$18.40	\$0.00	\$81.20
	06/01/2027	\$54.75	\$9.65	\$18.40	\$0.00	\$82.80
	12/01/2027	\$56.35	\$9.65	\$18.40	\$0.00	\$84.40
	06/01/2028	\$58.03	\$9.65	\$18.40	\$0.00	\$86.08
	12/01/2028	\$59.70	\$9.65	\$18.40	\$0.00	\$87.75
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$55.41	\$15.30	\$16.40	\$0.00	\$87.11
	12/01/2024	\$56.85	\$15.30	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.13	\$15.30	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.57	\$15.30	\$16.40	\$0.00	\$91.27
	06/01/2026	\$60.85	\$15.30	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.29	\$15.30	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofer Waterproofing &Roofer Damproofg) <i>ROOFERS LOCAL 33</i>	08/01/2024	\$51.03	\$13.03	\$21.70	\$0.00	\$85.76
	02/01/2025	\$52.28	\$13.03	\$21.70	\$0.00	\$87.01
	08/01/2025	\$53.78	\$13.03	\$21.70	\$0.00	\$88.51
	02/01/2026	\$55.03	\$13.03	\$21.70	\$0.00	\$89.76

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ROOFER - Local 33

Effective Date - 08/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.52	\$13.03	\$6.52	\$0.00	\$45.07
2	60	\$30.62	\$13.03	\$21.70	\$0.00	\$65.35
3	65	\$33.17	\$13.03	\$21.70	\$0.00	\$67.90
4	75	\$38.27	\$13.03	\$21.70	\$0.00	\$73.00
5	85	\$43.38	\$13.03	\$21.70	\$0.00	\$78.11

Effective Date - 02/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.14	\$13.03	\$6.52	\$0.00	\$45.69
2	60	\$31.37	\$13.03	\$21.70	\$0.00	\$66.10
3	65	\$33.98	\$13.03	\$21.70	\$0.00	\$68.71
4	75	\$39.21	\$13.03	\$21.70	\$0.00	\$73.94
5	85	\$44.44	\$13.03	\$21.70	\$0.00	\$79.17

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

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE	08/01/2024	\$51.28	\$13.03	\$21.70	\$0.00	\$86.01
ROOFERS LOCAL 33	02/01/2025	\$52.53	\$13.03	\$21.70	\$0.00	\$87.26
	08/01/2025	\$54.03	\$13.03	\$21.70	\$0.00	\$88.76
	02/01/2026	\$55.28	\$13.03	\$21.70	\$0.00	\$90.01

For apprentice rates see "Apprentice- ROOFER"

SHEETMETAL WORKER	08/01/2024	\$58.97	\$14.59	\$27.50	\$2.98	\$104.04
SHEETMETAL WORKERS LOCAL 17 - A	02/01/2025	\$60.72	\$14.59	\$27.50	\$2.98	\$105.79
	08/01/2025	\$62.57	\$14.59	\$27.50	\$2.98	\$107.64
	02/01/2026	\$64.52	\$14.59	\$27.50	\$2.98	\$109.59

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - SHEET METAL WORKER - Local 17-A

Effective Date - 08/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42	\$24.77	\$14.59	\$6.13	\$0.00	\$45.49
2	42	\$24.77	\$14.59	\$6.13	\$0.00	\$45.49
3	47	\$27.72	\$14.59	\$12.11	\$1.63	\$56.05
4	47	\$27.72	\$14.59	\$12.11	\$1.63	\$56.05
5	52	\$30.66	\$14.59	\$13.09	\$1.75	\$60.09
6	52	\$30.66	\$14.59	\$13.34	\$1.76	\$60.35
7	60	\$35.38	\$14.59	\$14.75	\$1.94	\$66.66
8	65	\$38.33	\$14.59	\$15.73	\$2.06	\$70.71
9	75	\$44.23	\$14.59	\$17.69	\$2.30	\$78.81
10	85	\$50.12	\$14.59	\$19.15	\$2.52	\$86.38

Effective Date - 02/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42	\$25.50	\$14.59	\$6.13	\$0.00	\$46.22
2	42	\$25.50	\$14.59	\$6.13	\$0.00	\$46.22
3	47	\$28.54	\$14.59	\$12.11	\$1.66	\$56.90
4	47	\$28.54	\$14.59	\$12.11	\$1.66	\$56.90
5	52	\$31.57	\$14.59	\$13.09	\$1.78	\$61.03
6	52	\$31.57	\$14.59	\$13.34	\$1.79	\$61.29
7	60	\$36.43	\$14.59	\$14.75	\$1.97	\$67.74
8	65	\$39.47	\$14.59	\$15.73	\$2.09	\$71.88
9	75	\$45.54	\$14.59	\$17.69	\$2.33	\$80.15
10	85	\$51.61	\$14.59	\$19.15	\$2.56	\$87.91

Notes:
Steps are 6 mos.

Apprentice to Journeyworker Ratio:1:4

SPECIALIZED EARTH MOVING EQUIP < 35 TONS	08/01/2024	\$41.34	\$14.91	\$18.67	\$0.00	\$74.92
TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/01/2024	\$41.34	\$14.91	\$20.17	\$0.00	\$76.42
	06/01/2025	\$42.34	\$14.91	\$20.17	\$0.00	\$77.42
	08/01/2025	\$42.34	\$15.41	\$20.17	\$0.00	\$77.92
	12/01/2025	\$42.34	\$15.41	\$21.78	\$0.00	\$79.53
	06/01/2026	\$43.34	\$15.41	\$21.78	\$0.00	\$80.53
	08/01/2026	\$43.34	\$15.91	\$21.78	\$0.00	\$81.03
	12/01/2026	\$43.34	\$15.91	\$23.52	\$0.00	\$82.77

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SPECIALIZED EARTH MOVING EQUIP > 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	08/01/2024	\$41.63	\$14.91	\$18.67	\$0.00	\$75.21
	12/01/2024	\$41.63	\$14.91	\$20.17	\$0.00	\$76.71
	06/01/2025	\$42.63	\$14.91	\$20.17	\$0.00	\$77.71
	08/01/2025	\$42.63	\$15.41	\$20.17	\$0.00	\$78.21
	12/01/2025	\$42.63	\$15.41	\$21.78	\$0.00	\$79.82
	06/01/2026	\$43.63	\$15.41	\$21.78	\$0.00	\$80.82
	08/01/2026	\$43.63	\$15.91	\$21.78	\$0.00	\$81.32
	12/01/2026	\$43.63	\$15.91	\$23.52	\$0.00	\$83.06
SPRINKLER FITTER <i>SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1</i>	03/01/2024	\$69.04	\$11.51	\$23.30	\$0.00	\$103.85
	10/01/2024	\$70.84	\$11.51	\$23.30	\$0.00	\$105.65
	03/01/2025	\$72.64	\$11.51	\$23.30	\$0.00	\$107.45

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

Effective Date - 03/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$24.16	\$11.51	\$12.90	\$0.00	\$48.57
2	40	\$27.62	\$11.51	\$13.70	\$0.00	\$52.83
3	45	\$31.07	\$11.51	\$14.50	\$0.00	\$57.08
4	50	\$34.52	\$11.51	\$15.30	\$0.00	\$61.33
5	55	\$37.97	\$11.51	\$16.10	\$0.00	\$65.58
6	60	\$41.42	\$11.51	\$16.90	\$0.00	\$69.83
7	65	\$44.88	\$11.51	\$17.70	\$0.00	\$74.09
8	70	\$48.33	\$11.51	\$18.50	\$0.00	\$78.34
9	75	\$51.78	\$11.51	\$19.30	\$0.00	\$82.59
10	80	\$55.23	\$11.51	\$20.10	\$0.00	\$86.84

Effective Date - 10/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$24.79	\$11.51	\$12.90	\$0.00	\$49.20
2	40	\$28.34	\$11.51	\$13.70	\$0.00	\$53.55
3	45	\$31.88	\$11.51	\$14.50	\$0.00	\$57.89
4	50	\$35.42	\$11.51	\$15.30	\$0.00	\$62.23
5	55	\$38.96	\$11.51	\$16.10	\$0.00	\$66.57
6	60	\$42.50	\$11.51	\$16.90	\$0.00	\$70.91
7	65	\$46.05	\$11.51	\$17.70	\$0.00	\$75.26
8	70	\$49.59	\$11.51	\$18.50	\$0.00	\$79.60
9	75	\$53.13	\$11.51	\$19.30	\$0.00	\$83.94
10	80	\$56.67	\$11.51	\$20.10	\$0.00	\$88.28

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

Apprentice to Journeyworker Ratio:1:3

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
STEAM BOILER OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$55.41	\$15.30	\$16.40	\$0.00	\$87.11
	12/01/2024	\$56.85	\$15.30	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.13	\$15.30	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.57	\$15.30	\$16.40	\$0.00	\$91.27
	06/01/2026	\$60.85	\$15.30	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.29	\$15.30	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$55.41	\$15.30	\$16.40	\$0.00	\$87.11
	12/01/2024	\$56.85	\$15.30	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.13	\$15.30	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.57	\$15.30	\$16.40	\$0.00	\$91.27
	06/01/2026	\$60.85	\$15.30	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.29	\$15.30	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN <i>ELECTRICIANS LOCAL 103</i>	09/01/2024	\$51.02	\$13.00	\$20.24	\$0.00	\$84.26
	03/01/2025	\$51.98	\$13.00	\$20.27	\$0.00	\$85.25
	09/01/2025	\$53.51	\$13.00	\$20.32	\$0.00	\$86.83
	03/01/2026	\$54.47	\$13.00	\$20.34	\$0.00	\$87.81
	09/01/2026	\$56.00	\$13.00	\$20.39	\$0.00	\$89.39
	03/01/2027	\$56.95	\$13.00	\$20.42	\$0.00	\$90.37
	09/01/2027	\$58.49	\$13.00	\$20.46	\$0.00	\$91.95
	03/01/2028	\$59.45	\$13.00	\$20.49	\$0.00	\$92.94

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - TELECOMMUNICATION TECHNICIAN - Local 103

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$22.96	\$13.00	\$0.69	\$0.00	\$36.65
2	45	\$22.96	\$13.00	\$0.69	\$0.00	\$36.65
3	50	\$25.51	\$13.00	\$16.16	\$0.00	\$54.67
4	50	\$25.51	\$13.00	\$16.16	\$0.00	\$54.67
5	55	\$28.06	\$13.00	\$16.57	\$0.00	\$57.63
6	60	\$30.61	\$13.00	\$16.97	\$0.00	\$60.58
7	65	\$33.16	\$13.00	\$17.38	\$0.00	\$63.54
8	70	\$35.71	\$13.00	\$17.78	\$0.00	\$66.49
9	75	\$38.27	\$13.00	\$18.18	\$0.00	\$69.45
10	80	\$40.82	\$13.00	\$18.58	\$0.00	\$72.40

Effective Date - 03/01/2025

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

Notes:

Apprentice to Journeyworker Ratio:1:1

TERRAZZO FINISHERS	08/01/2024	\$63.44	\$11.49	\$23.59	\$0.00	\$98.52
BRICKLAYERS LOCAL 3 - MARBLE & TILE	02/01/2025	\$64.74	\$11.49	\$23.59	\$0.00	\$99.82
	08/01/2025	\$66.89	\$11.49	\$23.59	\$0.00	\$101.97
	02/01/2026	\$68.24	\$11.49	\$23.59	\$0.00	\$103.32
	08/01/2026	\$70.44	\$11.49	\$23.59	\$0.00	\$105.52
	02/01/2027	\$71.84	\$11.49	\$23.59	\$0.00	\$106.92

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$55.41	\$15.30	\$16.40	\$0.00	\$87.11
	12/01/2024	\$56.85	\$15.30	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.13	\$15.30	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.57	\$15.30	\$16.40	\$0.00	\$91.27
	06/01/2026	\$60.85	\$15.30	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.29	\$15.30	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	08/01/2024	\$41.92	\$14.91	\$18.67	\$0.00	\$75.50
	12/01/2024	\$41.92	\$14.91	\$20.17	\$0.00	\$77.00
	06/01/2025	\$42.92	\$14.91	\$20.17	\$0.00	\$78.00
	08/01/2025	\$42.92	\$15.41	\$20.17	\$0.00	\$78.50
	12/01/2025	\$42.92	\$15.41	\$21.78	\$0.00	\$80.11
	06/01/2026	\$43.92	\$15.41	\$21.78	\$0.00	\$81.11
	08/01/2026	\$43.92	\$15.91	\$21.78	\$0.00	\$81.61
	12/01/2026	\$43.92	\$15.91	\$23.52	\$0.00	\$83.35
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"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	08/01/2024	\$41.34	\$14.91	\$18.67	\$0.00	\$74.92
	12/01/2024	\$41.34	\$14.91	\$20.17	\$0.00	\$76.42
	06/01/2025	\$42.34	\$14.91	\$20.17	\$0.00	\$77.42
	08/01/2025	\$42.34	\$15.41	\$20.17	\$0.00	\$77.92
	12/01/2025	\$42.34	\$15.41	\$21.78	\$0.00	\$79.53
	06/01/2026	\$43.34	\$15.41	\$21.78	\$0.00	\$80.53
	08/01/2026	\$43.34	\$15.91	\$21.78	\$0.00	\$81.03
	12/01/2026	\$43.34	\$15.91	\$23.52	\$0.00	\$82.77
WAGON DRILL OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2024	\$45.63	\$9.65	\$18.40	\$0.00	\$73.68
	12/01/2024	\$47.10	\$9.65	\$18.40	\$0.00	\$75.15
	06/01/2025	\$48.60	\$9.65	\$18.40	\$0.00	\$76.65
	12/01/2025	\$50.10	\$9.65	\$18.40	\$0.00	\$78.15
	06/01/2026	\$51.65	\$9.65	\$18.40	\$0.00	\$79.70
	12/01/2026	\$53.15	\$9.65	\$18.40	\$0.00	\$81.20
	06/01/2027	\$54.75	\$9.65	\$18.40	\$0.00	\$82.80
	12/01/2027	\$56.35	\$9.65	\$18.40	\$0.00	\$84.40
	06/01/2028	\$58.03	\$9.65	\$18.40	\$0.00	\$86.08
	12/01/2028	\$59.70	\$9.65	\$18.40	\$0.00	\$87.75
For apprentice rates see "Apprentice- LABORER"						
WAGON DRILL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i>	06/01/2024	\$45.73	\$9.65	\$18.40	\$0.00	\$73.78
	12/01/2024	\$47.20	\$9.65	\$18.40	\$0.00	\$75.25
	06/01/2025	\$48.70	\$9.65	\$18.40	\$0.00	\$76.75
	12/01/2025	\$50.20	\$9.65	\$18.40	\$0.00	\$78.25
	06/01/2026	\$51.75	\$9.65	\$18.40	\$0.00	\$79.80
	12/01/2026	\$53.25	\$9.65	\$18.40	\$0.00	\$81.30
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$56.03	\$15.30	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.48	\$15.30	\$16.40	\$0.00	\$89.18
	06/01/2025	\$58.78	\$15.30	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.23	\$15.30	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.53	\$15.30	\$16.40	\$0.00	\$93.23
	12/01/2026	\$62.98	\$15.30	\$16.40	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER <i>PLUMBERS & GASFITTERS LOCAL 12</i>	09/01/2024	\$69.54	\$14.32	\$19.11	\$0.00	\$102.97
	03/02/2025	\$71.34	\$14.32	\$19.11	\$0.00	\$104.77
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						

Additional Apprentices Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentices ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours.)

Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

** Multiple ratios are listed in the comment field.

*** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.

**** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.



MAURA HEALEY
Governor

KIM DRISCOLL
Lt. Governor

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

Prevailing Wage Rates

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

LAUREN JONES
Secretary

MICHAEL FLANAGAN
Director

Awarding Authority: MassDOT Highway
Contract Number: 128032 **City/Town:** LEXINGTON
Description of Work: ARLINGTON-LEXINGTON: Scheduled Substructure Repairs L-10-017, L-10-020, A-10-020, A-10-012
Job Location: Along sections of Route 2

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 A</i>	08/01/2024	\$41.05	\$14.91	\$18.67	\$0.00	\$74.63
	12/01/2024	\$41.05	\$14.91	\$20.17	\$0.00	\$76.13
	06/01/2025	\$42.05	\$14.91	\$20.17	\$0.00	\$77.13
	08/01/2025	\$42.05	\$15.41	\$20.17	\$0.00	\$77.63
	12/01/2025	\$42.05	\$15.41	\$21.78	\$0.00	\$79.24
	06/01/2026	\$43.05	\$15.41	\$21.78	\$0.00	\$80.24
	08/01/2026	\$43.05	\$15.91	\$21.78	\$0.00	\$80.74
	12/01/2026	\$43.05	\$15.91	\$23.52	\$0.00	\$82.48
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	08/01/2024	\$40.88	\$14.91	\$18.67	\$0.00	\$74.46
	12/01/2024	\$40.88	\$14.91	\$20.17	\$0.00	\$75.96
	06/01/2025	\$41.12	\$14.91	\$20.17	\$0.00	\$76.20
	08/01/2025	\$41.12	\$15.41	\$20.17	\$0.00	\$76.70
	12/01/2025	\$41.12	\$15.41	\$21.78	\$0.00	\$78.31
	06/01/2026	\$43.12	\$15.41	\$21.78	\$0.00	\$80.31
	08/01/2026	\$43.12	\$15.91	\$21.78	\$0.00	\$80.81
	12/01/2026	\$43.12	\$15.91	\$23.52	\$0.00	\$82.55
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	08/01/2024	\$41.24	\$14.91	\$18.67	\$0.00	\$74.82
	12/01/2024	\$41.24	\$14.91	\$20.17	\$0.00	\$76.32
	06/01/2025	\$42.24	\$14.91	\$20.17	\$0.00	\$77.32
	08/01/2025	\$42.24	\$15.41	\$20.17	\$0.00	\$77.82
	12/01/2025	\$42.24	\$15.41	\$21.78	\$0.00	\$79.43
	06/01/2026	\$43.24	\$15.41	\$21.78	\$0.00	\$80.43
	08/01/2026	\$43.24	\$15.91	\$21.78	\$0.00	\$80.93
	12/01/2026	\$43.24	\$15.91	\$23.52	\$0.00	\$82.67
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2024	\$39.28	\$9.65	\$18.40	\$0.00	\$67.33
	12/01/2024	\$40.61	\$9.65	\$18.40	\$0.00	\$68.66
	06/01/2025	\$42.00	\$9.65	\$18.40	\$0.00	\$70.05
	12/01/2025	\$43.38	\$9.65	\$18.40	\$0.00	\$71.43
	06/01/2026	\$44.82	\$9.65	\$18.40	\$0.00	\$72.87
	12/01/2026	\$46.26	\$9.65	\$18.40	\$0.00	\$74.31
	06/01/2027	\$47.71	\$9.65	\$18.40	\$0.00	\$75.76
	12/01/2027	\$49.16	\$9.65	\$18.40	\$0.00	\$77.21
	06/01/2028	\$50.66	\$9.65	\$18.40	\$0.00	\$78.71
	12/01/2028	\$52.16	\$9.65	\$18.40	\$0.00	\$80.21
For apprentice rates see "Apprentice- LABORER"						
AIR TRACK OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2024	\$39.28	\$9.65	\$17.80	\$0.00	\$66.73
	12/01/2024	\$40.61	\$9.65	\$17.80	\$0.00	\$68.06
	06/01/2025	\$42.00	\$9.65	\$17.80	\$0.00	\$69.45
	12/01/2025	\$43.38	\$9.65	\$17.80	\$0.00	\$70.83
	06/01/2026	\$44.82	\$9.65	\$17.80	\$0.00	\$72.27
	12/01/2026	\$46.26	\$9.65	\$17.80	\$0.00	\$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i>	06/01/2024	\$41.80	\$14.50	\$11.05	\$0.00	\$67.35
	12/01/2024	\$42.80	\$14.50	\$11.05	\$0.00	\$68.35
	06/01/2025	\$43.80	\$14.50	\$11.05	\$0.00	\$69.35
	12/01/2025	\$44.80	\$14.50	\$11.05	\$0.00	\$70.35
ASPHALT RAKER <i>LABORERS - ZONE 2</i>	06/01/2024	\$38.78	\$9.65	\$18.40	\$0.00	\$66.83
	12/01/2024	\$40.11	\$9.65	\$18.40	\$0.00	\$68.16
	06/01/2025	\$41.50	\$9.65	\$18.40	\$0.00	\$69.55
	12/01/2025	\$42.88	\$9.65	\$18.40	\$0.00	\$70.93
	06/01/2026	\$44.32	\$9.65	\$18.40	\$0.00	\$72.37
	12/01/2026	\$45.76	\$9.65	\$18.40	\$0.00	\$73.81
	06/01/2027	\$47.21	\$9.65	\$18.40	\$0.00	\$75.26
	12/01/2027	\$48.66	\$9.65	\$18.40	\$0.00	\$76.71
	06/01/2028	\$50.16	\$9.65	\$18.40	\$0.00	\$78.21
	12/01/2028	\$51.66	\$9.65	\$18.40	\$0.00	\$79.71
For apprentice rates see "Apprentice- LABORER"						
ASPHALT RAKER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2024	\$38.78	\$9.65	\$17.80	\$0.00	\$66.23
	12/01/2024	\$40.11	\$9.65	\$17.80	\$0.00	\$67.56
	06/01/2025	\$41.50	\$9.65	\$17.80	\$0.00	\$68.95
	12/01/2025	\$42.88	\$9.65	\$17.80	\$0.00	\$70.33
	06/01/2026	\$44.32	\$9.65	\$17.80	\$0.00	\$71.77
	12/01/2026	\$45.76	\$9.65	\$17.80	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$56.03	\$15.30	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.48	\$15.30	\$16.40	\$0.00	\$89.18
	06/01/2025	\$58.78	\$15.30	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.23	\$15.30	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.53	\$15.30	\$16.40	\$0.00	\$93.23
	12/01/2026	\$62.98	\$15.30	\$16.40	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$56.03	\$15.30	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.48	\$15.30	\$16.40	\$0.00	\$89.18
	06/01/2025	\$58.78	\$15.30	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.23	\$15.30	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.53	\$15.30	\$16.40	\$0.00	\$93.23
	12/01/2026	\$62.98	\$15.30	\$16.40	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 2</i>	06/01/2024	\$38.78	\$9.65	\$18.40	\$0.00	\$66.83
	12/01/2024	\$40.11	\$9.65	\$18.40	\$0.00	\$68.16
	06/01/2025	\$41.50	\$9.65	\$18.40	\$0.00	\$69.55
	12/01/2025	\$42.88	\$9.65	\$18.40	\$0.00	\$70.93
	06/01/2026	\$44.32	\$9.65	\$18.40	\$0.00	\$72.37
	12/01/2026	\$45.76	\$9.65	\$18.40	\$0.00	\$73.81
	06/01/2027	\$47.21	\$9.65	\$18.40	\$0.00	\$75.26
	12/01/2027	\$48.66	\$9.65	\$18.40	\$0.00	\$76.71
	06/01/2028	\$50.16	\$9.65	\$18.40	\$0.00	\$78.21
	12/01/2028	\$51.66	\$9.65	\$18.40	\$0.00	\$79.71

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 2</i>	06/01/2024	\$39.28	\$9.65	\$18.40	\$0.00	\$67.33
	12/01/2024	\$40.61	\$9.65	\$18.40	\$0.00	\$68.66
	06/01/2025	\$42.00	\$9.65	\$18.40	\$0.00	\$70.05
	12/01/2025	\$43.38	\$9.65	\$18.40	\$0.00	\$71.43
	06/01/2026	\$44.82	\$9.65	\$18.40	\$0.00	\$72.87
	12/01/2026	\$46.26	\$9.65	\$18.40	\$0.00	\$74.31
	06/01/2027	\$47.71	\$9.65	\$18.40	\$0.00	\$75.76
	12/01/2027	\$49.16	\$9.65	\$18.40	\$0.00	\$77.21
	06/01/2028	\$50.66	\$9.65	\$18.40	\$0.00	\$78.71
	12/01/2028	\$52.16	\$9.65	\$18.40	\$0.00	\$80.21
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2024	\$39.28	\$9.65	\$17.80	\$0.00	\$66.73
	12/01/2024	\$40.61	\$9.65	\$17.80	\$0.00	\$68.06
	06/01/2025	\$42.00	\$9.65	\$17.80	\$0.00	\$69.45
	12/01/2025	\$43.38	\$9.65	\$17.80	\$0.00	\$70.83
	06/01/2026	\$44.82	\$9.65	\$17.80	\$0.00	\$72.27
	12/01/2026	\$46.26	\$9.65	\$17.80	\$0.00	\$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
BOILER MAKER <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 (WALTHAM)</i>	08/01/2024	\$64.50	\$11.49	\$23.59	\$0.00	\$99.58
	02/01/2025	\$65.80	\$11.49	\$23.59	\$0.00	\$100.88
	08/01/2025	\$67.95	\$11.49	\$23.59	\$0.00	\$103.03
	02/01/2026	\$69.30	\$11.49	\$23.59	\$0.00	\$104.38
	08/01/2026	\$71.50	\$11.49	\$23.59	\$0.00	\$106.58
	02/01/2027	\$72.90	\$11.49	\$23.59	\$0.00	\$107.98

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Waltham

Effective Date - 08/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$32.25	\$11.49	\$23.59	\$0.00	\$67.33
2	60	\$38.70	\$11.49	\$23.59	\$0.00	\$73.78
3	70	\$45.15	\$11.49	\$23.59	\$0.00	\$80.23
4	80	\$51.60	\$11.49	\$23.59	\$0.00	\$86.68
5	90	\$58.05	\$11.49	\$23.59	\$0.00	\$93.13

Effective Date - 02/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$32.90	\$11.49	\$23.59	\$0.00	\$67.98
2	60	\$39.48	\$11.49	\$23.59	\$0.00	\$74.56
3	70	\$46.06	\$11.49	\$23.59	\$0.00	\$81.14
4	80	\$52.64	\$11.49	\$23.59	\$0.00	\$87.72
5	90	\$59.22	\$11.49	\$23.59	\$0.00	\$94.30

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$55.41	\$15.30	\$16.40	\$0.00	\$87.11
	12/01/2024	\$56.85	\$15.30	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.13	\$15.30	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.57	\$15.30	\$16.40	\$0.00	\$91.27
	06/01/2026	\$60.85	\$15.30	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.29	\$15.30	\$16.40	\$0.00	\$93.99

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"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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"					
CARBIDE CORE DRILL OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2024	\$38.78	\$9.65	\$18.40	\$0.00	\$66.83
	12/01/2024	\$40.11	\$9.65	\$18.40	\$0.00	\$68.16
	06/01/2025	\$41.50	\$9.65	\$18.40	\$0.00	\$69.55
	12/01/2025	\$42.88	\$9.65	\$18.40	\$0.00	\$70.93
	06/01/2026	\$44.32	\$9.65	\$18.40	\$0.00	\$72.37
	12/01/2026	\$45.76	\$9.65	\$18.40	\$0.00	\$73.81
	06/01/2027	\$47.21	\$9.65	\$18.40	\$0.00	\$75.26
	12/01/2027	\$48.66	\$9.65	\$18.40	\$0.00	\$76.71
	06/01/2028	\$50.16	\$9.65	\$18.40	\$0.00	\$78.21
12/01/2028	\$51.66	\$9.65	\$18.40	\$0.00	\$79.71	
For apprentice rates see "Apprentice- LABORER"						
CARPENTER <i>CARPENTERS -ZONE 2 (Eastern Massachusetts)</i>	09/01/2024	\$48.37	\$9.83	\$19.97	\$0.00	\$78.17
	03/01/2025	\$49.62	\$9.83	\$19.97	\$0.00	\$79.42
	09/01/2025	\$50.87	\$9.83	\$19.97	\$0.00	\$80.67
	03/01/2026	\$52.12	\$9.83	\$19.97	\$0.00	\$81.92
	09/01/2026	\$53.37	\$9.83	\$19.97	\$0.00	\$83.17
	03/01/2027	\$54.62	\$9.83	\$19.97	\$0.00	\$84.42

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - CARPENTER - Zone 2 Eastern MA

Effective Date - 09/01/2024

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

Effective Date - 03/01/2025

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

Notes:

Apprentice to Journeyworker Ratio:1:5

CARPENTER WOOD FRAME	10/01/2023	\$30.61	\$7.02	\$6.47	\$0.00	\$44.10
CARPENTERS -ZONE 2 (Wood Frame)	10/01/2024	\$31.91	\$7.02	\$6.47	\$0.00	\$45.40
	10/01/2025	\$33.21	\$7.02	\$6.47	\$0.00	\$46.70
	10/01/2026	\$34.51	\$7.02	\$6.47	\$0.00	\$48.00

All Aspects of New Wood Frame Work

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - CARPENTER (Wood Frame) - Zone 2

Effective Date - 10/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$15.31	\$7.02	\$0.00	\$0.00	\$22.33
2	50	\$15.31	\$7.02	\$0.00	\$0.00	\$22.33
3	55	\$16.84	\$7.02	\$2.00	\$0.00	\$25.86
4	55	\$16.84	\$7.02	\$2.00	\$0.00	\$25.86
5	70	\$21.43	\$7.02	\$6.47	\$0.00	\$34.92
6	70	\$21.43	\$7.02	\$6.47	\$0.00	\$34.92
7	80	\$24.49	\$7.02	\$6.47	\$0.00	\$37.98
8	80	\$24.49	\$7.02	\$6.47	\$0.00	\$37.98

Effective Date - 10/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$15.96	\$7.02	\$0.00	\$0.00	\$22.98
2	50	\$15.96	\$7.02	\$0.00	\$0.00	\$22.98
3	55	\$17.55	\$7.02	\$2.00	\$0.00	\$26.57
4	55	\$17.55	\$7.02	\$2.00	\$0.00	\$26.57
5	70	\$22.34	\$7.02	\$6.47	\$0.00	\$35.83
6	70	\$22.34	\$7.02	\$6.47	\$0.00	\$35.83
7	80	\$25.53	\$7.02	\$6.47	\$0.00	\$39.02
8	80	\$25.53	\$7.02	\$6.47	\$0.00	\$39.02

Notes:

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING BRICKLAYERS LOCAL 3 (WALTHAM)	01/01/2024	\$49.33	\$13.00	\$23.57	\$1.30	\$87.20
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Apprentice - CEMENT MASONRY/PLASTERING - Eastern Mass (Waltham)

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.67	\$13.00	\$15.93	\$0.00	\$53.60
2	60	\$29.60	\$13.00	\$18.57	\$1.30	\$62.47
3	65	\$32.06	\$13.00	\$19.57	\$1.30	\$65.93
4	70	\$34.53	\$13.00	\$20.57	\$1.30	\$69.40
5	75	\$37.00	\$13.00	\$21.57	\$1.30	\$72.87
6	80	\$39.46	\$13.00	\$22.57	\$1.30	\$76.33
7	90	\$44.40	\$13.00	\$23.57	\$1.30	\$82.27

Notes:

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

Apprentice to Journeyworker Ratio:1:3

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CHAIN SAW OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2024	\$38.78	\$9.65	\$18.40	\$0.00	\$66.83
	12/01/2024	\$40.11	\$9.65	\$18.40	\$0.00	\$68.16
	06/01/2025	\$41.50	\$9.65	\$18.40	\$0.00	\$69.55
	12/01/2025	\$42.88	\$9.65	\$18.40	\$0.00	\$70.93
	06/01/2026	\$44.32	\$9.65	\$18.40	\$0.00	\$72.37
	12/01/2026	\$45.76	\$9.65	\$18.40	\$0.00	\$73.81
	06/01/2027	\$47.21	\$9.65	\$18.40	\$0.00	\$75.26
	12/01/2027	\$48.66	\$9.65	\$18.40	\$0.00	\$76.71
	06/01/2028	\$50.16	\$9.65	\$18.40	\$0.00	\$78.21
	12/01/2028	\$51.66	\$9.65	\$18.40	\$0.00	\$79.71
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$57.15	\$15.30	\$16.40	\$0.00	\$88.85
	12/01/2024	\$58.63	\$15.30	\$16.40	\$0.00	\$90.33
	06/01/2025	\$59.96	\$15.30	\$16.40	\$0.00	\$91.66
	12/01/2025	\$61.43	\$15.30	\$16.40	\$0.00	\$93.13
	06/01/2026	\$62.76	\$15.30	\$16.40	\$0.00	\$94.46
	12/01/2026	\$64.24	\$15.30	\$16.40	\$0.00	\$95.94
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$36.17	\$15.30	\$16.40	\$0.00	\$67.87
	12/01/2024	\$37.12	\$15.30	\$16.40	\$0.00	\$68.82
	06/01/2025	\$37.97	\$15.30	\$16.40	\$0.00	\$69.67
	12/01/2025	\$38.92	\$15.30	\$16.40	\$0.00	\$70.62
	06/01/2026	\$39.78	\$15.30	\$16.40	\$0.00	\$71.48
	12/01/2026	\$40.73	\$15.30	\$16.40	\$0.00	\$72.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) <i>PAINTERS LOCAL 35 - ZONE 2</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 2	12/02/2024	\$47.00	\$9.65	\$18.40	\$0.00	\$75.05
	06/02/2025	\$48.50	\$9.65	\$18.40	\$0.00	\$76.55
	12/01/2025	\$50.00	\$9.65	\$18.40	\$0.00	\$78.05
	06/01/2026	\$51.55	\$9.65	\$18.40	\$0.00	\$79.60
	12/07/2026	\$53.05	\$9.65	\$18.40	\$0.00	\$81.10
	06/07/2027	\$54.65	\$9.65	\$18.40	\$0.00	\$82.70
	12/06/2027	\$56.25	\$9.65	\$18.40	\$0.00	\$84.30
	06/05/2028	\$57.93	\$9.65	\$18.40	\$0.00	\$85.98
	12/04/2028	\$59.60	\$9.65	\$18.40	\$0.00	\$87.65

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: BACKHOE/LOADER/HAMMER OPERATOR <i>LABORERS - ZONE 2</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 2</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 2</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 2</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 2</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"						
DIRECTIONAL DRILL MACHINE OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$55.41	\$15.30	\$16.40	\$0.00	\$87.11
	12/01/2024	\$56.85	\$15.30	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.13	\$15.30	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.57	\$15.30	\$16.40	\$0.00	\$91.27
	06/01/2026	\$60.85	\$15.30	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.29	\$15.30	\$16.40	\$0.00	\$93.99
	For apprentice rates see "Apprentice- OPERATING ENGINEERS"					
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</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 1)</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 1)</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 1)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction) <i>DRAWBRIDGE - SEIU LOCAL 888</i>	07/01/2020	\$26.77	\$6.67	\$3.93	\$0.16	\$37.53
ELECTRICIAN <i>ELECTRICIANS LOCAL 103</i>	09/01/2024	\$63.78	\$13.00	\$22.26	\$0.00	\$99.04
	03/01/2025	\$64.98	\$13.00	\$22.30	\$0.00	\$100.28
	09/01/2025	\$66.89	\$13.00	\$22.36	\$0.00	\$102.25
	03/01/2026	\$68.09	\$13.00	\$22.39	\$0.00	\$103.48
	09/01/2026	\$70.00	\$13.00	\$22.45	\$0.00	\$105.45
	03/01/2027	\$71.19	\$13.00	\$22.49	\$0.00	\$106.68
	09/01/2027	\$73.11	\$13.00	\$22.54	\$0.00	\$108.65
	03/01/2028	\$74.31	\$13.00	\$22.58	\$0.00	\$109.89

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ELECTRICIAN - Local 103

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$25.51	\$13.00	\$0.77	\$0.00	\$39.28
2	40	\$25.51	\$13.00	\$0.77	\$0.00	\$39.28
3	45	\$28.70	\$13.00	\$16.69	\$0.00	\$58.39
4	45	\$28.70	\$13.00	\$16.69	\$0.00	\$58.39
5	50	\$31.89	\$13.00	\$17.20	\$0.00	\$62.09
6	55	\$35.08	\$13.00	\$17.70	\$0.00	\$65.78
7	60	\$38.27	\$13.00	\$18.21	\$0.00	\$69.48
8	65	\$41.46	\$13.00	\$18.71	\$0.00	\$73.17
9	70	\$44.65	\$13.00	\$19.22	\$0.00	\$76.87
10	75	\$47.84	\$13.00	\$19.74	\$0.00	\$80.58

Effective Date - 03/01/2025

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

Notes :
 App Prior 1/1/03; 30/35/40/45/50/55/65/70/75/80

Apprentice to Journeyworker Ratio:2:3***

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - ELEVATOR CONSTRUCTOR - Local 4						
Effective Date - 01/01/2022						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$32.81	\$16.03	\$0.00	\$0.00	\$48.84
2	55	\$36.09	\$16.03	\$20.21	\$0.00	\$72.33
3	65	\$42.65	\$16.03	\$20.21	\$0.00	\$78.89
4	70	\$45.93	\$16.03	\$20.21	\$0.00	\$82.17
5	80	\$52.50	\$16.03	\$20.21	\$0.00	\$88.74

Notes:

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

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER <i>ELEVATOR CONSTRUCTORS LOCAL 4</i>	01/01/2022	\$45.93	\$16.03	\$20.21	\$0.00	\$82.17
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2024	\$38.78	\$9.65	\$17.80	\$0.00	\$66.23
	12/01/2024	\$40.11	\$9.65	\$17.80	\$0.00	\$67.56
	06/01/2025	\$41.50	\$9.65	\$17.80	\$0.00	\$68.95
	12/01/2025	\$42.88	\$9.65	\$17.80	\$0.00	\$70.33
	06/01/2026	\$44.32	\$9.65	\$17.80	\$0.00	\$71.77
	12/01/2026	\$45.76	\$9.65	\$17.80	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2024	\$50.79	\$15.00	\$16.40	\$0.00	\$82.19
	11/01/2024	\$52.08	\$15.00	\$16.40	\$0.00	\$83.48
	05/01/2025	\$53.52	\$15.00	\$16.40	\$0.00	\$84.92
	11/01/2025	\$54.81	\$15.00	\$16.40	\$0.00	\$86.21
	05/01/2026	\$56.25	\$15.00	\$16.40	\$0.00	\$87.65
	11/01/2026	\$57.54	\$15.00	\$16.40	\$0.00	\$88.94
	05/01/2027	\$58.97	\$15.00	\$16.40	\$0.00	\$90.37
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2024	\$52.37	\$15.00	\$16.40	\$0.00	\$83.77
	11/01/2024	\$53.67	\$15.00	\$16.40	\$0.00	\$85.07
	05/01/2025	\$55.12	\$15.00	\$16.40	\$0.00	\$86.52
	11/01/2025	\$56.42	\$15.00	\$16.40	\$0.00	\$87.82
	05/01/2026	\$57.87	\$15.00	\$16.40	\$0.00	\$89.27
	11/01/2026	\$59.17	\$15.00	\$16.40	\$0.00	\$90.57
	05/01/2027	\$60.62	\$15.00	\$16.40	\$0.00	\$92.02
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2024	\$24.91	\$15.00	\$16.40	\$0.00	\$56.31
	11/01/2024	\$25.67	\$15.00	\$16.40	\$0.00	\$57.07
	05/01/2025	\$26.52	\$15.00	\$16.40	\$0.00	\$57.92
	11/01/2025	\$27.28	\$15.00	\$16.40	\$0.00	\$58.68
	05/01/2026	\$28.13	\$15.00	\$16.40	\$0.00	\$59.53
	11/01/2026	\$28.89	\$15.00	\$16.40	\$0.00	\$60.29
	05/01/2027	\$29.74	\$15.00	\$16.40	\$0.00	\$61.14
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 103</i>	09/01/2024	\$63.78	\$13.00	\$22.26	\$0.00	\$99.04
	03/01/2025	\$64.98	\$13.00	\$22.30	\$0.00	\$100.28
	09/01/2025	\$66.89	\$13.00	\$22.36	\$0.00	\$102.25
	03/01/2026	\$68.09	\$13.00	\$22.39	\$0.00	\$103.48
	09/01/2026	\$70.00	\$13.00	\$22.45	\$0.00	\$105.45
	03/01/2027	\$71.19	\$13.00	\$22.49	\$0.00	\$106.68
	09/01/2027	\$73.11	\$13.00	\$22.54	\$0.00	\$108.65
03/01/2028	\$74.31	\$13.00	\$22.58	\$0.00	\$109.89	
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE <i>LOCAL 103</i> / COMMISSIONING <i>ELECTRICIANS</i>	09/01/2024	\$51.02	\$13.00	\$20.24	\$0.00	\$84.26
	03/01/2025	\$51.98	\$13.00	\$20.27	\$0.00	\$85.25
	09/01/2025	\$53.51	\$13.00	\$20.32	\$0.00	\$86.83
	03/01/2026	\$54.47	\$13.00	\$20.34	\$0.00	\$87.81
	09/01/2026	\$56.00	\$13.00	\$20.39	\$0.00	\$89.39
	03/01/2027	\$56.95	\$13.00	\$20.42	\$0.00	\$90.37
	09/01/2027	\$58.49	\$13.00	\$20.46	\$0.00	\$91.95
03/01/2028	\$59.45	\$13.00	\$20.49	\$0.00	\$92.94	
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$45.23	\$15.30	\$16.40	\$0.00	\$76.93
	12/01/2024	\$46.41	\$15.30	\$16.40	\$0.00	\$78.11
	06/01/2025	\$47.47	\$15.30	\$16.40	\$0.00	\$79.17
	12/01/2025	\$48.64	\$15.30	\$16.40	\$0.00	\$80.34
	06/01/2026	\$49.70	\$15.30	\$16.40	\$0.00	\$81.40
	12/01/2026	\$50.88	\$15.30	\$16.40	\$0.00	\$82.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2024	\$27.01	\$9.65	\$17.80	\$0.00	\$54.46
	12/01/2024	\$27.01	\$9.65	\$17.80	\$0.00	\$54.46
	06/01/2025	\$28.09	\$9.65	\$17.80	\$0.00	\$55.54
	12/01/2025	\$28.09	\$9.65	\$17.80	\$0.00	\$55.54
	06/01/2026	\$29.21	\$9.65	\$17.80	\$0.00	\$56.66
	12/01/2026	\$29.21	\$9.65	\$17.80	\$0.00	\$56.66
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE 1</i>	09/01/2024	\$56.23	\$8.83	\$20.27	\$0.00	\$85.33
	03/01/2025	\$57.73	\$8.83	\$20.27	\$0.00	\$86.83
	09/01/2025	\$59.23	\$8.83	\$20.27	\$0.00	\$88.33
	03/01/2026	\$60.73	\$8.83	\$20.27	\$0.00	\$89.83
	09/01/2026	\$62.23	\$8.83	\$20.27	\$0.00	\$91.33
	03/01/2027	\$63.73	\$8.83	\$20.27	\$0.00	\$92.83

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - FLOORCOVERER - Local 2168 Zone I

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$25.30	\$8.83	\$1.76	\$0.00	\$35.89
2	45	\$25.30	\$8.83	\$1.76	\$0.00	\$35.89
3	55	\$30.93	\$8.83	\$3.52	\$0.00	\$43.28
4	55	\$30.93	\$8.83	\$3.52	\$0.00	\$43.28
5	70	\$39.36	\$8.83	\$16.75	\$0.00	\$64.94
6	70	\$39.36	\$8.83	\$16.75	\$0.00	\$64.94
7	80	\$44.98	\$8.83	\$18.51	\$0.00	\$72.32
8	80	\$44.98	\$8.83	\$18.51	\$0.00	\$72.32

Effective Date - 03/01/2025

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

Notes: Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER OPERATING ENGINEERS LOCAL 4	06/01/2024	\$56.03	\$15.30	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.48	\$15.30	\$16.40	\$0.00	\$89.18
	06/01/2025	\$58.78	\$15.30	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.23	\$15.30	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.53	\$15.30	\$16.40	\$0.00	\$93.23
	12/01/2026	\$62.98	\$15.30	\$16.40	\$0.00	\$94.68

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GENERATOR/LIGHTING PLANT/HEATERS OPERATING ENGINEERS LOCAL 4	06/01/2024	\$36.17	\$15.30	\$16.40	\$0.00	\$67.87
	12/01/2024	\$37.12	\$15.30	\$16.40	\$0.00	\$68.82
	06/01/2025	\$37.97	\$15.30	\$16.40	\$0.00	\$69.67
	12/01/2025	\$38.92	\$15.30	\$16.40	\$0.00	\$70.62
	06/01/2026	\$39.78	\$15.30	\$16.40	\$0.00	\$71.48
	12/01/2026	\$40.73	\$15.30	\$16.40	\$0.00	\$72.43

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) GLAZIERS LOCAL 35 (ZONE 2)	07/01/2024	\$46.76	\$9.95	\$23.95	\$0.00	\$80.66
	01/01/2025	\$47.96	\$9.95	\$23.95	\$0.00	\$81.86

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - GLAZIER - Local 35 Zone 2

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.38	\$9.95	\$0.00	\$0.00	\$33.33
2	55	\$25.72	\$9.95	\$6.66	\$0.00	\$42.33
3	60	\$28.06	\$9.95	\$7.26	\$0.00	\$45.27
4	65	\$30.39	\$9.95	\$7.87	\$0.00	\$48.21
5	70	\$32.73	\$9.95	\$20.32	\$0.00	\$63.00
6	75	\$35.07	\$9.95	\$20.93	\$0.00	\$65.95
7	80	\$37.41	\$9.95	\$21.53	\$0.00	\$68.89
8	90	\$42.08	\$9.95	\$22.74	\$0.00	\$74.77

Effective Date - 01/01/2025

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

HOISTING ENGINEER/CRANES/GRADALLS	06/01/2024	\$56.03	\$15.30	\$16.40	\$0.00	\$87.73
OPERATING ENGINEERS LOCAL 4	12/01/2024	\$57.48	\$15.30	\$16.40	\$0.00	\$89.18
	06/01/2025	\$58.78	\$15.30	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.23	\$15.30	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.53	\$15.30	\$16.40	\$0.00	\$93.23
	12/01/2026	\$62.98	\$15.30	\$16.40	\$0.00	\$94.68

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - OPERATING ENGINEERS - Local 4

Effective Date - 06/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$30.82	\$15.30	\$0.00	\$0.00	\$46.12
2	60	\$33.62	\$15.30	\$16.40	\$0.00	\$65.32
3	65	\$36.42	\$15.30	\$16.40	\$0.00	\$68.12
4	70	\$39.22	\$15.30	\$16.40	\$0.00	\$70.92
5	75	\$42.02	\$15.30	\$16.40	\$0.00	\$73.72
6	80	\$44.82	\$15.30	\$16.40	\$0.00	\$76.52
7	85	\$47.63	\$15.30	\$16.40	\$0.00	\$79.33
8	90	\$50.43	\$15.30	\$16.40	\$0.00	\$82.13

Effective Date - 12/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$31.61	\$0.00	\$0.00	\$0.00	\$31.61
2	60	\$34.49	\$15.30	\$16.40	\$0.00	\$66.19
3	65	\$37.36	\$15.30	\$16.40	\$0.00	\$69.06
4	70	\$40.24	\$15.30	\$16.40	\$0.00	\$71.94
5	75	\$43.11	\$15.30	\$16.40	\$0.00	\$74.81
6	80	\$45.98	\$15.30	\$16.40	\$0.00	\$77.68
7	85	\$48.86	\$15.30	\$16.40	\$0.00	\$80.56
8	90	\$51.73	\$15.30	\$16.40	\$0.00	\$83.43

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) SHEETMETAL WORKERS LOCAL 17 - A	08/01/2024	\$58.97	\$14.59	\$27.50	\$2.98	\$104.04
	02/01/2025	\$60.72	\$14.59	\$27.50	\$2.98	\$105.79
	08/01/2025	\$62.57	\$14.59	\$27.50	\$2.98	\$107.64
	02/01/2026	\$64.52	\$14.59	\$27.50	\$2.98	\$109.59

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (ELECTRICAL CONTROLS) ELECTRICIANS LOCAL 103	09/01/2024	\$63.78	\$13.00	\$22.26	\$0.00	\$99.04
	03/01/2025	\$64.98	\$13.00	\$22.30	\$0.00	\$100.28
	09/01/2025	\$66.89	\$13.00	\$22.36	\$0.00	\$102.25
	03/01/2026	\$68.09	\$13.00	\$22.39	\$0.00	\$103.48
	09/01/2026	\$70.00	\$13.00	\$22.45	\$0.00	\$105.45
	03/01/2027	\$71.19	\$13.00	\$22.49	\$0.00	\$106.68
	09/01/2027	\$73.11	\$13.00	\$22.54	\$0.00	\$108.65
	03/01/2028	\$74.31	\$13.00	\$22.58	\$0.00	\$109.89

For apprentice rates see "Apprentice- ELECTRICIAN"

HVAC (TESTING AND BALANCING - AIR) SHEETMETAL WORKERS LOCAL 17 - A	08/01/2024	\$58.97	\$14.59	\$27.50	\$2.98	\$104.04
	02/01/2025	\$60.72	\$14.59	\$27.50	\$2.98	\$105.79
	08/01/2025	\$62.57	\$14.59	\$27.50	\$2.98	\$107.64
	02/01/2026	\$64.52	\$14.59	\$27.50	\$2.98	\$109.59

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) <i>PIPEFITTERS LOCAL 537</i>	09/01/2024	\$67.08	\$12.70	\$21.80	\$0.00	\$101.58
	03/01/2025	\$68.88	\$12.70	\$21.80	\$0.00	\$103.38
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC <i>PIPEFITTERS LOCAL 537</i>	09/01/2024	\$67.08	\$12.70	\$21.80	\$0.00	\$101.58
	03/01/2025	\$68.88	\$12.70	\$21.80	\$0.00	\$103.38
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS <i>LABORERS - ZONE 2</i>	06/01/2024	\$39.28	\$9.65	\$18.40	\$0.00	\$67.33
	12/01/2024	\$40.61	\$9.65	\$18.40	\$0.00	\$68.66
	06/01/2025	\$42.00	\$9.65	\$18.40	\$0.00	\$70.05
	12/01/2025	\$43.38	\$9.65	\$18.40	\$0.00	\$71.43
	06/01/2026	\$44.82	\$9.65	\$18.40	\$0.00	\$72.87
	12/01/2026	\$46.26	\$9.65	\$18.40	\$0.00	\$74.31
	06/01/2027	\$47.71	\$9.65	\$18.40	\$0.00	\$75.76
	12/01/2027	\$49.16	\$9.65	\$18.40	\$0.00	\$77.21
	06/01/2028	\$50.66	\$9.65	\$18.40	\$0.00	\$78.71
	12/01/2028	\$52.16	\$9.65	\$18.40	\$0.00	\$80.21
For apprentice rates see "Apprentice- LABORER"						
HYDRAULIC DRILLS (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2024	\$39.28	\$9.65	\$17.80	\$0.00	\$66.73
	12/01/2024	\$40.61	\$9.65	\$17.80	\$0.00	\$68.06
	06/01/2025	\$42.00	\$9.65	\$17.80	\$0.00	\$69.45
	12/01/2025	\$43.38	\$9.65	\$17.80	\$0.00	\$70.83
	06/01/2026	\$44.82	\$9.65	\$17.80	\$0.00	\$72.27
	12/01/2026	\$46.26	\$9.65	\$17.80	\$0.00	\$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
INSULATOR (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i>	09/01/2024	\$56.92	\$14.75	\$19.61	\$0.00	\$91.28
	09/01/2025	\$60.34	\$14.75	\$19.61	\$0.00	\$94.70
	09/01/2026	\$63.76	\$14.75	\$19.61	\$0.00	\$98.12

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 09/01/2024

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

Effective Date - 09/01/2025

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

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER	03/16/2024	\$53.97	\$8.35	\$26.70	\$0.00	\$89.02
<i>IRONWORKERS LOCAL 7 (BOSTON AREA)</i>						

Apprentice - IRONWORKER - Local 7 Boston

Effective Date - 03/16/2024

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

Notes:

Apprentice to Journeyworker Ratio:1:4

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
JACKHAMMER & PAVING BREAKER OPERATOR LABORERS - ZONE 2	06/01/2024	\$38.78	\$9.65	\$18.40	\$0.00	\$66.83
	12/01/2024	\$40.11	\$9.65	\$18.40	\$0.00	\$68.16
	06/01/2025	\$41.50	\$9.65	\$18.40	\$0.00	\$69.55
	12/01/2025	\$42.88	\$9.65	\$18.40	\$0.00	\$70.93
	06/01/2026	\$44.32	\$9.65	\$18.40	\$0.00	\$72.37
	12/01/2026	\$45.76	\$9.65	\$18.40	\$0.00	\$73.81
	06/01/2027	\$47.21	\$9.65	\$18.40	\$0.00	\$75.26
	12/01/2027	\$48.66	\$9.65	\$18.40	\$0.00	\$76.71
	06/01/2028	\$50.16	\$9.65	\$18.40	\$0.00	\$78.21
	12/01/2028	\$51.66	\$9.65	\$18.40	\$0.00	\$79.71

For apprentice rates see "Apprentice- LABORER"

LABORER LABORERS - ZONE 2	06/01/2024	\$38.53	\$9.65	\$18.40	\$0.00	\$66.58
	12/01/2024	\$39.86	\$9.65	\$18.40	\$0.00	\$67.91
	06/01/2025	\$41.25	\$9.65	\$18.40	\$0.00	\$69.30
	12/01/2025	\$42.63	\$9.65	\$18.40	\$0.00	\$70.68
	06/01/2026	\$44.07	\$9.65	\$18.40	\$0.00	\$72.12
	12/01/2026	\$45.51	\$9.65	\$18.40	\$0.00	\$73.56
	06/01/2027	\$46.96	\$9.65	\$18.40	\$0.00	\$75.01
	12/01/2027	\$48.41	\$9.65	\$18.40	\$0.00	\$76.46
	06/01/2028	\$49.91	\$9.65	\$18.40	\$0.00	\$77.96
	12/01/2028	\$51.41	\$9.65	\$18.40	\$0.00	\$79.46

Apprentice - LABORER - Zone 2

Effective Date - 06/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$23.12	\$9.65	\$18.40	\$0.00	\$51.17
2	70	\$26.97	\$9.65	\$18.40	\$0.00	\$55.02
3	80	\$30.82	\$9.65	\$18.40	\$0.00	\$58.87
4	90	\$34.68	\$9.65	\$18.40	\$0.00	\$62.73

Effective Date - 12/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$23.92	\$9.65	\$18.40	\$0.00	\$51.97
2	70	\$27.90	\$9.65	\$18.40	\$0.00	\$55.95
3	80	\$31.89	\$9.65	\$18.40	\$0.00	\$59.94
4	90	\$35.87	\$9.65	\$18.40	\$0.00	\$63.92

Notes:

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2024	\$38.53	\$9.65	\$17.80	\$0.00	\$65.98
	12/01/2024	\$39.86	\$9.65	\$17.80	\$0.00	\$67.31
	06/01/2025	\$41.25	\$9.65	\$17.80	\$0.00	\$68.70
	12/01/2025	\$42.63	\$9.65	\$17.80	\$0.00	\$70.08
	06/01/2026	\$44.07	\$9.65	\$17.80	\$0.00	\$71.52
	12/01/2026	\$45.51	\$9.65	\$17.80	\$0.00	\$72.96

Apprentice - LABORER (Heavy & Highway) - Zone 2

Effective Date - 06/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$23.12	\$9.65	\$17.80	\$0.00	\$50.57
2	70	\$26.97	\$9.65	\$17.80	\$0.00	\$54.42
3	80	\$30.82	\$9.65	\$17.80	\$0.00	\$58.27
4	90	\$34.68	\$9.65	\$17.80	\$0.00	\$62.13

Effective Date - 12/01/2024

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

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER: CARPENTER TENDER <i>LABORERS - ZONE 2</i>	06/01/2024	\$38.53	\$9.65	\$18.40	\$0.00	\$66.58
	12/01/2024	\$39.86	\$9.65	\$18.40	\$0.00	\$67.91
	06/01/2025	\$41.25	\$9.65	\$18.40	\$0.00	\$69.30
	12/01/2025	\$42.63	\$9.65	\$18.40	\$0.00	\$70.68
	06/01/2026	\$44.07	\$9.65	\$18.40	\$0.00	\$72.12
	12/01/2026	\$45.51	\$9.65	\$18.40	\$0.00	\$73.56
	06/01/2027	\$46.96	\$9.65	\$18.40	\$0.00	\$75.01
	12/01/2027	\$48.41	\$9.65	\$18.40	\$0.00	\$76.46
	06/01/2028	\$49.91	\$9.65	\$18.40	\$0.00	\$77.96
	12/01/2028	\$51.41	\$9.65	\$18.40	\$0.00	\$79.46

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: CEMENT FINISHER TENDER <i>LABORERS - ZONE 2</i>	06/01/2024	\$38.53	\$9.65	\$18.40	\$0.00	\$66.58
	12/01/2024	\$39.86	\$9.65	\$18.40	\$0.00	\$67.91
	06/01/2025	\$41.25	\$9.65	\$18.40	\$0.00	\$69.30
	12/01/2025	\$42.63	\$9.65	\$18.40	\$0.00	\$70.68
	06/01/2026	\$44.07	\$9.65	\$18.40	\$0.00	\$72.12
	12/01/2026	\$45.51	\$9.65	\$18.40	\$0.00	\$73.56
	06/01/2027	\$46.96	\$9.65	\$18.40	\$0.00	\$75.01
	12/01/2027	\$48.41	\$9.65	\$18.40	\$0.00	\$76.46
	06/01/2028	\$49.91	\$9.65	\$18.40	\$0.00	\$77.96
	12/01/2028	\$51.41	\$9.65	\$18.40	\$0.00	\$79.46
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER <i>LABORERS - ZONE 2</i>	06/03/2024	\$38.62	\$9.65	\$17.76	\$0.00	\$66.03
	12/02/2024	\$39.95	\$9.65	\$17.76	\$0.00	\$67.36
	06/02/2025	\$41.34	\$9.65	\$17.76	\$0.00	\$68.75
	12/01/2025	\$42.72	\$9.65	\$17.76	\$0.00	\$70.13
	06/01/2026	\$44.16	\$9.65	\$17.76	\$0.00	\$71.57
	12/07/2026	\$45.60	\$9.65	\$17.76	\$0.00	\$73.01
	06/07/2027	\$47.05	\$9.65	\$17.76	\$0.00	\$74.46
	12/06/2027	\$48.50	\$9.65	\$17.76	\$0.00	\$75.91
	06/05/2028	\$50.00	\$9.65	\$17.76	\$0.00	\$77.41
	12/04/2028	\$51.50	\$9.65	\$17.76	\$0.00	\$78.91
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER <i>LABORERS - ZONE 2</i>	06/01/2024	\$38.78	\$9.65	\$18.40	\$0.00	\$66.83
	12/01/2024	\$40.11	\$9.65	\$18.40	\$0.00	\$68.16
	06/01/2025	\$41.50	\$9.65	\$18.40	\$0.00	\$69.55
	12/01/2025	\$42.88	\$9.65	\$18.40	\$0.00	\$70.93
	06/01/2026	\$44.32	\$9.65	\$18.40	\$0.00	\$72.37
	12/01/2026	\$45.76	\$9.65	\$18.40	\$0.00	\$73.81
	06/01/2027	\$47.21	\$9.65	\$18.40	\$0.00	\$75.26
	12/01/2027	\$48.66	\$9.65	\$18.40	\$0.00	\$76.71
	06/01/2028	\$50.16	\$9.65	\$18.40	\$0.00	\$78.21
	12/01/2028	\$51.66	\$9.65	\$18.40	\$0.00	\$79.71
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2024	\$38.78	\$9.65	\$17.80	\$0.00	\$66.23
	12/01/2024	\$40.11	\$9.65	\$17.80	\$0.00	\$67.56
	06/01/2025	\$41.50	\$9.65	\$17.80	\$0.00	\$68.95
	12/01/2025	\$42.88	\$9.65	\$17.80	\$0.00	\$70.33
	06/01/2026	\$44.32	\$9.65	\$17.80	\$0.00	\$71.77
	12/01/2026	\$45.76	\$9.65	\$17.80	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 2</i>	06/01/2024	\$38.53	\$9.65	\$18.40	\$0.00	\$66.58
	12/01/2024	\$39.86	\$9.65	\$18.40	\$0.00	\$67.91
	06/01/2025	\$41.25	\$9.65	\$18.40	\$0.00	\$69.30
	12/01/2025	\$42.63	\$9.65	\$18.40	\$0.00	\$70.68
	06/01/2026	\$44.07	\$9.65	\$18.40	\$0.00	\$72.12
	12/01/2026	\$45.51	\$9.65	\$18.40	\$0.00	\$73.56
	06/01/2027	\$46.96	\$9.65	\$18.40	\$0.00	\$75.01
	12/01/2027	\$48.41	\$9.65	\$18.40	\$0.00	\$76.46
	06/01/2028	\$49.91	\$9.65	\$18.40	\$0.00	\$77.96
	12/01/2028	\$51.41	\$9.65	\$18.40	\$0.00	\$79.46
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 2</i>	06/01/2024	\$38.53	\$9.65	\$18.40	\$0.00	\$66.58
	12/01/2024	\$39.86	\$9.65	\$18.40	\$0.00	\$67.91
	06/01/2025	\$41.25	\$9.65	\$18.40	\$0.00	\$69.30
	12/01/2025	\$42.63	\$9.65	\$18.40	\$0.00	\$70.68
	06/01/2026	\$44.07	\$9.65	\$18.40	\$0.00	\$72.12
	12/01/2026	\$45.51	\$9.65	\$18.40	\$0.00	\$73.56
	06/01/2027	\$46.96	\$9.65	\$18.40	\$0.00	\$75.01
	12/01/2027	\$48.41	\$9.65	\$18.40	\$0.00	\$76.46
	06/01/2028	\$49.91	\$9.65	\$18.40	\$0.00	\$77.96
	12/01/2028	\$51.41	\$9.65	\$18.40	\$0.00	\$79.46
This classification applies to the removal of standing trees, and the trimming and removal of branches and limbs when related to public works construction or site clearance incidental to construction . For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2024	\$38.78	\$9.65	\$18.40	\$0.00	\$66.83
	12/01/2024	\$40.11	\$9.65	\$18.40	\$0.00	\$68.16
	06/01/2025	\$41.50	\$9.65	\$18.40	\$0.00	\$69.55
	12/01/2025	\$42.88	\$9.65	\$18.40	\$0.00	\$70.93
	06/01/2026	\$44.32	\$9.65	\$18.40	\$0.00	\$72.37
	12/01/2026	\$45.76	\$9.65	\$18.40	\$0.00	\$73.81
	06/01/2027	\$47.21	\$9.65	\$18.40	\$0.00	\$75.26
	12/01/2027	\$48.66	\$9.65	\$18.40	\$0.00	\$76.71
	06/01/2028	\$50.16	\$9.65	\$18.40	\$0.00	\$78.21
	12/01/2028	\$51.66	\$9.65	\$18.40	\$0.00	\$79.71
For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2024	\$38.78	\$9.65	\$17.80	\$0.00	\$66.23
	12/01/2024	\$40.11	\$9.65	\$17.80	\$0.00	\$67.56
	06/01/2025	\$41.50	\$9.65	\$17.80	\$0.00	\$68.95
	12/01/2025	\$42.88	\$9.65	\$17.80	\$0.00	\$70.33
	06/01/2026	\$44.32	\$9.65	\$17.80	\$0.00	\$71.77
	12/01/2026	\$45.76	\$9.65	\$17.80	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	08/01/2024	\$49.32	\$11.49	\$21.62	\$0.00	\$82.43
	02/01/2025	\$50.36	\$11.49	\$21.62	\$0.00	\$83.47
	08/01/2025	\$52.08	\$11.49	\$21.62	\$0.00	\$85.19
	02/01/2026	\$53.16	\$11.49	\$21.62	\$0.00	\$86.27
	08/01/2026	\$54.92	\$11.49	\$21.62	\$0.00	\$88.03
	02/01/2027	\$56.04	\$11.49	\$21.62	\$0.00	\$89.15

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 08/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.66	\$11.49	\$21.62	\$0.00	\$57.77
2	60	\$29.59	\$11.49	\$21.62	\$0.00	\$62.70
3	70	\$34.52	\$11.49	\$21.62	\$0.00	\$67.63
4	80	\$39.46	\$11.49	\$21.62	\$0.00	\$72.57
5	90	\$44.39	\$11.49	\$21.62	\$0.00	\$77.50

Effective Date - 02/01/2025

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

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS, TILELAYERS & TERRAZZO MECH	08/01/2024	\$64.52	\$11.49	\$23.56	\$0.00	\$99.57
BRICKLAYERS LOCAL 3 - MARBLE & TILE	02/01/2025	\$65.82	\$11.49	\$23.56	\$0.00	\$100.87
	08/01/2025	\$67.97	\$11.49	\$23.56	\$0.00	\$103.02
	02/01/2026	\$69.32	\$11.49	\$23.56	\$0.00	\$104.37
	08/01/2026	\$71.52	\$11.49	\$23.56	\$0.00	\$106.57
	02/01/2027	\$72.92	\$11.49	\$23.56	\$0.00	\$107.97

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 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

MECH. SWEEPER OPERATOR (ON CONST. SITES) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$55.41	\$15.30	\$16.40	\$0.00	\$87.11
	12/01/2024	\$56.85	\$15.30	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.13	\$15.30	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.57	\$15.30	\$16.40	\$0.00	\$91.27
	06/01/2026	\$60.85	\$15.30	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.29	\$15.30	\$16.40	\$0.00	\$93.99

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MECHANICS MAINTENANCE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$55.41	\$15.30	\$16.40	\$0.00	\$87.11
	12/01/2024	\$56.85	\$15.30	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.13	\$15.30	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.57	\$15.30	\$16.40	\$0.00	\$91.27
	06/01/2026	\$60.85	\$15.30	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.29	\$15.30	\$16.40	\$0.00	\$93.99

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MILLWRIGHT (Zone 1) <i>MILLWRIGHTS LOCAL 1121 - Zone 1</i>	01/01/2024	\$48.03	\$10.08	\$21.72	\$0.00	\$79.83
	01/06/2025	\$50.53	\$10.08	\$21.72	\$0.00	\$82.33
	01/05/2026	\$53.03	\$10.08	\$21.72	\$0.00	\$84.83

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - MILLWRIGHT - Local 1121 Zone 1

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$26.42	\$10.08	\$5.64	\$0.00	\$42.14
2	65	\$31.22	\$10.08	\$6.66	\$0.00	\$47.96
3	75	\$36.02	\$10.08	\$19.16	\$0.00	\$65.26
4	85	\$40.83	\$10.08	\$20.18	\$0.00	\$71.09

Effective Date - 01/06/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$27.79	\$10.08	\$5.64	\$0.00	\$43.51
2	65	\$32.84	\$10.08	\$6.66	\$0.00	\$49.58
3	75	\$37.90	\$10.08	\$19.16	\$0.00	\$67.14
4	85	\$42.95	\$10.08	\$20.18	\$0.00	\$73.21

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

Apprentice to Journeyworker Ratio:1:4

MORTAR MIXER LABORERS - ZONE 2	06/01/2024	\$38.78	\$9.65	\$18.40	\$0.00	\$66.83
	12/01/2024	\$40.11	\$9.65	\$18.40	\$0.00	\$68.16
	06/01/2025	\$41.50	\$9.65	\$18.40	\$0.00	\$69.55
	12/01/2025	\$42.88	\$9.65	\$18.40	\$0.00	\$70.93
	06/01/2026	\$44.32	\$9.65	\$18.40	\$0.00	\$72.37
	12/01/2026	\$45.76	\$9.65	\$18.40	\$0.00	\$73.81
	06/01/2027	\$47.21	\$9.65	\$18.40	\$0.00	\$75.26
	12/01/2027	\$48.66	\$9.65	\$18.40	\$0.00	\$76.71
	06/01/2028	\$50.16	\$9.65	\$18.40	\$0.00	\$78.21
	12/01/2028	\$51.66	\$9.65	\$18.40	\$0.00	\$79.71

For apprentice rates see "Apprentice- LABORER"

OILER (OTHER THAN TRUCK CRANES,GRADALLS) OPERATING ENGINEERS LOCAL 4	06/01/2024	\$24.71	\$15.30	\$16.40	\$0.00	\$56.41
	12/01/2024	\$25.37	\$15.30	\$16.40	\$0.00	\$57.07
	06/01/2025	\$25.97	\$15.30	\$16.40	\$0.00	\$57.67
	12/01/2025	\$26.63	\$15.30	\$16.40	\$0.00	\$58.33
	06/01/2026	\$27.22	\$15.30	\$16.40	\$0.00	\$58.92
	12/01/2026	\$27.89	\$15.30	\$16.40	\$0.00	\$59.59

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

OILER (TRUCK CRANES, GRADALLS) OPERATING ENGINEERS LOCAL 4	06/01/2024	\$30.28	\$15.30	\$16.40	\$0.00	\$61.98
	12/01/2024	\$31.08	\$15.30	\$16.40	\$0.00	\$62.78
	06/01/2025	\$31.80	\$15.30	\$16.40	\$0.00	\$63.50
	12/01/2025	\$32.60	\$15.30	\$16.40	\$0.00	\$64.30
	06/01/2026	\$33.32	\$15.30	\$16.40	\$0.00	\$65.02
	12/01/2026	\$34.12	\$15.30	\$16.40	\$0.00	\$65.82

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
OTHER POWER DRIVEN EQUIPMENT - CLASS II <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$55.41	\$15.30	\$16.40	\$0.00	\$87.11
	12/01/2024	\$56.85	\$15.30	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.13	\$15.30	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.57	\$15.30	\$16.40	\$0.00	\$91.27
	06/01/2026	\$60.85	\$15.30	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.29	\$15.30	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS) <i>PAINTERS LOCAL 35 - ZONE 2</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

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	\$48.16	\$9.95	\$23.95	\$0.00	\$82.06
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. <i>PAINTERS LOCAL 35 - ZONE 2</i>	01/01/2025	\$49.36	\$9.95	\$23.95	\$0.00	\$83.26

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.08	\$9.95	\$0.00	\$0.00	\$34.03
2	55	\$26.49	\$9.95	\$6.66	\$0.00	\$43.10
3	60	\$28.90	\$9.95	\$7.26	\$0.00	\$46.11
4	65	\$31.30	\$9.95	\$7.87	\$0.00	\$49.12
5	70	\$33.71	\$9.95	\$20.32	\$0.00	\$63.98
6	75	\$36.12	\$9.95	\$20.93	\$0.00	\$67.00
7	80	\$38.53	\$9.95	\$21.53	\$0.00	\$70.01
8	90	\$43.34	\$9.95	\$22.74	\$0.00	\$76.03

Effective Date - 01/01/2025

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)	07/01/2024	\$46.22	\$9.95	\$23.95	\$0.00	\$80.12
PAINTERS LOCAL 35 - ZONE 2	01/01/2025	\$47.42	\$9.95	\$23.95	\$0.00	\$81.32

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.11	\$9.95	\$0.00	\$0.00	\$33.06
2	55	\$25.42	\$9.95	\$6.66	\$0.00	\$42.03
3	60	\$27.73	\$9.95	\$7.26	\$0.00	\$44.94
4	65	\$30.04	\$9.95	\$7.87	\$0.00	\$47.86
5	70	\$32.35	\$9.95	\$20.32	\$0.00	\$62.62
6	75	\$34.67	\$9.95	\$20.93	\$0.00	\$65.55
7	80	\$36.98	\$9.95	\$21.53	\$0.00	\$68.46
8	90	\$41.60	\$9.95	\$22.74	\$0.00	\$74.29

Effective Date - 01/01/2025

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, NEW) *	07/01/2024	\$46.76	\$9.95	\$23.95	\$0.00	\$80.66
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. <i>PAINTERS LOCAL 35 - ZONE 2</i>	01/01/2025	\$47.96	\$9.95	\$23.95	\$0.00	\$81.86

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER - Local 35 Zone 2 - BRUSH NEW

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.38	\$9.95	\$0.00	\$0.00	\$33.33
2	55	\$25.72	\$9.95	\$6.66	\$0.00	\$42.33
3	60	\$28.06	\$9.95	\$7.26	\$0.00	\$45.27
4	65	\$30.39	\$9.95	\$7.87	\$0.00	\$48.21
5	70	\$32.73	\$9.95	\$20.32	\$0.00	\$63.00
6	75	\$35.07	\$9.95	\$20.93	\$0.00	\$65.95
7	80	\$37.41	\$9.95	\$21.53	\$0.00	\$68.89
8	90	\$42.08	\$9.95	\$22.74	\$0.00	\$74.77

Effective Date - 01/01/2025

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT)	07/01/2024	\$44.82	\$9.95	\$23.95	\$0.00	\$78.72
PAINTERS LOCAL 35 - ZONE 2	01/01/2025	\$46.02	\$9.95	\$23.95	\$0.00	\$79.92

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.41	\$9.95	\$0.00	\$0.00	\$32.36
2	55	\$24.65	\$9.95	\$6.66	\$0.00	\$41.26
3	60	\$26.89	\$9.95	\$7.26	\$0.00	\$44.10
4	65	\$29.13	\$9.95	\$7.87	\$0.00	\$46.95
5	70	\$31.37	\$9.95	\$20.32	\$0.00	\$61.64
6	75	\$33.62	\$9.95	\$20.93	\$0.00	\$64.50
7	80	\$35.86	\$9.95	\$21.53	\$0.00	\$67.34
8	90	\$40.34	\$9.95	\$22.74	\$0.00	\$73.03

Effective Date - 01/01/2025

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

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY)	06/01/2024	\$38.53	\$9.65	\$17.80	\$0.00	\$65.98
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/01/2024	\$39.86	\$9.65	\$17.80	\$0.00	\$67.31
	06/01/2025	\$41.25	\$9.65	\$17.80	\$0.00	\$68.70
	12/01/2025	\$42.63	\$9.65	\$17.80	\$0.00	\$70.08
	06/01/2026	\$44.07	\$9.65	\$17.80	\$0.00	\$71.52
	12/01/2026	\$45.51	\$9.65	\$17.80	\$0.00	\$72.96

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

PANEL & PICKUP TRUCKS DRIVER	08/01/2024	\$40.88	\$14.91	\$18.67	\$0.00	\$74.46
TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/01/2024	\$40.88	\$14.91	\$20.17	\$0.00	\$75.96
	06/01/2025	\$41.88	\$14.91	\$20.17	\$0.00	\$76.96
	08/01/2025	\$41.88	\$15.41	\$20.17	\$0.00	\$77.46
	12/01/2025	\$41.88	\$15.41	\$21.78	\$0.00	\$79.07
	06/01/2026	\$42.88	\$15.41	\$21.78	\$0.00	\$80.07
	08/01/2026	\$42.88	\$15.91	\$21.78	\$0.00	\$80.57
	12/01/2026	\$42.88	\$15.91	\$23.52	\$0.00	\$82.31

PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59
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PILE DRIVER LOCAL 56 (ZONE 1)

For apprentice rates see "Apprentice- PILE DRIVER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PILE DRIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59

Apprentice - PILE DRIVER - Local 56 Zone 1

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.54	\$9.40	\$23.12	\$0.00	\$57.06
2	60	\$29.44	\$9.40	\$23.12	\$0.00	\$61.96
3	70	\$34.35	\$9.40	\$23.12	\$0.00	\$66.87
4	75	\$36.80	\$9.40	\$23.12	\$0.00	\$69.32
5	80	\$39.26	\$9.40	\$23.12	\$0.00	\$71.78
6	80	\$39.26	\$9.40	\$23.12	\$0.00	\$71.78
7	90	\$44.16	\$9.40	\$23.12	\$0.00	\$76.68
8	90	\$44.16	\$9.40	\$23.12	\$0.00	\$76.68

Notes:
 % Indentured After 10/1/17; 45/45/55/55/70/70/80/80
 Step 1&2 \$34.01/ 3&4 \$41.46/ 5&6 \$62.80/ 7&8 \$69.25

Apprentice to Journeyworker Ratio:1:5

PIPEFITTER & STEAMFITTER <i>PIPEFITTERS LOCAL 537</i>	09/01/2024	\$67.08	\$12.70	\$21.80	\$0.00	\$101.58
	03/01/2025	\$68.88	\$12.70	\$21.80	\$0.00	\$103.38

Apprentice - PIPEFITTER - Local 537

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$26.83	\$12.70	\$9.05	\$0.00	\$48.58
2	45	\$30.19	\$12.70	\$21.80	\$0.00	\$64.69
3	60	\$40.25	\$12.70	\$21.80	\$0.00	\$74.75
4	70	\$46.96	\$12.70	\$21.80	\$0.00	\$81.46
5	80	\$53.66	\$12.70	\$21.80	\$0.00	\$88.16

Effective Date - 03/01/2025

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

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

Apprentice to Journeyworker Ratio:**

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PIPELAYER <i>LABORERS - ZONE 2</i>	06/01/2024	\$38.78	\$9.65	\$18.40	\$0.00	\$66.83
	12/01/2024	\$40.11	\$9.65	\$18.40	\$0.00	\$68.16
	06/01/2025	\$41.50	\$9.65	\$18.40	\$0.00	\$69.55
	12/01/2025	\$42.88	\$9.65	\$18.40	\$0.00	\$70.93
	06/01/2026	\$44.32	\$9.65	\$18.40	\$0.00	\$72.37
	12/01/2026	\$45.76	\$9.65	\$18.40	\$0.00	\$73.81
	06/01/2027	\$47.21	\$9.65	\$18.40	\$0.00	\$75.26
	12/01/2027	\$48.66	\$9.65	\$18.40	\$0.00	\$76.71
	06/01/2028	\$50.16	\$9.65	\$18.40	\$0.00	\$78.21
	12/01/2028	\$51.66	\$9.65	\$18.40	\$0.00	\$79.71
For apprentice rates see "Apprentice- LABORER"						
PIPELAYER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2024	\$38.78	\$9.65	\$17.80	\$0.00	\$66.23
	12/01/2024	\$40.11	\$9.65	\$17.80	\$0.00	\$67.56
	06/01/2025	\$41.50	\$9.65	\$17.80	\$0.00	\$68.95
	12/01/2025	\$42.88	\$9.65	\$17.80	\$0.00	\$70.33
	06/01/2026	\$44.32	\$9.65	\$17.80	\$0.00	\$71.77
	12/01/2026	\$45.76	\$9.65	\$17.80	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
PLUMBERS & GASFITTERS <i>PLUMBERS & GASFITTERS LOCAL 12</i>	09/01/2024	\$69.54	\$14.32	\$19.11	\$0.00	\$102.97
	03/02/2025	\$71.34	\$14.32	\$19.11	\$0.00	\$104.77

Apprentice - PLUMBER/GASFITTER - Local 12

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$24.34	\$14.32	\$6.88	\$0.00	\$45.54
2	40	\$27.82	\$14.32	\$7.82	\$0.00	\$49.96
3	55	\$38.25	\$14.32	\$10.65	\$0.00	\$63.22
4	65	\$45.20	\$14.32	\$12.53	\$0.00	\$72.05
5	75	\$52.16	\$14.32	\$14.41	\$0.00	\$80.89

Effective Date - 03/02/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$24.97	\$14.32	\$6.88	\$0.00	\$46.17
2	40	\$28.54	\$14.32	\$7.82	\$0.00	\$50.68
3	55	\$39.24	\$14.32	\$10.65	\$0.00	\$64.21
4	65	\$46.37	\$14.32	\$12.53	\$0.00	\$73.22
5	75	\$53.51	\$14.32	\$14.41	\$0.00	\$82.24

Notes:

** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr
Step4 with lic\$69.00, Step5 with lic\$76.87

Apprentice to Journeyworker Ratio:**

PNEUMATIC CONTROLS (TEMP.) <i>PIPEFITTERS LOCAL 537</i>	09/01/2024	\$67.08	\$12.70	\$21.80	\$0.00	\$101.58
	03/01/2025	\$68.88	\$12.70	\$21.80	\$0.00	\$103.38

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PNEUMATIC DRILL/TOOL OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2024	\$39.28	\$9.65	\$18.40	\$0.00	\$67.33
	12/01/2024	\$40.61	\$9.65	\$18.40	\$0.00	\$68.66
	06/01/2025	\$42.00	\$9.65	\$18.40	\$0.00	\$70.05
	12/01/2025	\$43.38	\$9.65	\$18.40	\$0.00	\$71.43
	06/01/2026	\$44.82	\$9.65	\$18.40	\$0.00	\$72.87
	12/01/2026	\$46.26	\$9.65	\$18.40	\$0.00	\$74.31
	06/01/2027	\$47.71	\$9.65	\$18.40	\$0.00	\$75.76
	12/01/2027	\$49.16	\$9.65	\$18.40	\$0.00	\$77.21
	06/01/2028	\$50.66	\$9.65	\$18.40	\$0.00	\$78.71
	12/01/2028	\$52.16	\$9.65	\$18.40	\$0.00	\$80.21
For apprentice rates see "Apprentice- LABORER"						
PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2024	\$38.78	\$9.65	\$17.80	\$0.00	\$66.23
	12/01/2024	\$40.11	\$9.65	\$17.80	\$0.00	\$67.56
	06/01/2025	\$41.50	\$9.65	\$17.80	\$0.00	\$68.95
	12/01/2025	\$42.88	\$9.65	\$17.80	\$0.00	\$70.33
	06/01/2026	\$44.32	\$9.65	\$17.80	\$0.00	\$71.77
	12/01/2026	\$45.76	\$9.65	\$17.80	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
POWDERMAN & BLASTER <i>LABORERS - ZONE 2</i>	06/01/2024	\$39.53	\$9.65	\$18.40	\$0.00	\$67.58
	12/01/2024	\$40.86	\$9.65	\$18.40	\$0.00	\$68.91
	06/01/2025	\$42.25	\$9.65	\$18.40	\$0.00	\$70.30
	12/01/2025	\$43.63	\$9.65	\$18.40	\$0.00	\$71.68
	06/01/2026	\$45.07	\$9.65	\$18.40	\$0.00	\$73.12
	12/01/2026	\$46.51	\$9.65	\$18.40	\$0.00	\$74.56
	06/01/2027	\$47.96	\$9.65	\$18.40	\$0.00	\$76.01
	12/01/2027	\$49.41	\$9.65	\$18.40	\$0.00	\$77.46
	06/01/2028	\$50.91	\$9.65	\$18.40	\$0.00	\$78.96
12/01/2028	\$52.41	\$9.65	\$18.40	\$0.00	\$80.46	
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2024	\$39.53	\$9.40	\$17.55	\$0.00	\$66.48
	12/01/2024	\$40.86	\$9.40	\$17.55	\$0.00	\$67.81
	06/01/2025	\$42.25	\$9.40	\$17.55	\$0.00	\$69.20
	12/01/2025	\$43.63	\$9.40	\$17.55	\$0.00	\$70.58
	06/01/2026	\$45.07	\$9.40	\$17.55	\$0.00	\$72.02
	12/01/2026	\$46.51	\$9.40	\$17.55	\$0.00	\$73.46
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
POWER SHOVEL/DERRICK/TRENCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$56.03	\$15.30	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.48	\$15.30	\$16.40	\$0.00	\$89.18
	06/01/2025	\$58.78	\$15.30	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.23	\$15.30	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.53	\$15.30	\$16.40	\$0.00	\$93.23
	12/01/2026	\$62.98	\$15.30	\$16.40	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$55.41	\$15.30	\$16.40	\$0.00	\$87.11
	12/01/2024	\$56.85	\$15.30	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.13	\$15.30	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.57	\$15.30	\$16.40	\$0.00	\$91.27
	06/01/2026	\$60.85	\$15.30	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.29	\$15.30	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$36.17	\$15.30	\$16.40	\$0.00	\$67.87
	12/01/2024	\$37.12	\$15.30	\$16.40	\$0.00	\$68.82
	06/01/2025	\$37.97	\$15.30	\$16.40	\$0.00	\$69.67
	12/01/2025	\$38.92	\$15.30	\$16.40	\$0.00	\$70.62
	06/01/2026	\$39.78	\$15.30	\$16.40	\$0.00	\$71.48
	12/01/2026	\$40.73	\$15.30	\$16.40	\$0.00	\$72.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY MIX CONCRETE DRIVERS after 4/30/12 (Drivers Hired After 4/30/2012) <i>TEAMSTERS 25 (Suburban) - Aggregate</i>	08/01/2022	\$30.40	\$11.91	\$15.25	\$0.00	\$57.56
READY-MIX CONCRETE DRIVER <i>TEAMSTERS 25 (Suburban) - Aggregate</i>	08/01/2022	\$30.50	\$11.91	\$15.25	\$0.00	\$57.66
RECLAIMERS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$55.41	\$15.30	\$16.40	\$0.00	\$87.11
	12/01/2024	\$56.85	\$15.30	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.13	\$15.30	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.57	\$15.30	\$16.40	\$0.00	\$91.27
	06/01/2026	\$60.85	\$15.30	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.29	\$15.30	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2024	\$38.78	\$9.65	\$18.40	\$0.00	\$66.83
	12/01/2024	\$40.11	\$9.65	\$18.40	\$0.00	\$68.16
	06/01/2025	\$41.50	\$9.65	\$18.40	\$0.00	\$69.55
	12/01/2025	\$42.88	\$9.65	\$18.40	\$0.00	\$70.93
	06/01/2026	\$44.32	\$9.65	\$18.40	\$0.00	\$72.37
	12/01/2026	\$45.76	\$9.65	\$18.40	\$0.00	\$73.81
	06/01/2027	\$47.21	\$9.65	\$18.40	\$0.00	\$75.26
	12/01/2027	\$48.66	\$9.65	\$18.40	\$0.00	\$76.71
	06/01/2028	\$50.16	\$9.65	\$18.40	\$0.00	\$78.21
	12/01/2028	\$51.66	\$9.65	\$18.40	\$0.00	\$79.71
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$55.41	\$15.30	\$16.40	\$0.00	\$87.11
	12/01/2024	\$56.85	\$15.30	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.13	\$15.30	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.57	\$15.30	\$16.40	\$0.00	\$91.27
	06/01/2026	\$60.85	\$15.30	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.29	\$15.30	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofer Waterproofing &Roofer Damproofg) <i>ROOFERS LOCAL 33</i>	08/01/2024	\$51.03	\$13.03	\$21.70	\$0.00	\$85.76
	02/01/2025	\$52.28	\$13.03	\$21.70	\$0.00	\$87.01
	08/01/2025	\$53.78	\$13.03	\$21.70	\$0.00	\$88.51
	02/01/2026	\$55.03	\$13.03	\$21.70	\$0.00	\$89.76

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - SHEET METAL WORKER - Local 17-A

Effective Date - 08/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42	\$24.77	\$14.59	\$6.13	\$0.00	\$45.49
2	42	\$24.77	\$14.59	\$6.13	\$0.00	\$45.49
3	47	\$27.72	\$14.59	\$12.11	\$1.63	\$56.05
4	47	\$27.72	\$14.59	\$12.11	\$1.63	\$56.05
5	52	\$30.66	\$14.59	\$13.09	\$1.75	\$60.09
6	52	\$30.66	\$14.59	\$13.34	\$1.76	\$60.35
7	60	\$35.38	\$14.59	\$14.75	\$1.94	\$66.66
8	65	\$38.33	\$14.59	\$15.73	\$2.06	\$70.71
9	75	\$44.23	\$14.59	\$17.69	\$2.30	\$78.81
10	85	\$50.12	\$14.59	\$19.15	\$2.52	\$86.38

Effective Date - 02/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42	\$25.50	\$14.59	\$6.13	\$0.00	\$46.22
2	42	\$25.50	\$14.59	\$6.13	\$0.00	\$46.22
3	47	\$28.54	\$14.59	\$12.11	\$1.66	\$56.90
4	47	\$28.54	\$14.59	\$12.11	\$1.66	\$56.90
5	52	\$31.57	\$14.59	\$13.09	\$1.78	\$61.03
6	52	\$31.57	\$14.59	\$13.34	\$1.79	\$61.29
7	60	\$36.43	\$14.59	\$14.75	\$1.97	\$67.74
8	65	\$39.47	\$14.59	\$15.73	\$2.09	\$71.88
9	75	\$45.54	\$14.59	\$17.69	\$2.33	\$80.15
10	85	\$51.61	\$14.59	\$19.15	\$2.56	\$87.91

Notes:
Steps are 6 mos.

Apprentice to Journeyworker Ratio:1:4

SPECIALIZED EARTH MOVING EQUIP < 35 TONS	08/01/2024	\$41.34	\$14.91	\$18.67	\$0.00	\$74.92
TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/01/2024	\$41.34	\$14.91	\$20.17	\$0.00	\$76.42
	06/01/2025	\$42.34	\$14.91	\$20.17	\$0.00	\$77.42
	08/01/2025	\$42.34	\$15.41	\$20.17	\$0.00	\$77.92
	12/01/2025	\$42.34	\$15.41	\$21.78	\$0.00	\$79.53
	06/01/2026	\$43.34	\$15.41	\$21.78	\$0.00	\$80.53
	08/01/2026	\$43.34	\$15.91	\$21.78	\$0.00	\$81.03
	12/01/2026	\$43.34	\$15.91	\$23.52	\$0.00	\$82.77

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SPECIALIZED EARTH MOVING EQUIP > 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	08/01/2024	\$41.63	\$14.91	\$18.67	\$0.00	\$75.21
	12/01/2024	\$41.63	\$14.91	\$20.17	\$0.00	\$76.71
	06/01/2025	\$42.63	\$14.91	\$20.17	\$0.00	\$77.71
	08/01/2025	\$42.63	\$15.41	\$20.17	\$0.00	\$78.21
	12/01/2025	\$42.63	\$15.41	\$21.78	\$0.00	\$79.82
	06/01/2026	\$43.63	\$15.41	\$21.78	\$0.00	\$80.82
	08/01/2026	\$43.63	\$15.91	\$21.78	\$0.00	\$81.32
	12/01/2026	\$43.63	\$15.91	\$23.52	\$0.00	\$83.06
SPRINKLER FITTER <i>SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1</i>	03/01/2024	\$69.04	\$11.51	\$23.30	\$0.00	\$103.85
	10/01/2024	\$70.84	\$11.51	\$23.30	\$0.00	\$105.65
	03/01/2025	\$72.64	\$11.51	\$23.30	\$0.00	\$107.45

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

Effective Date - 03/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$24.16	\$11.51	\$12.90	\$0.00	\$48.57
2	40	\$27.62	\$11.51	\$13.70	\$0.00	\$52.83
3	45	\$31.07	\$11.51	\$14.50	\$0.00	\$57.08
4	50	\$34.52	\$11.51	\$15.30	\$0.00	\$61.33
5	55	\$37.97	\$11.51	\$16.10	\$0.00	\$65.58
6	60	\$41.42	\$11.51	\$16.90	\$0.00	\$69.83
7	65	\$44.88	\$11.51	\$17.70	\$0.00	\$74.09
8	70	\$48.33	\$11.51	\$18.50	\$0.00	\$78.34
9	75	\$51.78	\$11.51	\$19.30	\$0.00	\$82.59
10	80	\$55.23	\$11.51	\$20.10	\$0.00	\$86.84

Effective Date - 10/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$24.79	\$11.51	\$12.90	\$0.00	\$49.20
2	40	\$28.34	\$11.51	\$13.70	\$0.00	\$53.55
3	45	\$31.88	\$11.51	\$14.50	\$0.00	\$57.89
4	50	\$35.42	\$11.51	\$15.30	\$0.00	\$62.23
5	55	\$38.96	\$11.51	\$16.10	\$0.00	\$66.57
6	60	\$42.50	\$11.51	\$16.90	\$0.00	\$70.91
7	65	\$46.05	\$11.51	\$17.70	\$0.00	\$75.26
8	70	\$49.59	\$11.51	\$18.50	\$0.00	\$79.60
9	75	\$53.13	\$11.51	\$19.30	\$0.00	\$83.94
10	80	\$56.67	\$11.51	\$20.10	\$0.00	\$88.28

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

Apprentice to Journeyworker Ratio:1:3

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
STEAM BOILER OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$55.41	\$15.30	\$16.40	\$0.00	\$87.11
	12/01/2024	\$56.85	\$15.30	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.13	\$15.30	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.57	\$15.30	\$16.40	\$0.00	\$91.27
	06/01/2026	\$60.85	\$15.30	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.29	\$15.30	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$55.41	\$15.30	\$16.40	\$0.00	\$87.11
	12/01/2024	\$56.85	\$15.30	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.13	\$15.30	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.57	\$15.30	\$16.40	\$0.00	\$91.27
	06/01/2026	\$60.85	\$15.30	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.29	\$15.30	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN <i>ELECTRICIANS LOCAL 103</i>	09/01/2024	\$51.02	\$13.00	\$20.24	\$0.00	\$84.26
	03/01/2025	\$51.98	\$13.00	\$20.27	\$0.00	\$85.25
	09/01/2025	\$53.51	\$13.00	\$20.32	\$0.00	\$86.83
	03/01/2026	\$54.47	\$13.00	\$20.34	\$0.00	\$87.81
	09/01/2026	\$56.00	\$13.00	\$20.39	\$0.00	\$89.39
	03/01/2027	\$56.95	\$13.00	\$20.42	\$0.00	\$90.37
	09/01/2027	\$58.49	\$13.00	\$20.46	\$0.00	\$91.95
	03/01/2028	\$59.45	\$13.00	\$20.49	\$0.00	\$92.94

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - TELECOMMUNICATION TECHNICIAN - Local 103

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$22.96	\$13.00	\$0.69	\$0.00	\$36.65
2	45	\$22.96	\$13.00	\$0.69	\$0.00	\$36.65
3	50	\$25.51	\$13.00	\$16.16	\$0.00	\$54.67
4	50	\$25.51	\$13.00	\$16.16	\$0.00	\$54.67
5	55	\$28.06	\$13.00	\$16.57	\$0.00	\$57.63
6	60	\$30.61	\$13.00	\$16.97	\$0.00	\$60.58
7	65	\$33.16	\$13.00	\$17.38	\$0.00	\$63.54
8	70	\$35.71	\$13.00	\$17.78	\$0.00	\$66.49
9	75	\$38.27	\$13.00	\$18.18	\$0.00	\$69.45
10	80	\$40.82	\$13.00	\$18.58	\$0.00	\$72.40

Effective Date - 03/01/2025

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

Notes:

Apprentice to Journeyworker Ratio:1:1

TERRAZZO FINISHERS	08/01/2024	\$63.44	\$11.49	\$23.59	\$0.00	\$98.52
BRICKLAYERS LOCAL 3 - MARBLE & TILE	02/01/2025	\$64.74	\$11.49	\$23.59	\$0.00	\$99.82
	08/01/2025	\$66.89	\$11.49	\$23.59	\$0.00	\$101.97
	02/01/2026	\$68.24	\$11.49	\$23.59	\$0.00	\$103.32
	08/01/2026	\$70.44	\$11.49	\$23.59	\$0.00	\$105.52
	02/01/2027	\$71.84	\$11.49	\$23.59	\$0.00	\$106.92

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$55.41	\$15.30	\$16.40	\$0.00	\$87.11
	12/01/2024	\$56.85	\$15.30	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.13	\$15.30	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.57	\$15.30	\$16.40	\$0.00	\$91.27
	06/01/2026	\$60.85	\$15.30	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.29	\$15.30	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	08/01/2024	\$41.92	\$14.91	\$18.67	\$0.00	\$75.50
	12/01/2024	\$41.92	\$14.91	\$20.17	\$0.00	\$77.00
	06/01/2025	\$42.92	\$14.91	\$20.17	\$0.00	\$78.00
	08/01/2025	\$42.92	\$15.41	\$20.17	\$0.00	\$78.50
	12/01/2025	\$42.92	\$15.41	\$21.78	\$0.00	\$80.11
	06/01/2026	\$43.92	\$15.41	\$21.78	\$0.00	\$81.11
	08/01/2026	\$43.92	\$15.91	\$21.78	\$0.00	\$81.61
	12/01/2026	\$43.92	\$15.91	\$23.52	\$0.00	\$83.35
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"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	08/01/2024	\$41.34	\$14.91	\$18.67	\$0.00	\$74.92
	12/01/2024	\$41.34	\$14.91	\$20.17	\$0.00	\$76.42
	06/01/2025	\$42.34	\$14.91	\$20.17	\$0.00	\$77.42
	08/01/2025	\$42.34	\$15.41	\$20.17	\$0.00	\$77.92
	12/01/2025	\$42.34	\$15.41	\$21.78	\$0.00	\$79.53
	06/01/2026	\$43.34	\$15.41	\$21.78	\$0.00	\$80.53
	08/01/2026	\$43.34	\$15.91	\$21.78	\$0.00	\$81.03
	12/01/2026	\$43.34	\$15.91	\$23.52	\$0.00	\$82.77
WAGON DRILL OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2024	\$39.28	\$9.65	\$18.40	\$0.00	\$67.33
	12/01/2024	\$40.61	\$9.65	\$18.40	\$0.00	\$68.66
	06/01/2025	\$42.00	\$9.65	\$18.40	\$0.00	\$70.05
	12/01/2025	\$43.38	\$9.65	\$18.40	\$0.00	\$71.43
	06/01/2026	\$44.82	\$9.65	\$18.40	\$0.00	\$72.87
	12/01/2026	\$46.26	\$9.65	\$18.40	\$0.00	\$74.31
	06/01/2027	\$47.71	\$9.65	\$18.40	\$0.00	\$75.76
	12/01/2027	\$49.16	\$9.65	\$18.40	\$0.00	\$77.21
	06/01/2028	\$50.66	\$9.65	\$18.40	\$0.00	\$78.71
	12/01/2028	\$52.16	\$9.65	\$18.40	\$0.00	\$80.21
For apprentice rates see "Apprentice- LABORER"						
WAGON DRILL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2024	\$38.78	\$9.65	\$17.80	\$0.00	\$66.23
	12/01/2024	\$40.11	\$9.65	\$17.80	\$0.00	\$67.56
	06/01/2025	\$41.50	\$9.65	\$17.80	\$0.00	\$68.95
	12/01/2025	\$42.88	\$9.65	\$17.80	\$0.00	\$70.33
	06/01/2026	\$44.32	\$9.65	\$17.80	\$0.00	\$71.77
	12/01/2026	\$45.76	\$9.65	\$17.80	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$56.03	\$15.30	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.48	\$15.30	\$16.40	\$0.00	\$89.18
	06/01/2025	\$58.78	\$15.30	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.23	\$15.30	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.53	\$15.30	\$16.40	\$0.00	\$93.23
	12/01/2026	\$62.98	\$15.30	\$16.40	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER <i>PLUMBERS & GASFITTERS LOCAL 12</i>	09/01/2024	\$69.54	\$14.32	\$19.11	\$0.00	\$102.97
	03/02/2025	\$71.34	\$14.32	\$19.11	\$0.00	\$104.77
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						

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 A00801

SPECIAL PROVISIONS**ARLINGTON – LEXINGTON****Scheduled Substructure Repairs L-10-017, L-10-020, A-10-020, A-10-012**

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

SCOPE OF WORK

All work under this Contract shall be done in conformance with the *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.

The Work will include but not be limited to:

- 1) Removing the deteriorated concrete from any element of the substructure, including but not limited to pier caps, pier columns, wing walls, backwalls, breastwalls and abutments.
- 2) Jacking and shoring to support pier caps and/or various beams over piers and abutments may be required to allow concrete repairs to the substructure.
- 3) Replacing excavated, spalled, delaminated, or deteriorated concrete, and replacing any broken, missing or deteriorated reinforcing steel with new material.
- 4) Replacing missing or damaged granite or cement concrete slope paving, either in kind or with cement concrete slope paving where needed and as directed by the Engineer.

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

SUBSECTION 7.05 INSURANCE REQUIREMENTS

B. Public Liability Insurance

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

Paragraphs 1 and 2

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

LOCATION OF WORK

The following specific bridges are included in this Contract.

<u>Bridge No.</u>	<u>City/Town</u>	<u>Facility Carried</u>	<u>Feature Intersected</u>
A-10-012 (2DN)	Arlington	ST 60 PLEASANT ST	ST 2
A-10-020 (2LK)	Arlington	PARK AVE	ST 2
L-10-017 (2LX)	Lexington	SPRING ST	ST 2
L-10-020 (2KA)	Lexington	WATERTOWN ST	ST 2

No work shall be performed under this contract until specifically authorized and required by the Engineer. Furthermore, this Contract does not assign to the Contractor complete maintenance of the bridges owned by the Department. The Department reserves the right to perform such work as it deems best with its own forces, and/or to enter into special contracts for the maintenance of specific items.

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.

SCHEDULE OF WORK

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

Night Time Work

All work locations requiring night hours, as approved by the Engineer, are restricted as follows:

Sunday: 8:00 PM to 5:00 AM Monday
Monday: 8:00 PM to 5:00 AM Tuesday
Tuesday: 8:00 PM to 5:00 AM Wednesday
Wednesday: 8:00 PM to 5:00 AM Thursday
Thursday: 8:00 PM to 5:00 AM Friday

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

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

No entrance or exit ramp shall be closed to traffic except between the hours of 8:00 PM and 5:00 AM the following day or as directed. The Contractor shall be required to schedule the work activities such that not more than one ramp shall be closed during any given work period.

These time periods include the "set-up" and "breakdown" of the traffic pattern employed. No operations, personnel, or equipment will be allowed on the roadways except during working hours.

The work hour restrictions do not apply to emergency conditions, as determined by the Engineer.

CONTRACTOR ACCESS

Contractors shall be aware that there are multi-span bridges with piers located away from the road. No compensation will be made for access roads to get equipment or personnel to the work site. In addition, no compensation will be made for staging to access repair areas, etc.

Contractors requesting to stage in job areas must coordinate with the District 4 Permits Section.

HOLIDAY WORK RESTRICTIONS

(Supplementing Subsection 7.09)

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

Below are the holiday work restrictions:

New Years Day (Federal Holiday)

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

Martin Luther King's Birthday (Federal Holiday)

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

President's Day (Federal Holiday)

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

Evacuation Day (Suffolk County State Holiday)

No work restrictions due to traffic concerns.

Patriot's Day (State Holiday)

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

Mother's Day

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

Memorial Day (Federal Holiday)

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

Bunker Hill Day (Suffolk County State Holiday)

No work restrictions due to traffic concerns.

Juneteenth

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

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

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

Labor Day (Federal Holiday)

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

Columbus Day (Federal Holiday)

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

Veterans' Day (Federal Holiday)

No work restrictions due to traffic concerns.

Thanksgiving Day (Federal Holiday)

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

Christmas Day (Federal Holiday)

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

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.

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.

TRAFFIC ACCOMMODATION

(Supplementing Subsection 7.17)

Traffic control devices shall comply with the relevant provisions of Subsection 850, the applicable sections of 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 Manual for Assessing Safety Hardware*, and the following:

The order of precedence for the document that governs the positioning, sizing, color(s), shape, design, and operation of temporary traffic control devices shall be as set forth below:

1. Details for a specific location that have been designed by the Contractor and approved by the Engineer.
2. Details included in this contract.
3. MassDOT's *Work Zone Safety Temporary Traffic Control (Document A00815 on this Contract), Typical Details and Massachusetts Guidelines for MassDOT, Municipalities, Utilities, and Contractors*.
4. MassDOT's *Standard Details and Drawings for the Development of Temporary Traffic Control Plans* (<https://www.mass.gov/files/documents/2017/10/24/tcp.pdf>).
5. *2022 Massachusetts Amendments to the MUTCD* (<https://www.mass.gov/doc/massachusetts-amendments-to-the-mutcd-2022/download>).
6. *2009 Manual on Uniform Traffic Control Devices (MUTCD) with Revisions 1, 2, and 3* (<https://mutcd.fhwa.dot.gov/>).

During construction, the Contractor shall contact the Engineer for the most recent copy of the *Work Zone Safety Temporary Traffic Control, Typical Details and Massachusetts Guidelines for MassDOT, Municipalities, Utilities, and Contractors*.

Truck Mounted Attenuators (TMAs), when shown in any details, are mandatory. Truck Mounted Attenuators shall shadow Temporary Traffic Control service vehicles during setup and breakdown of all temporary traffic control setups on roadways with speeds greater than 45 mph.

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

MassDOT reserves the right to provide certified Roadway Flaggers, who are MassDOT employees, at the discretion of the Engineer. The Contractor shall not be charged nor compensated for the use of MassDOT employee flaggers.

PREPARATION OF CONCRETE SURFACES:

All concrete surfaces to be patched shall be roughened, cleaned of all laitance, dirt, grease, oil, other contaminants, and all standing water. All reinforcing steel encountered in the excavation shall be thoroughly cleaned by abrasive blasting and coated with a zinc-rich primer conforming to MassDOT Standard Specification M7.04.11 before being covered with new concrete.

With approval of the Engineer the Contractor may choose one of the following surface preparation methods. In bonding new concrete to already set concrete the surface of the concrete shall be thoroughly cleaned and roughened then

- A) Wetted with clean water, and then flushed with a mortar composed of equal parts of the cement and sand specified for the new concrete, before new concrete is placed adjacent thereto. New concrete shall be placed before mortar has taken initial set.
- B) Wetted with clean water, and then an epoxy adhesive suitable for bonding fresh concrete to hardened concrete for load bearing applications may be used. The epoxy adhesive shall conform to AASHTO M 235M/M 235 Type V and shall be applied in accordance with the manufacturer's recommendations.
- C) Ponded with clean water to achieve Saturated Surface Dry (SSD) condition then it shall then be blown off with oil free compressed air.

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.

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. As there is no Federal nexus (Federal funding or permits) for this project Section 7 consultation was not required or conducted. However, Section 9 of the ESA prohibits anyone from "taking" or harming an endangered species, and the below language shall be adhered to in order to maintain compliance with the ESA.

NORTHERN LONG-EARED BAT PROTECTION (Continued)

If any of the project locations require work within U.S. Army Corps of Engineers (ACOE) jurisdictional wetlands, the ACOE will be the lead federal agency for ESA consultation with the U.S. Fish & Wildlife Service (USFWS). Most consultations for the NLEB take 30 days.

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

The range of the NLEB in Massachusetts was revised in early 2023, and some AMMs may no longer be applicable at some project locations. The Resident Engineer can check on the status of AMM applicability by sending a locus map of the proposed work to MassDOT Highway Division's Environmental Services Section - Wildlife & Endangered Species Unit Supervisor for review and a determination if some of the AMMs and TOY restriction can be waived.

Required AMM for all projects:

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

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

Lighting AMM:

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

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

Tree AMMs:

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

NORTHERN LONG-EARED BAT PROTECTION (Continued)

If the Bridge Work is proposed within the project scope, the following AMMs are applicable:

Bridge AMMs:

- **Bridge AMM 1** - To completely avoid direct effects to roosting bats, perform any bridge removal, replacement, and/or maintenance work during the winter hibernation period unless a hibernating colony of bats is present (contact your local USFWS Field Office for exact dates). Also, follow Bridge AMM 4.
 - **Note:** Bridge AMM 1 is an avoidance measure for direct effects; the full implementation of which may not always be practicable. **If bridge removal, replacement, and/or maintenance work must be performed outside of the winter hibernation period, then follow Bridge AMMs 2-4.**

- **Bridge AMM 2 - Colony or Assuming Presence of Bats**
 - If assuming presence of bats or if bridge assessment or P/A surveys suggest presence of a colony of bats, and work is conducted during the active season, ensure activity will not disturb bats. The following types of bridge work can generally be conducted with the presence of bats:
 - above deck work where construction equipment or materials do not extend to the underside of deck where bats may be located (e.g., materials that may drip down to underside of deck), or does not include percussives (vibration) or noise levels above general traffic (e.g., road line painting, wing-wall work).
 - below deck work that is conducted away from roosting bats and does not involve percussives or noise level above general traffic (e.g., wing-wall work, some abutment, beam end, scour, or pier repair).

- **Bridge AMM 3 - Small Number of Bats**
 - If bridge assessment or P/A surveys suggest presence of a small number of bats (<5 – not a colony), and work is conducted during the active season, the following types of bridge work can generally be conducted with the presence of bats:
 - above deck work where construction equipment or materials do not extend to the underside of deck where bats may be located (e.g., materials that may drip down to underside of deck), or does not include percussives (vibration) or noise levels above general traffic (e.g., road line painting, wing-wall work).
 - below deck work that is conducted away from roosting bats and does not involve percussives or noise level above general traffic (e.g., wing-wall work, some abutment, beam end, scour, or pier repair).
 - any other bridge removal, replacement, and/or maintenance work (which may include activities with percussives) conducted in the evening while the bats are feeding, starting one hour after sunset, and ending one hour before daylight excluding the hours between 10 p.m. and midnight and keep the light localized.

- **Bridge AMM 4** - If assuming presence of bats, or if bridge assessment or P/A surveys suggest presence of bats, ensure suitable roosting habitat is maintained. Suitable roosting sites may be incorporated into the design of a new bridge.

ENVIRONMENTAL PERMITTING

No environmental permits have been obtained at this time. The Contractor must notify the District Highway Director and the 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 Environmental Engineer. The Contractor shall 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. The Contractor is responsible for preventing no debris of any type to enter waterways or wetland resource areas.

After Notice to Proceed, the Contractor is responsible for complying with any and all environmental permits issued for the work covered under this Contract. The Contractor will not receive additional compensation for work required to achieve compliance with any issued environmental permits as payment for the work will be included in the various bid items.

EROSION AND SEDIMENT CONTROL

The Engineer has the authority to limit the surface areas of erodible earth material exposed by excavation, borrow and fill or similar operations, and to direct the Contractor to provide immediate, permanent, or temporary control measures to prevent contamination of any adjacent bodies of water or drainage systems by installing compost filter tubes, staked hay bales, sedimentation basins, silt fences or other control devices. Work or methods as necessary to control erosion and sedimentation will be paid under related items of work.

The erosion and sediment control features installed by the Contractor shall be satisfactorily maintained by the Contractor until acceptance of work under this Contract.

In the event of conflict between these Specifications and Laws, Rules, or Regulations of local agencies, the more restrictive requirements shall apply.

If temporary erosion and sediment control measures become necessary due to the Contractor's negligence or carelessness, the control measures shall be performed at the Contractor's own expense.

Failure by the Contractor to control erosion, pollution, and/or siltation shall be cause for the Engineer to employ departmental action and/or outside assistance to provide the necessary corrective measures, the cost of which shall be deducted from the Contractor's monthly progress estimate.

FORMWORK AND SITEWORK

The temporary formwork used for concrete placement shall be removed and disposed of by the Contractor. Any formwork that is not removed within forty-five (45) days after the concrete placement and is reported by Bridge Inspection or other MassDOT personnel will impose a damage of \$500.00 for each form location (On one bridge there may be multiple locations). Payment for this work shall be included in the unit price under the applicable item.

The Contractor is required to broom and clean all work site areas after the removal of excavated debris, regardless of the pre-existing conditions. These include areas excavated under joints such as pier caps and revetment areas. This removal of debris is incidental to the Contract with no additional compensation.

DRAINAGE

It shall be the Contractor's responsibility to maintain the function of drainage systems in areas within or adjacent to the limits of construction.

PIGEON WASTE

The Contractor shall remove and dispose of the pigeon waste and any other debris accumulated on the steel members and bridge seats in areas where work is being performed. Pigeon waste and debris material contaminants will require special handling and disposal in accordance with all Federal, state, and local requirements. No separate payment will be made for removal and disposal of pigeon waste. Cost shall be incidental to the contract pay items.

NOTICE TO OWNERS OF UTILITIES

(Supplementing Subsection 7.13)

If available, existing bridge plans indicate the location of the existing known utilities in the vicinity of the work. As the accuracy and completeness of the plans are not guaranteed in any manner, it is the Contractor's responsibility to make their own investigation to assure that no damage to existing structures, drainage lines, traffic signal conduits, etc., will occur.

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 the Contractor's 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.

A list of public and private utilities can be found on the MassDOT website at:
<https://www.mass.gov/info-details/utility-contacts-by-district-and-municipality>

Select District 4

Select Arlington or Lexington, and then locate the utility

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

NATIONAL GRID EMERGENCY TELEPHONE NUMBERS

GAS:

Emergency: 1-800-233-5325

New Service: 1- 877-696-4743

Customer Support: 1-800-732-3400

EVERSOURCE EMERGENCY TELEPHONE NUMBERS

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

NOTIFICATION OF PUBLIC OFFICIALS

Town officials are shown at website <https://www.mass.gov/lists/massachusetts-cities-and-towns> and select the required City/Town website.

State Police are shown at website <https://www.mass.gov/info-details/massachusetts-state-police-troop-boundaries>. Select the area of jurisdiction to find the local station.

The Contractor shall inform the following officials in each area that he is assigned to work in:

Superintendent, Department of Public Works, or Town Engineer. Superintendent, Water Department, Superintendent, Sewer Departments. Police Department, Fire Department, Electric Company, Railroads.

CONTRACTOR DESIGN REQUIREMENTS

All design drawings and calculation submittals that are prepared and stamped by a Professional Engineer shall be checked by a second Professional Engineer. Both Professional Engineers shall be registered in the Commonwealth of Massachusetts and be of the appropriate engineering discipline. All drawings calculation sheets shall contain the “calculated by” or “drawn by”, and “checked by” sections with the initials of both Professional Engineers.

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 fragment 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 100. EXCLUSION

ITEM 100. is excluded from this project.

All costs associated with SECTION 722 are the responsibility of the Contractor and shall be considered incidental to the cost of the project, and no additional compensation will be allowed.

ITEM 102.21 **SELECTIVE CLEARING AND GRUBBING** **SQUARE YARD**

The work under this Item shall conform to the relevant provisions of Subsections 101, 751, 765 of the Standard Specifications supplemented with the following:

The work to be done under this item consists of clearing trees and shrubs outside the proposed parapet face of the wingwall and other selected areas required by the Engineer to provide access for repair, repainting, and inspection work.

All debris shall be removed and properly disposed from the site. This work shall include any required grading of the loamed areas and seeding in order to provide a stand of grass in the disturbed areas.

Trees and shrubs that interfere with the clear view of safety signs and existing signs within the limits of work shall be trimmed, as required by the Engineer. Trees and shrubs growing adjacent to or within the revetment under the bridges shall be removed, as required by the Engineer.

METHOD OF MEASUREMENT

Item 102.21 will be measured for payment by the Square Yard of selective clearing and grubbing.

BASIS OF PAYMENT

Item 102.21 will be paid for at Contract unit bid price per Square Yard, which price shall include all clearing, grubbing, loam, seed, seeding, grading, labor, materials, equipment, removal, disposal costs, and incidental costs required to complete the work.

ITEM 106.88**JACKING AND SHORING****EACH**

The work under this item consists of jacking and supporting existing beams/girders, pier caps and columns as required by the Engineer.

Shoring materials may be new or second hand. The Contractor shall submit a plan of the proposed work showing the details and indicating the materials to be used. The submittal shall include the jacking load calculations and shoring design computations based on the bridge configurations and the working stresses of the materials used, sequence of operations, and all details incidental thereto. The submittal shall also include a plan showing the location of all utilities and other appurtenances in the areas of the work. The Contractor shall be responsible to protect from damage all utility lines, including but not limited to, high voltage wires, signal cables, electric, gas and water, and telephone cables that pass over or under the bridge. Unless otherwise directed by the Engineer, the proposed jacking and shoring system shall be designed to apply force in increments to the existing beam/girder to relieve load from the existing substructure. The jack(s) shall have a locking mechanism preventing the beam/girder from lowering in the event of loss of hydraulic pressure. All components of the system shall have load capacity greater than the total calculated load carried by the existing beam/girder during normal traffic operation, which includes but is not limited to dead load, live load, and impact load.

Bridge Loads: Loads (live and impact loads, dead loads) necessary to design shoring paid under this Item will be as shown in the drawings. Construction Loads are not included. All materials (except jacks) shall be designed by working stress design (ASD). Type of jacks used and factor of safety shall be per industry standards.

Approval of this submission shall be obtained prior to the commencement of any work under this item. The above plan and computations shall bear the seal and signature of a Professional Engineer of the appropriate discipline registered in Massachusetts.

Materials shall meet the following:

Anchor Bolts, Nuts and Washers:	M8.01.5
Structural Steel:	M8.05.0
Wood Products:	M9.05.1

The Contractor shall remove and retain ownership of all materials and items furnished by him and that are not part of the permanent structure unless other prior arrangements are made with the Engineer for MassDOT to purchase all or some of the shoring elements.

All treated wood supplied by the Contractor shall meet the requirements of M9.05.1 for Wood Products, including the most recent versions of AWPA U1 and M4, which are incorporated by reference. No new wood shall be treated with inorganic arsenic (including chromated copper arsenate (CCA), ammoniacal copper arsenate (ACA), and ammoniacal copper zinc arsenate (ACZA)), creosote or pentachlorophenol in all project construction.

At the determination of the Engineer extensive repairs require temporarily supporting some of the beams/girders on one or both sides of a pier cap(s), or abutment(s) those beams/girders shall be jacked/shored all at once as one unit for the length of time required to remove deteriorated concrete from the pier/abutment and to replace the excavated concrete with new concrete.

ITEM 106.88 (Continued)

The work shall be performed as follows:

Erect supports under each beam/girder as required by the Engineer. When possible, all supports shall be located 4'-0" from the centerline of each corresponding pier or centerline of bearing at each corresponding abutment. The cribbing for the support footings shall be of a sufficient size to prevent any settlement or damage to the footings while the superstructure is being adequately supported as required by the Engineer.

In the event of any damage to the structure due to the Contractor's operations, the Contractor shall repair or replace any such damaged components, at no cost to the department. The support of the beams/girders shall remain in place until all the requirements of Item 127.12 - Reinforced Concrete Substructure Excavation and Item 905. 4000 PSI, 3/8 INCH, 660 Cement Concrete is completed and accepted by the Engineer.

When the repairs are completed and the supports are no longer needed as determined by the Engineer, all supporting materials shall be removed and become the property of the Contractor unless other prior arrangements were previously made with MassDOT.

Each bridge will be kept open to traffic while the beams/girders are supported. The Contractor's attention is directed to the fact that Route 2 is a heavily traveled high-speed road with a high volume of truck traffic.

Bid pricing for this Item should be predicated on a typical shoring design.

METHOD OF MEASUREMENT

Item 106.88 will be measured for payment by the Each steel or concrete beam/girder end jacked and shored as required by the Engineer. Multiple jacking of the same end for the same repair will not be measured separately. Jacking adjacent beams for relief loading shall be incidental to this Item.

BASIS OF PAYMENT

Items 106.88 will be paid for at the Contract unit price per Each, which price shall include all labor, materials, tools, equipment, engineering services and all incidental costs required to complete the work which includes placement and removal. Placement of shoring that is necessary to support a pier cap during the repair of a pier column will also be compensated under this Item. Jacking and Shoring Removed and Reset will be paid under Item 106.881.

ITEM 106.881 JACKING AND SHORING REMOVED AND RESET EACH

The work under this Item shall consists of removing and resetting the jacking and shoring, and shall conform to the relevant provisions of the Standard Specifications, and the following:

When an assigned work location requires more than one shoring tower and one or more of those towers can be reset at a subsequent repair within the same work location after the initial repair has been completed, those tower(s) shall be removed and reset to the new location as required by the Engineer. It is not intended for this item to be used when shoring towers are to be transported to a different work location.

METHOD OF MEASUREMENT

Item 106.881 will be measured for payment by the Each, jacking and shoring removed and reset.

BASIS OF PAYMENT

Item 106.881 will be paid for at the Contract unit price per Each, which price shall include all labor, materials, tools, equipment, all incidental costs necessary to disassemble the shoring unit, prepare the bedding on which the tower will be reset, re-assemble the shoring unit and place jack or shims as required, and all incidental costs required to complete the work.

ITEM 106.894**CRIBBING PER BEAM END****EACH**

The work under this Item consists of installing pressure treated wood block supports under the diaphragms next to the beam seats to support existing steel beams. The material shall conform to section M9.05.1, Wood Products. Typically, there would be two locations per interior beam end and one location for an exterior beam end.

The cribbing is to be used as required by the Engineer, to ensure the stability of the bridge structure and to prevent any beam distortion or settlement before permanent superstructure and/or substructure repairs are completed.

Gaps shall be shimmed as approved by the Engineer.

This method of beam end supports shall be utilized where the steel end diaphragm and the concrete encasement are in sound condition; i.e., without any concrete spalling and/or deterioration of the steel connection at steel diaphragm to beam.

The Contractor shall submit a plan of the proposed work showing the details and indicating the materials he intends to use. The submittal shall include design computations based on the AASHTO Standard Specifications for Highway Bridges Load Group I (i.e., dead load, live load plus impact, etc.), allowable stresses for the materials used, sequence of operations, and all details incidental thereto. When multiple beams ends are shored simultaneously, the cribbing system shall also be designed for the controlling AASHTO Standard Specifications for Highway Bridges load groups that include lateral loads.

The submittal shall be designed by a Professional Engineer, registered in Massachusetts and shall be submitted to the Engineer for approval seal and signature.

METHOD OF MEASUREMENT

Item 106.894 will be measured for payment by the Each location of end cribbing support required for beams by this system as directed by the Engineer, complete in place and accepted. The unit EACH shall mean each beam end supported.

BASIS OF PAYMENT

Item 106.894 will be paid for at the Contract unit price per Each, which price shall include installation, all labor, materials, tools, equipment, engineering services, removal of cribbing systems after completion of the work, and all incidental costs required to complete the work.

ITEM 127.12**REINFORCED CONCRETE SUBSTRUCTURE
EXCAVATION****CUBIC YARD**

The work under this Item shall conform to the relevant Provisions of Subsection 120 and 482 of the Standard Specifications and the following:

The work under this Item consists of the removal and disposal of all deteriorated, spalled, and scaled concrete as required to repair the existing concrete substructure elements to the general lines identified on the drawings and as required by the Engineer.

During the prosecution of the Work, the Engineer may reject the use of any method or equipment which causes undue vibration or possible damage to the structure or any part thereof. Pneumatic hammers heavier than the nominal 25 pounds mass shall not be used unless approved by the Engineer.

Minimum depth of excavation to sound concrete shall be one inch (1") beyond the inner most layer of reinforcing steel, but not less than four inches (4") from the original surface. The Contractor shall stop excavating deteriorated concrete when the depth of excavation reaches six inches (6") and shall notify the Engineer immediately. The edges of the patch shall be cut to neat lines by saw cutting or by methods approved by the Engineer, and the patch areas shall be made rectangular in shape, if possible, with horizontal and vertical edges and avoid over cutting square corners.

The Contractor shall limit extent of excavation of the pier caps and columns as shown on the repair sequence contract drawings. If the Contractor exceeds the limits of excavation as shown on the repair sequence contract drawings, then temporary shoring shall be installed to alleviate loading on the substructure, at no additional cost to the Department. The Contractor may submit an alternate method of reinforced concrete excavation to be approved by the Engineer. The alternate method, if approved by the Engineer, shall not incur any additional costs to the Department, and Item 127.12 Reinforced Concrete Substructure Excavation will be paid at the contract unit price regardless of the method used to complete the work.

The Contractor shall take all precautions necessary so as not to damage those portions of the bridge including reinforcing steel that are to remain. This includes determining the concrete cover to the steel bars at the edge of each patch prior to excavating concrete. Any steel that is unsuitable for further use through no fault of the Contractor shall be replaced under Item 910. Steel Reinforcement for Structures. All reinforcing steel that is loose shall be tied tightly together using epoxy coated wire ties.

Also, included under this Item are all costs in connection with the cleaning, cutting, and bending of the existing reinforcing steel designated to be retained in the proposed repair.

ITEM 127.12 (Continued)

METHOD OF MEASUREMENT

Item 127.12 will be measured for payment by the Cubic Yard of reinforced concrete substructure excavated, removed, and properly disposed of.

BASIS OF PAYMENT

Item 127.12 will be paid for at the Contract price per Cubic Yard, which price shall include all labor, tools, equipment, materials, cleaning, excavation, removal, disposal of all debris, and all incidental costs required to complete the work.

ITEM 628.4**TEMPORARY IMPACT ATTENUATOR
REMOVED AND RESET****EACH**

The work under this Item shall conform to the relevant provisions of Subsection 628 of the Standard Specifications and shall consist of maintaining, removing and reinstalling temporary impact attenuators where indicated on the plans or as required by the Engineer, and the following:

MATERIALS

The Contractor shall supply a temporary impact attenuator that meets the same or higher crash Test Level (TL) as the adjacent temporary barrier unless otherwise shown on the plans. The temporary attenuator shall be listed on the Department's Qualified Traffic Control Equipment List.

The temporary impact attenuator shall be designed to fit within reasonably close tolerance of the dimensions given on the plans.

The Contractor shall supply shop drawings for the temporary attenuator and for any anchorage system and for any transitions or connections between the temporary attenuator and the adjacent barrier or other roadside hazard.

The side of the temporary attenuator that faces traffic shall include a Type 3 Object Marker that conforms to the language found in Sections 2C.64 and 2C.65 of the Manual on Uniform Traffic Control Devices.

Unless a separate barrier system protects it from opposing traffic, only temporary impact attenuators that are certified for bi-directional use shall be used in medians.

CONSTRUCTION METHODS

Installation means and methods shall be per the manufacturer's specifications and/or drawings. Temporary Impact Attenuators Removed and Reset consists of removing temporary impact attenuators, relocating, and reinstalling at a new location per the specifications and recommendations of the manufacturer and as shown on the plans or as required by the Engineer. Excavation for temporary attenuator foundations and anchorage shall be made to the required depth and to a width that will permit the installation and bracing of forms where necessary. All soft and unsuitable material shall be replaced with compacted gravel borrow.

ITEMS 628.4 (Continued)

The Contractor shall supply to the Engineer instructions for installation and the manufacturer's recommended routine inspection and maintenance program. The cost of inspection and maintenance of temporary attenuators shall be considered incidental to this Item.

Damaged temporary impact attenuators shall be replaced by the Contractor within 24 hours or as required by the Engineer. A truck mounted attenuator that meets the same or higher TL or other means of protecting the damaged temporary impact attenuator shall be deployed until the repairs or replacement has been completed at the Contractor's expense.

METHOD OF MEASUREMENT

Item 628.4 will be measured for payment by the Each temporary impact attenuator, removed and reset.

BASIS OF PAYMENT

Items 628.4 will be paid for at the Contract unit price per Each, which price shall include all labor, materials, equipment, foundations and anchorages, installation, maintenance, final removal, and all incidental costs required to complete the work.

ITEM 740. ENGINEERS 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:

A computer system 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.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

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 853.21**TEMPORARY BARRIER REMOVED AND RESET****FOOT**

Work under this item shall conform to the relevant provisions of Subsection 850 and shall consist of removing, transporting and resetting temporary barrier systems and limited deflection temporary barrier systems from alignments established along the roadway to new alignments in accordance with the details shown on the plans, as required by the construction and staged construction operations and as required by the Engineer for the channelization of traffic and/or work zone protection.

The work shall also include furnishing and installing all hardware and associated materials per the details and/or manufacturer's specifications. The work shall also include necessary patches and repairs caused by the temporary barrier system to damaged pavement surfaces or any adjacent longitudinal barrier once the system has been removed.

Temporary barrier systems and limited deflection temporary barrier systems shall be removed from existing locations and reset in accordance to the construction methods stated in the respective barrier items.

Damage to the pavement surface or adjacent permanent barriers caused by removing or resetting temporary barrier shall be repaired as required by the Engineer at the Contractor's expense.

METHOD OF MEASUREMENT

Item 853.21 will be measured for payment by the Foot of temporary barrier removed, reset relocated, realigned and transported. The Contractor will be paid for this item each time the barrier is relocated either to a new work zone, to off-season storage, or back to the project from storage.

The Contractor will not be separately compensated for any work necessary to maintain or realign units or replace damaged units. No payment will be made for removing and resetting barriers for the purpose of gaining access to the construction work zone. No payment will be made for removing, relocating and resetting any barriers moved for the convenience of the Contractor.

BASIS OF PAYMENT

Item 853.21 will be paid for at the Contract unit price per Foot, which price shall include removal, resetting, relocation, realignment, transportation, all labor, materials, tools, equipment, and all incidental costs required to complete the work.

For temporary barrier systems that require anchorage systems, the cost of furnishing, installing and removing the anchorage and hardware and the restoration of pavement surfaces or adjacent permanent barrier systems to facilitate anchorage shall be considered incidental to the cost of this Item.

ITEM 853.33 TEMPORARY BARRIER LIMITED DEFLECTION (TL-3) FOOT

The work under this Item shall conform to the relevant provisions of Subsection 850 of the Standard Specifications and shall consist of furnishing, installing, maintaining and final removal of limited deflection TL-3 temporary barrier systems for channelization of traffic and/or work zone protection. Limited deflection temporary barrier systems shall have a maximum dynamic deflection of 24 inches and in all cases the clear area available behind the barrier shall be greater than the dynamic deflection of the barrier system.

MATERIALS

The Contractor shall use a temporary barrier system that is listed on the Qualified Traffic Control Equipment List.

The Contractor may submit alternate materials to the Engineer for approval if the limited deflection temporary barrier system meets the following criteria:

1. The system has been tested by an independent laboratory that is accredited by FHWA to crash test roadside hardware;
2. The system meets the minimum requirements of the AASHTO *Manual on Assessing Safety Hardware* (MASH) at Test Level (TL) 3 or higher; and
3. The system has a federal-aid eligibility letter from FHWA.

Copies of the testing results and the federal-aid eligibility letter shall be submitted and approved by the Engineer prior to procurement of an alternate temporary barrier system.

The Contractor shall supply shop drawings to confirm the available clear area behind the barrier equals or exceeds the maximum dynamic deflection of MASH Test 3-11 during testing procedures taken at an independent laboratory that is accredited by FHWA to crash test roadside hardware.

Delineators shall be installed on all limited deflection temporary barrier systems in conformance with the relevant provisions of Subsection 850.69 and shall be incidental to the temporary barrier systems.

Temporary impact attenuators that are listed on the Qualified Traffic Control Equipment List shall be used whenever a blunt end of the limited deflection temporary barrier system is facing traffic within the clear zone unless it is protected by a second barrier system or secured to a separate barrier system or bridge railing by a method approved by the manufacturer.

CONSTRUCTION METHODS

Limited deflection temporary barrier systems shall be placed in line with the drawings. Installation shall be per the manufacturer's specifications, details, and the approved shop drawings.

ITEM 853.33 (Continued)

The Contractor shall not place any breaks in the limited deflection temporary barrier system that will result in sections that are shorter than the stated minimum length-of-need (LON) under MASH Test 3-11. Exceptions shall be allowed for gate systems or changeable length segments placed over expansion joints if those barrier segment types have been tested and meet the minimum requirements of MASH Test 3-11 with the adjoining limited deflection barrier system.

Within the LON section, limited deflection temporary barrier systems shall only be placed on paved surfaces unless otherwise tested and certified under MASH TL-3 for those conditions.

Damage to the pavement surface caused by the limited deflection temporary barrier during installation, while in service, and/or during removal shall be repaired as directed by the Engineer at the Contractor's expense.

Limited deflection temporary barrier systems that require anchorage systems shall conform to the relevant provisions of Section 850.70.

METHOD OF MEASUREMENT

Item 853.33 will be measured by the Foot of temporary barrier limited deflection (TL-3) furnished, installed, maintained, and removed after completion of the work.

BASIS OF PAYMENT

Item 853.33 will be paid for at the Contract unit price per Foot, which price shall include furnishing, installation, maintenance, final removal, and all labor, materials, tools, equipment, and all incidental costs required to complete the work.

For limited deflection temporary barrier systems that require anchorage systems, the cost of furnishing and installing the anchorage and hardware and the restoration of pavement surfaces or adjacent permanent barrier systems to facilitate anchorage shall be considered incidental to the cost of the item.

Payment for limited deflection temporary barrier removed and reset will be made under Item 853.21. Payment for final removal of the limited deflection temporary barrier after the completion of the work will be made under Item 853.33.

ITEM 853.8

TEMPORARY ILLUMINATION FOR WORK ZONE

DAY

The work under this Item shall conform to the relevant provisions of Subsection 850 of the Standard Specifications and the following:

The work under this Item shall include furnishing, deploying and maintaining in proper operating condition a LED balloon diffuser lighting system. These portable light towers shall be used throughout the project area for temporary work zone lighting. The use of unshielded high wattage flood lights shall not be permitted.

These towers shall be used, relocated and adjusted to meet the criteria in Subsection 850 of the Standard Specifications and the following:

The Contractor shall illuminate the following work zone areas:

- Change in direction (i.e., work zone entrances and exits, crossovers, etc.)
- Tapered areas
- Actual area where the construction is being performed

Light measurement shall be based on the illuminance method and the lighting levels shall be based on the classification of construction activity that is taking place. At no time shall the light level be below 5 fc and the uniformity shall not exceed 6:1. Task Classifications and recommended illumination levels are shown in Table 1.

ITEM 853.8 (Continued)

Task Classifications	Illumination Level	Average Minimum Maintained Illuminance
All work operations areas, setup of lane or road closures, lane closure tapers, and flagging stations such as Excavation (all types), Embankment Fill and Compaction, Reworking Shoulders, Asphalt Pavement Rolling, Subgrade, Stabilization and Construction, Base Course Rolling, Sweeping, Cleaning and Landscaping.	Level I	5 foot-candles
Areas on or around construction equipment; asphalt paving, milling, and concrete placement and/or removal such as Milling, Removal of Pavement, Asphalt Paving and Resurfacing, Concrete Pavement, Waterproofing and Sealing, Sidewalk Construction, Base Course Grading and Shaping, Surface Treatment, Bridge Decks, Drainage Structures and Drainage Piping, Other Concrete Structures, Barrier Wall and Traffic Separators, Guardrails and Fencing, Striping and Pavement Markings, Repair of Concrete Pavement, Highway Signs, Hole Filling and Repair of Guardrails and Fencing.	Level II	10 foot-candles
Pavement or structural crack/ pothole filling; joint repair, pavement patching and/or repairs, installation of signal/electrical/mechanical equipment such as Traffic Signals, Highway Lighting Systems and Crack Filling	Level III	20 foot-candles

TABLE 1
TASK CLASSIFICATIONS AND ILLUMINATION LEVELS

Prior to commencement of work the Contractor shall submit to MassDOT for approval a description of illumination equipment that is proposed to be used on this project, and shall include photometrics that detail the light levels that are to be provided for the particular operation for the type of equipment, level of luminance, and height to be installed.

Any potential glare from the lighting system should be considered from each direction and on all approaching roadways and opposing lanes of traffic. Glare from the illumination system should be minimized as much as possible for both workers and motorists in adjacent active travel lanes. If necessary, the Contractor shall provide supplemental hardware such as visors, louvers, shields, glare screen and barrier, to reduce glare in adjacent active travel lanes.

ITEM 853.8 (Continued)

Equipment mounted lighting may be used to supplement light towers to achieve the required lighting levels for the activity involved per Table 1.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 853.8 will be measured and paid for at the contract unit price per Day according to Subsections 850.80 and 850.81 of the Standard Specifications. The cost shall include all labor, materials, equipment, tools and all incidentals required for the design and installation of the work zone lighting system. This shall include, but not be limited to lighting submission preparation, wiring connections, equipment relocations, and include all material and labor incidental for a complete, functional and operational work zone illumination system.

The price of this item shall include the material and labor necessary to install any supplemental hardware required to reduce glare on all adjacent active travel lanes.

The per day (up to 24 hours) price shall be full compensation for all “Temporary Illumination for Work Zone” regardless of the number of concurrent work areas, amount of equipment concurrently in use or the durations of or changes of the work shifts per day.

Furnishing, installing, resetting, modifying and removing equipment for work zone illumination shall be incidental to Item 853.8.

ITEM 854.6**TEMPORARY PORTABLE RUMBLE STRIP****DAY**

The work under this Item shall conform to the relevant provisions of Subsection 850 of the Standard Specifications and the following:

Work under this item consists of furnishing, deploying, maintaining in proper operating conditions, and removing temporary portable rumble strips (TPRS) for temporary lane closures of 24 hours or less.

MATERIALS

The TPRS shall be 10' to 11' wide, measured perpendicular to the path of travel, 12" to 16" long, measured parallel to the path of travel, and 0.5" to 0.75" tall. All edges shall be beveled. The surfaces shall be grooved to limit potential hydroplaning.

The TPRS shall lay flat on the road surface without the use of nails, anchors, or adhesives, and shall be flexible so as to conform to the surface profile.

The TPRS shall be able to withstand vehicle weights of up to 80,000 lbs. and operate in temperatures between 0° to 120° F.

The manufacturer shall certify the TPRS to be safe for use on roads with speed limits of at least 70 mph.

TPRS that appear damaged or functioning in an unsafe manner may be ordered removed by the Engineer and replaced at no additional cost.

CONSTRUCTION METHODS

The TPRS shall be installed per the plans or at the discretion of the Engineer.

The Contractor shall conform to the manufacturer's specifications for installation and the following:

- A. The road surface shall be cleared of all gravel, sand, and debris.
- B. If RoadQuake 2™ model is used, the modular pieces shall be assembled into 11-foot strips per the manufacturer's instructions in advance of deployment. The interconnected segments shall form a smooth and flat, continuous section.
- C. A Truck-Mounted Attenuator, conforming to Section 850, shall be used as shadow vehicle protection during the deployment and removal of TPRS on any roadway with speeds of 45 mph or greater.
- D. TPRS shall be deployed in conjunction with all other temporary traffic control devices. MA-W28-1 (Rumble Strips Ahead) sign(s) shall be installed per the Temporary Traffic Control Plan.
- E. TPRS deployment:
 1. TPRS shall be placed perpendicular to the direction of travel, centered in the lane.
 2. Three (3) individual strips are required for a single array.

ITEM 854.6 (Continued)

3. Refer to the Temporary Traffic Control Plan for the location of the array respective to the lane closure.
4. The spacing of the individual strips within the array shall conform to the following table:

Speed Limit	Distance Between Rumble Strips (measured center-to-center)
>55 mph	20 feet
40 mph to 55 mph	15 feet
<40 mph	10 feet

5. The TPRS shall be placed without the use of nails, adhesives, or other methods of affixing them to the road surface.
- F. All TPRS shall be maintained in proper condition, alignment, spacing, and location throughout the duration of the lane closure, at no additional cost.
- G. The TPRS shall be removed prior to the removal of the traffic control devices used to close the travel lane.
- H. TPRS shall not be used during snow events.

METHOD OF MEASUREMENT

An array of three (3) temporary portable rumble strips is considered one (1) unit and will be measured by the Day. Each period of up to 24 hours during which this unit is in use will be measured as one day regardless of the number of times the array is deployed, repositioned, or removed.

BASIS OF PAYMENT

Temporary Portable Rumble Strips will be paid for at the contract unit price per Day, which shall include full compensation for furnishing, deploying, repositioning, and removing the array of three (3) individual strips as directed by the Engineer.

ITEM 859.1**REFLECTORIZED DRUMS
WITH SEQUENTIAL FLASHING WARNING LIGHTS****DAY**

The work under this Item shall conform to the relevant provisions of Subsection 850 of the Standard Specifications and the following:

The work under this Item consists of furnishing, installing, maintaining in proper operating conditions, and removing reflectorized drums, and any necessary ballast, equipped with sequential flashing warning lights.

Materials

Reflectorized drums shall be listed on the MassDOT Qualified Traffic Control Equipment List. Reflective sheeting on drums shall meet or exceed ASTM D4956 Type VIII. All drums shall be maintained in a satisfactory manner including the removal of oils, dirt, and debris that may cause reduced retro reflectivity.

The Contractor shall use one of the following sequential flashing warning light systems unless otherwise approved by the Engineer:

1. Empco-Lite LWCSO.
2. pi-Lit® Sequential Barricade-Style Lamp; or
3. Unipart Dorman SynchroGUIDE.

Sequential flashing warning lights shall be secured to reflectorized drums per the light manufacturer's specifications.

Construction Methods

The first ten drums in any merging or shifting taper shall be equipped with sequential flashing warning lights. These lights shall be operating, at a minimum, between dusk and dawn when the taper is deployed.

The successive flashing of the sequential warning lights shall occur from the upstream end of the merging or shifting taper to the downstream end of the taper in order to identify the desired vehicle path. Each warning light in the sequence shall be flashed at a rate of not less than 55, nor more than 75 times per minute.

Warning lights shall be powered off when drums are not deployed in a taper.

METHOD OF MEASUREMENT

A group of ten (10) reflectorized drums with sequential flashing warning lights is considered one

(1) unit and will be measured by the Day. Each period of up to 24 hours during which this unit is in use will be measured as one day regardless of the number of times that the drums are positioned, repositioned, removed, or returned to service.

BASIS OF PAYMENT

Reflectorized Drums with Sequential Flashing Warning Lights will be paid for at the Contract unit price per Day, which shall include full compensation for furnishing, positioning, repositioning, and removing the group of ten (10) drums as directed by the Engineer.

ITEM 905. **4000 PSI, 3/8 INCH, 660 CEMENT CONCRETE** **CUBIC YARD**

The work under this Item shall conform to the relevant provisions of Subsection 901 of the Standard Specifications and the following:

The work under this Item shall consist of furnishing and placing 4000 PSI, 3/8 INCH, 660 Cement Concrete. This item shall be used for patching after all deteriorated and/or unsound concrete is removed under Item 127.12.

The Contractor's attention is directed towards the Repair Procedure as noted in Document A00803.

All formwork shall be approved and accepted by the Engineer prior concrete placement.

PREPARATION OF CONCRETE SURFACES:

All concrete surfaces to be patched shall be roughened, cleaned of all laitance, dirt, grease, oil, other contaminants and all standing water. All reinforcing steel encountered in the excavation shall be thoroughly cleaned by abrasive blasting and coated with a zinc-rich primer conforming to MassDOT Standard Specification M7.04.11 before being covered with new concrete.

Prior to placing any new concrete in a partial depth repair area, the existing surface shall be ponded with water to achieve Saturated Surface Dry (SSD) condition and it shall then be blown off with oil free compressed air.

METHOD OF MEASUREMENT

Item 905. will be measured for payment by the Cubic Yard of 4000 PSI 3/8 Inch, 660 cement concrete furnished and placed, complete in place.

BASIS OF PAYMENT

Item 905. will be paid for at the Contract unit price per Cubic Yard, which price shall include all labor, materials, equipment, surface preparation, oversight services, and all incidental costs required to complete the work.

No separate payment will be made for the installation and subsequent removal of any formwork, coating/patching of the steel reinforcing, but all costs in connection therewith shall be included in the Contract unit price bid.

Where formwork is installed for concrete placement, payment of seventy percent (70%) of the Cubic Yard price of this item will be made upon complete concrete installation.

The remaining thirty percent (30%) of the Cubic Yard price of this Item will be paid only after complete formwork removed by the Contractor.

ITEM 909.2 CEMENTITIOUS MORTAR FOR PATCHING SQUARE FOOT

The work under this Item shall conform to the relevant provisions of Subsection 901 of the Standard Specifications and the following:

The work under this Item consists of furnishing and placing a polymer-modified, cementitious, fast setting, trowel grade patching mortar to patch all surfaces on the existing structures at areas of spalled, delaminated, or cracked concrete as required by the Engineer.

This Item does not include the repair of any patch that exceeds two (2) inches in depth. The repairs to patches exceeding (2) inches depth shall use Item 905.

Material

The polymer modified cementitious patching mortar shall conform to the following requirements:

The mortar system shall not contain chlorides, nitrates, added lime, or high silica cements. The system shall be non-combustible, either before or after cure.

<u>TYPICAL PROPERTIES OF CURED MATERIALS</u>	
Finishing Time	20-60 minutes after combining components
Color	Concrete Gray
Abrasion Resistance	6 times that of controlled concrete
Bond Strength	100% concrete substrate failure (Pull off method)
Modulus of Elasticity	4.5 x 10 ⁶ PSI
Surface Scaling	No Deterioration after 120 cycles (deicing salt solution and freeze/thaw)
Compressive Strength (2 hours, 50% RH)	150 PSI minimum
Compressive Strength (28 days, 50% RH)	5,500 PSI minimum
Flexural Strength (28 days, 50% RH)	1,300 PSI minimum

The system shall conform to the ECA/USPHS Standards for surface contact with potable water. The system shall not produce a vapor barrier. The system shall be thermally compatible with concrete.

ITEM 909.2 (Continued)**Certification**

The Contractor shall furnish notarized certification that all materials conform to the above requirements. In addition, samples of all materials proposed for use shall be submitted to the Department's Research and Materials Section. To allow sufficient time for testing, these samples must be submitted at least six weeks prior to scheduled use.

Surface Preparation

The contractor shall remove all deteriorated and spalled areas as designated by the Engineer. All costs to remove the deteriorated and spalled concrete shall be compensated for under Item 127.12.

The Contractor shall have the approval of the Engineer certifying that all spalled and deteriorated concrete has been removed prior to patching deteriorated areas. If the deterioration of the vertical surfaces is deeper than one (1) inch, then the repair will be made in maximum lifts of one (1) inch deep. The preceding lift shall be allowed to reach final set before applying fresh material. The fresh mortar must be scrubbed into the preceding lift.

Application Methods

Areas to be patched must be clean and sound. All loose and disintegrated concrete shall be removed by means of abrasive blasting, or an equivalent method, to a depth where sound concrete is exposed. Minimum patch depths at edges of patch shall be sawcut to one half ($\frac{1}{2}$) inch in depth. Abrasive blast existing concrete to remove all contaminants prior to applying mortar. Chipping methods are to be approved in advance by the Engineer.

At the time of application, surfaces should be damp (saturated surface dry) with no glistening water. Mortar must be worked into the substrate filling all pores and voids. Force the material against the edge of the repair, working towards the center. After filling, consolidate, then screed.

The maximum thickness of application in one pass shall be one (1) inch. If the depth of patch exceeds one (1) inch, the mortar shall be placed in two passes of approximate equal thickness, with a total thickness not to exceed two (2) inches. Before the first pass has achieved an initial set, the surface shall be prepared for the second pass by scratching with a trowel to form a grid of deformation on the surface.

Prime and work the mix into the substrate, filling all pores and voids. Avoid puddling of the primer on horizontal substrates.

ITEM 909.2 (Continued)

Curing

Use a fine mist spray of water, wet burlap, or a non-solvent approved curing compound if ambient conditions might cause premature surface drying (high temperature, low humidity, strong winds, etc.). If necessary, protect the newly applied mortar from rain. To prevent freezing, cover with insulating material.

Manufacturer's Field Representative

The Contractor shall arrange with the material's manufacturer or distributor to have the services of a competent field representative at the work site prior to any mixing of components to instruct the work crews in the proper mixing and application procedures.

The manufacturer's field representative must be fully qualified to instruct artisans or perform the work and shall be subject to the approval of the Engineer.

The Contractor shall be completely responsible for the expense and services of the required field representative, and the bid contract price shall be full compensation for all cost in connection therewith.

METHOD OF MEASUREMENT

Item 909.2 will be measured for payment by the Square Foot of cementitious mortar for patching, furnished and placed, complete in place.

BASIS OF PAYMENT

Item 909.2 will be paid for at the Contract unit price per Square Foot, which price shall include furnishing, placement, all labor, materials and equipment, and all incidental costs required to complete the work.

Repairs of any vertical patch that exceeds two (2) inches in depth shall be paid for under Item 905.

ITEM 910.01

GALVANIC ANODES

EACH

The work under this Item shall conform to the relevant provisions of the Standard Specifications, and the following:

The work under this Item shall consist of furnishing and installing Zinc-Anode Galvanic Protection Systems to reinforce steel and mitigate corrosion. The work shall include all necessary materials and electrical connections as specified and as required by the Engineer. Testing for electrical continuity of the reinforcing steel to all elements is required.

MATERIALS

Galvanic Anodes

Embedded galvanic anodes shall be compact, pre-manufactured, and consist of electrolytic high-grade zinc. They must comply with ISO 12696:2022 and ASTM B 418 - Type II. For acceptance, the following criteria must be met:

Table 1: Galvanic Anode Minimum Service Requirements

Service Life	20 Years
Minimum Current Density at End-of-Life (Low)	0.4 mA/m ² (at 50°F)
Minimum Current Density at End of Life (Moderate)	0.8 mA/m ² (at 50°F)
Minimum Current Density at End of Life (High)	1.6 mA/m ² (at 50°F)
Minimum Current Density at End of Life (Severe)	2.0 mA/m ² (at 50°F)

*Risk Levels are described in this section.

Current Density: The current output per square meter of steel surface in the protected area.

Steel Density: “The ratio of the surface area of steel to the surface area of concrete/ distribution”
ISO 12696:2022

ITEM 910.01 (Continued)

Prior to any galvanic anode product approval, the following must be submitted to the MassDOT Materials section for approval:

1. Measured Current Output (mA) over the required service life from field, laboratory, or both tests.
 - a. Initial Anode Current (mA at 50°F).
 - b. Field testing data for at least 3 years, with multiple projects preferred.
 - c. Lab testing data including assumptions and the process for accelerated aging.
2. Aging term (years) or half-life of the anode (years).
3. Measured Current Output (mA) characteristics at varying temperatures (Degrees Fahrenheit) for the specific anode.
4. Efficiency and Utilization Value of the Zinc Anode determined from testing.
 - a. **Efficiency and Utilization Value:** The percentage of Zinc utilized to produce the total charge delivered compared to the total zinc consumed over the same period. In practice, a large mass of zinc should remain unused beyond the design service life which will continue to produce current but at below the design current density.
5. Equations/process for determining the number of anodes required for a project.
6. Anode spacing requirements in the form of a spacing chart.

If the above criteria are met and specifications reach the minimum requirements listed in Table 1, the product will be accepted.

The number of anodes required for steel reinforcement shall follow the approved producer's product design criteria.

***Risk Levels**

For unknown chloride content, the following risk levels apply:

Low Risk: Areas with minimal winter salt application and low environmental risk from chloride contamination. Environmental risks include, but are not limited to, proximity to surface water bodies (both fresh and saltwater), acidic soils around the project site, concrete structures needing cathodic protection, nearby industrial or agricultural centers, and natural salt deposits. Structures situated away from water sources and with non-acidic subbases are typically considered low risk.

Moderate Risk: Areas with winter salt applications and low environmental risk from chloride contamination. Generally, overland structures under most environmental conditions are considered moderate risk.

ITEM 910.01 (Continued)

High Risk: Areas with significant winter salt applications or moderate environmental risk from chloride contamination. Structures located close to water sources are generally considered high risk.

Severe Risk: Areas with significant winter salt applications and high environmental chloride interaction. Structures located near saltwater sources are generally considered severe risk.

CONSTRUCTION METHODS**General**

For the approved Galvanic Anodes, the Engineer must receive the Anode Manufacturer's written instructions for surface preparation and anode installation at least 7 days prior to the start of related construction activities. Only one brand will be allowed for this project. Follow the anode manufacturer's instructions unless otherwise modified herein.

Surface Preparation

Surface preparation for Galvanic Anodes shall follow the Anode Manufacturer's guidelines, ACI 515.3R-20 "*Guide for Assessment and Surface Preparation for Application of Protection Systems for Concrete*", and applicable MassDOT specifications.

Installation

The Contractor shall embed Galvanic Anodes in concrete as indicated by the contract documents or as directed by the Engineer. Installation methods must be approved by the Engineer. Qualified individuals will inspect the work. Onsite training may be requested before starting installation, including inspection procedures, quality assurance methods, and documentation.

Steel Continuity

Exposed reinforcing steel shall be checked for electrical continuity through methods specified by the Anode Manufacturer. Once anode is installed continuity between the anode and steel must be measured. Maximum DC resistance between exposed ties and strands shall be less than 1 ohm (Ω) and 0 volts (V). Discontinuous steel shall have continuity re-established by tying to other bars with steel tie wire or other approved means.

The Engineer may request or require testing to ensure anode performance, including polarity and insulation checks.

ITEM 910.01 (Continued)

METHOD OF MEASUREMENT

Item 910.01 will be measured for payment by the Each galvanic anode furnished and installed, complete in place.

BASIS OF PAYMENT

Item 910.01 will be paid for at the Contract unit price per Each, which price shall include furnishing, installation, testing, electrical connections, all labor, materials, tools, equipment, and all incidental costs required to complete the work.

Payment for concrete removal, steel reinforcement repair/replacement, and concrete replacement will be made under their respective items as specified in the contract documents.

ITEM 912.**DRILLING AND GROUTING DOWELS****EACH**

The work under this Item shall conform to the relevant provisions of Subsection 901 of the Standard Specifications and the following:

The work shall consist of drilling holes, furnishing, installing, and grouting of steel dowel reinforcement at the locations shown on the drawings or as required by the Engineer.

The dowel embedment must be adequate to fully develop 125% of the yield strength of the bar. The embedment length, the method and equipment used to drill the dowel holes, and the diameter of the drilled hole shall at a minimum conform to the recommendations of the manufacturer and be submitted to the Engineer for approval.

MATERIALS

The grout to be used for these dowels shall be selected from the MassDOT Qualified Construction Materials List for its specific application. Reinforcing steel dowels shall meet the requirements of AASHTO M31 Grade 60. All reinforcing steel dowels shall be epoxy coated in accordance with ASTM A775. Reinforcing steel dowels shall be incidental to the work under this Item.

CONSTRUCTION METHODS

All dowel holes shall be air drilled provided that the minimum edge distance of 6 inches is observed. Should, in the Engineer's opinion, air drilling be inappropriate due to questionable strength of the existing /concrete or insufficient edge distance, the dowel holes shall be diamond core drilled. The inner surfaces of the diamond core drilled dowel hole's inner surfaces shall be subject to the approval of the Engineer. The diameter of the drilled dowel holes shall be in accordance with the recommendations of the grout manufacturer. The holes shall be blown clear of any debris and shall have the approval of the Engineer prior to the placement of any grout material. The drilling operation shall be performed without damage to any portion of the existing structure that is to remain in place. Any damage to any portion of the existing structure that is to remain in place shall be repaired to a condition equal to or better than that existing prior to the beginning of the Contractor's operations and shall be repaired at the Contractor's expense.

The Contractor shall strictly follow the recommendations of the manufacturer for mixing and placing the grout material prior to the placement of the dowel. The Contractor shall adhere to the recommendations of the manufacturer regarding minimum and maximum temperatures while placing the grout. Any excessive grout around the hole after placement of the dowel shall be struck off smooth while the grout is still fresh.

The Contractor shall perform on site a minimum of two (2) tests of the dowels (one test for each side of stage construction) for capacity in tension in each location or component. The test shall be performed in the presence of and approved by the Engineer. The testing, including the necessary material and equipment to perform the test, is incidental to the work under this Item. The pullout force shall correspond to 90% of the yield strength of the bar. If the test bar pulls out or if the concrete utilized in the test shows signs of fracture, the Contractor shall adjust the hole diameter, embedment length, and/or grout material to meet this requirement. The method of applying the tension load to the dowels shall conform to ASTM E488. Details of the test

ITEM 912. (Continued)

procedure, materials, and equipment shall be submitted to the Engineer for review and approval prior to commencement of the test. Dowels shall not be ordered until the embedment lengths have been approved by the Engineer.

The Contractor shall arrange with the material's manufacturer or distributor to have the services of a competent field representative at the work site prior to any drilling of the proposed dowel holes to instruct the work crews in proper dowel installation procedures. The field representative shall remain at the job site after work commences and continue to instruct until the representative, the Contractor, and Engineer are satisfied that the crew has mastered the technique of installing the dowels successfully. The representative shall make periodic visits to the project as the work progresses and shall confer on each visit with the Contractor, Inspector and/or Engineer. The manufacturer's field representative must be fully qualified to perform the work and shall be subject to the approval of the Engineer.

The Contractor shall be completely responsible for the expense of the service of the required field representative and the contract unit price shall be considered full compensation for all costs in connection therewith.

METHOD OF MEASUREMENT

Item 912. will be measured for payment by the Each dowel furnished, installed, and grouted, complete in place.

Drilling of holes for dowels is incidental to this Item.

BASIS OF PAYMENT

Item 912. will be paid for at the Contract unit price per Each, which price shall include all labor, materials, equipment, furnishing dowels, drilling holes, grouting the dowels regardless of the diameter or depth of the hole, and all incidental costs required to complete the work.

ITEM 964.3 ELASTOMERIC PROTECTIVE COATING SQUARE FOOT

The work under this Item shall conform to the relevant provisions of the Standard Specifications, and the following:

The work to be done under this item shall consist of furnishing and applying a minimum of two coats of an elastomeric acrylic protective coating to bridge copings and the above grade surfaces of the substructure components and other locations as required by the Engineer.

A total dry film thickness (DFT) of 16 mils shall be required.

The acrylic protective coating shall be breathable, durable, flexible, and color retentive. It shall provide protection and be resistant to weathering, carbon dioxide, chlorides, UV light, wind driven rain, dirt pick up and mildew. It shall also bridge hairline cracks up to 1/32". The acrylic protective coating system shall be one of the following or an approved equal:

- SikaGard 550W Elastocolor by Sika Corp.
- Flexxide Elastomer by Carboline
- Colorlastic by ChemMasters

The proposed coating product shall be submitted to the Engineer for approval. The Contractor shall submit the proposed application procedures and Manufacturer's Product Data Sheet(s) that completely describe the product. The color of the coating shall be AMS-STD26559 from the AMS Standard 595 Colors.

Preparation and Protection of Surfaces

All vegetation growing adjacent to or within the limits of the concrete surfaces to be coated shall be removed and properly discarded. All debris adjacent to or within the limits of the concrete surfaces to be coated shall be removed and properly discarded.

All surfaces to be coated must be dry, clean, sound, and free of all contaminants that could interfere with adhesion of the coating. All loose material shall be removed. If directed by the Engineer, the contractor shall repair any holes and any spalled and damaged concrete prior to applying the coating. All concrete repair areas shall be cured for a minimum 28 days before coating.

The Contractor shall pressure wash all concrete surfaces to be coated. The pressure washer shall operate at a minimum of 3,000 psi. The protective coating shall not be applied until the surface is dry and the surface preparation has been approved by the Engineer. All concrete to be coated must be tested for the presence of moisture after the surface preparation has been completed and prior to application of coating. Testing shall be in accordance with ASTM D 4263.

ITEM 964.3 (Continued)

Application

Application shall be done by airless sprayer or roller or a combination of both and in accordance with the manufacturer's recommendations. The use of a primer shall not be required unless stipulated for that particular coating by the manufacturer. A minimum of two coats shall be applied to achieve a total DFT of 16 mils. The recommended minimum wet film thickness (WFT) must be maintained during each application. The manufacturer's specified temperature and weather limitations for the application shall be strictly adhered to.

METHOD OF MEASUREMENT

Item 964.3 will be measured for payment by the Square Foot of elastomeric protective coating applied, complete in place.

BASIS OF PAYMENT

Item 964.3 will be paid for at the Contract unit price per Square Foot, which price shall include furnishing, application, preparation and protection of surfaces, wet/dry film thickness gauge, all labor, materials, tools, equipment, and all incidental costs required to complete the work.

ITEM 987. SPECIAL SLOPE PAVING UNDER BRIDGE – OPTION SQUARE YARD

The work under this Item shall conform to the relevant provisions of Subsection 983 of the Standard Specifications and the following:

The work to be done under this Item consists of removing and/or resetting existing slope paving where required by the Engineer and/or replacing it with new special slope paving, replacing missing areas of existing special slope paving and furnishing and placing new special slope paving where no paving was originally installed as required by the Engineer.

The new slope paving shall maintain the original undisturbed section of paved or unpaved slope.

The grading and compacting of exposed embankment and the furnishing, placing and compacting of gravel borrow to meet the bottom of the slope paving line and grade are incidental to this item.

Materials used shall meet the following:

Gravel Borrow	M1.03.0 Type b
4,000 PSI – 1.5 IN - 565 Cement Concrete	M4.02.00
Joint Filler	M3.05.3
Joint Sealer	M3.05.0

Special slope paving quarry stones, which have settled, have been moved from their original locations or otherwise required to be removed by the Engineer, shall be removed from the site, transported to and stacked at the nearest MassDOT Maintenance Depot. Special slope paving concrete blocks and cement concrete slabs, which have settled, have been moved from their original locations and are not reusable or otherwise directed removed by the Engineer, shall become the property of the Contractor and shall be removed and disposed of away from the site.

Special slope paving consisting of cement grout over bituminous concrete shall become the property of the Contractor and shall be removed and disposed of away from the site.

Grading and compacting of sections of exposed embankment shall conform to Subsection 170 of the Standard Specifications.

Furnishing, placing and compacting of gravel borrow shall conform to Subsections 150 and 983 of the Standard Specifications.

The thickness of the special slope paving shall be equal to the existing quarry stones, cement concrete blocks or cement concrete slabs, where present, and 6", where grouted bituminous concrete paving or no paving is present throughout the embankment.

The Engineer shall determine what type of special slope paving to be used in each area under repair. The various types to be considered are quarry stone, precast concrete blocks, or cement concrete masonry, all of which will be firmly embedded on a 6 inch gravel foundation. Generally if more than 50% of the original special sloped paving is still in place it shall be replenished in kind.

ITEM 987. (Continued)

METHOD OF MEASUREMENT

Item 987. will be measured for payment by the Square Yard of special slope paving under bridge, removed, reset, and/or replaced, complete in place.

BASIS OF PAYMENT

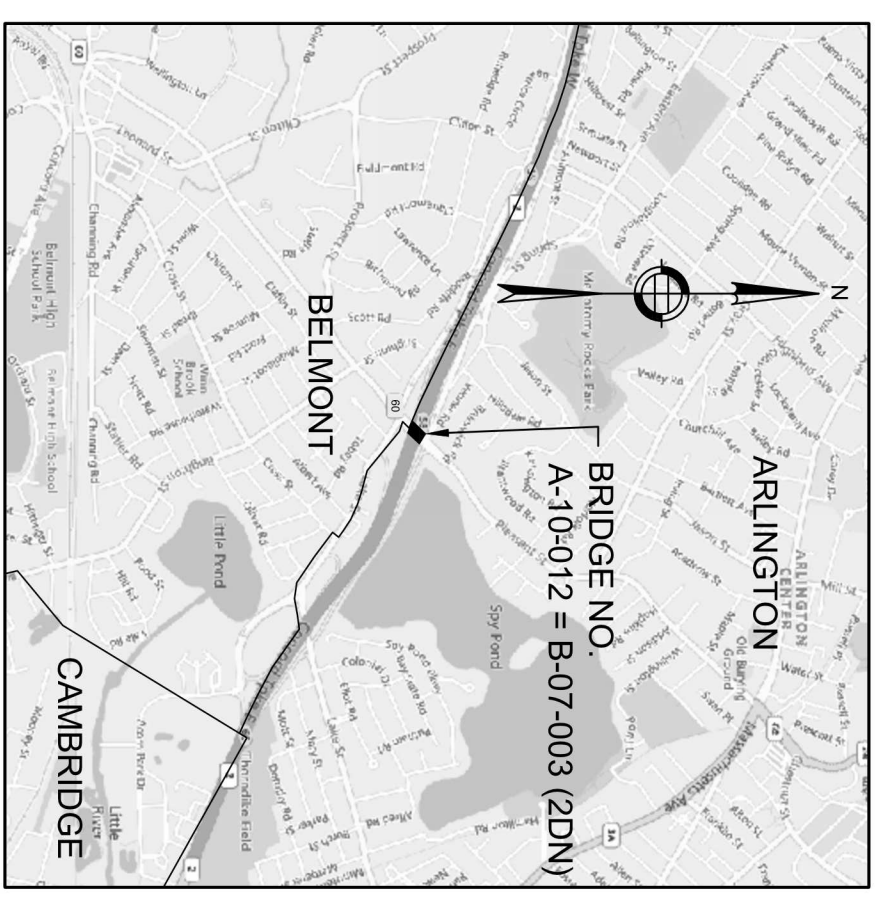
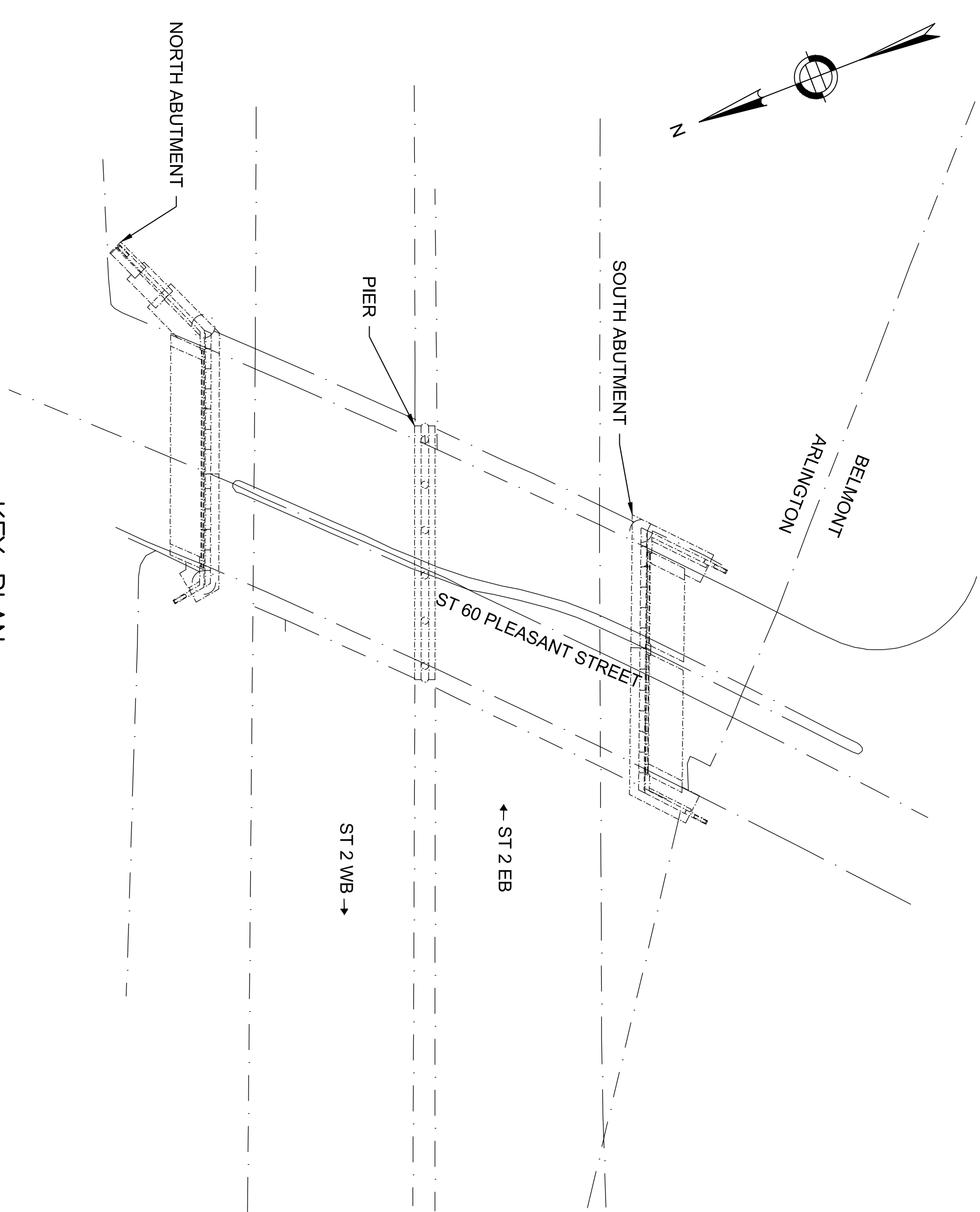
Item 987. will be paid for at the Contract unit price per Square Yard, which price shall include removal, resetting, replacement, paving, grading, compacting, gravel borrow, all labor, materials, tools, equipment, and all incidental costs required to complete the work.

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DRAWINGS AND SKETCHES

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**ARLINGTON / BELMONT
ST 60 PLEASANT STREET OVER ST 2**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	1	6
PROJECT FILE NO. 613466			

**INDEX, LOCUS MAP, GENERAL NOTES,
KEY PLAN & QUANTITIES**

QUANTITIES:

ITEM	QUANTITY	UNITS
REINFORCED CONCRETE SUBSTRUCTURE EXCAVATION	10	CY
4000 PSI, 3/8 IN, 660 CEMENT CONCRETE	105	CY
CEMENTITIOUS MORTAR FOR PATCHING	500	SF
STEEL REINFORCEMENT FOR STRUCTURES	7500	LB
ELASTOMERIC PROTECTIVE COATING	10	SY
SPECIAL SLOPE PAVING UNDER BRIDGE	10	SY
GALVANIC ANODE	540	EA

INDEX OF BRIDGE SHEETS

INDEX, LOCUS MAP, GENERAL NOTES, KEY PLAN & QUANTITIES	1
PIER CAP REPAIR LOCATIONS	2
ABUTMENT REPAIR LOCATIONS	3
PIER CAP REPAIR DETAILS	4
PIER COLUMN REPAIR DETAILS	5
GALVANIC ANODE INSTALLATION & PARTIAL DEPTH REPAIR DETAILS	6

GENERAL NOTES:

SCALES:
SCALES NOTED ON THE PLANS ARE NOT APPLICABLE TO REDUCED SIZE PRINTS. DIVIDE SCALES BY 2 FOR HALF-SIZE PRINTS (A3).
UNSUITABLE MATERIAL:
ALL UNSUITABLE MATERIAL SHALL BE REMOVED WITHIN THE LIMITS OF THE FOUNDATIONS OF THE STRUCTURE, AS DIRECTED BY THE ENGINEER.
ANCHOR BOLTS:
ALL ANCHOR BOLTS SHALL BE SET BY TEMPLATE BEFORE THE CONCRETE IS PLACED.
CONCRETE:
ALL CONCRETE SHALL BE 4000 PSI, 3/8 IN, 660 CEMENT CONCRETE.
REINFORCEMENT:
REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 31 GRADE 60. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS, ALL BARS SHALL BE LAPPED AS FOLLOW:
MODIFICATION CONDITION

#4 BARS	#5 BARS	#6 BARS
1. NONE	16"	19"
2. 12" OF CONCRETE BELOW BAR	20"	25"
3. EPOXY COATED BARS, COVER < 3dB, OR CLEAR SPACING < 6dB	23"	29"
4. COATED BARS, ALL OTHER CASES	18"	23"
5. CONDITION 2. AND 3.	26"	32"
6. CONDITION 2. AND 4.	24"	30"

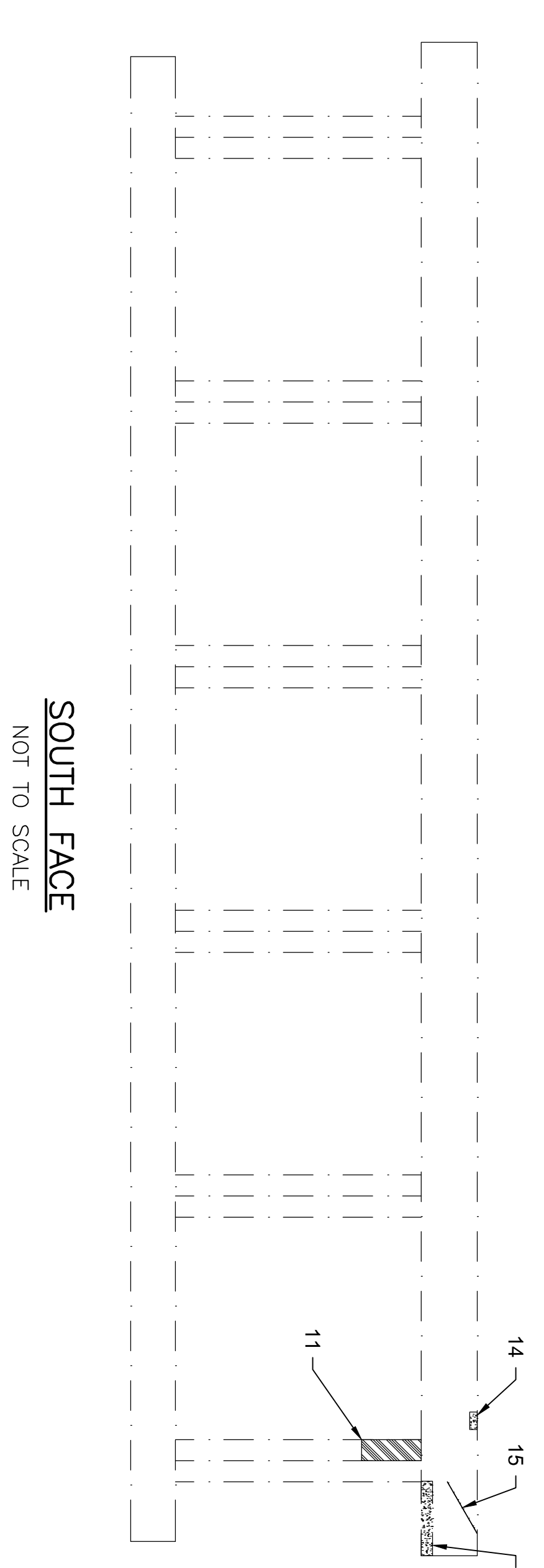
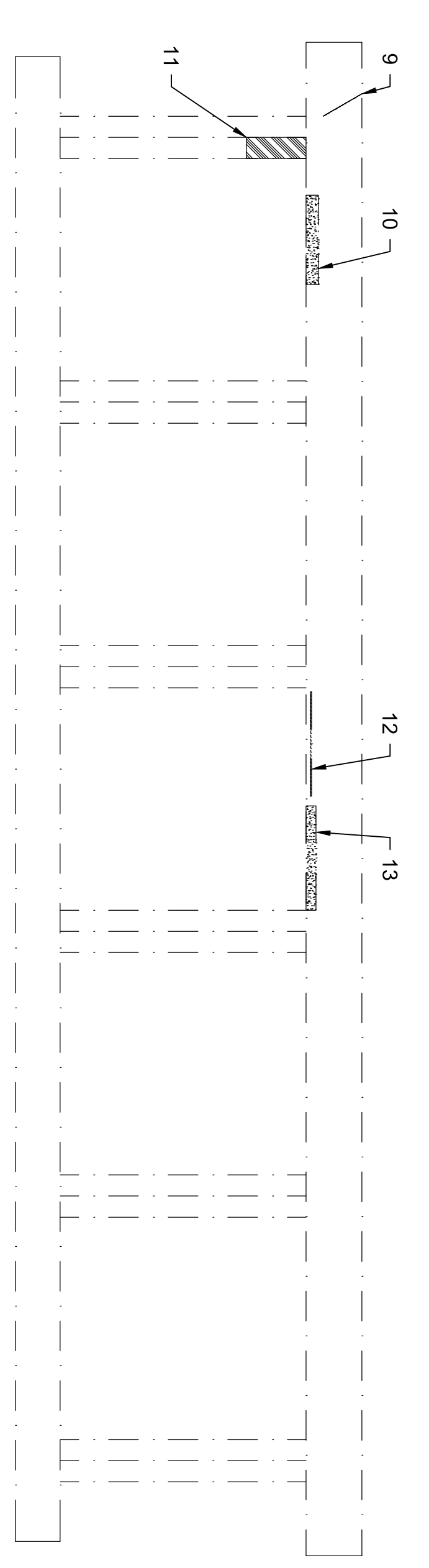
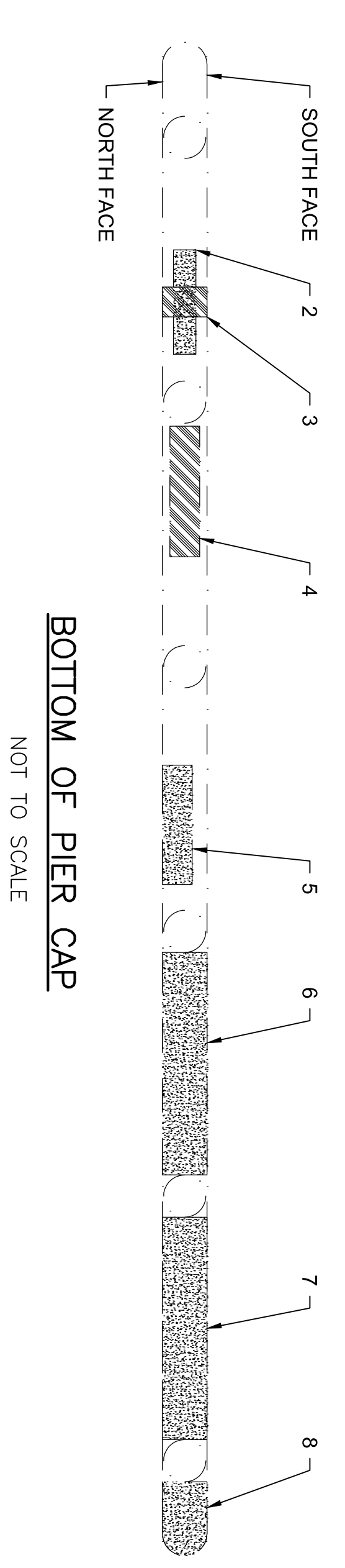
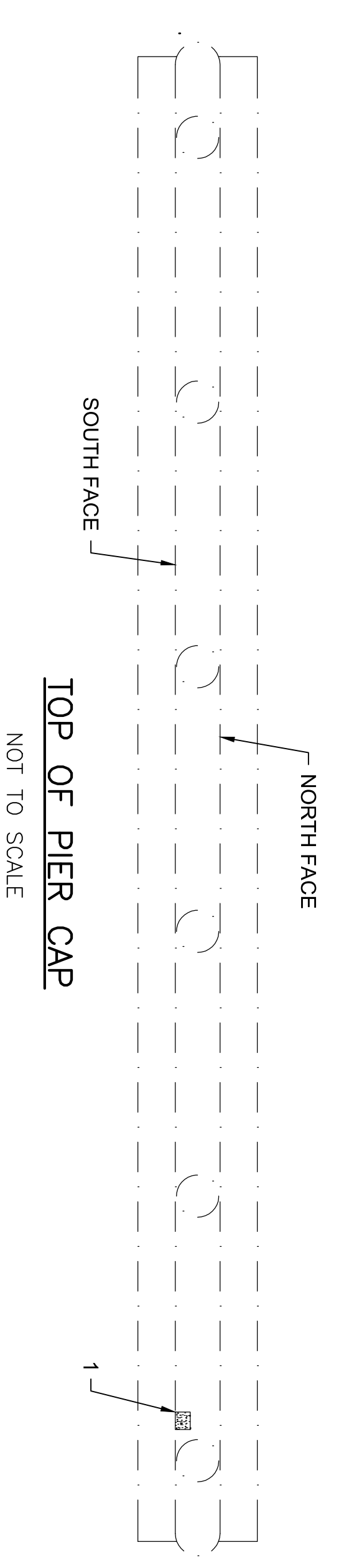
DESIGNED BY JOHN JACOB	ISSUED FOR CONSTRUCTION
DRAWN BY JOHN JACOB	<p>MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION 10 PARK PLAZA BOSTON, MASS</p>
CHECKED BY DOUG CONSENTINO	
SPECS BY JOHN JACOB	
APPROVED FOR DESIGN BY JON LEE	<p>SUBSTRUCTURE REPAIRS ARLINGTON / BELMONT ST 60 PLEASANT STREET OVER ST 2</p>

ARLINGTON / BELMONT
ST 60 PLEASANTS STREET OVER ST 2

STATE	FED. AID PROJ. NO.	SHEET TOTAL
MA	NFA	NO. SHEETS
		2 6

PROJECT FILE NO. 613466

PIER CAP REPAIR LOCATIONS



REPAIR LOCATIONS

1. SPALL, 1'-2" LONG X UP TO 1' WIDE X 1" DEEP
2. SPALL, 7' LONG X 1'-6" WIDE X 1" DEEP
3. DELAMINATION, 2' LONG X FULL WIDTH
4. DELAMINATION WITH SEVERAL TRANSVERSE HORIZONTAL CRACKS & MINOR RUST STAINING, 8'-9" LONG X 2' WIDE
5. SPALL WITH EXPOSED RUSTED REBAR & DELAMINATION, 8' LONG X 2' WIDE X 5" DEEP
6. INTERMITTENT SPALL WITH EXPOSED RUSTED REBAR & DELAMINATION, FULL LENGTH X FULL WIDTH X 4" DEEP
7. SPALL WITH EXPOSED REBAR & 100% SECTION LOSS TO THREE STRIPPERS, FULL LENGTH X FULL WIDTH X UP TO 6" DEEP
8. CORNER SPALL WITH EXPOSED REBAR, FULL LENGTH X FULL WIDTH X 3" DEEP
9. DIAGONAL CRACK, 3' LONG X 1 1/2" WIDE
10. SPALL, 6' LONG X 10" HIGH X 4" DEEP
11. DELAMINATION WITH CRACKING & RUST STAINING, 4' HIGH X 3' WIDE
12. CRACK, 5'-6" LONG X UP TO 1 1/2" HIGH
13. SPALL, 7' LONG X 8" HIGH X 4" DEEP
14. SPALL, 1'-2" LONG X 6" HIGH X 4" DEEP
15. DIAGONAL CRACK, 4' LONG X 1 1/2" WIDE
16. SPALL, 5' LONG X 9" HIGH X 4" DEEP

NOTES FOR CONTRACTOR:

- IF ANY OF THE FOLLOWING CONDITIONS ARE ENCOUNTERED, THE CONTRACTOR SHALL STOP REMOVING DETERIORATED CONCRETE AND IMMEDIATELY NOTIFY THE DISTRICT BRIDGE ENGINEER TO DETERMINE IF THE EXCAVATION CAN BE CONTINUED:
1. WHEN A MAXIMUM EXCAVATION DEPTH OF 6 INCHES IS REACHED IN ANY SUBSTRUCTURE REPAIR.
 2. WHEN THE EXCAVATION ENCLOSES ON THE BEARING DEVICES.
 3. WHEN MORE THAN TWO ADJACENT BEAMS ARE SUPPORTED BY THE COLUMN BAY IN PIER CAP REPAIR.
 4. WHEN THE PIER CAP OVERHANG, (MEASURING FROM THE FACE OF THE COLUMN), IS MORE THAN 4 FT, AND/OR THE BEARING DEVICES ARE WITHIN THE OUTER HALF OF THE OVERHANG IN PIER END CAP REPAIR.

NOTES:

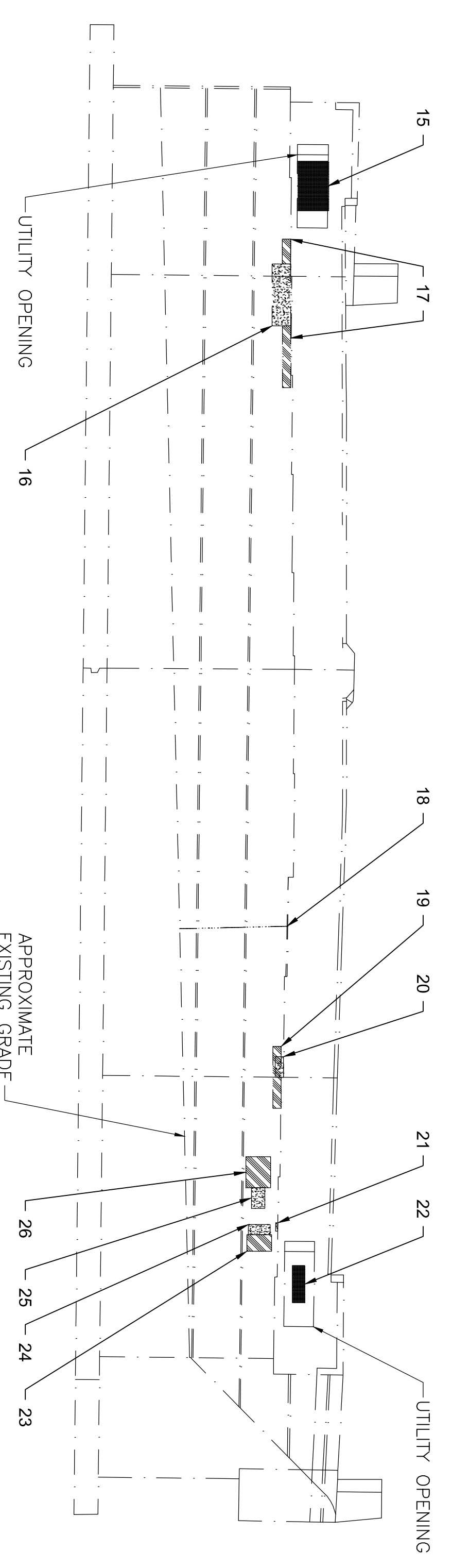
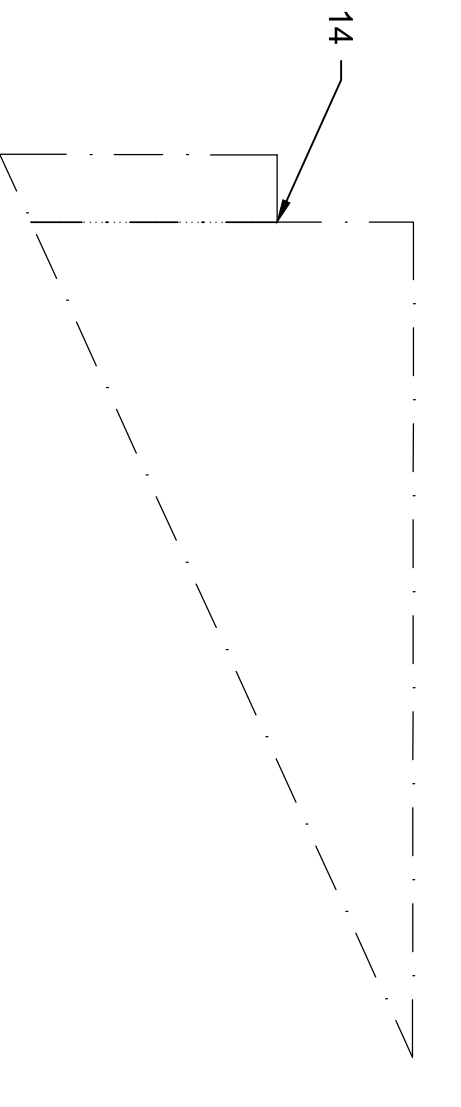
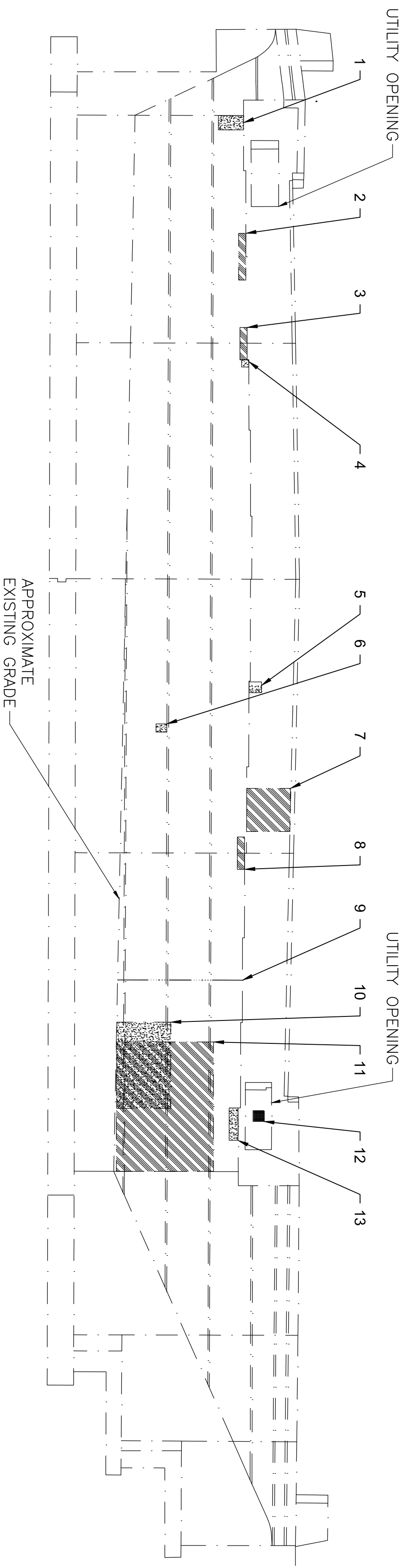
SEE SHEETS 4, 5 & 6

MM/DD/YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

ARLINGTON / BELMONT
ST 60 PLEASANT STREET OVER ST 2

STATE	FED. AID PROJ. NO.	SHEET TOTAL
MA	NFA	NO. SHEETS
		3
PROJECT FILE NO.		6
	613466	

ABUTMENT REPAIR LOCATIONS



REPAIR LOCATIONS:

1. CORNER SPALL WITH EXPOSED REBAR, UP TO 1'-5" LONG X 2'-4" HIGH X 3" DEEP
2. DELAMINATION WITH RUST STAINING, 4'-4" LONG X 8" HIGH
3. DELAMINATION, 3' LONG X 8" HIGH
4. SPALL, 8" LONG X 8" HIGH X 3" DEEP
5. SPALL WITH EXPOSED REBAR, 1' LONG X 1'-2" HIGH X 2" DEEP
6. SPALL WITH EXPOSED REBAR, 9" LONG X 1' HIGH X 2" DEEP
7. DELAMINATION, 4' LONG X FULL HEIGHT X UP TO 2" DEEP
8. DELAMINATION, 3' LONG X 8" HIGH
9. VERTICAL CRACK, FULL HEIGHT X 1 1/8" WIDE
10. SPALL WITH EXPOSED RUSTED REBAR, 8' LONG X 5' HIGH X 2" DEEP
11. DELAMINATION, 12' LONG X 9' HIGH
12. DETERIORATED BRICK AROUND UTILITY PIPE, 1' LONG X 1' HIGH X 6" DEEP
13. SPALL WITH EXPOSED REBAR, 3' LONG X 10" HIGH X 4" DEEP
14. VERTICAL CRACK WITH EFFLORESCENCE & WATER STAINING, FULL HEIGHT X 1 1/8" WIDE
15. DETERIORATED & MISSING BRICKS AROUND UTILITY PIPE, 4' LONG X FULL HEIGHT X FULL DEPTH
16. SPALL WITH EXPOSED RUSTED REBAR THAT EXTENDS UP TO 2' INTO THE BRIDGE SEAT, 5' LONG X 1'-5" HIGH X 6" DEEP
17. DELAMINATION, 7' LONG X 8" HIGH
18. VERTICAL CRACK, FULL HEIGHT X 1 1/8" WIDE
19. DELAMINATION, 5' LONG X 8" HIGH
20. SPALL WITH RUST STAINING, 1'-8" LONG X 8" HIGH X 3" DEEP
21. SPALL WITH EXPOSED REBAR, 8" LONG X 2" HIGH X 1" DEEP
22. DETERIORATED & MISSING BRICKS AROUND THE UTILITY PIPE, 3' LONG X 1' HIGH X 1' DEEP
23. DELAMINATION, 1'-4" LONG X 2' HIGH
24. SPALL, 10" LONG X 1'-9" HIGH X 1" DEEP
25. SPALL, 1'-8" LONG X 1'-1" HIGH X 1" DEEP
26. DELAMINATION, 2'-6" LONG X 2' HIGH

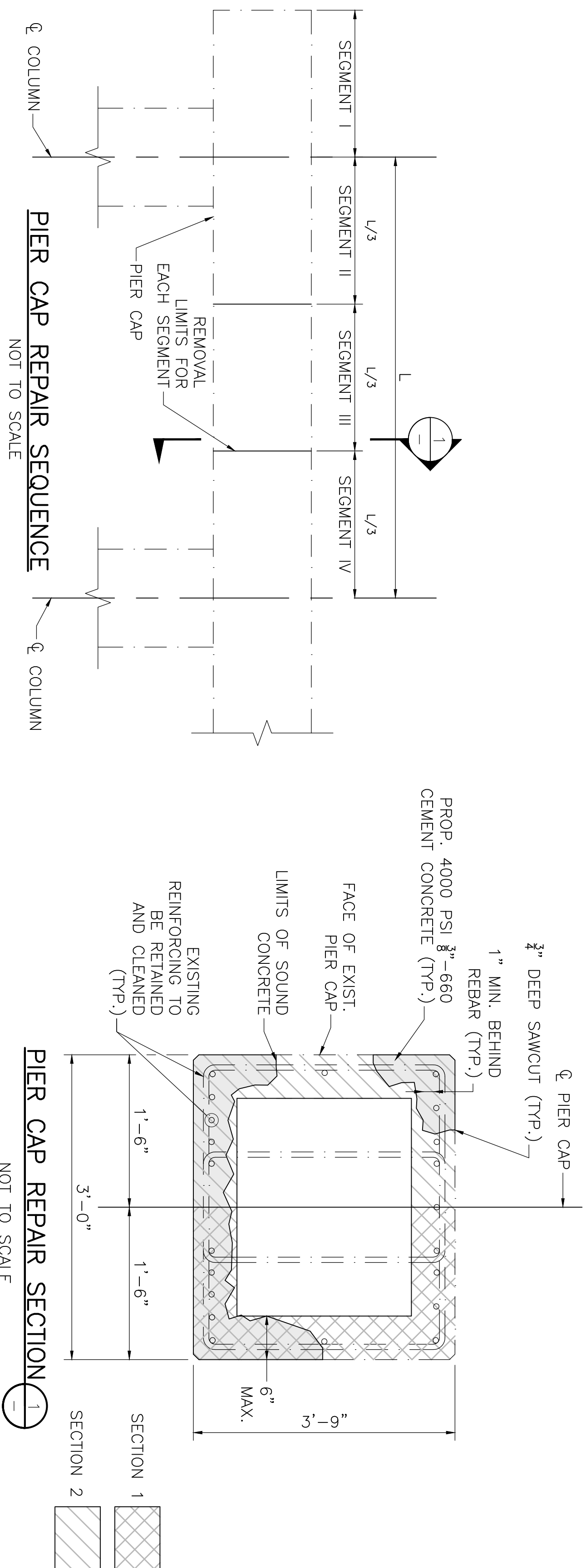
NOTES:

SEE SHEETS 4 & 6

MM/DD/YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

SUBSTRUCTURE CONCRETE REPAIR NOTES:

1. SUBSTRUCTURE REPAIRS SHALL CONSIST OF REMOVING DETERIORATED CONCRETE, PREPARING THE REPAIR SURFACE, FORMING WHERE REQUIRED, PLACING AND FINISHING NEW CONCRETE OR CEMENTITIOUS MORTAR. THE SCOPE OF REPAIRS MAY ALSO REQUIRE APPLYING ELASTOMERIC COATING (ITEM 964.3) TO THE REPAIRED SUBSTRUCTURE UNITS. THE LIMITS FOR THE ELASTOMERIC COATING WILL BE ESTABLISHED BY THE ENGINEER.
2. THE REPAIR IS DESIGNATED AS A DEEP PATCH WHEN THE EXCAVATED DEPTH TO SOUND CONCRETE EXCEEDS 2" FROM THE FACE OF THE CONCRETE OR REINFORCING STEEL IS ENCOUNTERED. SEE PARTIAL DEPTH REPAIR DETAIL ON SHEET 6.
3. THE REPAIR IS DESIGNATED AS A PARTIAL DEPTH WHEN THE DEPTH OF SOUND CONCRETE IS REACHED AT OR LESS THAN 2" FROM THE FACE OF THE CONCRETE AND REINFORCING STEEL IS NOT ENCOUNTERED.
4. 4000 PSI, 3/8 INCH, 660 CEMENT CONCRETE (ITEM 905.) SHALL BE USED FOR ALL DEEP PATCH REPAIRS. ALL PARTIAL DEPTH REPAIRS SHALL BE PATCHED WITH CEMENTITIOUS MORTAR FOR PATCHING (ITEM 909.2).
5. THE CONTRACTOR SHALL ESTABLISH LIMITS OF REPAIRS AT THE DIRECTION OF THE ENGINEER. THE EXTENT, LOCATION AND REPAIR TYPE (DEEP PATCH OR PARTIAL DEPTH REPAIR) ARE TO BE FIELD VERIFIED AND APPROVED BY THE ENGINEER AFTER THE CONTRACTOR HAS SOUNDED AND MARKED OUT THE REPAIR AREA. THE AREAS OF REPAIR SHALL BE MADE APPROXIMATELY RECTANGULAR WITH THE SIDES GENERALLY PERPENDICULAR TO THE SURFACE BEING REPAIRED.
6. THE DETERIORATED CONCRETE SHALL BE REMOVED AS REQUIRED TO PROVIDE GOOD SOUND CONCRETE ON WHICH NEW CONCRETE CAN BE PLACED AND SATISFACTORILY BONDED TO UNDAMAGED OR UNDISTURBED REINFORCEMENT.
7. SAW CUT ALONG NEAT LINES AROUND REPAIR AREA PRIOR TO CONCRETE EXCAVATION. USE SAW CUT DEPTH OF 1", OR AS REQUIRED TO AVOID CUTTING REINFORCING STEEL.
8. SUBSTRUCTURE REPAIR SHOULD INCLUDE THE REMOVAL OF ALL DETERIORATED, LOOSE, SPALLED AND HOLLOW SOUNDING CONCRETE. THE DETERIORATED CONCRETE SHALL BE REMOVED FROM WITHIN THE REPAIR AREAS TO THE DEPTH OF SOUND CONCRETE. WHEN REINFORCING STEEL IS UNCOVERED, CARE SHALL BE TAKEN SO AS NOT TO DAMAGE THE STEEL OR ITS BOND TO THE SURROUNDING CONCRETE. MAXIMUM 25 LB. HAMMERS WITH CHISEL POINTS SHALL BE USED FOR CONCRETE REMOVAL. MAXIMUM 15 LB. HAMMERS SHALL BE USED ONCE REINFORCING STEEL IS EXPOSED.
9. THE CONTRACTOR SHALL STOP REMOVING DETERIORATED CONCRETE WHEN A MAXIMUM DEPTH OF 6 INCHES IS REACHED. THE DISTRICT BRIDGE ENGINEER SHALL BE IMMEDIATELY NOTIFIED TO DETERMINE IF THE EXCAVATION CAN BE CONTINUED.
10. IF REINFORCING STEEL IS EXPOSED THEN CLEAN BY MECHANICAL CLEANING OR HIGH PRESSURE WASHING WITH WATER THAT CONTAINS NO DETERGENTS OR BOND INHIBITING CHEMICALS. WHERE ACTIVE CORROSION HAS OCCURRED THAT WOULD INHIBIT BONDING, CLEAN STEEL USING ABRASIVE BLASTING METHODS ACCEPTABLE TO THE ENGINEER, THEN PAINT WITH A ZINC-RICH PRIMER CONFORMING TO MASSDOT STANDARD SPECIFICATION NO. M.7.04.11.
11. AFTER REMOVAL AND EDGE PREPARATIONS ARE COMPLETE, REMOVE BOND INHIBITING MATERIALS (DIRT, GREASE, LOOSELY BONDED AGGREGATE) BY ABRASIVE BLASTING OR HIGH PRESSURE WATER BLASTING WITH WATER THAT CONTAINS NO DETERGENTS OR BOND INHIBITING CHEMICALS. CHECK THE CONCRETE SURFACES AFTER CLEANING TO ENSURE THAT SURFACE IS FREE FROM ADDITIONAL LOOSE AGGREGATE OR THAT ADDITIONAL DELAMINATIONS ARE NOT PRESENT.
12. EXISTING REINFORCING BARS, WHICH ARE BROKEN OR HAVE LOST 25% OR MORE OF THEIR CROSS SECTIONAL AREA, OR AS ORDERED REPAIRED BY THE ENGINEER, SHALL BE REPAIRED BY SPLICING IN NEW REINFORCING BARS OF THE SAME DIAMETER. SEE EXISTING BRIDGE PLANS FOR BAR SIZES. SPLICE LAPS ARE TO BE AT LEAST 32 BAR DIAMETERS. MISSING OR DETERIORATED REINFORCING STEEL SHALL BE REPLACED AS DIRECTED BY THE ENGINEER AND WILL BE PAID UNDER ITEM 910.1.
13. ALL SURFACES WHERE NEW CONCRETE WILL BE BONDED TO EXISTING CONCRETE SHALL BE PRE-WETTED WITH CLEAN WATER TO SATURATED SURFACE DRY (SSD) CONDITION (WITH NO STANDING WATER) IMMEDIATELY PRIOR TO THE CONCRETE PLACEMENT. IF INDICATED ON THE PLANS OR DIRECTED BY THE ENGINEER, APPLY EPOXY BONDING COMPOUND SUITABLE FOR BONDING FRESH CONCRETE TO HARDENED CONCRETE FOR LOAD BEARING APPLICATIONS TO INTERFACE BETWEEN NEW AND EXISTING CONCRETE. THE EPOXY BONDING COMPOUND SHALL CONFORM TO AASHTO M 235 TYPE V, GRADE AND CLASS SHALL BE SPECIFIED FOR EACH APPLICATION AND SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND THE SPECIAL PROVISIONS. THE COST ASSOCIATED WITH THIS WORK WILL BE INCIDENTAL TO ITEM 905.
14. IN GENERAL, EPOXY BONDING COMPOUND SHALL BE USED FOR ALL PARTIAL DEPTH REPAIR AND HORIZONTAL SURFACES OF DEEP PATCH REPAIR, SUCH AS TOP EXCAVATED SURFACES OF PIER CAP AND BEAM SEAT.
15. IF EPOXY BONDING COMPOUND IS USED, THE FORMS SHALL BE INSTALLED AND FILLED BEFORE THE EPOXY BONDING COMPOUND HARDENS.
16. IF DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL INSTALL CATHODIC PROTECTION ANODES TO THE LIMITS DETERMINED BY THE ENGINEER. ANODE INSTALLATIONS & TESTING SHOULD BE PAID UNDER ITEM 910.01.
17. ALL CONCRETE SURFACES ONCE CURED, SHALL BE RUBBED TO PRODUCE A SMOOTH FINISH TO MATCH EXISTING SURFACES. WET CURING IN ACCORDANCE WITH THE SUPPLEMENTAL SPECIFICATIONS FOR HIGHWAYS AND BRIDGES SECTION 901.65, SUB-SECTION A-2 WILL BE REQUIRED.
18. CONCRETE PIER CAPS, COLUMNS, ABUTMENT SEATS, AND EXPOSED SECTIONS OF ABUTMENT STEMS SHALL (AS DETERMINED BY THE ENGINEER) RECEIVE A CONCRETE PENETRANT/SEALER OR ELASTOMERIC PROTECTIVE COATING (ITEM 964.3), 30 DAYS AFTER ALL REPAIRS HAVE BEEN MADE. CONCRETE PENETRANT/SEALER IS INCIDENTAL TO ITEM 905.
19. THE REPAIR OF PIER CAP SHALL BE COMPLETED PRIOR TO THE START OF ANY COLUMN REPAIR, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
20. THE CONTRACTOR SHALL FOLLOW THE CONCRETE PIER CAPS AND COLUMNS REPAIR SEQUENCE OUTLINED ON THE PLANS. THE CONTRACTOR WILL HAVE THE OPTION TO SUBMIT AN ALTERNATE REPAIR PROCEDURE FOR REVIEW AND APPROVAL. THE CONTRACTOR MAY ALSO USE TEMPORARY SHORING TO COMPLETE THE REPAIRS IN ONE STAGE. IF SHORING IS PROPOSED TO ACCOMMODATE THE CONTRACTOR'S MEANS AND METHODS OR REPAIR SCHEDULE, NO ADDITIONAL COMPENSATION WILL BE ALLOWED. THIS SHALL REQUIRE APPROVAL OF THE ENGINEER AND THE SHORING WILL BE CONSIDERED INCIDENTAL TO THE REPAIR WORK.
21. THE REPAIR PHASING AND SEQUENCE MAY BE MODIFIED BY THE ENGINEER SO THAT THE SECTIONS WITH WORSE DETERIORATION ARE REPAIRED FIRST.
22. THE SERVICE LOAD (DEAD LOAD + LIVE LOAD) REACTION AT EACH BEARING SHALL BE EQUAL TO 140 KIPS. IF LOADING CONDITIONS ARE TO BE MODIFIED DURING CONSTRUCTION, OR ADDITIONAL CONSTRUCTION LOADS APPLIED, CALCULATIONS OF THE REACTIONS FOR JACKING AND/SHORING SHALL BE SUBMITTED BY THE CONTRACTOR FOR REVIEW.



NOTES:

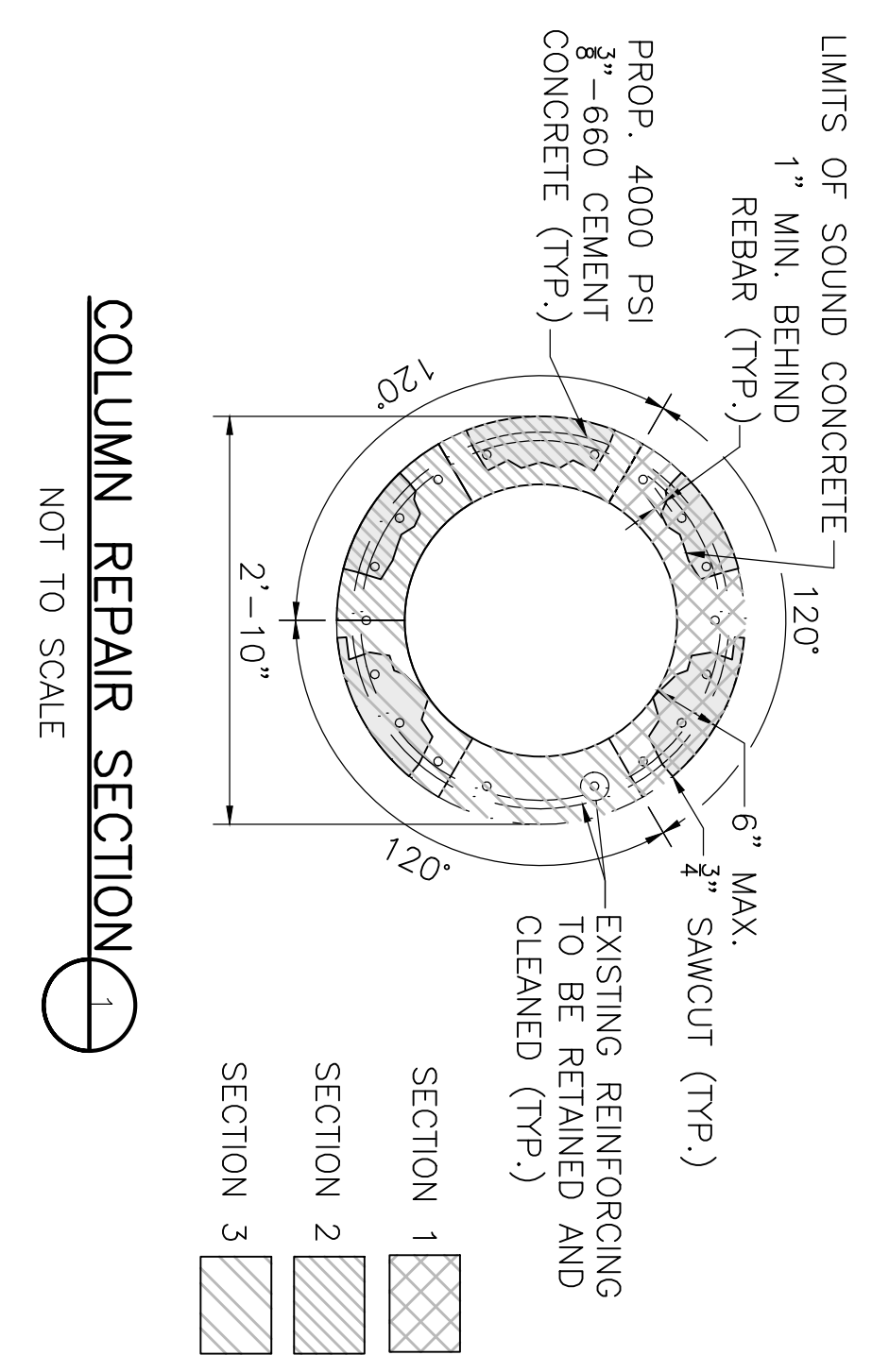
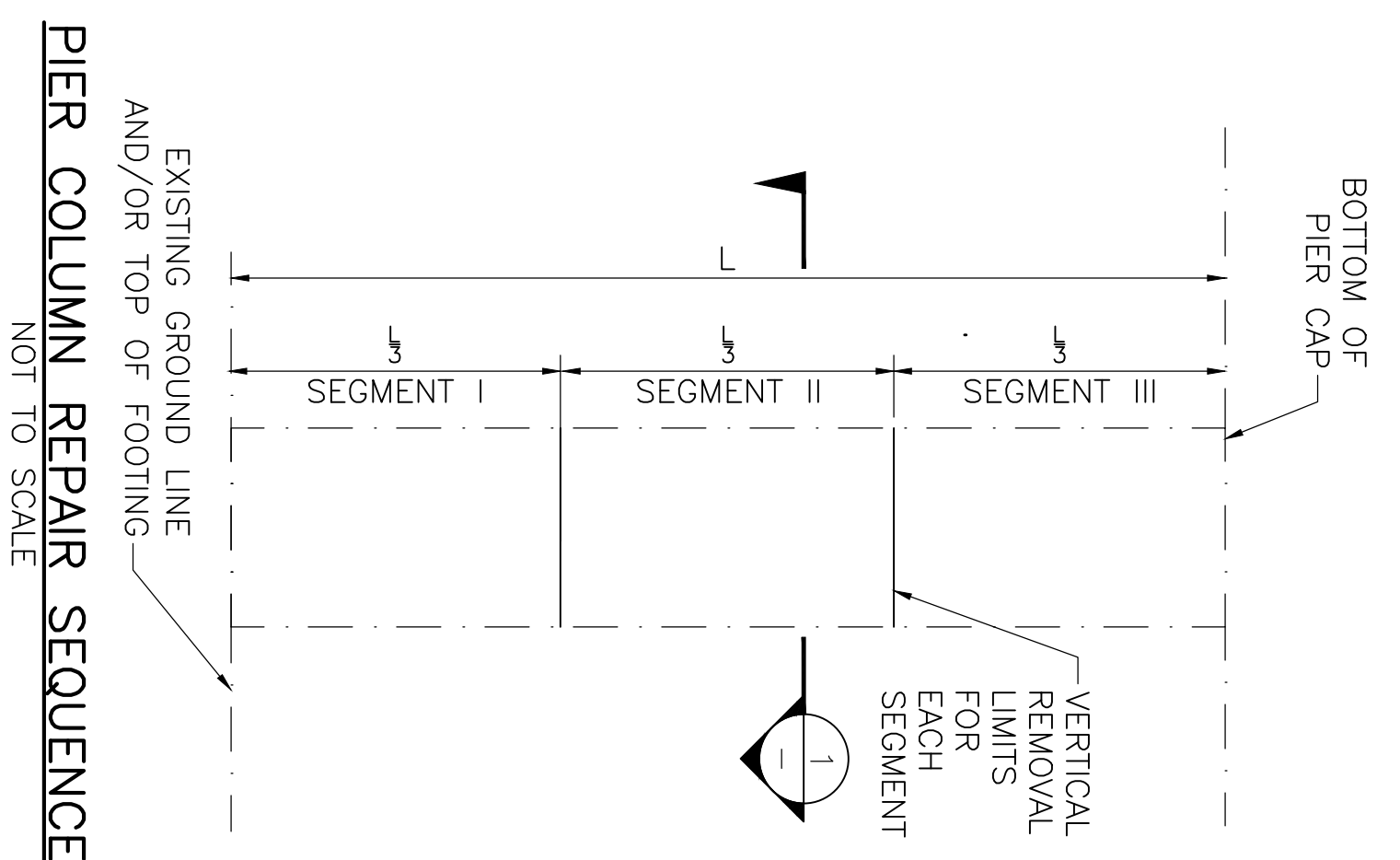
1. CONCRETE ELEMENTS ARE DIVIDED INTO SEGMENTS. WORK TO BE PERFORMED ON SECTIONS AS SHOWN.
2. THE CONTRACTOR SHALL PROVIDE A TEMPORARY SHORING SYSTEM TO SUPPORT THE PIER CAP DEAD AND LIVE LOADS IF THE EXCAVATION LIMITS ARE TO BE EXTENDED PER EVALUATION OF THE DISTRICT BRIDGE ENGINEER.
3. THE CONTRACTOR SHALL PROVIDE A TEMPORARY SHORING SYSTEM TO SUPPORT THE PIER CAP DEAD AND LIVE LOADS IF THE EXCAVATION IS WITHIN 6" OF THE BEARING.
4. THE CONTRACTOR SHALL STAGE THE WORK SO THAT THE SECTIONS IN POOREST CONDITION ARE REPAIRED FIRST, AS APPROVED BY THE ENGINEER.
5. CONTRACTOR SHALL NOT WORK ON ADJACENT SECTIONS SIMULTANEOUSLY UNLESS APPROVED BY THE DISTRICT BRIDGE ENGINEER.
6. CONTRACTOR SHALL WAIT 72 HOURS AFTER COMPLETING REPAIRS TO A SECTION BEFORE BEGINNING REPAIRS TO ADJACENT SECTIONS. HOWEVER HE/SHE MAY PERFORM WORK ON OTHER BRIDGE ELEMENTS.
7. CONTRACTOR SHALL STOP REMOVING DETERIORATING CONCRETE WHEN A MAXIMUM DEPTH OF 6 IN. IS REACHED. THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED IF MORE REMOVAL SEEMS NECESSARY ON THE BRIDGE SECTION.
8. EXISTING REINFORCING NOT SHOWN.
9. THE CONTRACTOR SHALL SUBMIT AN ALTERNATE REPAIR SEQUENCE FOR APPROVAL OF THE ENGINEER WHEN TEMPORARY SHORING IS UTILIZED DURING REPAIRS.
10. MAXIMUM SEGMENT LENGTH SHALL BE LIMITED TO 8 FEET.

ARLINGTON / BELMONT
ST 60 PLEASANT STREET OVER ST 2

STATE	FED. AID PROJ. NO.	SHEET TOTAL
MA	NFA	4 / 6
PROJECT FILE NO. 619466		

PIER CAP REPAIR DETAILS

MM/DD/YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	



- NOTES:**
1. CONCRETE ELEMENTS ARE DIVIDED INTO SEGMENTS. WORK TO BE PERFORMED ON SECTIONS AS DEFINED IN THE ABOVE DETAILS.
 2. THE CONTRACTOR SHALL PROVIDE A TEMPORARY SHORING SYSTEM TO SUPPORT THE PIER CAP DEAD AND LIVE LOADS IF THE EXCAVATION LIMITS ARE TO BE EXTENDED PER EVALUATION OF THE DISTRICT BRIDGE ENGINEER.
 3. NOTE CONTRACTOR SHALL STAGE THE WORK SO THAT THE WORSE SECTIONS ARE REPAIRED FIRST. CONTRACTOR SHALL NOT WORK ON ADJACENT SECTIONS SIMULTANEOUSLY UNLESS APPROVED BY THE DISTRICT BRIDGE ENGINEER.
 4. CONTRACTOR SHALL WAIT 72 HOURS AFTER COMPLETING REPAIRS TO A SECTION BEFORE CHIPPING ADJACENT SECTIONS, HOWEVER HE/SHE MAY PERFORM WORK ON OTHER BRIDGE ELEMENTS.
 5. CONTRACTOR SHALL STOP REMOVING DETERIORATING CONCRETE WHEN A MAXIMUM DEPTH OF 6 IN. IS REACHED. THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED IF MORE REMOVAL SEEMS NECESSARY.
 6. EXISTING REINFORCING NOT SHOWN.
 7. THE CONTRACTOR SHALL SUBMIT AN ALTERNATE REPAIR SEQUENCE FOR APPROVAL OF THE ENGINEER WHEN TEMPORARY SHORING IS UTILIZED DURING REPAIRS.

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STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	5	6
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PIER COLUMN REPAIR DETAILS

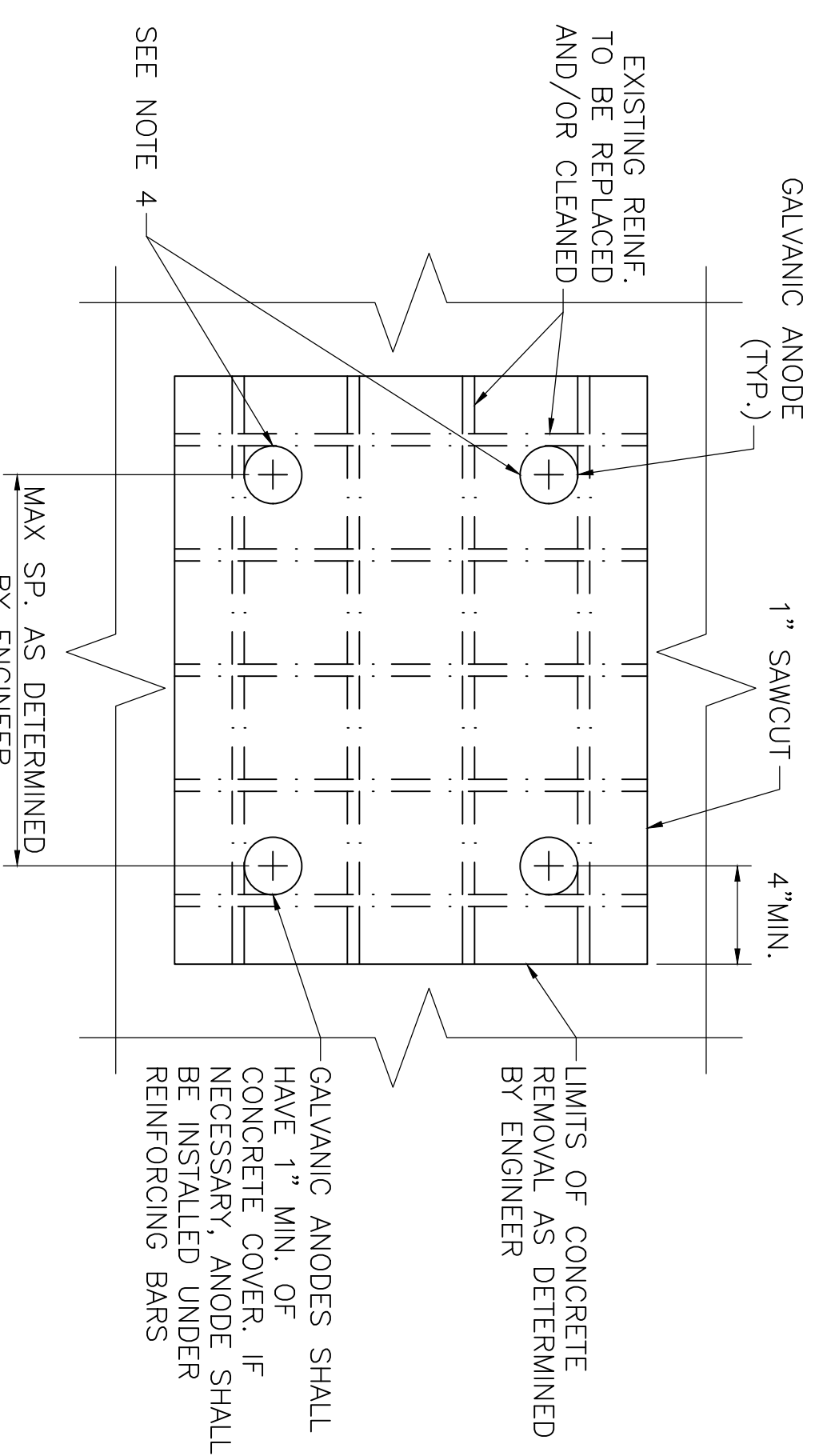
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DATE	DESCRIPTION
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SHEET 5 OF 6 SHEETS BRIDGE NO. A-10-012 = B-07-003 (2DN)

ARLINGTON / BELMONT
ST 60 PLEASANT STREET OVER ST 2

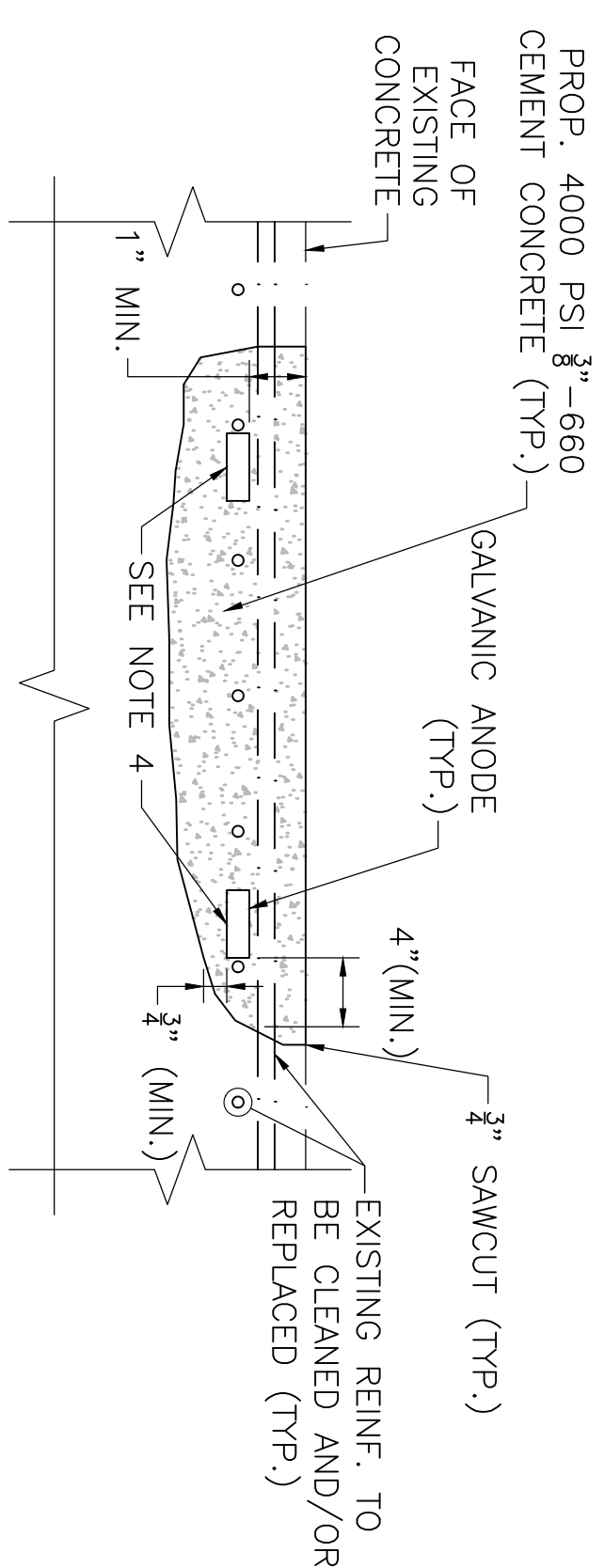
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	6	6
PROJECT FILE NO.		613466	

GALVANIC ANODE INSTALLATION & PARTIAL DEPTH REPAIR DETAILS

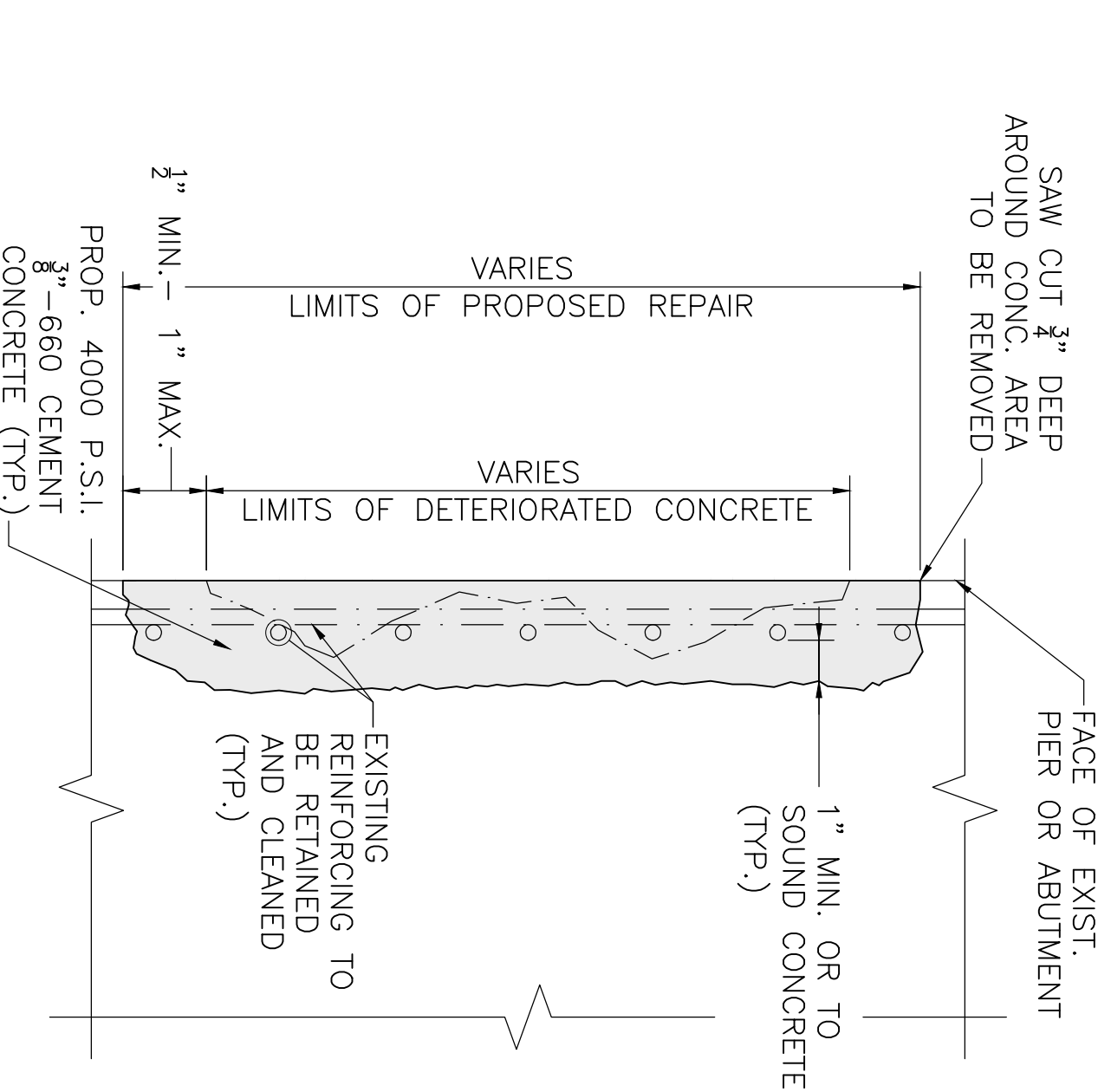


GALVANIC ANODE INSTALLATION DETAIL
NOT TO SCALE

- GALVANIC ANODE NOTES:**
1. REMOVE CONCRETE ACCORDING TO DRAWINGS AND CONTRACT SPECIFICATIONS.
 2. REPLACE, AND/OR CLEAN DAMAGED REINFORCING STEEL. ALL NEW REBAR SHALL BE UNCOATED BLACK STEEL WHEN GALVANIC ANODES ARE USED.
 3. ENSURE ALL EXPOSED REINFORCING STEEL IS SECURELY FASTENED TOGETHER WITH THE WIRE TO PROVIDE ELECTRICAL CONTINUITY.
 4. ATTACH GALVANIC ANODE TO CLEAN REINFORCING STEEL WITHIN THE REPAIR AREA AT SPACING DETERMINED BY ENGINEER AND ACCORDING TO MANUFACTURER'S SPECIFICATIONS. MINIMUM SPACING OF 3/4" BETWEEN ANODES AND EXISTING CONCRETE. A MINIMUM OF 4" EDGE DISTANCE FROM ANY CORNER AND/OR EDGE OF EXCAVATION, AND A MINIMUM OF 1" CONCRETE COVER SHALL BE PROVIDED.
 5. TEST THE ELECTRICAL CONTINUITY BETWEEN THE ANODE TIES AND THE REBAR AND BETWEEN THE REBARS ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.
 6. PLACE REPAIR CONCRETE ACCORDING TO DRAWINGS AND CONTRACT SPECIFICATIONS. WHEN GALVANIC ANODES ARE USED, THE REPAIR MATERIAL USED SHALL BE NON-HP CONCRETE AND APPROVED BY THE ENGINEER.



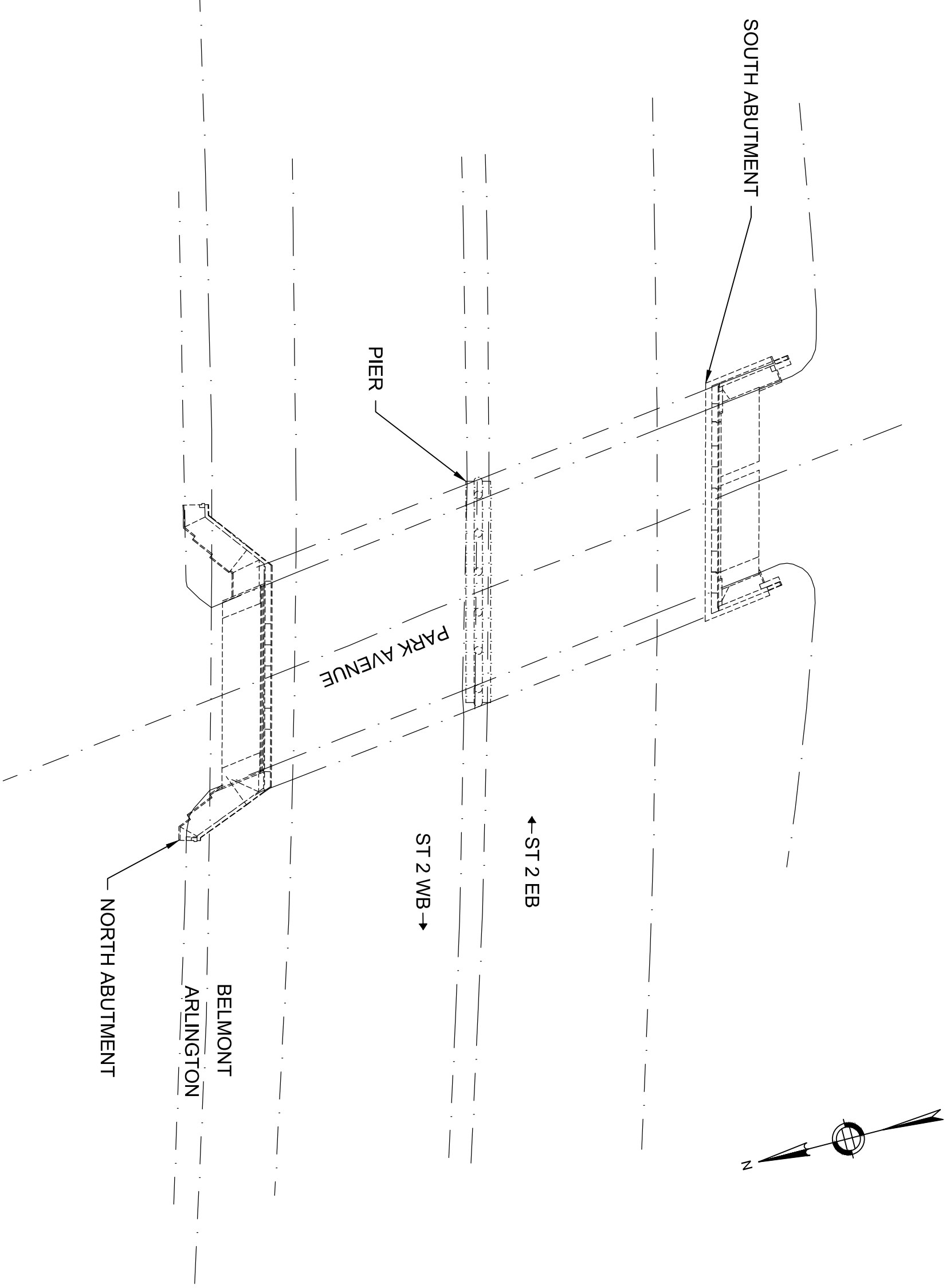
GALVANIC ANODE INSTALLATION SECTION
NOT TO SCALE



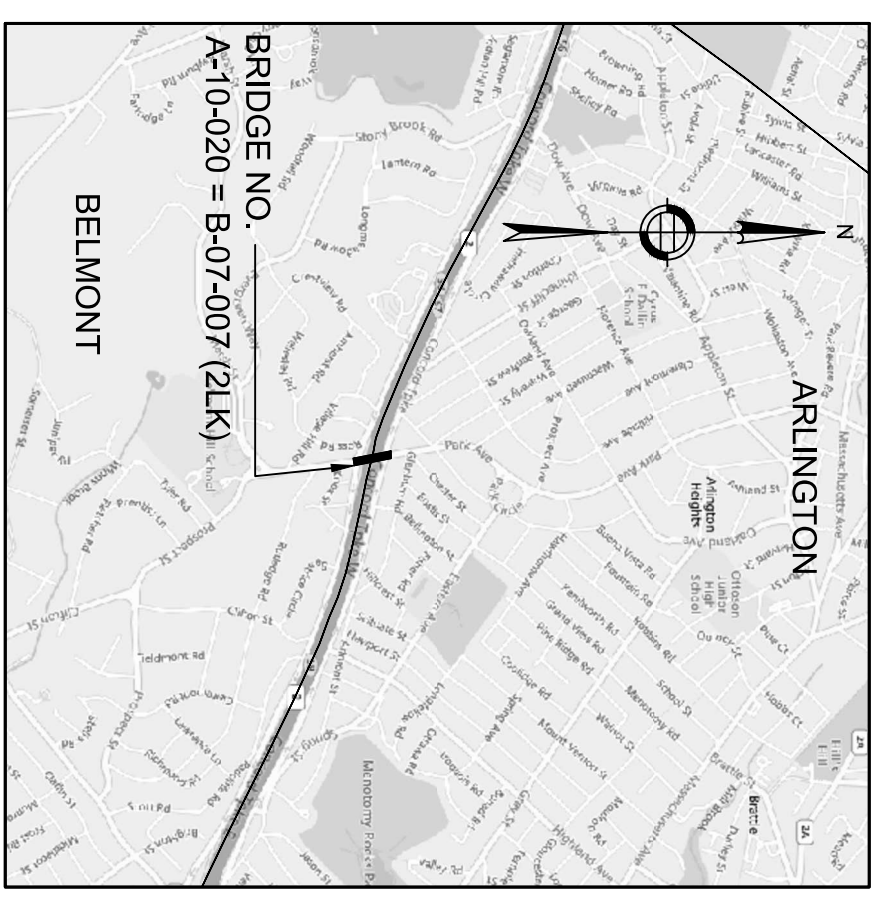
NOTE:
IF THERE IS LESS THAN 1 1/2" CONCRETE COVER, THEN THE CONTRACTOR SHALL BUILD OUT THE FORM TO ENSURE A MINIMUM OF 1 1/2" COVER.

PARTIAL DEPTH REPAIR
NOT TO SCALE

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DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	



KEY PLAN
SCALE: 1" = 40'-0"



LOCUS MAP
SCALE: 1" = 2000'

ARLINGTON / BELMONT
PARK AVENUE OVER ST 2

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	1	6

PROJECT FILE NO. 613466

INDEX, LOCUS MAP, GENERAL NOTES, KEY PLAN & QUANTITIES

QUANTITIES:


ITEM	QUANTITY	UNITS
REINFORCED CONCRETE SUBSTRUCTURE EXCAVATION	15	CY
4000 PSI, 3/8 IN. 660 CEMENT CONCRETE	15	CY
CEMENTITIOUS MORTAR FOR PATCHING	150	SF
STEEL REINFORCEMENT FOR STRUCTURES	750	LB
ELASTOMERIC PROTECTIVE COATING	5800	SF
SPECIAL SLOPE PAVING UNDER BRIDGE	10	SY
GALVANIC ANODE	810	EA

INDEX OF BRIDGE SHEETS

INDEX, LOCUS MAP, GENERAL NOTES, KEY PLAN & QUANTITIES	1
PIER CAP REPAIR LOCATIONS	2
ABUTMENT REPAIR LOCATIONS	3
PIER CAP REPAIR DETAILS	4
PIER COLUMN REPAIR DETAILS	5
GALVANIC ANODE INSTALLATION & PARTIAL DEPTH REPAIR DETAILS	6

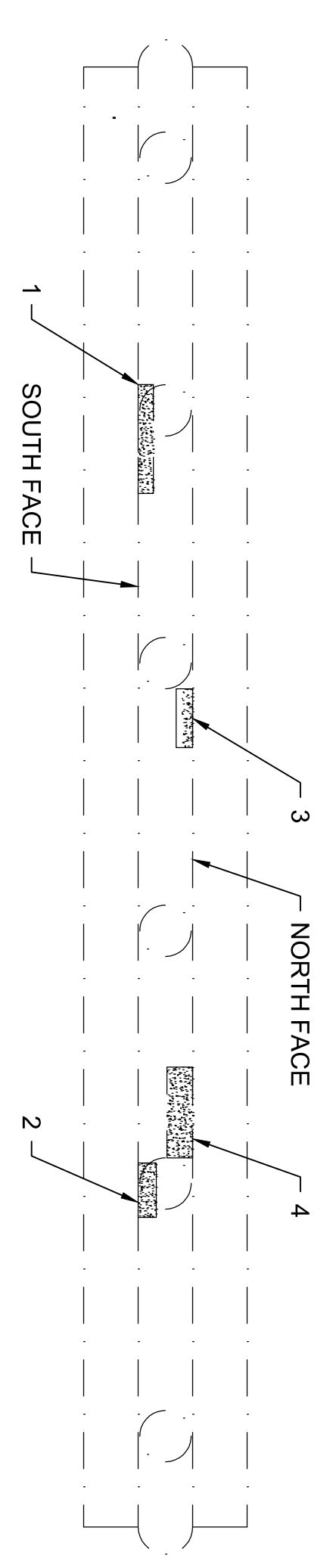
GENERAL NOTES:

- SCALES:**
SCALES NOTED ON THE PLANS ARE NOT APPLICABLE TO REDUCED SIZE PRINTS. DIVIDE SCALES BY 2 FOR HALF-SIZE PRINTS (A3).
UNSUITABLE MATERIAL:
ALL UNSUITABLE MATERIAL SHALL BE REMOVED WITHIN THE LIMITS OF THE FOUNDATIONS OF THE STRUCTURE, AS DIRECTED BY THE ENGINEER.
ANCHOR BOLTS:
ALL ANCHOR BOLTS SHALL BE SET BY TEMPLATE BEFORE THE CONCRETE IS PLACED.
CONCRETE:
ALL CONCRETE SHALL BE 4000 PSI, 3/8 IN, 660 CEMENT CONCRETE.
REINFORCEMENT:
REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 31 GRADE 60. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS, ALL BARS SHALL BE LAPPED AS FOLLOWS:
MODIFICATION CONDITION
- | #4 BARS | #5 BARS | #6 BARS |
|---|---------|---------|
| 1. NONE | 16" | 19" |
| 2. 12" OF CONCRETE BELOW BAR | 20" | 25" |
| 3. EPOXY COATED BARS, COVER < 3dB, OR CLEAR SPACING < 6dB | 23" | 29" |
| 4. COATED BARS, ALL OTHER CASES | 18" | 23" |
| 5. CONDITION 2. AND 3. | 26" | 32" |
| 6. CONDITION 2. AND 4. | 24" | 30" |
- ALL OTHER BARS SHALL BE LAPPED AS SHOWN ON THE CONSTRUCTION DRAWINGS.

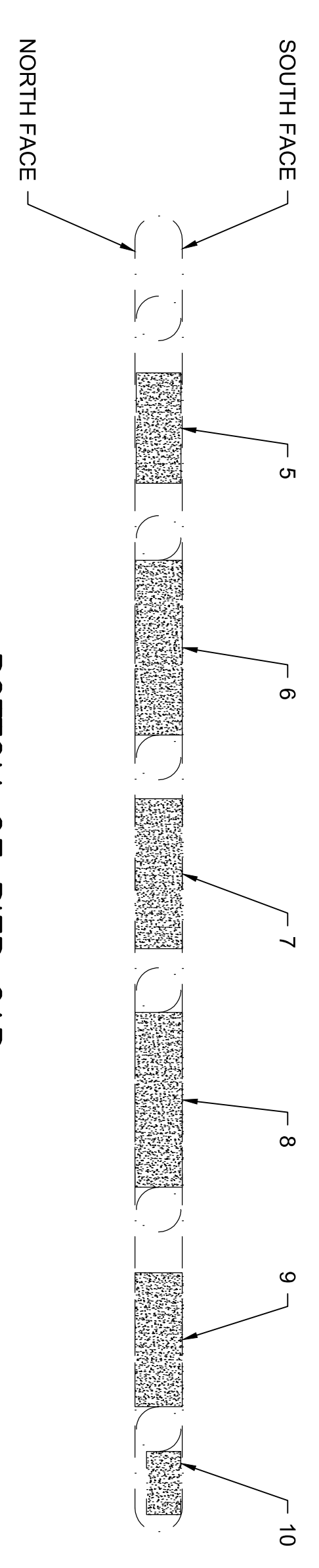
DESIGNED BY JOHN JACOB	ISSUED FOR CONSTRUCTION
DRAWN BY JOHN JACOB	 SUBSTRUCTURE REPAIRS ARLINGTON / BELMONT PARK AVENUE OVER ST 2 MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION 10 PARK PLAZA BOSTON, MASS
CHECKED BY DOUG CONSENTINO	
SPECS. BY JOHN JACOB	
APPROVED FOR DESIGN BY JON LEE	

ARLINGTON / BELMONT			
PARK AVENUE OVER ST 2			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	2	6
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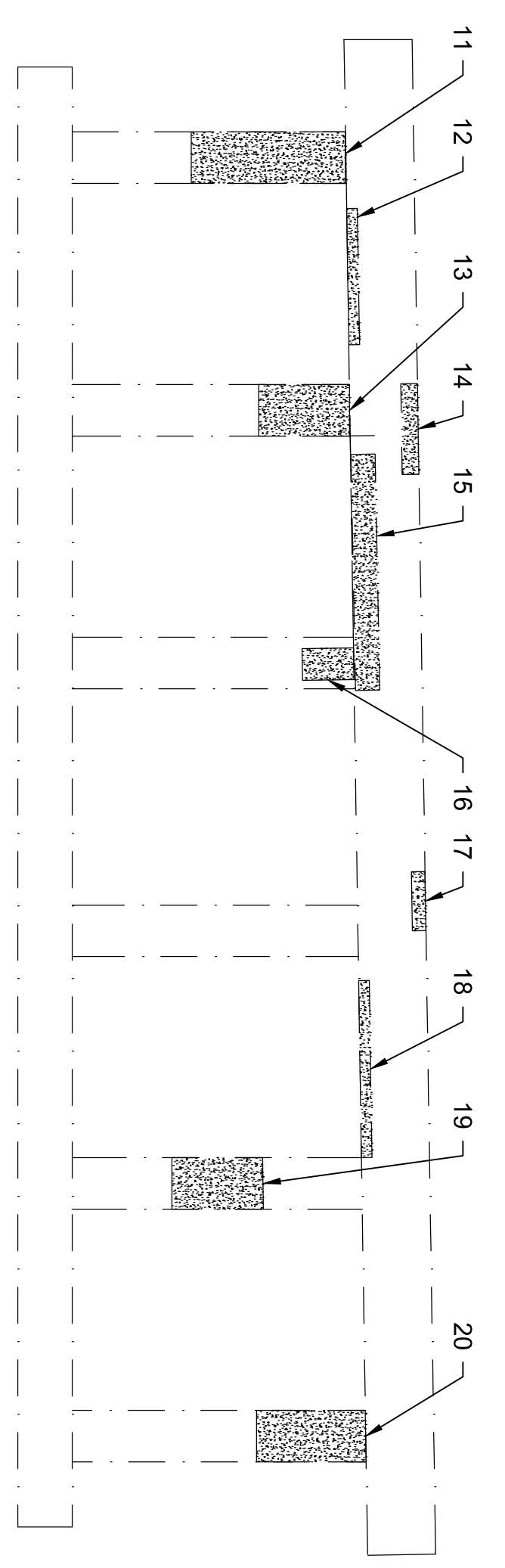
PIER CAP REPAIR LOCATIONS



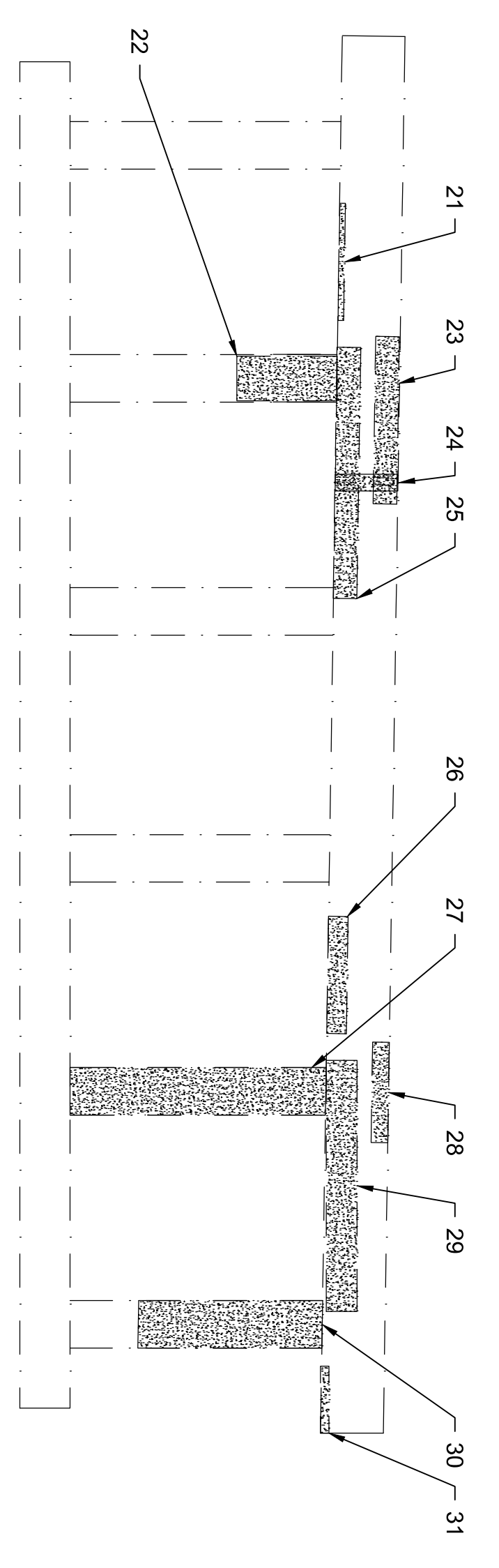
TOP OF PIER CAP
NOT TO SCALE



BOTTOM OF PIER CAP
NOT TO SCALE



NORTH FACE
NOT TO SCALE



SOUTH FACE
NOT TO SCALE

REPAIR LOCATIONS

1. SPALL, 6' LONG X 10" WIDE X 4" DEEP
2. SPALL, 3' LONG X 1' WIDE X 3" DEEP
3. SPALL, 3'-3" LONG X 11" WIDE X 3" DEEP
4. SPALL WITH EXPOSED REBAR, 5' LONG X 1'-5" WIDE X 3" DEEP
5. SPALL WITH EXPOSED & DEBONDED REBAR, 7' LONG X FULL WIDTH X 4" DEEP
6. SPALL WITH EXPOSED REBAR, FULL LENGTH X FULL WIDTH X 4" DEEP
7. SPALL WITH EXPOSED REBAR, 9'-6" LONG X FULL WIDTH X 7" DEEP
8. SPALL WITH EXPOSED DEBONDED REBAR, FULL LENGTH X FULL WIDTH X 3" DEEP
9. SPALL WITH EXPOSED REBAR, 8'-6" LONG X FULL WIDTH X 3" DEEP
10. SPALL WITH EXPOSED REBAR, 4' LONG X 2'-5" WIDE X 3" DEEP
11. SPALL WITH EXPOSED SPIRAL REBAR, 8'-6" HIGH X FULL CIRCUMFERENCE X 4" DEEP
12. SPALL, 7'-6" LONG X 7" HIGH X 3" DEEP
13. SPALL WITH EXPOSED REBAR, 5' HIGH X FULL CIRCUMFERENCE X 5" DEEP
14. SPALL WITH EXPOSED REBAR, 5' LONG X 11" HIGH X 7" DEEP
15. SPALL, 13' LONG X 1'-4" HIGH X 3" DEEP
16. SPALL WITH EXPOSED SPIRAL REBAR, 2'-10" HIGH X 1'-9" WIDE X 2" DEEP
17. SPALL WITH EXPOSED REBAR, 3'-3" LONG X 9" HIGH X 4" DEEP
18. SPALL WITH EXPOSED REBAR, 9'-9" LONG X 7" HIGH X 4" DEEP
19. SPALL WITH EXPOSED SPIRAL REBAR, 5' HIGH X FULL WIDTH X 2" DEEP
20. SPALL WITH EXPOSED SPIRAL REBAR, 6' HIGH X FULL WIDTH X 2" DEEP
21. SPALL, 7' LONG X 4" HIGH X 4" DEEP
22. SPALL WITH EXPOSED SPIRAL REBAR, 6' HIGH X 2'-8" WIDE X 4" DEEP
23. SPALL WITH EXPOSED BROKEN REBAR, 10' LONG X 1'-5" HIGH X 4" DEEP
24. SPALL, 1' LONG X FULL HEIGHT X 2" DEEP
25. SPALL WITH EXPOSED REBAR, 15' LONG X 1'-5" HIGH X 4" DEEP
26. SPALL WITH EXPOSED REBAR, 7' LONG X 1'-2" HIGH X 3" DEEP
27. SPALL WITH EXPOSED SPIRAL REBAR THAT HAS SIGNIFICANT CORROSION WITH AREAS OF 100% SECTION LOSS, FULL HEIGHT X FULL WIDTH X 5" DEEP. THE EXPOSED CONCRETE IS HOLLOW SOUNDING
28. SPALL WITH EXPOSED REBAR, 6' LONG X 1' HIGH X 9" DEEP
29. SPALL, 15' LONG X 1'-10" HIGH X 3" DEEP
30. SPALL WITH EXPOSED SPIRAL REBAR THAT HAS SIGNIFICANT CORROSION WITH AREAS OF 100% SECTION LOSS, 11' HIGH X FULL WIDTH X 4" DEEP. THE EXPOSED CONCRETE IS HOLLOW SOUNDING
31. CORNER SPALL, 4' LONG X 6" HIGH X 4" DEEP

NOTES FOR CONTRACTOR:

IF ANY OF THE FOLLOWING CONDITIONS ARE ENCOUNTERED, THE CONTRACTOR SHALL STOP REMOVING DETERIORATED CONCRETE AND IMMEDIATELY NOTIFY THE DISTRICT BRIDGE ENGINEER TO DETERMINE IF THE EXCAVATION CAN BE CONTINUED:

1. WHEN A MAXIMUM EXCAVATION DEPTH OF 6 INCHES IS REACHED IN ANY SUBSTRUCTURE REPAIR.
2. WHEN THE EXCAVATION ENCROACHES ON THE BEARING DEVICES.
3. WHEN MORE THAN TWO ADJACENT BEAMS ARE SUPPORTED BY THE COLUMN BAY IN PIER CAP REPAIR.
4. WHEN THE PIER CAP OVERHANG, (MEASURING FROM THE FACE OF THE COLUMN), IS MORE THAN 4 FT, AND/OR THE BEARING DEVICES ARE WITHIN THE OUTER HALF OF THE OVERHANG IN PIER END CAP REPAIR.

NOTES:

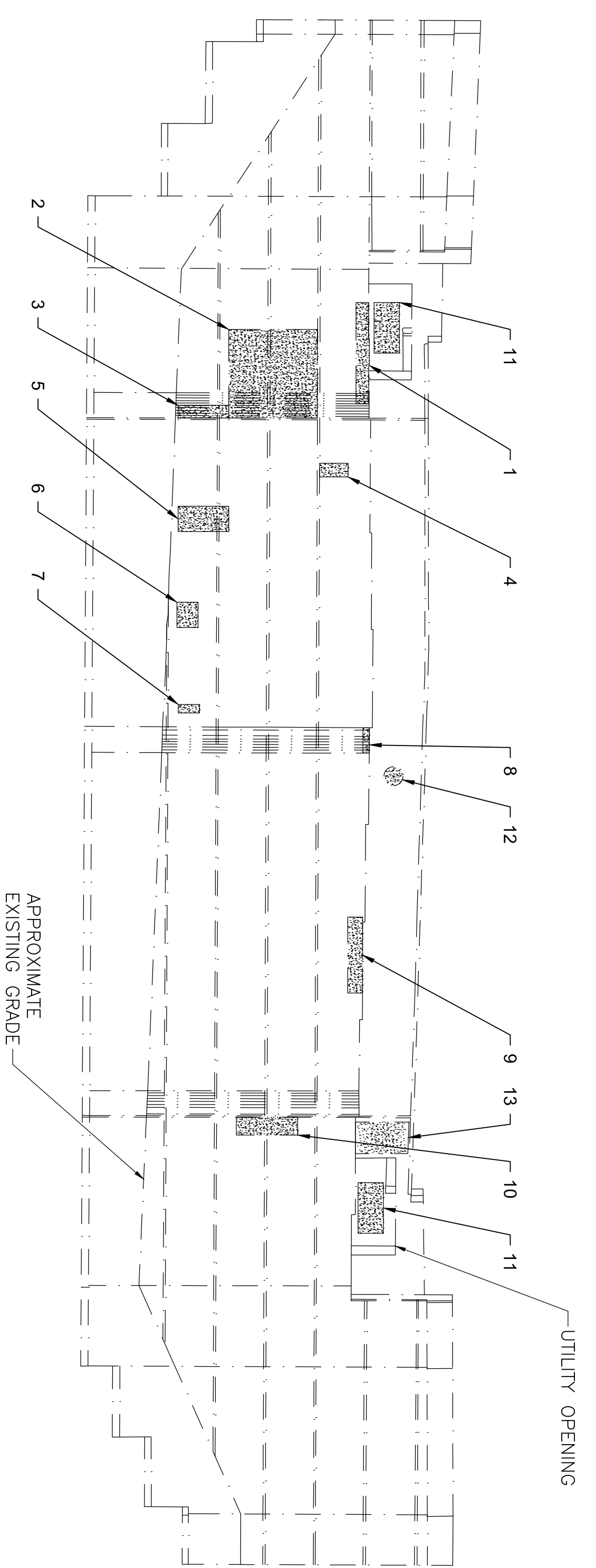
SEE SHEETS 4, 5 & 6

MM/DD/YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

**ARLINGTON / BELMONT
PARK AVENUE OVER ST 2**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	3	6
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ABUTMENT REPAIR LOCATIONS



NORTH ABUTMENT

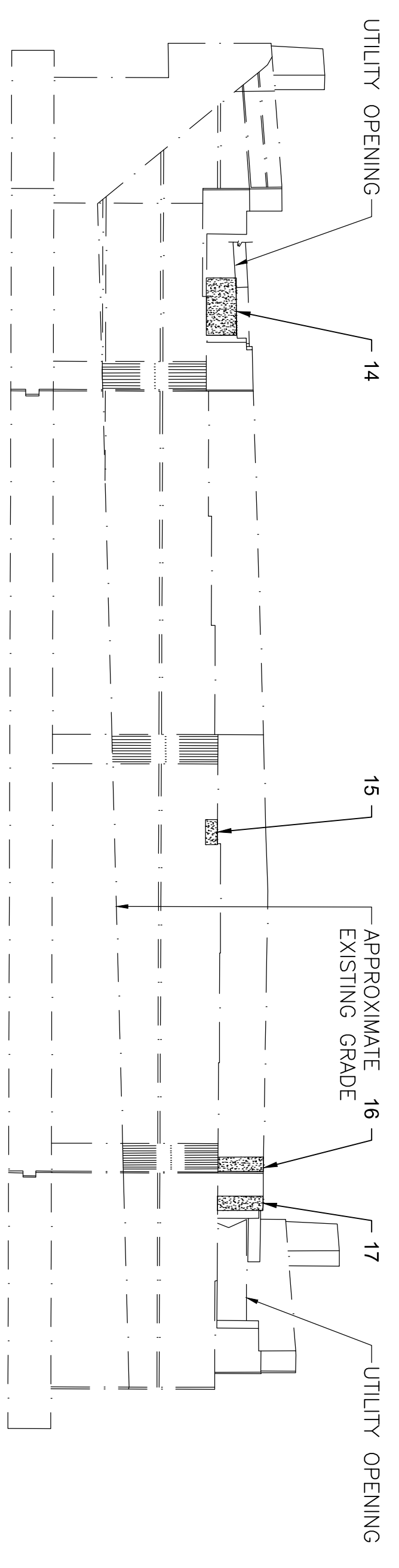
NOT TO SCALE

REPAIR LOCATIONS:

1. SPALL WITH DEBONDED REBAR EXTENDS 10" TO THE SEAT AREA, 8' LONG X UP TO 1' HIGH X 4" DEEP
2. SPALL WITH SEVEN TOTAL RUSTED REBAR, ONE OF WHICH IS BROKEN, 7' LONG X 7'-6" HIGH X 6" DEEP
3. SPALL, 1' LONG X 4' HIGH X 7" DEEP
4. SPALL, 1'-1" LONG X 2'-3" HIGH X 2" DEEP
5. SPALL WITH EXPOSED REBAR, 2' LONG X 4' HIGH X 3" DEEP
6. SPALL WITH ADJACENT DELAMINATION, 2'-4" LONG X 1'-8" HIGH X 2" DEEP
7. SPALL WITH ADJACENT DELAMINATION, 8" LONG X 1'-10" HIGH X 1" DEEP
8. SPALL WITH EXPOSED REBAR, 2' LONG X 6" HIGH X FULL DEPTH INTO THE BRIDGE SEAT
9. SPALL WITH EXPOSED REBAR, 6' LONG X 1'-2" HIGH X 4" DEEP
10. SPALL WITH EXPOSED REBAR, 1'-5" LONG X 4'-10" HIGH X 6" DEEP
11. UTILITY BAYS HAVE MODERATE SPALL WITH EXPOSED REBAR, UP TO 4' LONG X UP TO 2' HIGH X FULL DEPTH
12. SPALL, 1'-6" DIAMETER X 2" DEEP
13. SPALL WITH EXPOSED REBAR, 2'-6" LONG X FULL HEIGHT X 7" DEEP
14. SPALL, 4' LONG X FULL HEIGHT X FULL DEPTH
15. SPALL WITH EXPOSED REBAR, 1'-9" LONG X 10" HIGH X 2" DEEP
16. SPALL, 1' LONG X FULL HEIGHT X 6" DEEP
17. SPALL, 1' LONG X FULL HEIGHT X FULL DEPTH

NOTES:

SEE SHEETS 4 & 6



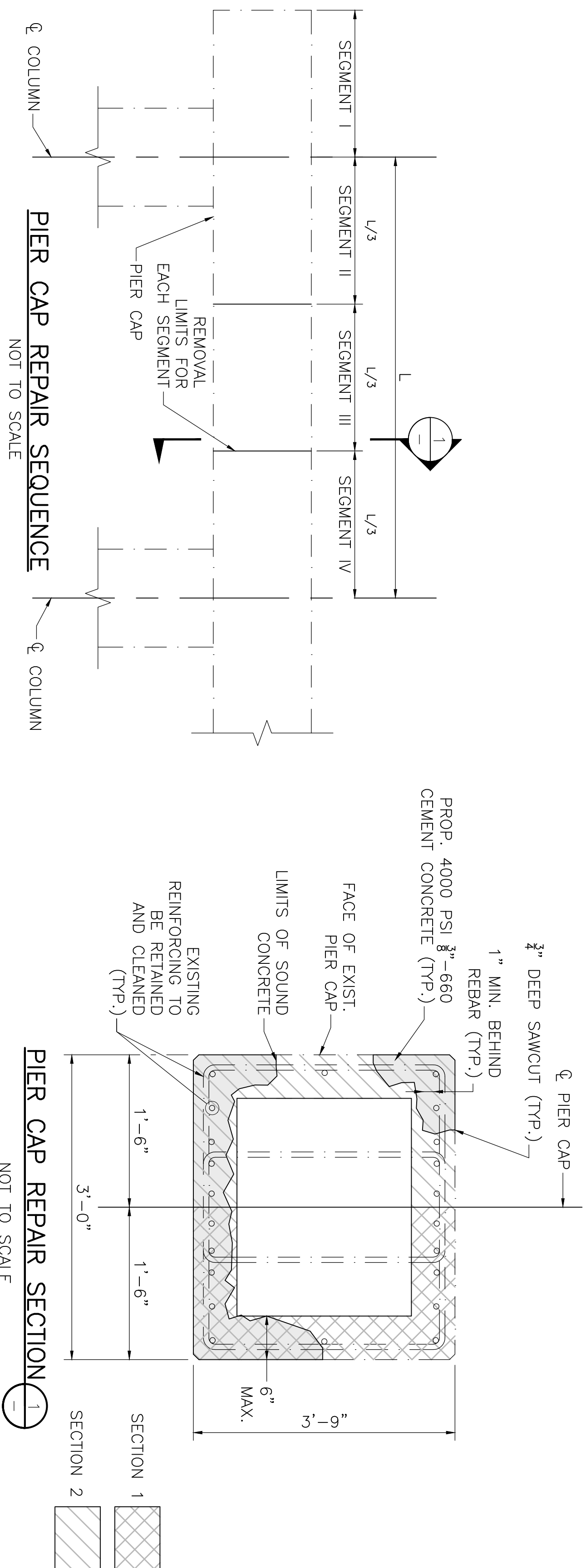
SOUTH ABUTMENT

NOT TO SCALE

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USE ONLY PRINTS OF LATEST DATE	

SUBSTRUCTURE CONCRETE REPAIR NOTES:

1. SUBSTRUCTURE REPAIRS SHALL CONSIST OF REMOVING DETERIORATED CONCRETE, PREPARING THE REPAIR SURFACE, FORMING WHERE REQUIRED, PLACING AND FINISHING NEW CONCRETE OR CEMENTITIOUS MORTAR. THE SCOPE OF REPAIRS MAY ALSO REQUIRE APPLYING ELASTOMERIC COATING (ITEM 964.3) TO THE REPAIRED SUBSTRUCTURE UNITS. THE LIMITS FOR THE ELASTOMERIC COATING WILL BE ESTABLISHED BY THE ENGINEER.
2. THE REPAIR IS DESIGNATED AS A DEEP PATCH WHEN THE EXCAVATED DEPTH TO SOUND CONCRETE EXCEEDS 2" FROM THE FACE OF THE CONCRETE OR REINFORCING STEEL IS ENCOUNTERED. SEE PARTIAL DEPTH REPAIR DETAIL ON SHEET 6.
3. THE REPAIR IS DESIGNATED AS A PARTIAL DEPTH WHEN THE DEPTH OF SOUND CONCRETE IS REACHED AT OR LESS THAN 2" FROM THE FACE OF THE CONCRETE AND REINFORCING STEEL IS NOT ENCOUNTERED.
4. 4000 PSI, 3/8 INCH, 660 CEMENT CONCRETE (ITEM 905.) SHALL BE USED FOR ALL DEEP PATCH REPAIRS. ALL PARTIAL DEPTH REPAIRS SHALL BE PATCHED WITH CEMENTITIOUS MORTAR FOR PATCHING (ITEM 909.2).
5. THE CONTRACTOR SHALL ESTABLISH LIMITS OF REPAIRS AT THE DIRECTION OF THE ENGINEER. THE EXTENT, LOCATION AND REPAIR TYPE (DEEP PATCH OR PARTIAL DEPTH REPAIR) ARE TO BE FIELD VERIFIED AND APPROVED BY THE ENGINEER AFTER THE CONTRACTOR HAS SOUNDED AND MARKED OUT THE REPAIR AREA. THE AREAS OF REPAIR SHALL BE MADE APPROXIMATELY RECTANGULAR WITH THE SIDES GENERALLY PERPENDICULAR TO THE SURFACE BEING REPAIRED.
6. THE DETERIORATED CONCRETE SHALL BE REMOVED AS REQUIRED TO PROVIDE GOOD SOUND CONCRETE ON WHICH NEW CONCRETE CAN BE PLACED AND SATISFACTORILY BONDED TO UNDAMAGED OR UNDISTURBED REINFORCEMENT.
7. SAW CUT ALONG NEAT LINES AROUND REPAIR AREA PRIOR TO CONCRETE EXCAVATION. USE SAW CUT DEPTH OF 1", OR AS REQUIRED TO AVOID CUTTING REINFORCING STEEL.
8. SUBSTRUCTURE REPAIR SHOULD INCLUDE THE REMOVAL OF ALL DETERIORATED, LOOSE, SPALLED AND HOLLOW SOUNDING CONCRETE. THE DETERIORATED CONCRETE SHALL BE REMOVED FROM WITHIN THE REPAIR AREAS TO THE DEPTH OF SOUND CONCRETE. WHEN REINFORCING STEEL IS UNCOVERED, CARE SHALL BE TAKEN SO AS NOT TO DAMAGE THE STEEL OR ITS BOND TO THE SURROUNDING CONCRETE. MAXIMUM 25 LB. HAMMERS WITH CHISEL POINTS SHALL BE USED FOR CONCRETE REMOVAL. MAXIMUM 15 LB. HAMMERS SHALL BE USED ONCE REINFORCING STEEL IS EXPOSED.
9. THE CONTRACTOR SHALL STOP REMOVING DETERIORATED CONCRETE WHEN A MAXIMUM DEPTH OF 6 INCHES IS REACHED. THE DISTRICT BRIDGE ENGINEER SHALL BE IMMEDIATELY NOTIFIED TO DETERMINE IF THE EXCAVATION CAN BE CONTINUED.
10. IF REINFORCING STEEL IS EXPOSED THEN CLEAN BY MECHANICAL CLEANING OR HIGH PRESSURE WASHING WITH WATER THAT CONTAINS NO DETERGENTS OR BOND INHIBITING CHEMICALS. WHERE ACTIVE CORROSION HAS OCCURRED THAT WOULD INHIBIT BONDING, CLEAN STEEL USING ABRASIVE BLASTING METHODS ACCEPTABLE TO THE ENGINEER, THEN PAINT WITH A ZINC-RICH PRIMER CONFORMING TO MASSDOT STANDARD SPECIFICATION NO. M7.04.11.
11. AFTER REMOVAL AND EDGE PREPARATIONS ARE COMPLETE, REMOVE BOND INHIBITING MATERIALS (DIRT, GREASE, LOOSELY BONDED AGGREGATE) BY ABRASIVE BLASTING OR HIGH PRESSURE WATER BLASTING WITH WATER THAT CONTAINS NO DETERGENTS OR BOND INHIBITING CHEMICALS. CHECK THE CONCRETE SURFACES AFTER CLEANING TO ENSURE THAT SURFACE IS FREE FROM ADDITIONAL LOOSE AGGREGATE OR THAT ADDITIONAL DELAMINATIONS ARE NOT PRESENT.
12. EXISTING REINFORCING BARS, WHICH ARE BROKEN OR HAVE LOST 25% OR MORE OF THEIR CROSS SECTIONAL AREA, OR AS ORDERED REPAIRED BY THE ENGINEER, SHALL BE REPAIRED BY SPLICING IN NEW REINFORCING BARS OF THE SAME DIAMETER. SEE EXISTING BRIDGE PLANS FOR BAR SIZES. SPLICE LAPS ARE TO BE AT LEAST 32 BAR DIAMETERS. MISSING OR DETERIORATED REINFORCING STEEL SHALL BE REPLACED AS DIRECTED BY THE ENGINEER AND WILL BE PAID UNDER ITEM 910.11.
13. ALL SURFACES WHERE NEW CONCRETE WILL BE BONDED TO EXISTING CONCRETE SHALL BE PRE-WETTED WITH CLEAN WATER TO SATURATED SURFACE DRY (SSD) CONDITION (WITH NO STANDING WATER) IMMEDIATELY PRIOR TO THE CONCRETE PLACEMENT. IF INDICATED ON THE PLANS OR DIRECTED BY THE ENGINEER, APPLY EPOXY BONDING COMPOUND SUITABLE FOR BONDING FRESH CONCRETE TO HARDENED CONCRETE FOR LOAD BEARING APPLICATIONS TO INTERFACE BETWEEN NEW AND EXISTING CONCRETE. THE EPOXY BONDING COMPOUND SHALL CONFORM TO AASHTO M 235 TYPE V, GRADE AND CLASS SHALL BE SPECIFIED FOR EACH APPLICATION AND SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND THE SPECIAL PROVISIONS. THE COST ASSOCIATED WITH THIS WORK WILL BE INCIDENTAL TO ITEM 905.
14. IN GENERAL, EPOXY BONDING COMPOUND SHALL BE USED FOR ALL PARTIAL DEPTH REPAIR AND HORIZONTAL SURFACES OF DEEP PATCH REPAIR, SUCH AS TOP EXCAVATED SURFACES OF PIER CAP AND BEAM SEAT.
15. IF EPOXY BONDING COMPOUND IS USED, THE FORMS SHALL BE INSTALLED AND FILLED BEFORE THE EPOXY BONDING COMPOUND HARDENS.
16. IF DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL INSTALL CATHODIC PROTECTION ANODES TO THE LIMITS DETERMINED BY THE ENGINEER. ANODE INSTALLATIONS & TESTING SHOULD BE PAID UNDER ITEM 910.01.
17. ALL CONCRETE SURFACES ONCE CURED, SHALL BE RUBBED TO PRODUCE A SMOOTH FINISH TO MATCH EXISTING SURFACES. WET CURING IN ACCORDANCE WITH THE SUPPLEMENTAL SPECIFICATIONS FOR HIGHWAYS AND BRIDGES SECTION 901.65, SUB-SECTION A-2 WILL BE REQUIRED.
18. CONCRETE PIER CAPS, COLUMNS, ABUTMENT SEATS, AND EXPOSED SECTIONS OF ABUTMENT STEMS SHALL (AS DETERMINED BY THE ENGINEER) RECEIVE A CONCRETE PENETRANT/SEALER OR ELASTOMERIC PROTECTIVE COATING (ITEM 964.3), 30 DAYS AFTER ALL REPAIRS HAVE BEEN MADE. CONCRETE PENETRANT/SEALER IS INCIDENTAL TO ITEM 905.
19. THE REPAIR OF PIER CAP SHALL BE COMPLETED PRIOR TO THE START OF ANY COLUMN REPAIR, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
20. THE CONTRACTOR SHALL FOLLOW THE CONCRETE PIER CAPS AND COLUMNS REPAIR SEQUENCE OUTLINED ON THE PLANS. THE CONTRACTOR WILL HAVE THE OPTION TO SUBMIT AN ALTERNATE REPAIR PROCEDURE FOR REVIEW AND APPROVAL. THE CONTRACTOR MAY ALSO USE TEMPORARY SHORING TO COMPLETE THE REPAIRS IN ONE STAGE. IF SHORING IS PROPOSED TO ACCOMMODATE THE CONTRACTOR'S MEANS AND METHODS OR REPAIR SCHEDULE, NO ADDITIONAL COMPENSATION WILL BE ALLOWED. THIS SHALL REQUIRE APPROVAL OF THE ENGINEER AND THE SHORING WILL BE CONSIDERED INCIDENTAL TO THE REPAIR WORK.
21. THE REPAIR PHASING AND SEQUENCE MAY BE MODIFIED BY THE ENGINEER SO THAT THE SECTIONS WITH WORSE DETERIORATION ARE REPAIRED FIRST.
22. THE SERVICE LOAD (DEAD LOAD + LIVE LOAD) REACTION AT EACH BEARING SHALL BE EQUAL TO 145 KIPS. IF LOADING CONDITIONS ARE TO BE MODIFIED DURING CONSTRUCTION, OR ADDITIONAL CONSTRUCTION LOADS APPLIED, CALCULATIONS OF THE REACTIONS FOR JACKING AND/SHORING SHALL BE SUBMITTED BY THE CONTRACTOR FOR REVIEW.



- NOTES:**
1. CONCRETE ELEMENTS ARE DIVIDED INTO SEGMENTS. WORK TO BE PERFORMED ON SECTIONS AS SHOWN.
 2. THE CONTRACTOR SHALL PROVIDE A TEMPORARY SHORING SYSTEM TO SUPPORT THE PIER CAP DEAD AND LIVE LOADS IF THE EXCAVATION LIMITS ARE TO BE EXTENDED PER EVALUATION OF THE DISTRICT BRIDGE ENGINEER.
 3. THE CONTRACTOR SHALL PROVIDE A TEMPORARY SHORING SYSTEM TO SUPPORT THE PIER CAP DEAD AND LIVE LOADS IF THE EXCAVATION IS WITHIN 6" OF THE BEARING.
 4. CONTRACTOR SHALL STAGE THE WORK SO THAT THE SECTIONS IN POOREST CONDITION ARE REPAIRED FIRST, AS APPROVED BY THE ENGINEER.
 5. CONTRACTOR SHALL NOT WORK ON ADJACENT SECTIONS SIMULTANEOUSLY UNLESS APPROVED BY THE DISTRICT BRIDGE ENGINEER.
 6. CONTRACTOR SHALL WAIT 72 HOURS AFTER COMPLETING REPAIRS TO A SECTION BEFORE BEGINNING REPAIRS TO ADJACENT SECTIONS. HOWEVER HE/SHE MAY PERFORM WORK ON OTHER BRIDGE ELEMENTS.
 7. CONTRACTOR SHALL STOP REMOVING DETERIORATING CONCRETE WHEN A MAXIMUM DEPTH OF 6 IN. IS REACHED. THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED IF MORE REMOVAL SEEMS NECESSARY ON THE BRIDGE SECTION.
 8. EXISTING REINFORCING NOT SHOWN.
 9. THE CONTRACTOR SHALL SUBMIT AN ALTERNATE REPAIR SEQUENCE FOR APPROVAL OF THE ENGINEER WHEN TEMPORARY SHORING IS UTILIZED DURING REPAIRS.
 10. MAXIMUM SEGMENT LENGTH SHALL BE LIMITED TO 8 FEET.

**ARLINGTON / BELMONT
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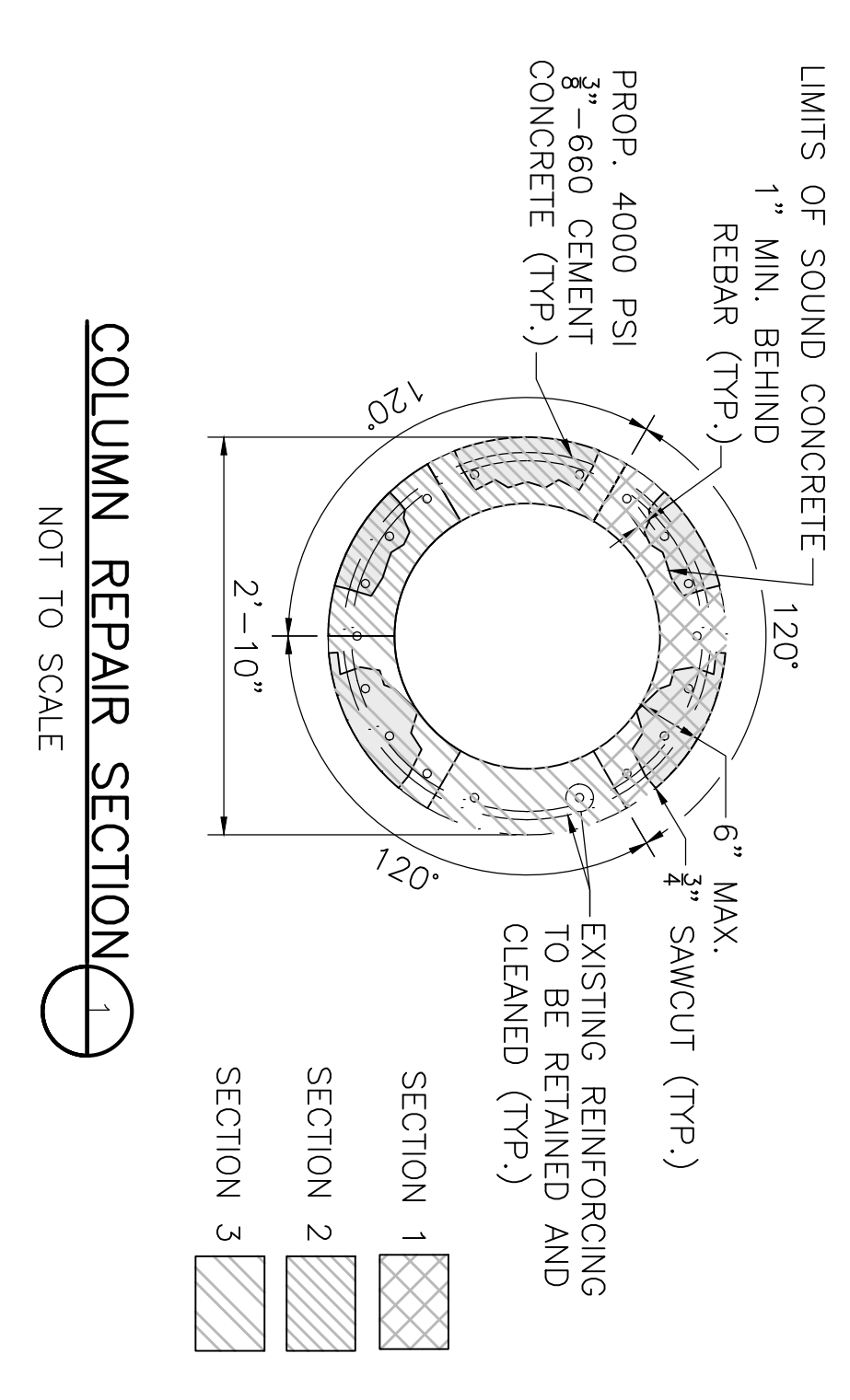
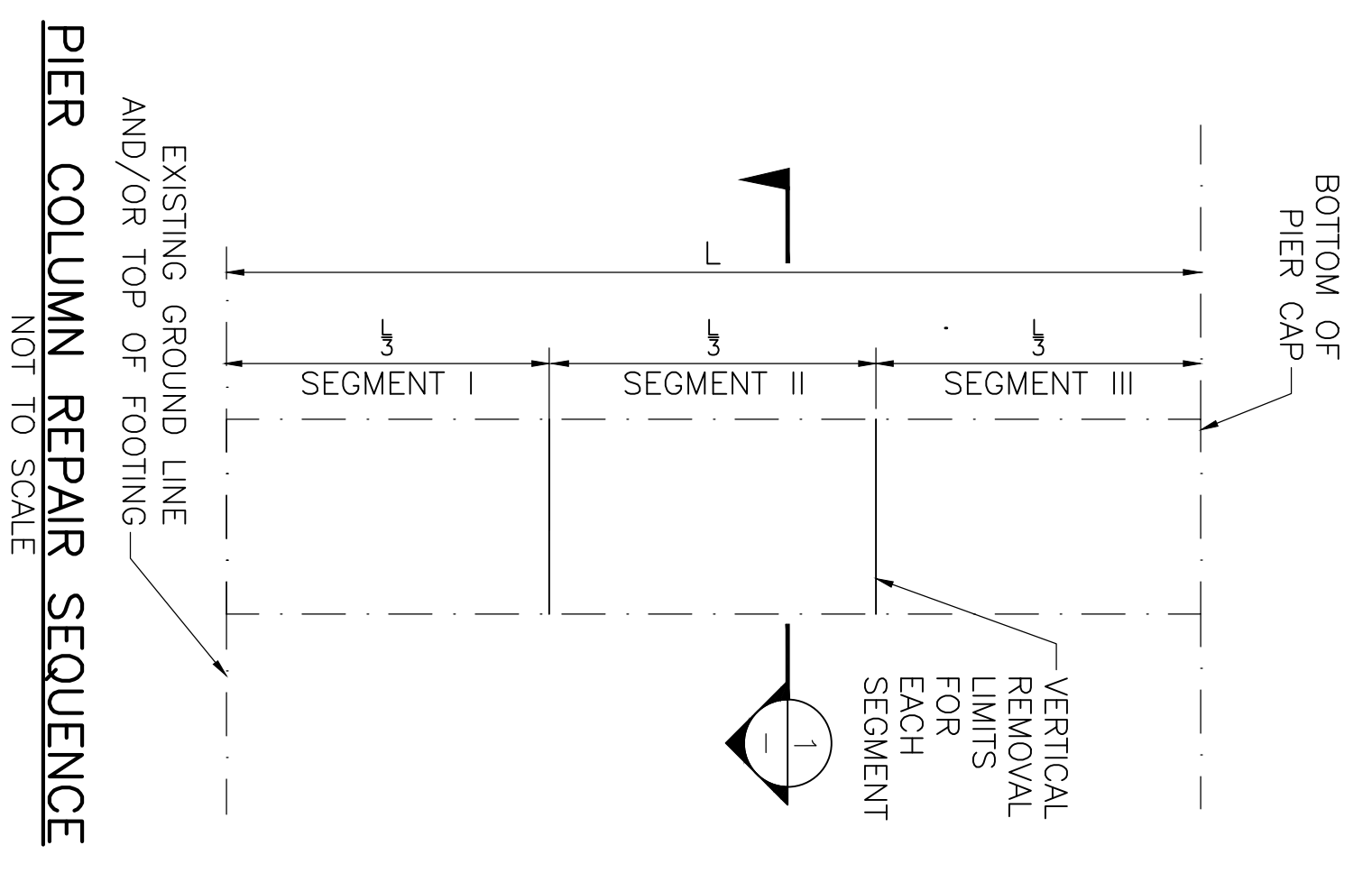
STATE	FED. AID PROJ. NO.	SHEET TOTAL
MA	NFA	4
		6

PROJECT FILE NO. 619466

PIER CAP REPAIR DETAILS

MM/DD/YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

USE ONLY PRINTS OF LATEST DATE



- NOTES:**
1. CONCRETE ELEMENTS ARE DIVIDED INTO SEGMENTS. WORK TO BE PERFORMED ON SECTIONS AS DEFINED IN THE ABOVE DETAILS.
 2. THE CONTRACTOR SHALL PROVIDE A TEMPORARY SHORING SYSTEM TO SUPPORT THE PIER CAP DEAD AND LIVE LOADS IF THE EXCAVATION LIMITS ARE TO BE EXTENDED PER EVALUATION OF THE DISTRICT BRIDGE ENGINEER.
 3. NOTE CONTRACTOR SHALL STAGE THE WORK SO THAT THE WORSE SECTIONS ARE REPAIRED FIRST.
 4. CONTRACTOR SHALL NOT WORK ON ADJACENT SECTIONS SIMULTANEOUSLY UNLESS APPROVED BY THE DISTRICT BRIDGE ENGINEER.
 5. CONTRACTOR SHALL WAIT 72 HOURS AFTER COMPLETING REPAIRS TO A SECTION BEFORE CHIPPING ADJACENT SECTIONS, HOWEVER HE/SHE MAY PERFORM WORK ON OTHER BRIDGE ELEMENTS.
 6. CONTRACTOR SHALL STOP REMOVING DETERIORATING CONCRETE WHEN A MAXIMUM DEPTH OF 6 IN. IS REACHED. THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED IF MORE REMOVAL SEEMS NECESSARY.
 7. EXISTING REINFORCING NOT SHOWN.
 8. THE CONTRACTOR SHALL SUBMIT AN ALTERNATE REPAIR SEQUENCE FOR APPROVAL OF THE ENGINEER WHEN TEMPORARY SHORING IS UTILIZED DURING REPAIRS.

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PIER COLUMN REPAIR DETAILS

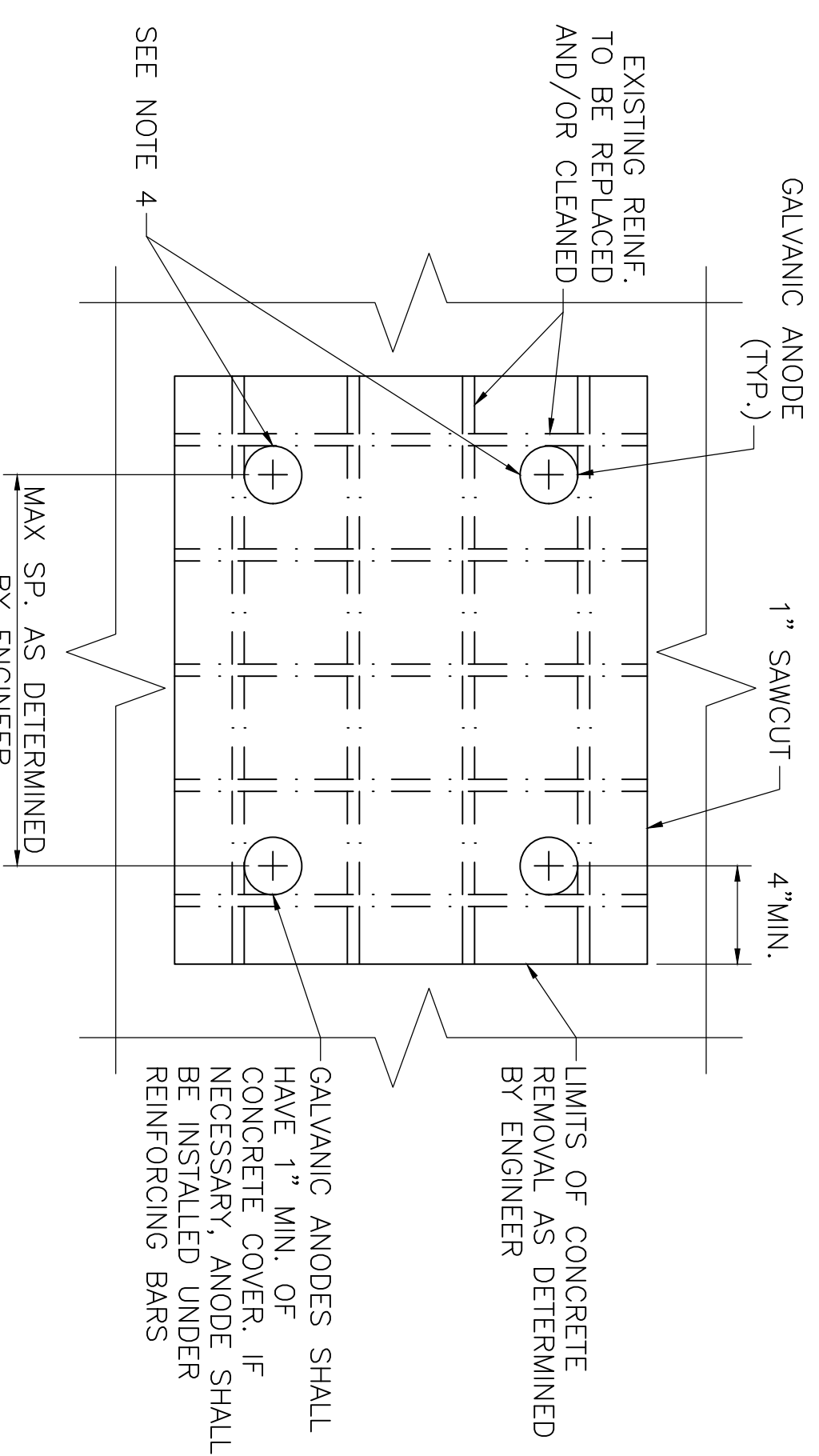
MM/DD/YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 5 OF 6 SHEETS BRIDGE NO. A-10-020 = B-07-007 (2LK)

**ARLINGTON / BELMONT
PARK AVENUE OVER ST 2**

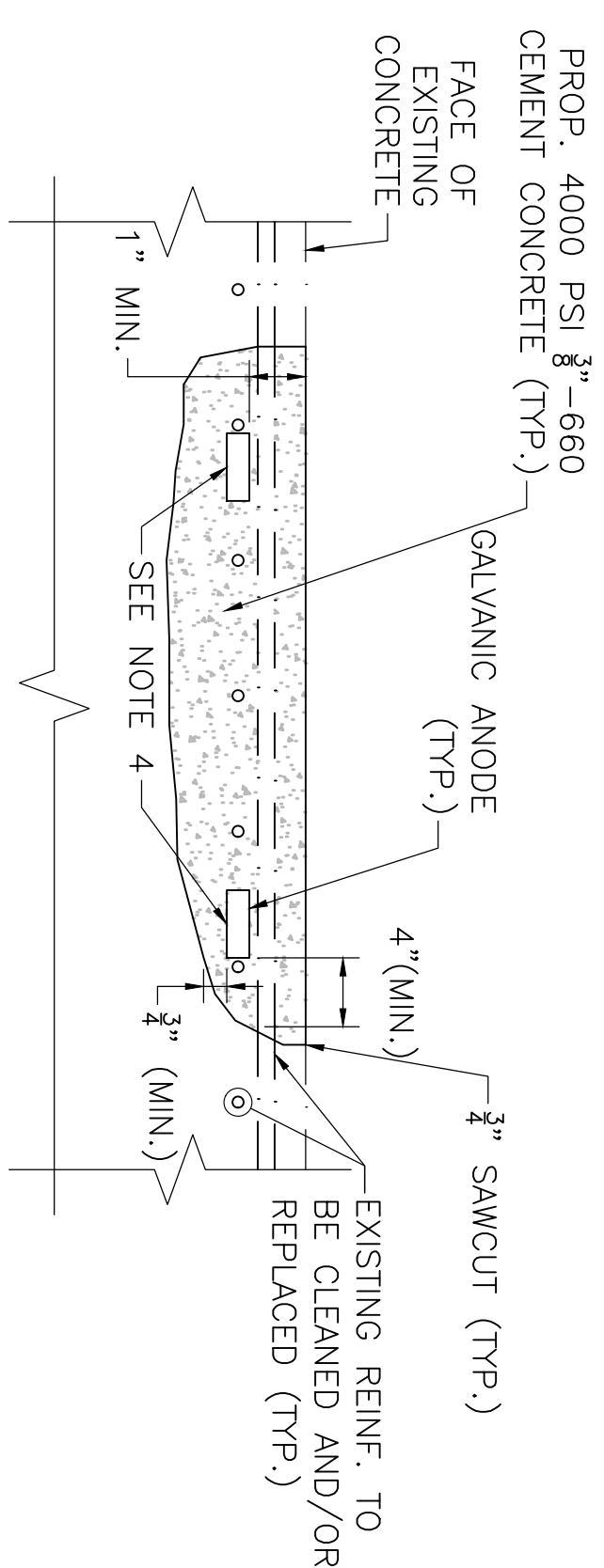
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	6	6
PROJECT FILE NO.		613466	

**GALVANIC ANODE INSTALLATION
& PARTIAL DEPTH REPAIR DETAILS**

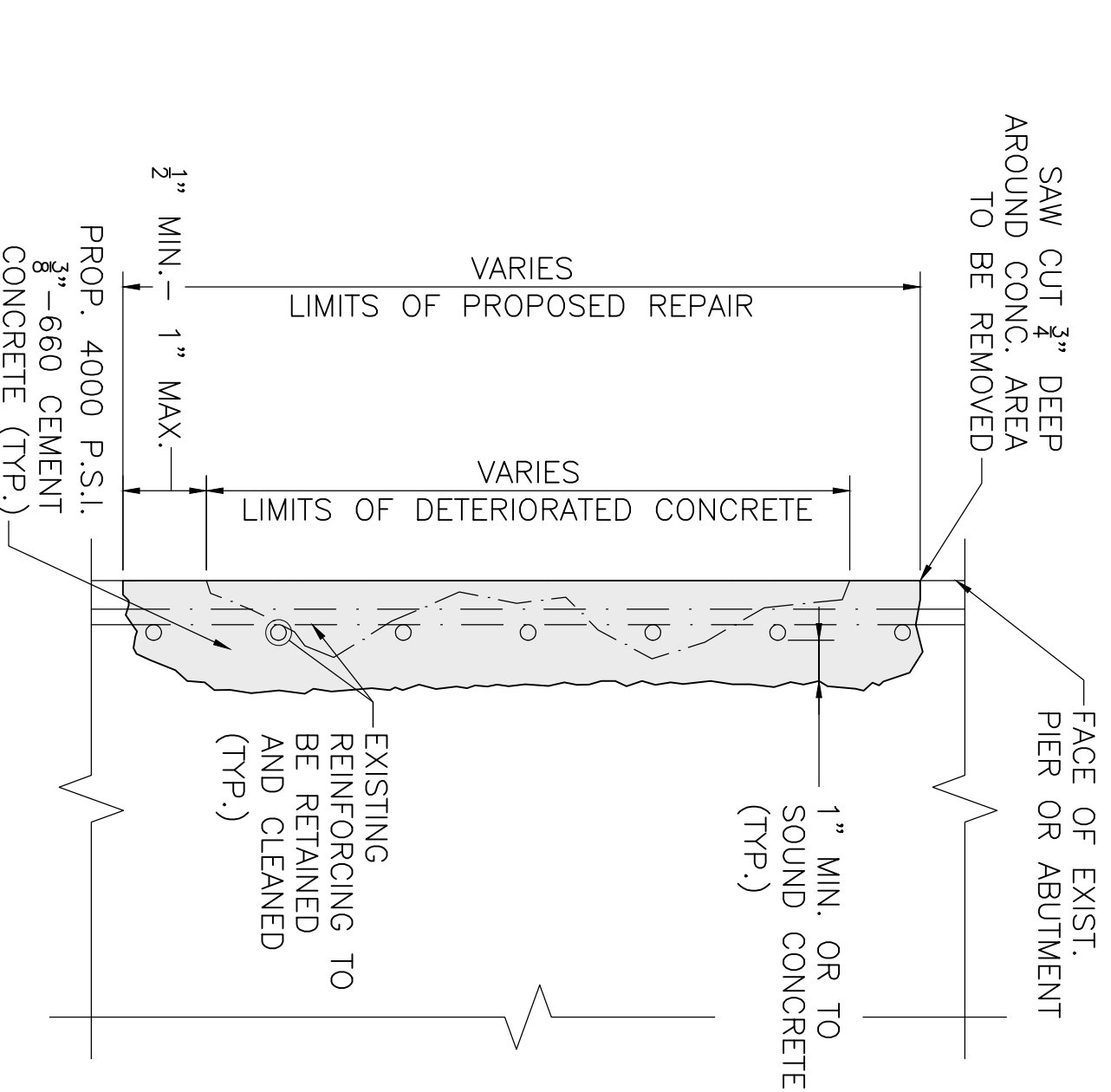


GALVANIC ANODE INSTALLATION DETAIL
NOT TO SCALE

- GALVANIC ANODE NOTES:**
1. REMOVE CONCRETE ACCORDING TO DRAWINGS AND CONTRACT SPECIFICATIONS.
 2. REPLACE, AND/OR CLEAN DAMAGED REINFORCING STEEL. ALL NEW REBAR SHALL BE UNCOATED BLACK STEEL WHEN GALVANIC ANODES ARE USED.
 3. ENSURE ALL EXPOSED REINFORCING STEEL IS SECURELY FASTENED TOGETHER WITH THE WIRE TO PROVIDE ELECTRICAL CONTINUITY.
 4. ATTACH GALVANIC ANODE TO CLEAN REINFORCING STEEL WITHIN THE REPAIR AREA AT SPACING DETERMINED BY ENGINEER AND ACCORDING TO MANUFACTURER'S SPECIFICATIONS. MINIMUM SPACING OF 3/4" BETWEEN ANODES AND EXISTING CONCRETE. A MINIMUM OF 4" EDGE DISTANCE FROM ANY CORNER AND/OR EDGE OF EXCAVATION, AND A MINIMUM OF 1" CONCRETE COVER SHALL BE PROVIDED.
 5. TEST THE ELECTRICAL CONTINUITY BETWEEN THE ANODE TIES AND THE REBAR AND BETWEEN THE REBARS ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.
 6. PLACE REPAIR CONCRETE ACCORDING TO DRAWINGS AND CONTRACT SPECIFICATIONS. WHEN GALVANIC ANODES ARE USED, THE REPAIR MATERIAL USED SHALL BE NON-HP CONCRETE AND APPROVED BY THE ENGINEER.



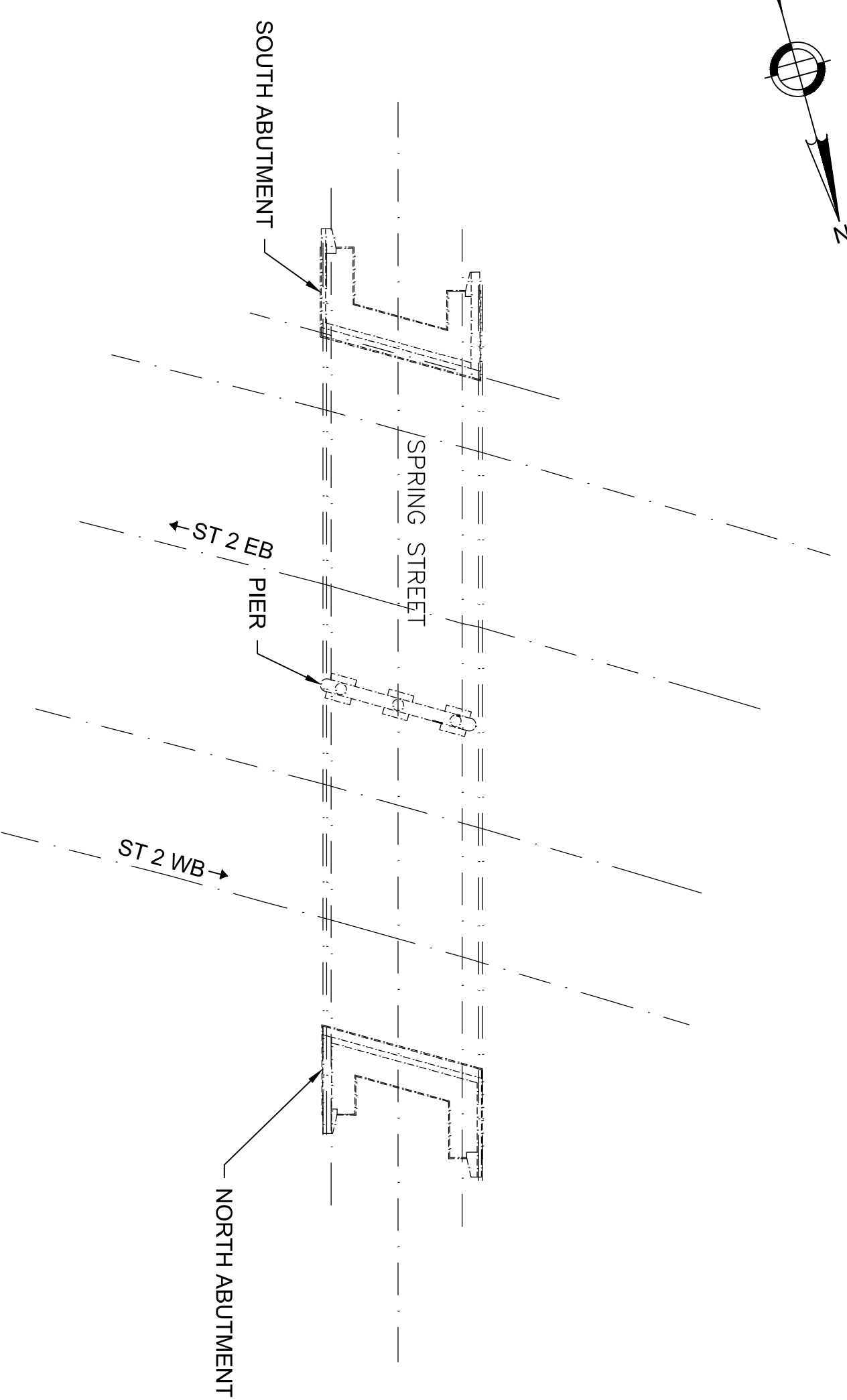
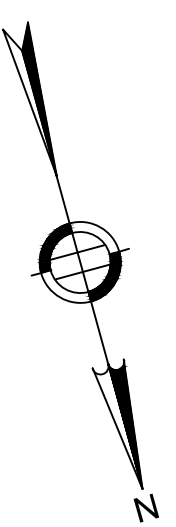
GALVANIC ANODE INSTALLATION SECTION
NOT TO SCALE



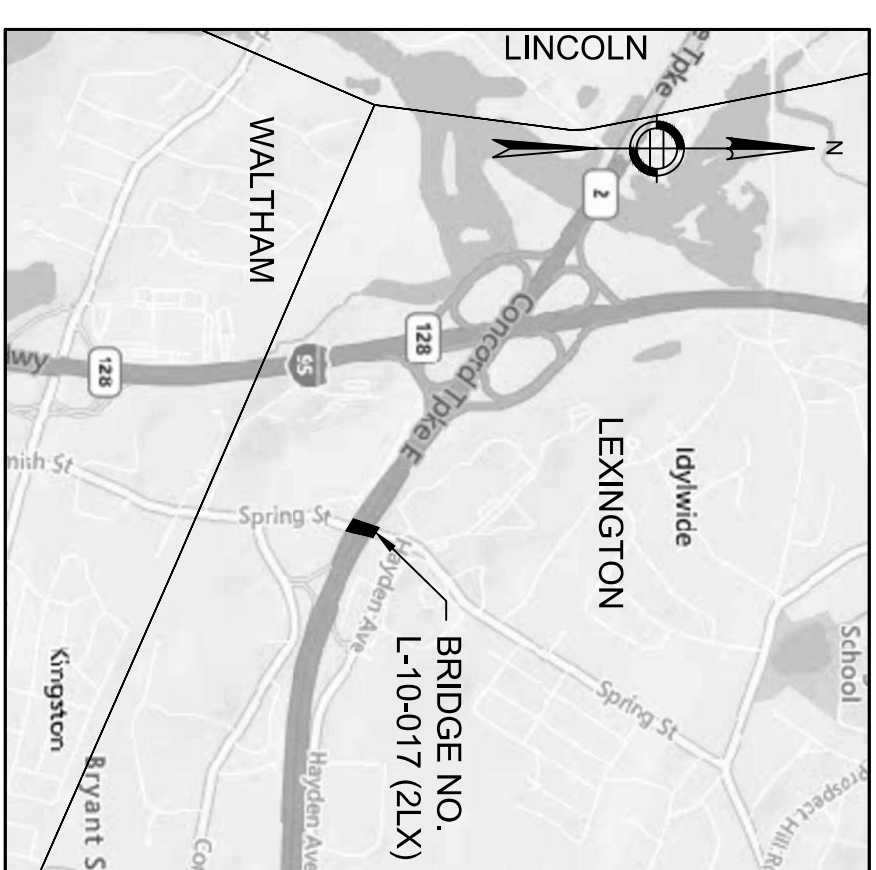
NOTE:
IF THERE IS LESS THAN 1 1/2" CONCRETE COVER, THEN THE CONTRACTOR SHALL BUILD OUT THE FORM TO ENSURE A MINIMUM OF 1 1/2" COVER.

PARTIAL DEPTH REPAIR
NOT TO SCALE

MM/DD/YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	



KEY PLAN
SCALE: 1" = 40'-0"



LOCUS MAP
SCALE: 1" = 2000'

LEXINGTON
SPRING STREET OVER ST 2

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	1	6

PROJECT FILE NO. 613466

INDEX, LOCUS MAP, GENERAL NOTES, KEY PLAN & QUANTITIES

QUANTITIES:

ITEM	QUANTITY	UNITS
REINFORCED CONCRETE SUBSTRUCTURE EXCAVATION	5	CY
4000 PSI, 3/8 IN. 660 CEMENT CONCRETE	5	CY
CEMENTITIOUS MORTAR FOR PATCHING	20	SF
STEEL REINFORCEMENT FOR STRUCTURES	250	LB
ELASTOMERIC PROTECTIVE COATING	3800	SF
SPECIAL SLOPE PAVING UNDER BRIDGE	0	SY
GALVANIC ANODE	270	EA

INDEX OF BRIDGE SHEETS

INDEX, LOCUS MAP, GENERAL NOTES, KEY PLAN & QUANTITIES	1
PIER CAP REPAIR LOCATIONS	2
ABUTMENT REPAIR LOCATIONS	3
PIER CAP REPAIR DETAILS	4
PIER COLUMN REPAIR DETAILS	5
GALVANIC ANODE INSTALLATION & PARTIAL DEPTH REPAIR DETAILS	6

GENERAL NOTES:

SCALES:

SCALES NOTED ON THE PLANS ARE NOT APPLICABLE TO REDUCED SIZE PRINTS. DIVIDE SCALES BY 2 FOR HALF-SIZE PRINTS (A3).

UNSUITABLE MATERIAL:

ALL UNSUITABLE MATERIAL SHALL BE REMOVED WITHIN THE LIMITS OF THE FOUNDATIONS OF THE STRUCTURE, AS DIRECTED BY THE ENGINEER.

ANCHOR BOLTS:

ALL ANCHOR BOLTS SHALL BE SET BY TEMPLATE BEFORE THE CONCRETE IS PLACED.

CONCRETE:

ALL CONCRETE SHALL BE 4000 PSI, 3/8 IN, 660 CEMENT CONCRETE.

REINFORCEMENT:

REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 31 GRADE 60. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS, ALL BARS SHALL BE LAPPED AS FOLLOW:

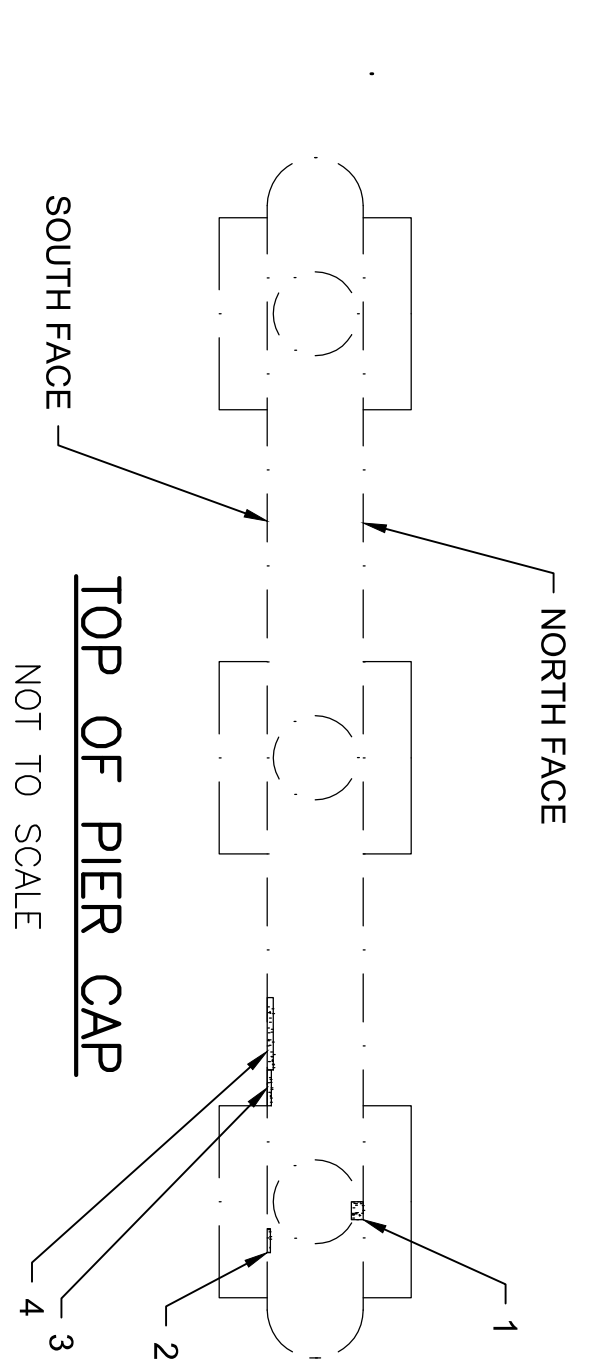
MODIFICATION CONDITION

	#4 BARS	#5 BARS	#6 BARS
1. NONE	16"	19"	23"
2. 12" OF CONCRETE BELOW BAR	20"	25"	30"
3. EPOXY COATED BARS, COVER < 3dB, OR CLEAR SPACING < 6dB	23"	29"	34"
4. COATED BARS, ALL OTHER CASES	18"	23"	27"
5. CONDITION 2. AND 3.	26"	32"	39"
6. CONDITION 2. AND 4.	24"	30"	36"

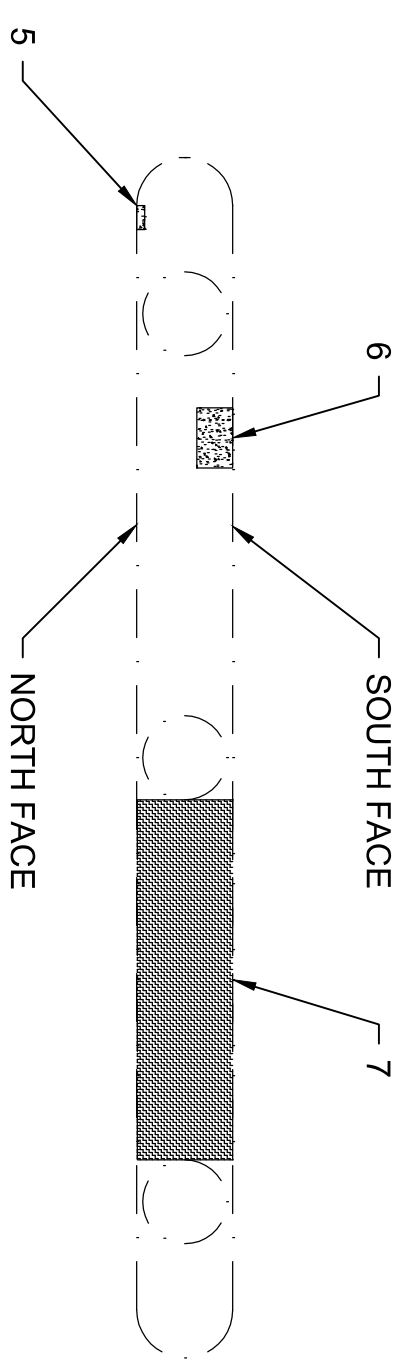
ALL OTHER BARS SHALL BE LAPPED AS SHOWN ON THE CONSTRUCTION DRAWINGS.

DESIGNED BY JOHN JACOB	MM/DD/YYYY	ISSUED FOR CONSTRUCTION
DRAWN BY JOHN JACOB		
CHECKED BY DOUG CONSENTINO		
SPECS. BY JOHN JACOB		
APPROVED FOR DESIGN BY JON LEE		
 MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION 10 PARK PLAZA BOSTON, MASS LEXINGTON SPRING STREET OVER ST 2 SUBSTRUCTURE REPAIRS		

SHEET 1 OF 6 SHEETS BRIDGE NO. L-10-017 (2LX)

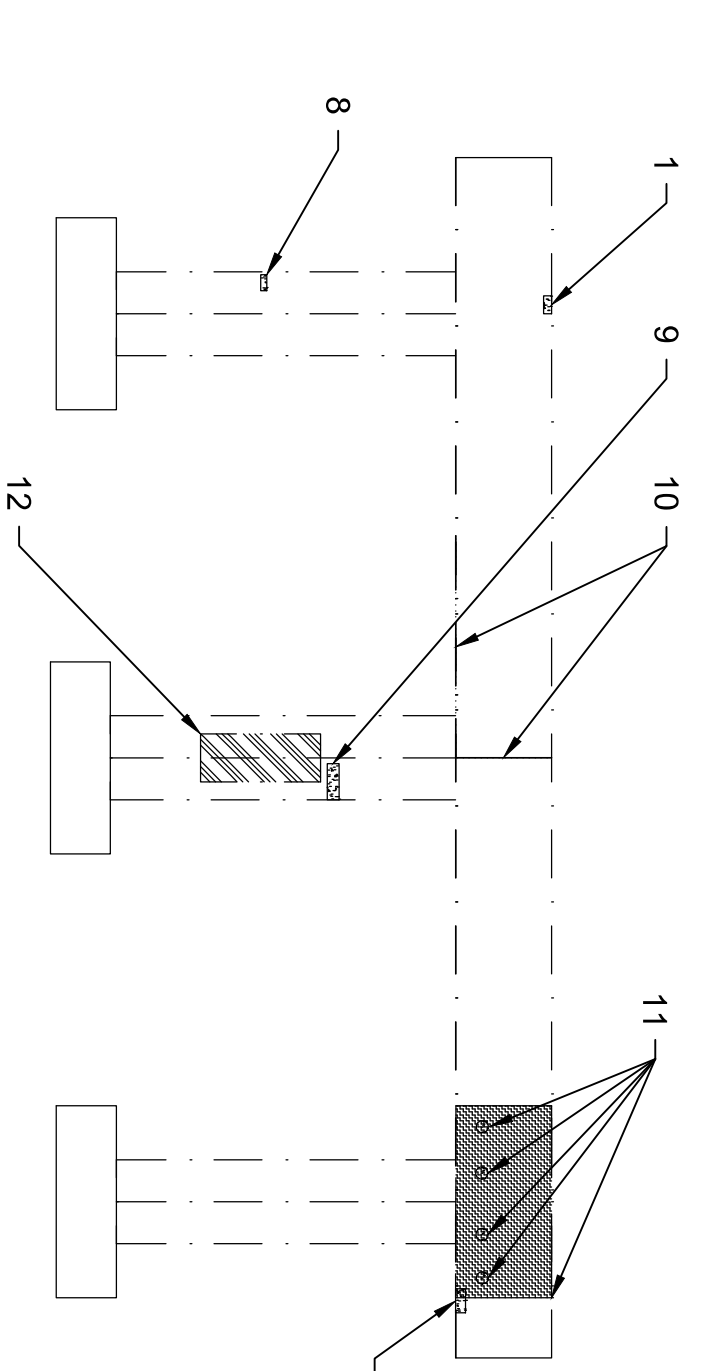


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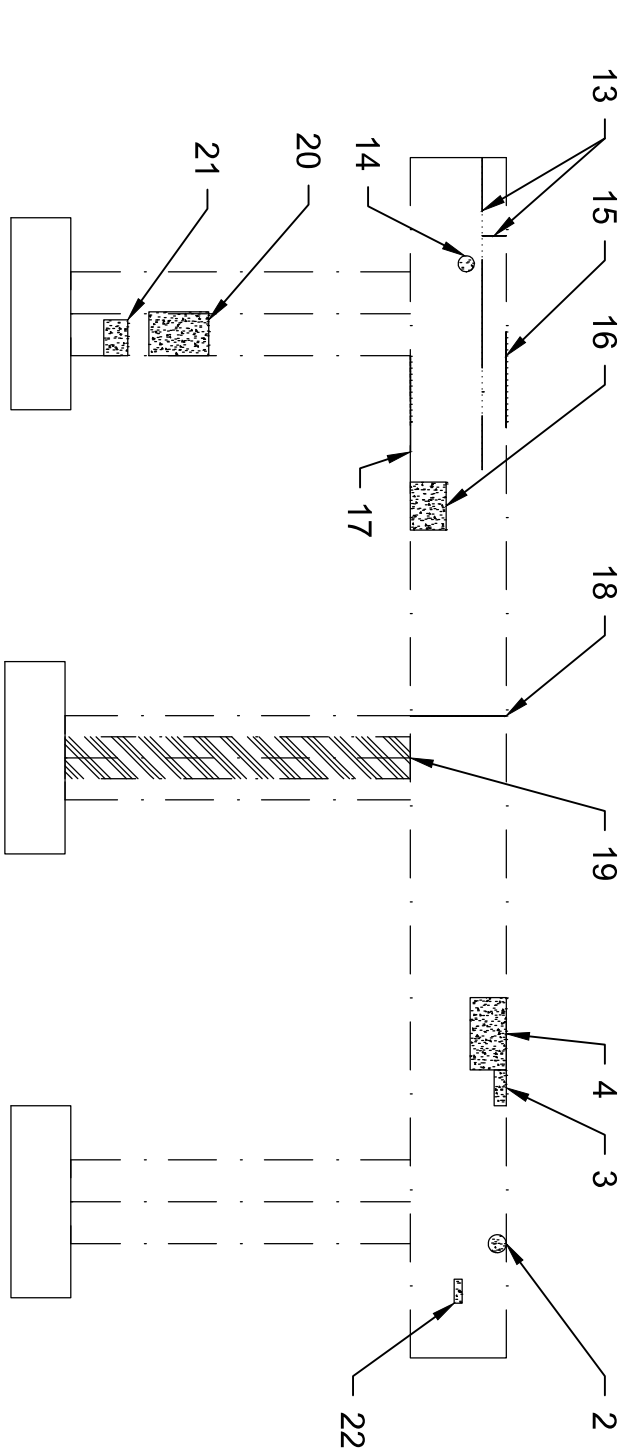
BOTTOM OF PIER CAP

NOT TO SCALE



NORTH FACE

NOT TO SCALE



SOUTH FACE

NOT TO SCALE

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STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	2	6
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PIER CAP REPAIR LOCATIONS

REPAIR LOCATIONS

1. SPALL, 9" LONG X 4" WIDE X 5" DEEP & IT EXTENDS 4" TO THE NORTH FACE
2. SPALL, 1' DIAMETER X 2" DEEP & IT EXTENDS 1' TO THE SOUTH FACE
3. SPALL, 1'-6" LONG X 6" WIDE X 2" DEEP & IT EXTENDS 6" TO THE SOUTH FACE
4. SPALL WITH EXPOSED REBAR, 3' LONG X 1'-6" WIDE X 3" DEEP & IT EXTENDS 1'-6" TO THE SOUTH FACE
5. SPALL, 1' LONG X 5" WIDE X 4" DEEP & EXTENDS UP TO 6" TO THE NORTH FACE
6. SPALL WITH EXPOSED REBAR, 2'-6" LONG X 1'-6" WIDE X 3" DEEP
7. RANDOM LONGITUDINAL & TRANSVERSE CRACKS, UP TO FULL WIDTH X 1/4" WIDE
8. SPALL, 3" HIGH X 8" WIDE X 1" DEEP
9. SPALL, 5" HIGH X 1'-3" WIDE X 2" DEEP
10. HORIZONTAL CRACKS AT THE BOTTOM, UP TO FULL BAY LENGTH X 1/8" WIDE, SEVERAL SPOTS OF RUST STAINING AND FULL HEIGHT X 1/8" WIDE VERTICAL CRACK
11. SEVERAL FULL HEIGHT VERTICAL CRACKS THROUGHOUT WITH RUST STAINING X 1/8" WIDE WITH 4 MINOR SPALLS UP TO 6" DIAMETER X 1" DEEP
12. HOLLOW AREA, 5' HIGH X 2' WIDE WITH VERTICAL CRACKS UP TO 1/4" WIDE
13. FULL BAY LENGTH HORIZONTAL CRACKS, DIAGONAL AND VERTICAL CRACKS WITH RUST STAINING UP TO 1/8" WIDE
14. SPALL, 8" DIAMETER X 1" DEEP
15. HORIZONTAL CRACK, 4' LONG X 1/8" WIDE
16. SPALL WITH EXPOSED REBAR, 2' LONG X 1'-6" HIGH X 2" DEEP
17. HORIZONTAL CRACK, 4' LONG X 1/8" WIDE
18. FULL HEIGHT VERTICAL CRACK WITH LIGHT EFFLORESCENCE, UP TO 1/8" WIDE
19. HOLLOW AREA, UP TO FULL HEIGHT X 1/4 CIRCUMFERENCE WITH VERTICAL CRACKS UP TO FULL HEIGHT X 1/4" WIDE
20. SPALL WITH EXPOSED RUSTED REBAR, 2'-6" HIGH X 1'-10" WIDE X 2" DEEP
21. SPALL, 1' HIGH X 1'-6" WIDE X 1" DEEP
22. SPALL, 1' LONG X 4" HIGH X 1" DEEP

NOTES FOR CONTRACTOR:

IF ANY OF THE FOLLOWING CONDITIONS ARE ENCOUNTERED, THE CONTRACTOR SHALL STOP REMOVING DETERIORATED CONCRETE AND IMMEDIATELY NOTIFY THE DISTRICT BRIDGE ENGINEER TO DETERMINE IF THE EXCAVATION CAN BE CONTINUED:

1. WHEN A MAXIMUM EXCAVATION DEPTH OF 6 INCHES IS REACHED IN ANY SUBSTRUCTURE REPAIR.
2. WHEN THE EXCAVATION ENCRUSCHES ON THE BEARING DEVICES.
3. WHEN MORE THAN TWO ADJACENT BEAMS ARE SUPPORTED BY THE COLUMN BAY IN PIER CAP REPAIR.
4. WHEN THE PIER CAP OVERHANG, (MEASURING FROM THE FACE OF THE COLUMN), IS MORE THAN 4 FT, AND/OR THE BEARING DEVICES ARE WITHIN THE OUTER HALF OF THE OVERHANG IN PIER END CAP REPAIR.

NOTES:

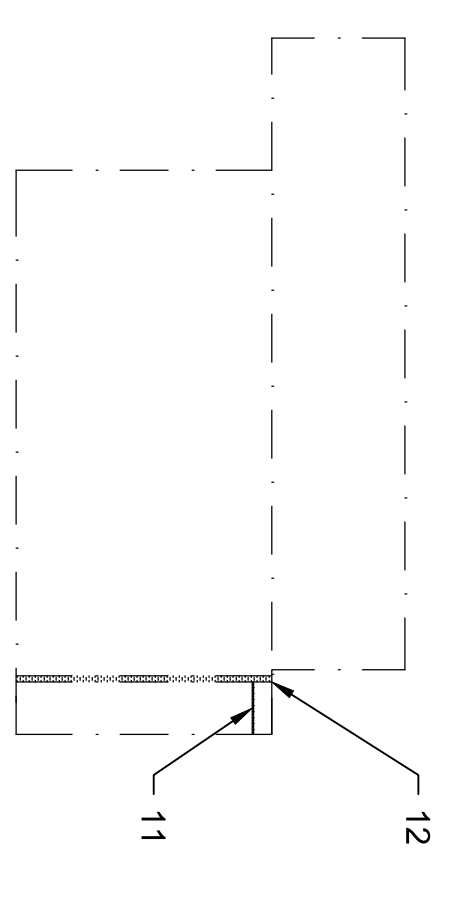
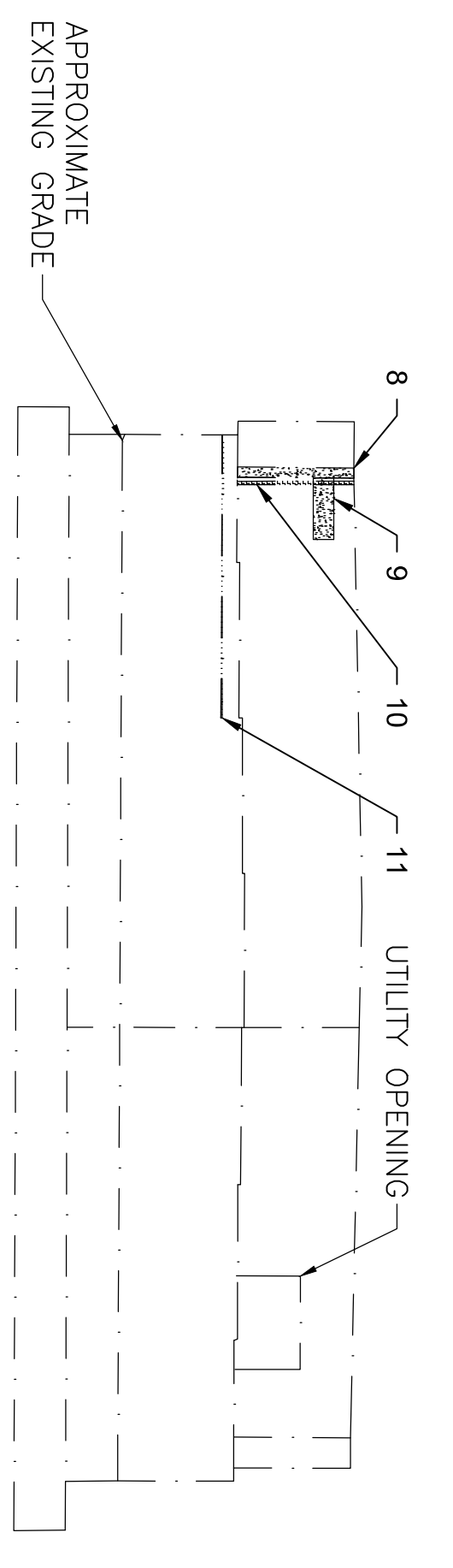
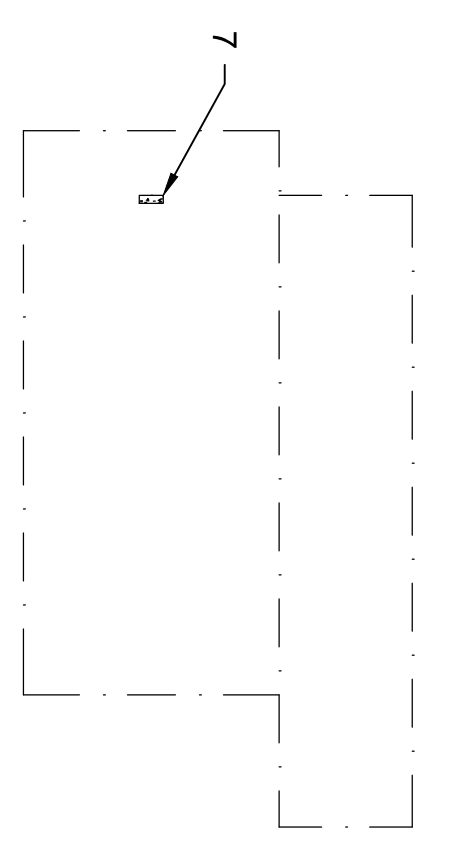
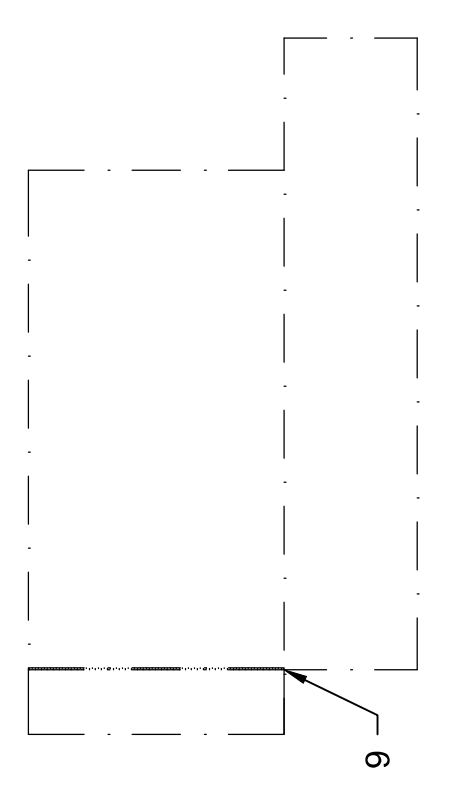
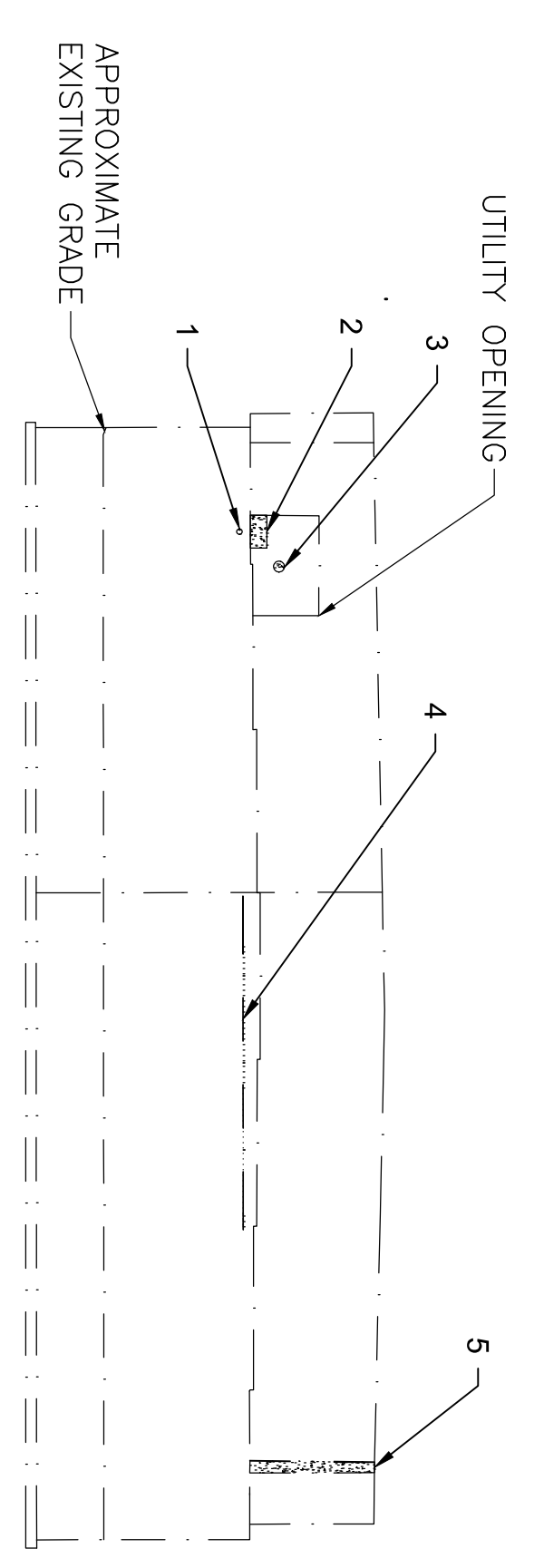
SEE SHEETS 4, 5 & 6

MM/DD/YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

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STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	3	6
PROJECT FILE NO.		613466	

ABUTMENT REPAIR LOCATIONS



REPAIR LOCATIONS:

1. SPALL, 3" DIAMETER
2. SPALL AROUND THE UTILITY PIPES, 1'-6" LONG X 9" HIGH X FULL DEPTH WITH FILL MATERIAL SPILLING THRU
3. SPALL AROUND THE UTILITY PIPES, 7" DIAMETER WITH A MISSING BRICK
4. HORIZONTAL CRACK WITH MINOR RUST STAINING, UP TO 1/8" WIDE
5. SPALL, UP TO 6" LONG X FULL HEIGHT X 2" DEEP
6. VERTICAL CRACK, UP TO 1" LONG X FULL HEIGHT
7. SPALL, 4" LONG X 1' HIGH X 1/2" DEEP
8. SPALL, 6" LONG X FULL HEIGHT X 5" DEEP WITH EXPOSED REBAR
9. SPALL, 3" LONG X 1' HIGH X 2" DEEP
10. VERTICAL CRACK, UP TO 2" LONG X FULL HEIGHT
11. HORIZONTAL CRACK, FULL BAY LENGTH X UP TO 3/8" WIDE & IT EXTENDS ALONG THE SOUTHWEST FACE OF THE BREASTWALL
12. VERTICAL CRACK, UP TO 3" LONG X FULL HEIGHT

NOTES:

SEE SHEETS 4 & 6

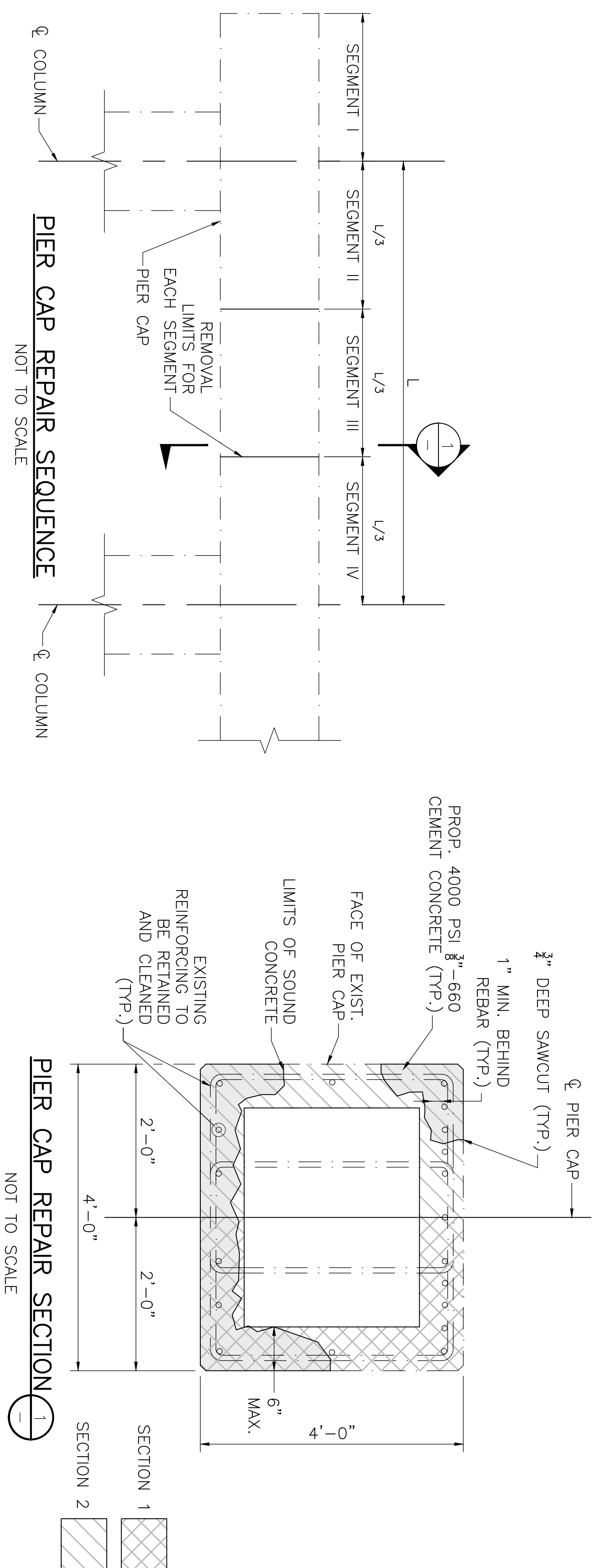
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DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

SUBSTRUCTURE CONCRETE REPAIR NOTES:

1. SUBSTRUCTURE REPAIRS SHALL CONSIST OF REMOVING DETERIORATED CONCRETE, PREPARING THE REPAIR SURFACE, FORMING WHERE REQUIRED, PLACING AND FINISHING NEW CONCRETE OR CEMENTITIOUS MORTAR. THE SCOPE OF REPAIRS MAY ALSO REQUIRE APPLYING ELASTOMERIC COATING (ITEM 964.3) TO THE REPAIRED SUBSTRUCTURE UNITS. THE LIMITS FOR THE ELASTOMERIC COATING WILL BE ESTABLISHED BY THE ENGINEER.
2. THE REPAIR IS DESIGNATED AS A DEEP PATCH WHEN THE EXCAVATED DEPTH TO SOUND CONCRETE EXCEEDS 2" FROM THE FACE OF THE CONCRETE OR REINFORCING STEEL IS ENCOUNTERED. SEE PARTIAL DEPTH REPAIR DETAIL ON SHEET 6.
3. THE REPAIR IS DESIGNATED AS A PARTIAL DEPTH WHEN THE DEPTH OF SOUND CONCRETE IS REACHED AT OR LESS THAN 2" FROM THE FACE OF THE CONCRETE AND REINFORCING STEEL IS NOT ENCOUNTERED.
4. 4000 PSI, 3/8 INCH, 660 CEMENT CONCRETE (ITEM 905.) SHALL BE USED FOR ALL DEEP PATCH REPAIRS. ALL PARTIAL DEPTH REPAIRS SHALL BE PATCHED WITH CEMENTITIOUS MORTAR FOR PATCHING (ITEM 909.2).
5. THE CONTRACTOR SHALL ESTABLISH LIMITS OF REPAIRS AT THE DIRECTION OF THE ENGINEER. THE EXTENT, LOCATION AND REPAIR TYPE (DEEP PATCH OR PARTIAL DEPTH REPAIR) ARE TO BE FIELD VERIFIED AND APPROVED BY THE ENGINEER AFTER THE CONTRACTOR HAS SOUNDED AND MARKED OUT THE REPAIR AREA. THE AREAS OF REPAIR SHALL BE MADE APPROXIMATELY RECTANGULAR WITH THE SIDES GENERALLY PERPENDICULAR TO THE SURFACE BEING REPAIRED.
6. THE DETERIORATED CONCRETE SHALL BE REMOVED AS REQUIRED TO PROVIDE GOOD SOUND CONCRETE ON WHICH NEW CONCRETE CAN BE PLACED AND SATISFACTORILY BONDED TO UNDAMAGED OR UNDISTURBED REINFORCEMENT.
7. SAW CUT ALONG NEAT LINES AROUND REPAIR AREA PRIOR TO CONCRETE EXCAVATION. USE SAW CUT DEPTH OF 1", OR AS REQUIRED TO AVOID CUTTING REINFORCING STEEL.
8. SUBSTRUCTURE REPAIR SHOULD INCLUDE THE REMOVAL OF ALL DETERIORATED, LOOSE, SPALLED AND HOLLOW SOUNDING CONCRETE. THE DETERIORATED CONCRETE SHALL BE REMOVED FROM WITHIN THE REPAIR AREAS TO THE DEPTH OF SOUND CONCRETE. WHEN REINFORCING STEEL IS UNCOVERED, CARE SHALL BE TAKEN SO AS NOT TO DAMAGE THE STEEL OR ITS BOND TO THE SURROUNDING CONCRETE. MAXIMUM 25 LB. HAMMERS WITH CHISEL POINTS SHALL BE USED FOR CONCRETE REMOVAL. MAXIMUM 15 LB. HAMMERS SHALL BE USED ONCE REINFORCING STEEL IS EXPOSED.
9. THE CONTRACTOR SHALL STOP REMOVING DETERIORATED CONCRETE WHEN A MAXIMUM DEPTH OF 6 INCHES IS REACHED. THE DISTRICT BRIDGE ENGINEER SHALL BE IMMEDIATELY NOTIFIED TO DETERMINE IF THE EXCAVATION CAN BE CONTINUED.
10. IF REINFORCING STEEL IS EXPOSED THEN CLEAN BY MECHANICAL CLEANING OR HIGH PRESSURE WASHING WITH WATER THAT CONTAINS NO DETERGENTS OR BOND INHIBITING CHEMICALS. WHERE ACTIVE CORROSION HAS OCCURRED THAT WOULD INHIBIT BONDING, CLEAN STEEL USING ABRASIVE BLASTING METHODS ACCEPTABLE TO THE ENGINEER, THEN PAINT WITH A ZINC-RICH PRIMER CONFORMING TO MASSDOT STANDARD SPECIFICATION NO. M.7.04.11.
11. AFTER REMOVAL AND EDGE PREPARATIONS ARE COMPLETE, REMOVE BOND INHIBITING MATERIALS (DIRT, GREASE, LOOSELY BONDED AGGREGATE) BY ABRASIVE BLASTING OR HIGH PRESSURE WATER BLASTING WITH WATER THAT CONTAINS NO DETERGENTS OR BOND INHIBITING CHEMICALS. CHECK THE CONCRETE SURFACES AFTER CLEANING TO ENSURE THAT SURFACE IS FREE FROM ADDITIONAL LOOSE AGGREGATE OR THAT ADDITIONAL DELAMINATIONS ARE NOT PRESENT.
12. EXISTING REINFORCING BARS, WHICH ARE BROKEN OR HAVE LOST 25% OR MORE OF THEIR CROSS SECTIONAL AREA, OR AS ORDERED REPAIRED BY THE ENGINEER, SHALL BE REPAIRED BY SPLICING IN NEW REINFORCING BARS OF THE SAME DIAMETER. SEE EXISTING BRIDGE PLANS FOR BAR SIZES. SPLICE LAPS ARE TO BE AT LEAST 32 BAR DIAMETERS. MISSING OR DETERIORATED REINFORCING STEEL SHALL BE REPLACED AS DIRECTED BY THE ENGINEER AND WILL BE PAID UNDER ITEM 910.11.
13. ALL SURFACES WHERE NEW CONCRETE WILL BE BONDED TO EXISTING CONCRETE SHALL BE PRE-WETTED WITH CLEAN WATER TO SATURATED SURFACE DRY (SSD) CONDITION (WITH NO STANDING WATER) IMMEDIATELY PRIOR TO THE CONCRETE PLACEMENT. IF INDICATED ON THE PLANS OR DIRECTED BY THE ENGINEER, APPLY EPOXY BONDING COMPOUND SUITABLE FOR BONDING FRESH CONCRETE TO HARDENED CONCRETE FOR LOAD BEARING APPLICATIONS TO INTERFACE BETWEEN NEW AND EXISTING CONCRETE. THE EPOXY BONDING COMPOUND SHALL CONFORM TO AASHTO M 235 TYPE V, GRADE AND CLASS SHALL BE SPECIFIED FOR EACH APPLICATION AND SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND THE SPECIAL PROVISIONS. THE COST ASSOCIATED WITH THIS WORK WILL BE INCIDENTAL TO ITEM 905.
14. IN GENERAL, EPOXY BONDING COMPOUND SHALL BE USED FOR ALL PARTIAL DEPTH REPAIR AND HORIZONTAL SURFACES OF DEEP PATCH REPAIR, SUCH AS TOP EXCAVATED SURFACES OF PIER CAP AND BEAM SEAT.
15. IF EPOXY BONDING COMPOUND IS USED, THE FORMS SHALL BE INSTALLED AND FILLED BEFORE THE EPOXY BONDING COMPOUND HARDENS.
16. IF DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL INSTALL CATHODIC PROTECTION ANODES TO THE LIMITS DETERMINED BY THE ENGINEER. ANODE INSTALLATIONS & TESTING SHOULD BE PAID UNDER ITEM 910.01.
17. ALL CONCRETE SURFACES ONCE CURED, SHALL BE RUBBED TO PRODUCE A SMOOTH FINISH TO MATCH EXISTING SURFACES. WET CURING IN ACCORDANCE WITH THE SUPPLEMENTAL SPECIFICATIONS FOR HIGHWAYS AND BRIDGES SECTION 901.65, SUB-SECTION A-2 WILL BE REQUIRED.
18. CONCRETE PIER CAPS, COLUMNS, ABUTMENT SEATS, AND EXPOSED SECTIONS OF ABUTMENT STEMS SHALL (AS DETERMINED BY THE ENGINEER) RECEIVE A CONCRETE PENETRANT/SEALER OR ELASTOMERIC PROTECTIVE COATING (ITEM 964.3), 30 DAYS AFTER ALL REPAIRS HAVE BEEN MADE. CONCRETE PENETRANT/SEALER IS INCIDENTAL TO ITEM 905.
19. THE REPAIR OF PIER CAP SHALL BE COMPLETED PRIOR TO THE START OF ANY COLUMN REPAIR, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
20. THE CONTRACTOR SHALL FOLLOW THE CONCRETE PIER CAPS AND COLUMNS REPAIR SEQUENCE OUTLINED ON THE PLANS. THE CONTRACTOR WILL HAVE THE OPTION TO SUBMIT AN ALTERNATE REPAIR PROCEDURE FOR REVIEW AND APPROVAL. THE CONTRACTOR MAY ALSO USE TEMPORARY SHORING TO COMPLETE THE REPAIRS IN ONE STAGE. IF SHORING IS PROPOSED TO ACCOMMODATE THE CONTRACTOR'S MEANS AND METHODS OR REPAIR SCHEDULE, NO ADDITIONAL COMPENSATION WILL BE ALLOWED. THIS SHALL REQUIRE APPROVAL OF THE ENGINEER AND THE SHORING WILL BE CONSIDERED INCIDENTAL TO THE REPAIR WORK.
21. THE REPAIR PHASING AND SEQUENCE MAY BE MODIFIED BY THE ENGINEER SO THAT THE SECTIONS WITH WORSE DETERIORATION ARE REPAIRED FIRST.
22. THE SERVICE LOAD (DEAD LOAD + LIVE LOAD) REACTION AT EACH BEARING SHALL BE EQUAL TO 155 KIPS. IF LOADING CONDITIONS ARE TO BE MODIFIED DURING CONSTRUCTION, OR ADDITIONAL CONSTRUCTION LOADS APPLIED, CALCULATIONS OF THE REACTIONS FOR JACKING AND/SHORING SHALL BE SUBMITTED BY THE CONTRACTOR FOR REVIEW.

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MA	NFA	4	6
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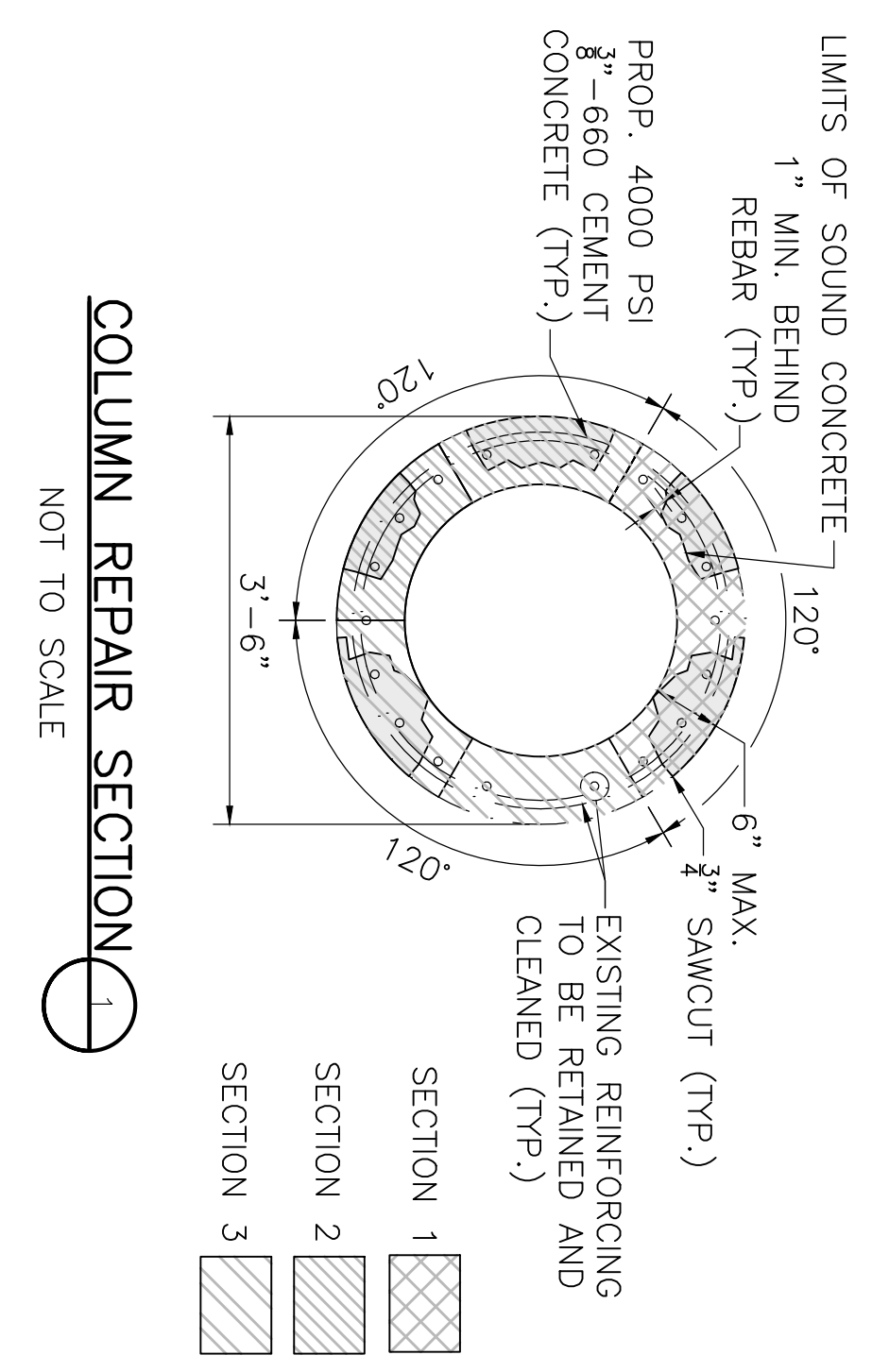
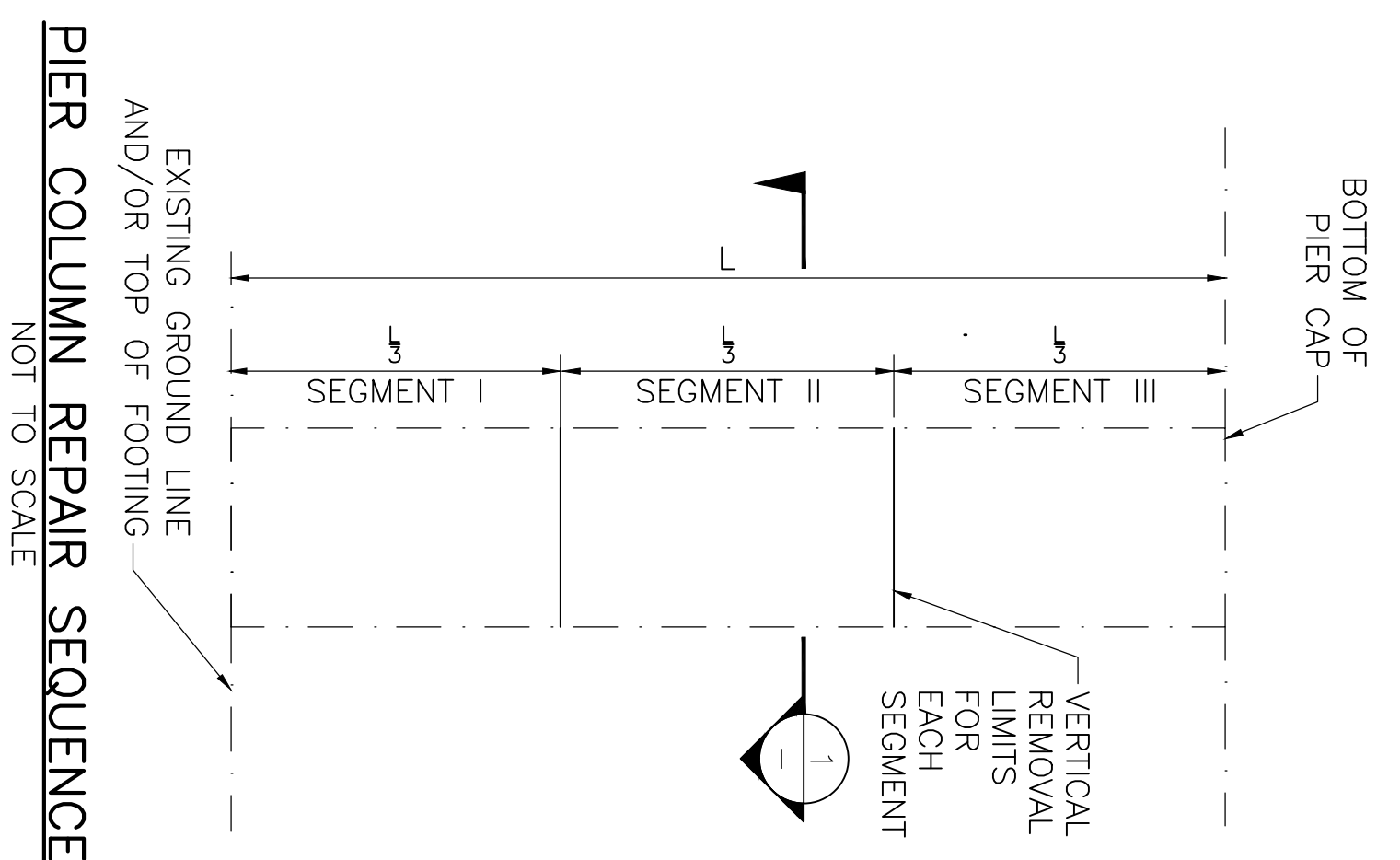
PIER CAP REPAIR DETAILS



NOTES:

1. CONCRETE ELEMENTS ARE DIVIDED INTO SEGMENTS. WORK TO BE PERFORMED ON SECTIONS AS SHOWN.
2. THE CONTRACTOR SHALL PROVIDE A TEMPORARY SHORING SYSTEM TO SUPPORT THE PIER CAP DEAD AND LIVE LOADS IF THE EXCAVATION LIMITS ARE TO BE EXTENDED PER EVALUATION OF THE DISTRICT BRIDGE ENGINEER.
3. THE CONTRACTOR SHALL PROVIDE A TEMPORARY SHORING SYSTEM TO SUPPORT THE PIER CAP DEAD AND LIVE LOADS IF THE EXCAVATION IS WITHIN 6" OF THE BEARING.
4. CONTRACTOR SHALL STAGE THE WORK SO THAT THE SECTIONS IN POOREST CONDITION ARE REPAIRED FIRST, AS APPROVED BY THE ENGINEER.
5. CONTRACTOR SHALL NOT WORK ON ADJACENT SECTIONS SIMULTANEOUSLY UNLESS APPROVED BY THE DISTRICT BRIDGE ENGINEER.
6. CONTRACTOR SHALL WAIT 72 HOURS AFTER COMPLETING REPAIRS TO A SECTION BEFORE BEGINNING REPAIRS TO ADJACENT SECTIONS. HOWEVER HE/SHE MAY PERFORM WORK ON OTHER BRIDGE ELEMENTS.
7. CONTRACTOR SHALL STOP REMOVING DETERIORATING CONCRETE WHEN A MAXIMUM DEPTH OF 6 IN. IS REACHED. THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED IF MORE REMOVAL SEEMS NECESSARY ON THE BRIDGE SECTION.
8. EXISTING REINFORCING NOT SHOWN.
9. THE CONTRACTOR SHALL SUBMIT AN ALTERNATE REPAIR SEQUENCE FOR APPROVAL OF THE ENGINEER WHEN TEMPORARY SHORING IS UTILIZED DURING REPAIRS.
10. MAXIMUM SEGMENT LENGTH SHALL BE LIMITED TO 8 FEET.

MM/DD/YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	



- NOTES:**
1. CONCRETE ELEMENTS ARE DIVIDED INTO SEGMENTS. WORK TO BE PERFORMED ON SECTIONS AS DEFINED IN THE ABOVE DETAILS.
 2. THE CONTRACTOR SHALL PROVIDE A TEMPORARY SHORING SYSTEM TO SUPPORT THE PIER CAP DEAD AND LIVE LOADS IF THE EXCAVATION LIMITS ARE TO BE EXTENDED PER EVALUATION OF THE DISTRICT BRIDGE ENGINEER.
 3. NOTE CONTRACTOR SHALL STAGE THE WORK SO THAT THE WORSE SECTIONS ARE REPAIRED FIRST.
 4. CONTRACTOR SHALL NOT WORK ON ADJACENT SECTIONS SIMULTANEOUSLY UNLESS APPROVED BY THE DISTRICT BRIDGE ENGINEER.
 5. CONTRACTOR SHALL WAIT 72 HOURS AFTER COMPLETING REPAIRS TO A SECTION BEFORE CHIPPING ADJACENT SECTIONS, HOWEVER HE/SHE MAY PERFORM WORK ON OTHER BRIDGE ELEMENTS.
 6. CONTRACTOR SHALL STOP REMOVING DETERIORATING CONCRETE WHEN A MAXIMUM DEPTH OF 6 IN. IS REACHED. THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED IF MORE REMOVAL SEEMS NECESSARY.
 7. EXISTING REINFORCING NOT SHOWN.
 8. THE CONTRACTOR SHALL SUBMIT AN ALTERNATE REPAIR SEQUENCE FOR APPROVAL OF THE ENGINEER WHEN TEMPORARY SHORING IS UTILIZED DURING REPAIRS.

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MA	NFA	5	6
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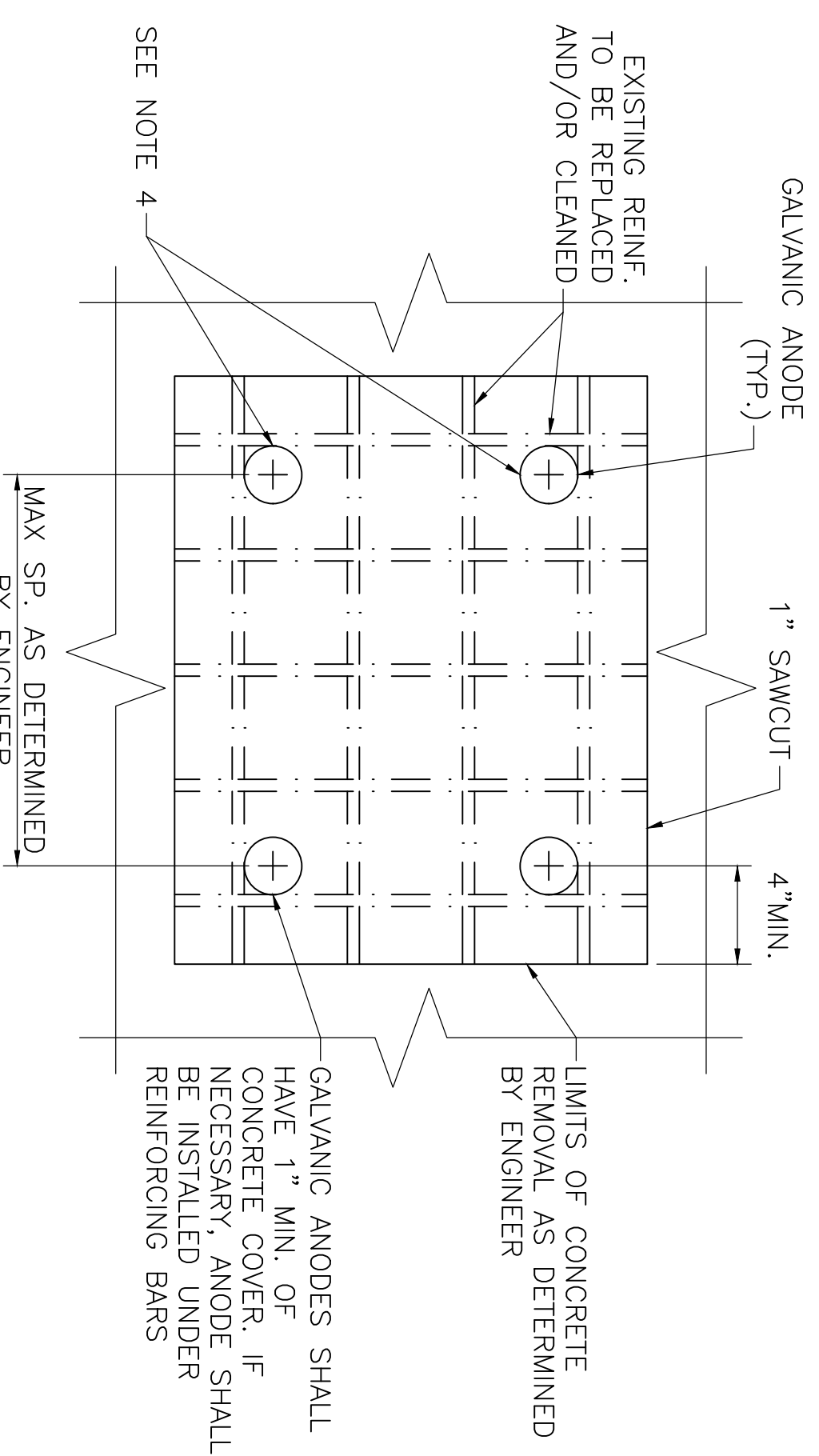
PIER COLUMN REPAIR DETAILS

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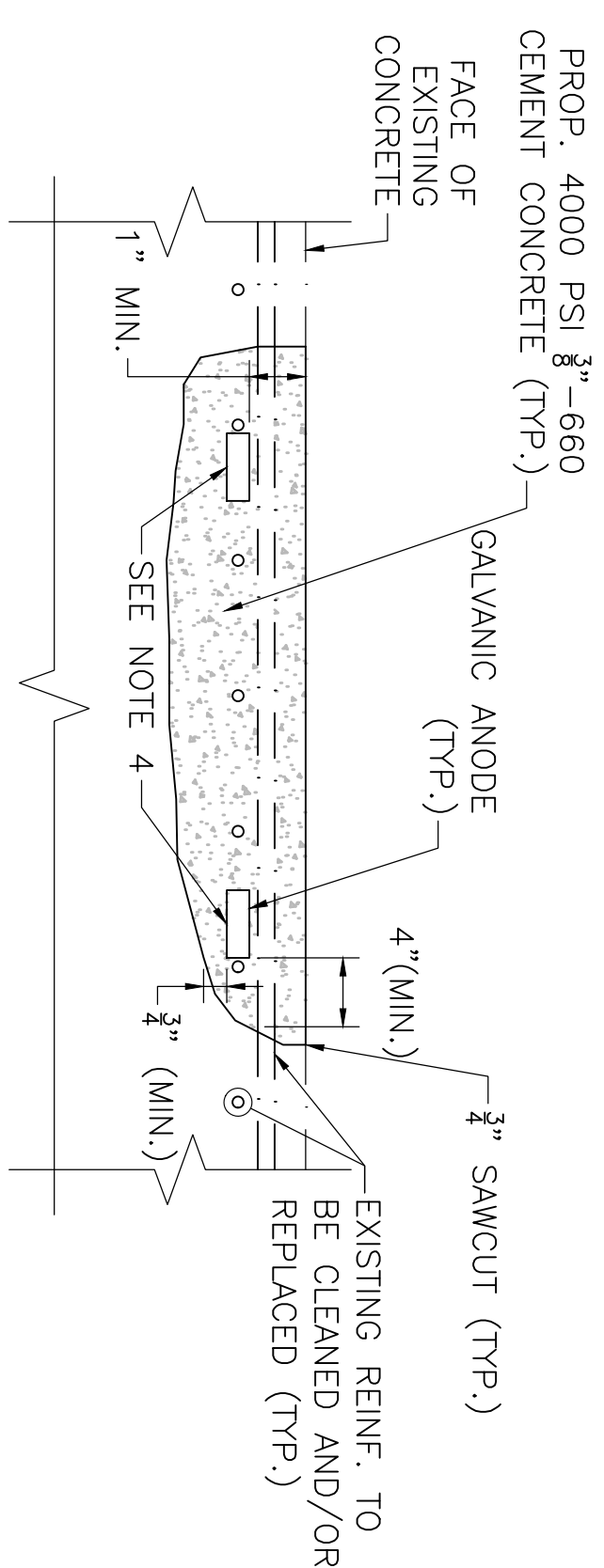
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MA	NFA	6	6
PROJECT FILE NO.		613466	

GALVANIC ANODE INSTALLATION & PARTIAL DEPTH REPAIR DETAILS

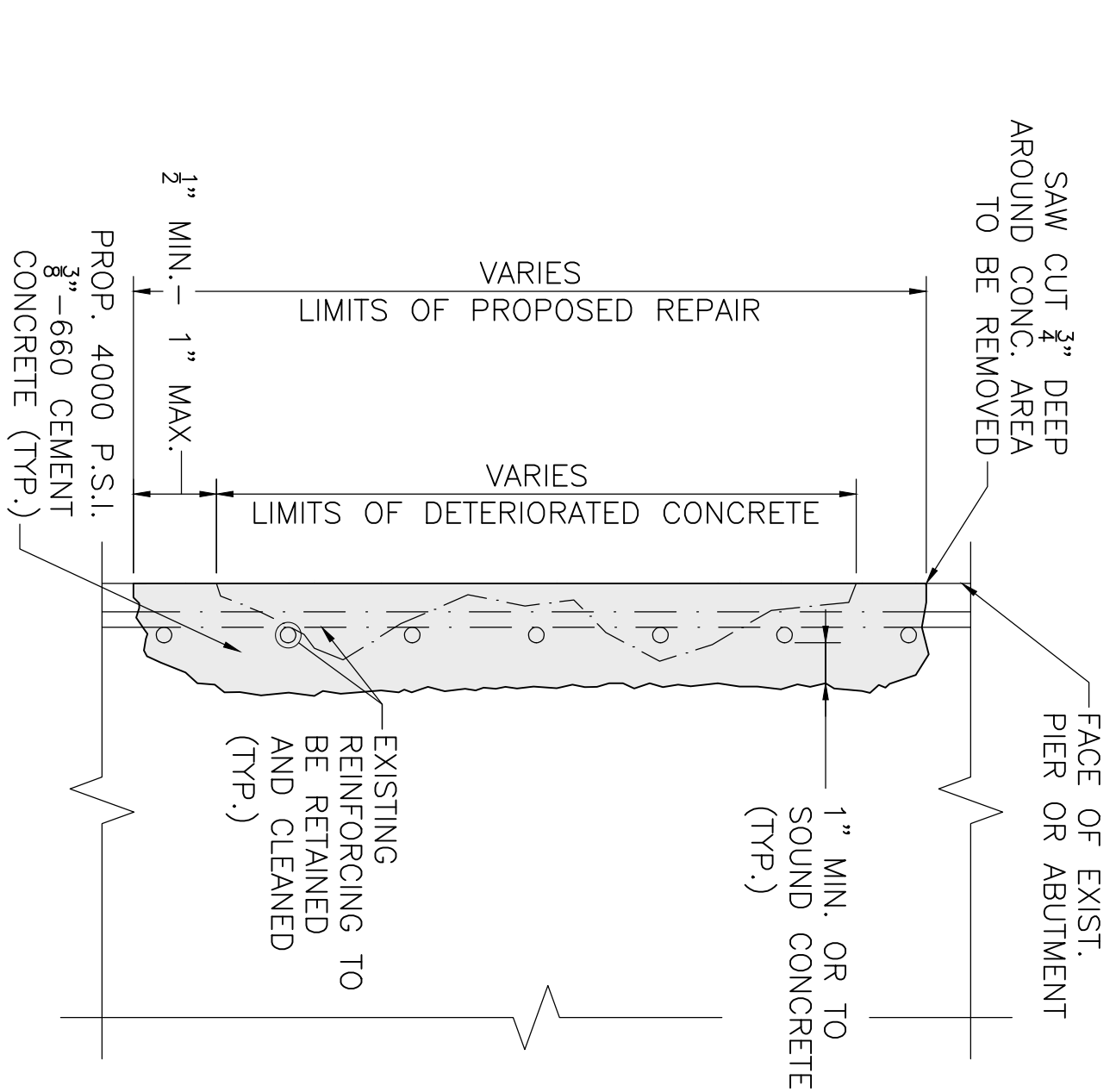


GALVANIC ANODE INSTALLATION DETAIL
NOT TO SCALE

- GALVANIC ANODE NOTES:**
1. REMOVE CONCRETE ACCORDING TO DRAWINGS AND CONTRACT SPECIFICATIONS.
 2. REPLACE, AND/OR CLEAN DAMAGED REINFORCING STEEL. ALL NEW REBAR SHALL BE UNCOATED BLACK STEEL WHEN GALVANIC ANODES ARE USED.
 3. ENSURE ALL EXPOSED REINFORCING STEEL IS SECURELY FASTENED TOGETHER WITH THE WIRE TO PROVIDE ELECTRICAL CONTINUITY.
 4. ATTACH GALVANIC ANODE TO CLEAN REINFORCING STEEL WITHIN THE REPAIR AREA AT SPACING DETERMINED BY ENGINEER AND ACCORDING TO MANUFACTURER'S SPECIFICATIONS. MINIMUM SPACING OF 3/4" BETWEEN ANODES AND EXISTING CONCRETE. A MINIMUM OF 4" EDGE DISTANCE FROM ANY CORNER AND/OR EDGE OF EXCAVATION, AND A MINIMUM OF 1" CONCRETE COVER SHALL BE PROVIDED.
 5. TEST THE ELECTRICAL CONTINUITY BETWEEN THE ANODE TIES AND THE REBAR AND BETWEEN THE REBARS ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.
 6. PLACE REPAIR CONCRETE ACCORDING TO DRAWINGS AND CONTRACT SPECIFICATIONS. WHEN GALVANIC ANODES ARE USED, THE REPAIR MATERIAL USED SHALL BE NON-HP CONCRETE AND APPROVED BY THE ENGINEER.



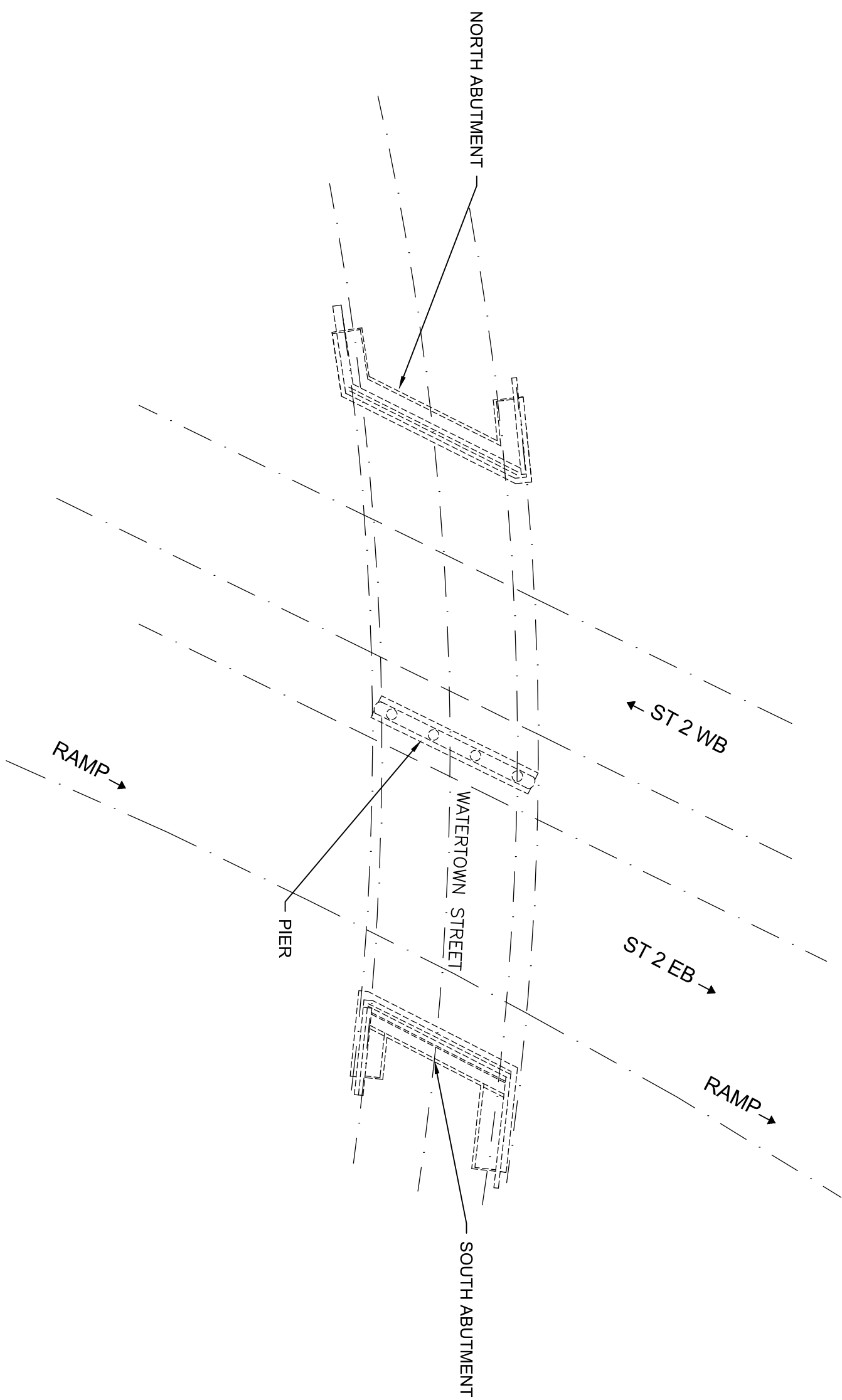
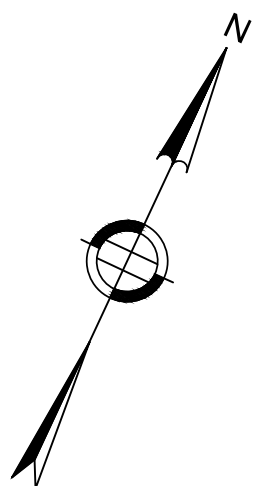
GALVANIC ANODE INSTALLATION SECTION
NOT TO SCALE



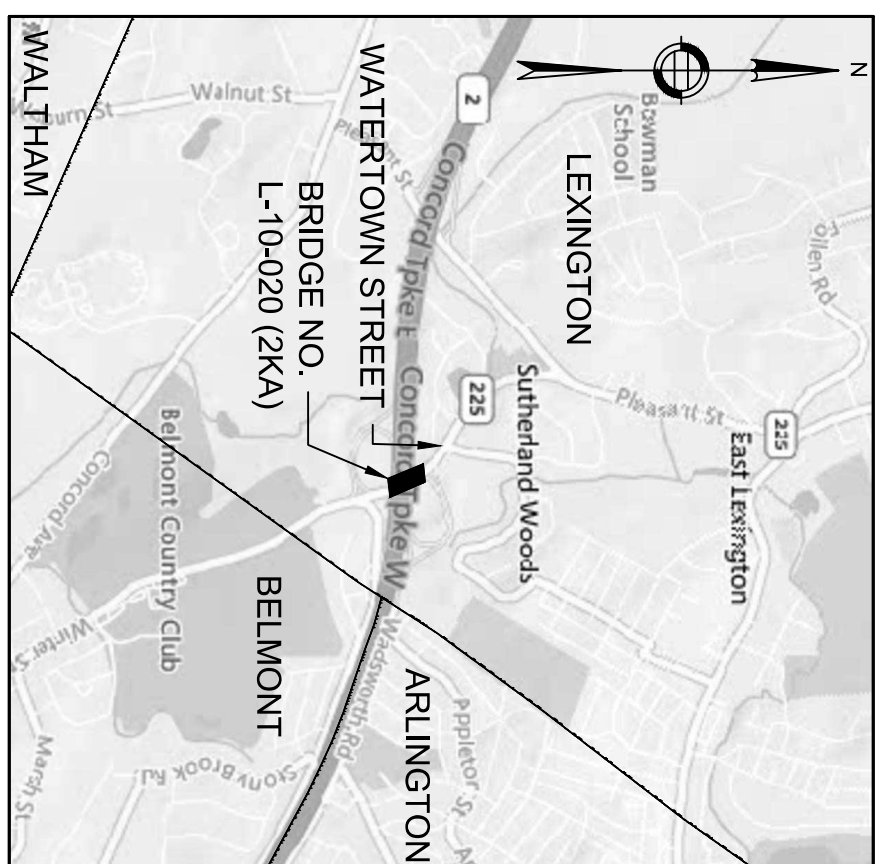
NOTE:
IF THERE IS LESS THAN 1 1/2" CONCRETE COVER, THEN THE CONTRACTOR SHALL BUILD OUT THE FORM TO ENSURE A MINIMUM OF 1 1/2" COVER.

PARTIAL DEPTH REPAIR
NOT TO SCALE

MM/DD/YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	



KEY PLAN
SCALE: 1" = 40'-0"



LOCUS MAP
SCALE: 1" = 2000'

LEXINGTON
WATERTOWN STREET OVER ST 2

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	1	6

PROJECT FILE NO. 613466

INDEX, LOCUS MAP, GENERAL NOTES, KEY PLAN & QUANTITIES

QUANTITIES:

ITEM	QUANTITY	UNITS
REINFORCED CONCRETE SUBSTRUCTURE EXCAVATION	10	CY
4000 PSI, 3/8 IN. 660 CEMENT CONCRETE	10	CY
CEMENTITIOUS MORTAR FOR PATCHING	95	SF
STEEL REINFORCEMENT FOR STRUCTURES	500	LB
ELASTOMERIC PROTECTIVE COATING	4000	SF
SPECIAL SLOPE PAVING UNDER BRIDGE	5	SY
GALVANIC ANODE	540	EA

INDEX OF BRIDGE SHEETS

INDEX, LOCUS MAP, GENERAL NOTES, KEY PLAN & QUANTITIES	1
PIER CAP REPAIR LOCATIONS	2
ABUTMENT REPAIR LOCATIONS	3
PIER CAP REPAIR DETAILS	4
PIER COLUMN REPAIR DETAILS	5
GALVANIC ANODE INSTALLATION & PARTIAL DEPTH REPAIR DETAILS	6

GENERAL NOTES:

SCALES:

SCALES NOTED ON THE PLANS ARE NOT APPLICABLE TO REDUCED SIZE PRINTS. DIVIDE SCALES BY 2 FOR HALF-SIZE PRINTS (A3).

UNSUITABLE MATERIAL:

ALL UNSUITABLE MATERIAL SHALL BE REMOVED WITHIN THE LIMITS OF THE FOUNDATIONS OF THE STRUCTURE, AS DIRECTED BY THE ENGINEER.

ANCHOR BOLTS:

ALL ANCHOR BOLTS SHALL BE SET BY TEMPLATE BEFORE THE CONCRETE IS PLACED.

CONCRETE:

ALL CONCRETE SHALL BE 4000 PSI, 3/8 IN, 660 CEMENT CONCRETE.


REINFORCEMENT:

REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 31 GRADE 60. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS, ALL BARS SHALL BE LAPPED AS FOLLOWS:

MODIFICATION CONDITION

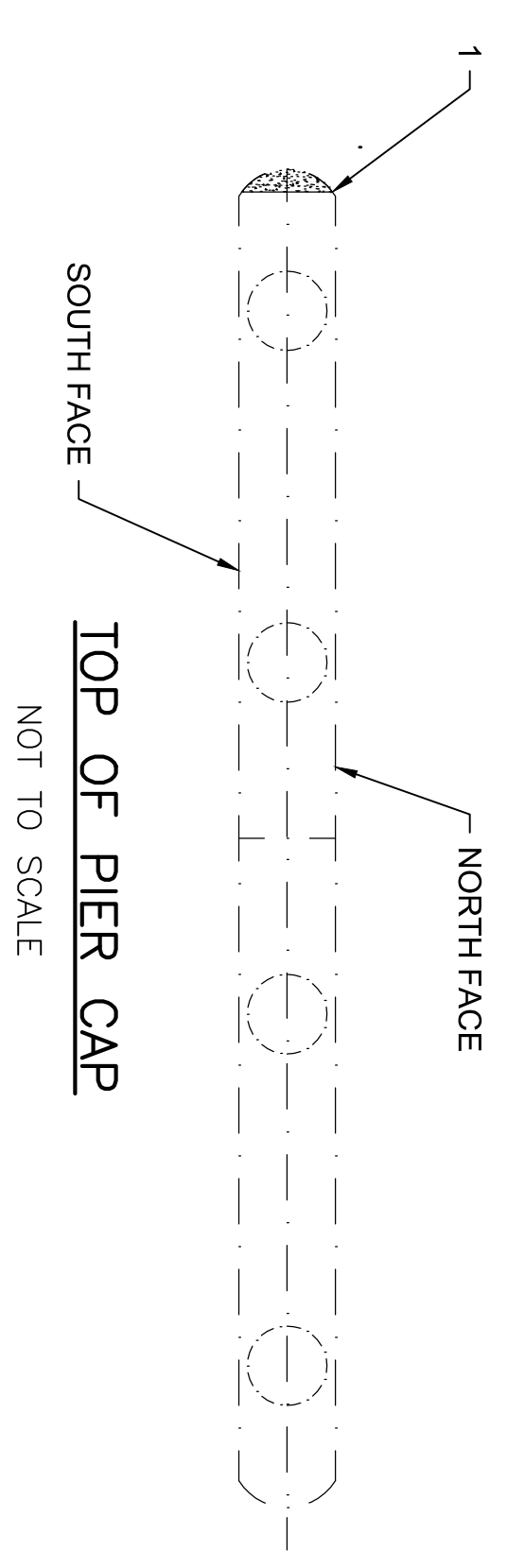
	#4 BARS	#5 BARS	#6 BARS
1. NONE	16"	19"	23"
2. 12" OF CONCRETE BELOW BAR	20"	25"	30"
3. EPOXY COATED BARS, COVER < 3dB, OR CLEAR SPACING < 6dB	23"	29"	34"
4. COATED BARS, ALL OTHER CASES	18"	23"	27"
5. CONDITION 2. AND 3.	26"	32"	39"
6. CONDITION 2. AND 4.	24"	30"	36"

ALL OTHER BARS SHALL BE LAPPED AS SHOWN ON THE CONSTRUCTION DRAWINGS.

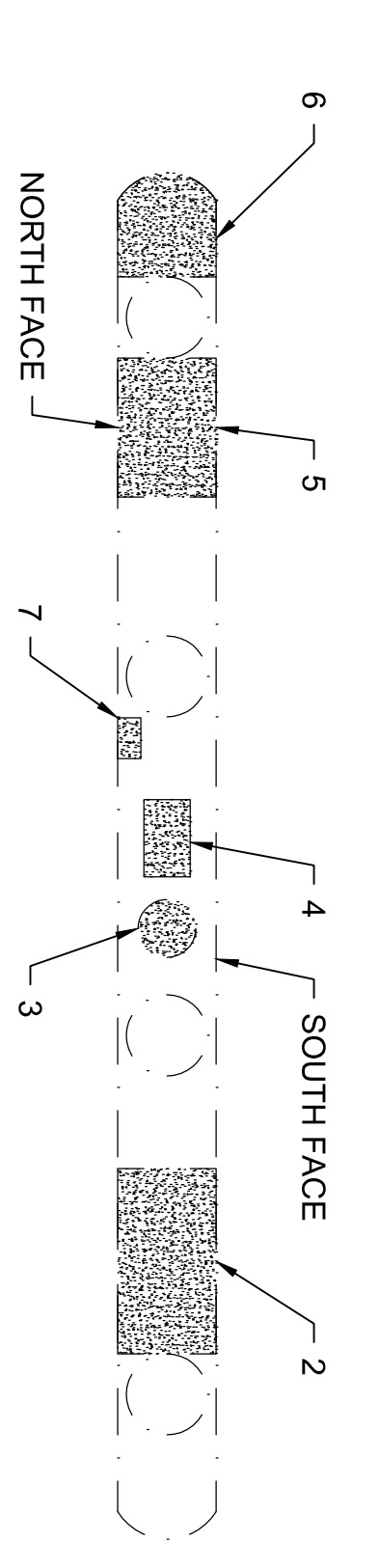
DESIGNED BY JOHN JACOB	MM/DD/YYYY	ISSUED FOR CONSTRUCTION
DRAWN BY JOHN JACOB		
CHECKED BY DOUG CONSENTINO		
SPECS BY JOHN JACOB		
APPROVED FOR DESIGN BY JON LEE		
 MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION 10 PARK PLAZA BOSTON, MASS WATERTOWN STREET OVER ST 2 LEXINGTON SUBSTRUCTURE REPAIRS		

LEXINGTON			
WATERTOWN STREET OVER ST 2			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	2	6
PROJECT FILE NO.		613466	

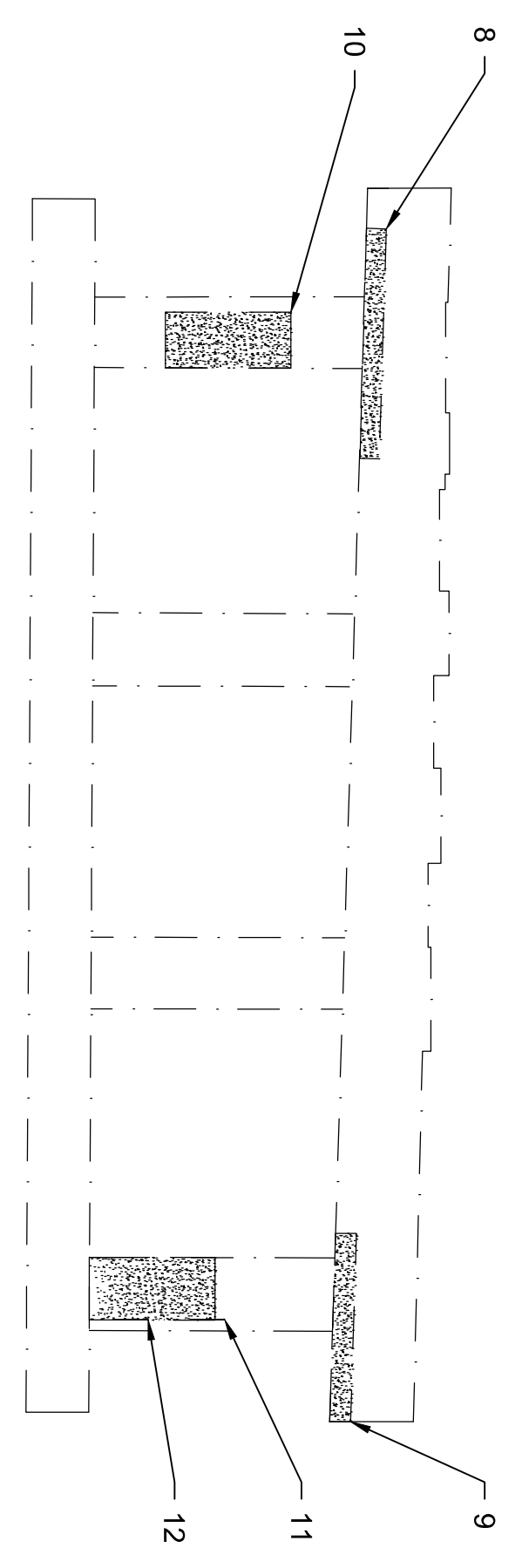
PIER CAP REPAIR LOCATIONS



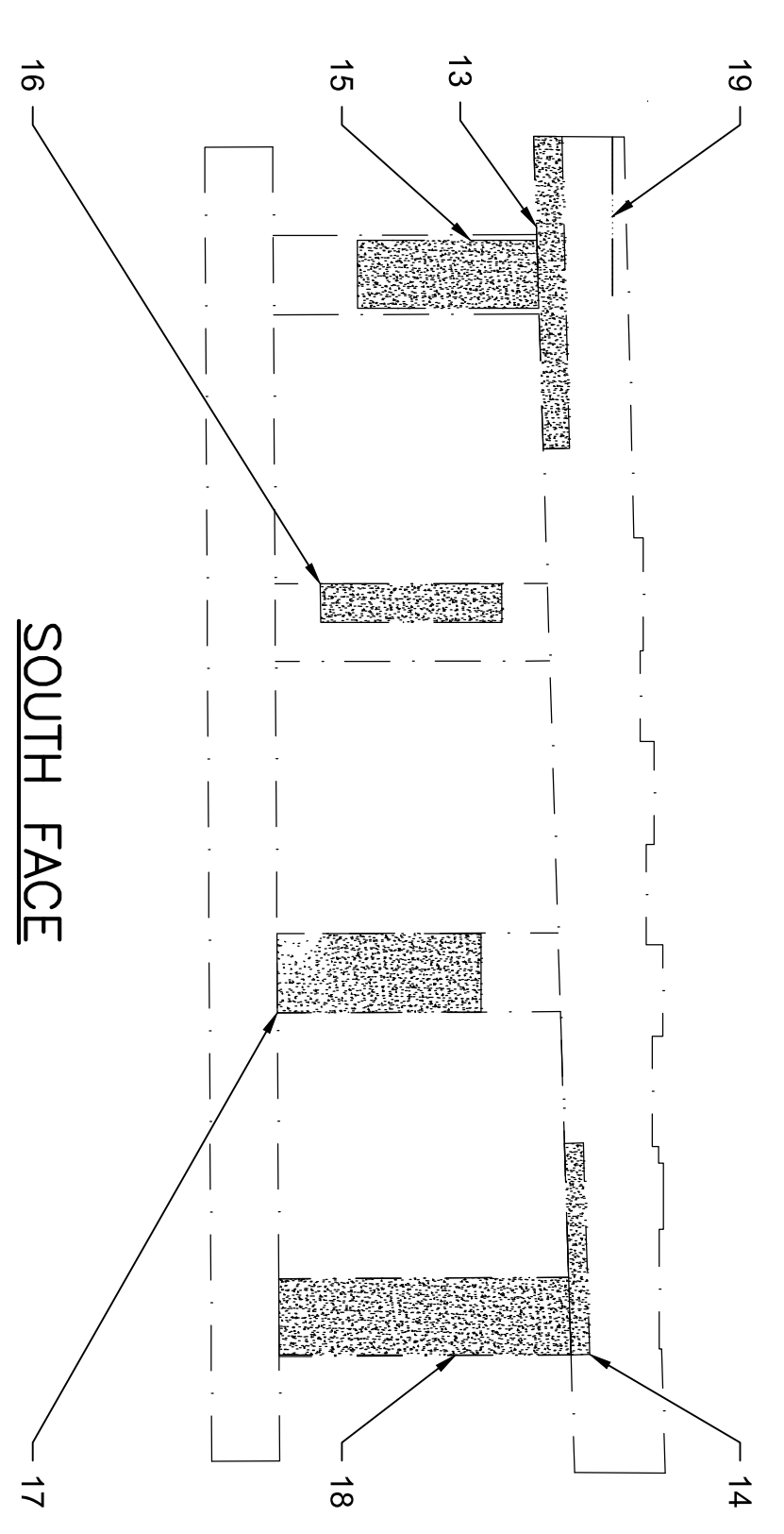
NOT TO SCALE



NOT TO SCALE



NOT TO SCALE



NOT TO SCALE

REPAIR LOCATIONS

1. SPALL WITH EXPOSED & BROKEN REBAR, 1' LONG X FULL WIDTH X 6" DEEP
2. SPALL WITH EXPOSED RUSTED REBAR, 8' LONG X FULL WIDTH X UP TO 5" DEEP
3. SPALL WITH EXPOSED RUSTED REBAR, 2'-6" DIAMETER X 4" DEEP
4. SPALL WITH EXPOSED RUSTED REBAR, 2' LONG X 3'-4" WIDE X 3" DEEP
5. SPALL WITH EXPOSED & BROKEN REBAR, 6' LONG X FULL WIDTH X UP TO 5" DEEP
6. SPALL WITH EXPOSED & BROKEN REBAR, FULL LENGTH X FULL WIDTH X 5" DEEP
7. SPALL WITH EXPOSED RUSTED REBAR, 1'-9" LONG X 1' WIDE X 3" DEEP
8. SPALL WITH EXPOSED RUSTED REBAR, 11' LONG X 1' HIGH X 5" DEEP
9. SPALL WITH EXPOSED RUSTED REBAR, 9' LONG X 1' HIGH X 6" DEEP
10. SPALL WITH EXPOSED RUSTED REBAR, 6' HIGH X 2'-8" WIDE X 4" DEEP
11. VERTICAL CRACK, 5'-4" HIGH X 1/2" WIDE
12. SPALL WITH EXPOSED RUSTED REBAR, 4' HIGH X 3' WIDE X 2" DEEP
13. SPALL WITH EXPOSED RUSTED REBAR, 14' LONG X 1'-3" HIGH X 3" DEEP
14. SPALL WITH EXPOSED RUSTED REBAR, 9'-4" LONG X 10" HIGH X 7" DEEP
15. SPALL WITH EXPOSED RUSTED REBAR, 8' HIGH X 3' WIDE X 4" DEEP
16. SPALL WITH EXPOSED RUSTED REBAR, 7' HIGH X 4' WIDE X 4" DEEP
17. SPALL WITH EXPOSED RUSTED REBAR, 6'-6" HIGH X 5' WIDE X 4" DEEP
18. SPALL WITH EXPOSED RUSTED REBAR, FULL HEIGHT X FULL WIDTH X UP TO 4" DEEP
19. PIER CAP SOUTH FACE WEST END HORIZONTAL CRACK, 7' LONG X 1/2" WIDE

NOTES FOR CONTRACTOR:

IF ANY OF THE FOLLOWING CONDITIONS ARE ENCOUNTERED, THE CONTRACTOR SHALL STOP REMOVING DETERIORATED CONCRETE AND IMMEDIATELY NOTIFY THE DISTRICT BRIDGE ENGINEER TO DETERMINE IF THE EXCAVATION CAN BE CONTINUED:

1. WHEN A MAXIMUM EXCAVATION DEPTH OF 6 INCHES IS REACHED IN ANY SUBSTRUCTURE REPAIR.
2. WHEN THE EXCAVATION ENCROACHES ON THE BEARING DEVICES.
3. WHEN MORE THAN TWO ADJACENT BEAMS ARE SUPPORTED BY THE COLUMN BAY IN PIER CAP REPAIR.
4. WHEN THE PIER CAP OVERHANG, (MEASURING FROM THE FACE OF THE COLUMN), IS MORE THAN 4 FT, AND/OR THE BEARING DEVICES ARE WITHIN THE OUTER HALF OF THE OVERHANG IN PIER END CAP REPAIR.

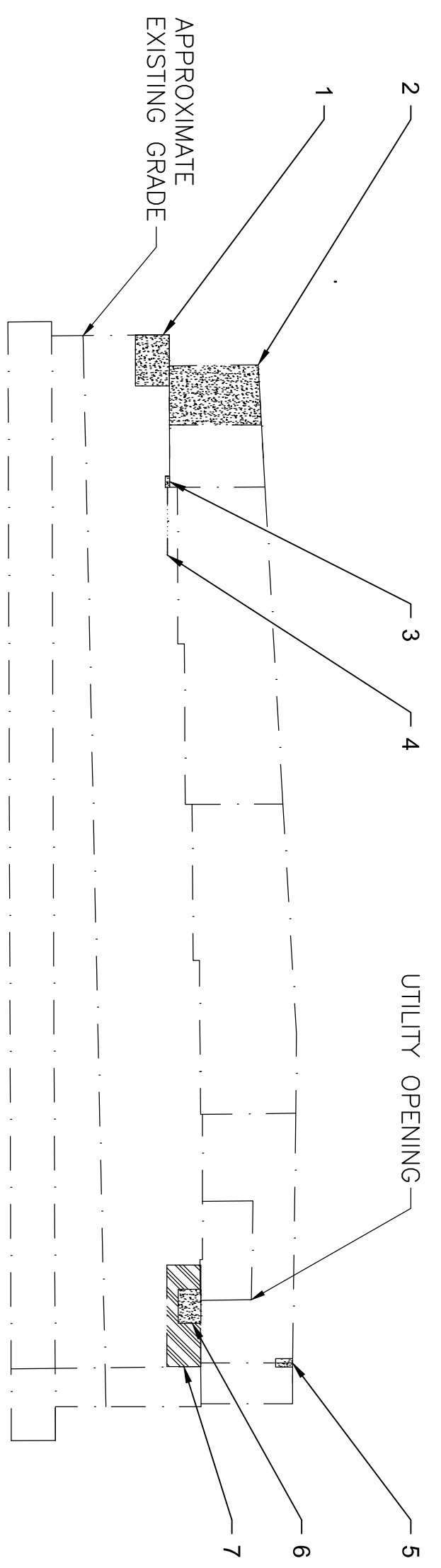
NOTES:

SEE SHEETS 4, 5 & 6

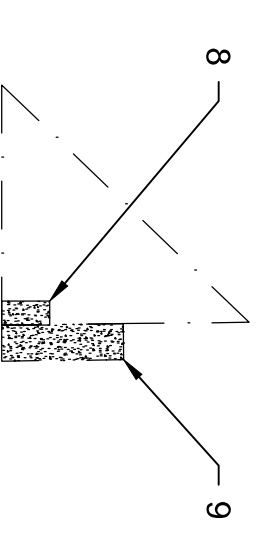
MM/DD/YYYY	ISSUED FOR CONSTRUCTION
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LEXINGTON			
WATERTOWN STREET OVER ST 2			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	3	6
PROJECT FILE NO.		613466	

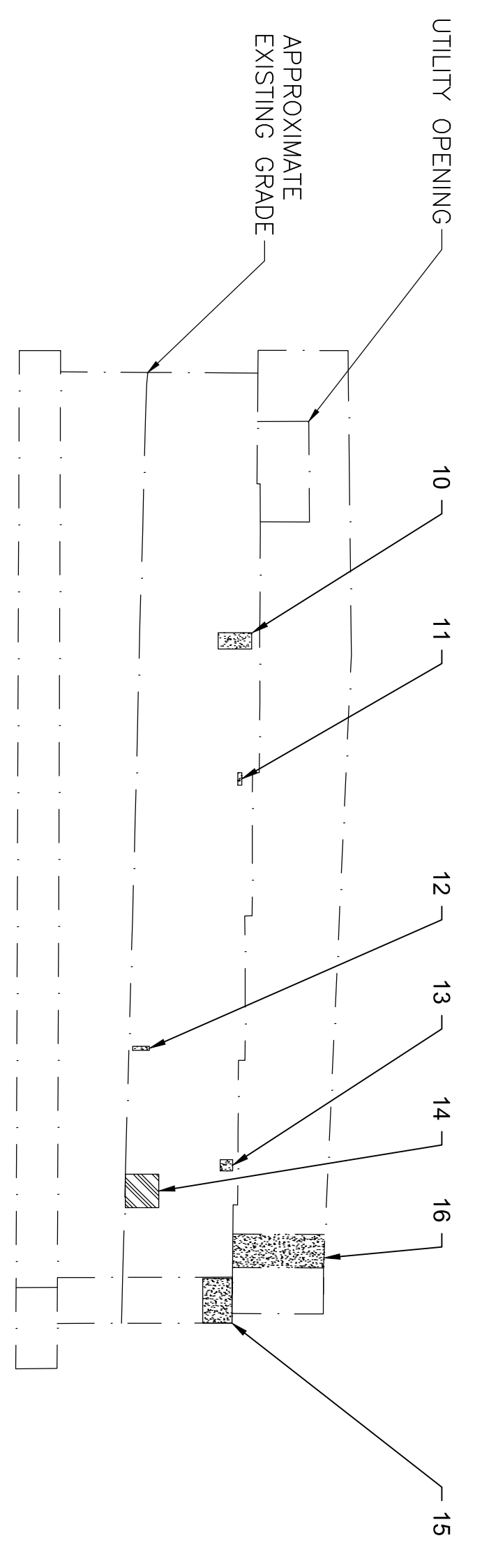
ABUTMENT REPAIR LOCATIONS



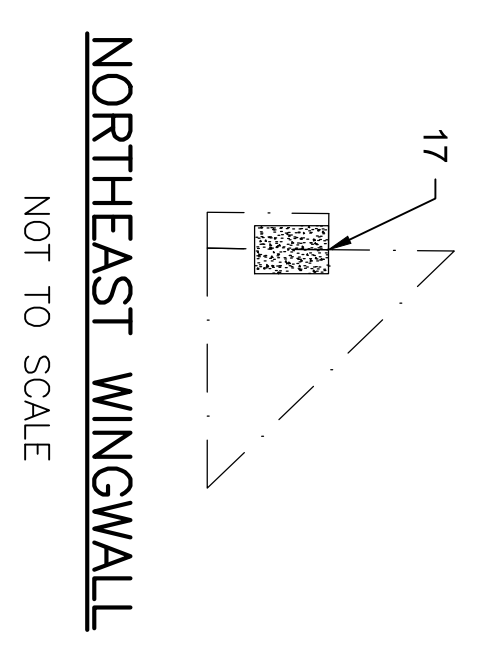
NORTH ABUTMENT
NOT TO SCALE



NORTHWEST WINGWALL
NOT TO SCALE



SOUTH ABUTMENT
NOT TO SCALE



NORTHEAST WINGWALL
NOT TO SCALE

REPAIR LOCATIONS:

1. CORNER SPALL WITH EXPOSED AND DEBONDED REBAR, 3' LONG X 2' HIGH X UP TO 1' DEEP
2. SPALL WITH EXPOSED RUSTED REBAR, 3'-6" LONG X FULL HEIGHT X 8" DEEP
3. SPALL, 8" LONG X 3" HIGH X 3" DEEP
4. HORIZONTAL CRACK, 4' LONG X 1/8" WIDE
5. SPALL, 6' LONG X 1' HIGH X UP TO 10" DEEP
6. SPALL WITH EXPOSED RUSTED REBAR, 2' LONG X 1'-4" HIGH X 2" DEEP
7. HOLLOW AREA, 6' LONG X 2' HIGH
8. SPALL WITH EXPOSED RUSTED REBAR, 1' LONG X 2' HIGH X 2" DEEP
9. SPALL WITH EXPOSED RUSTED REBAR, FULL LENGTH X FULL HEIGHT X 8" DEEP
10. SPALL, 1' LONG X UP TO 2' HIGH X 2" DEEP
11. SPALL, 9" LONG X 3" HIGH X 1" DEEP
12. SPALL, 3" LONG X 1' HIGH X 1" DEEP
13. SPALL, 8" LONG X 9" HIGH X 2" DEEP
14. HOLLOW AREA, 2' LONG X 2' HIGH
15. SPALL WITH EXPOSED RUSTED REBAR, 2'-8" LONG X 1'-9" HIGH X 3" DEEP
16. SPALL, UP TO 2' LONG X FULL HEIGHT X 5" DEEP
17. SPALL WITH EXPOSED RUSTED REBAR, 2' LONG X 3'-1" HIGH X 3" DEEP

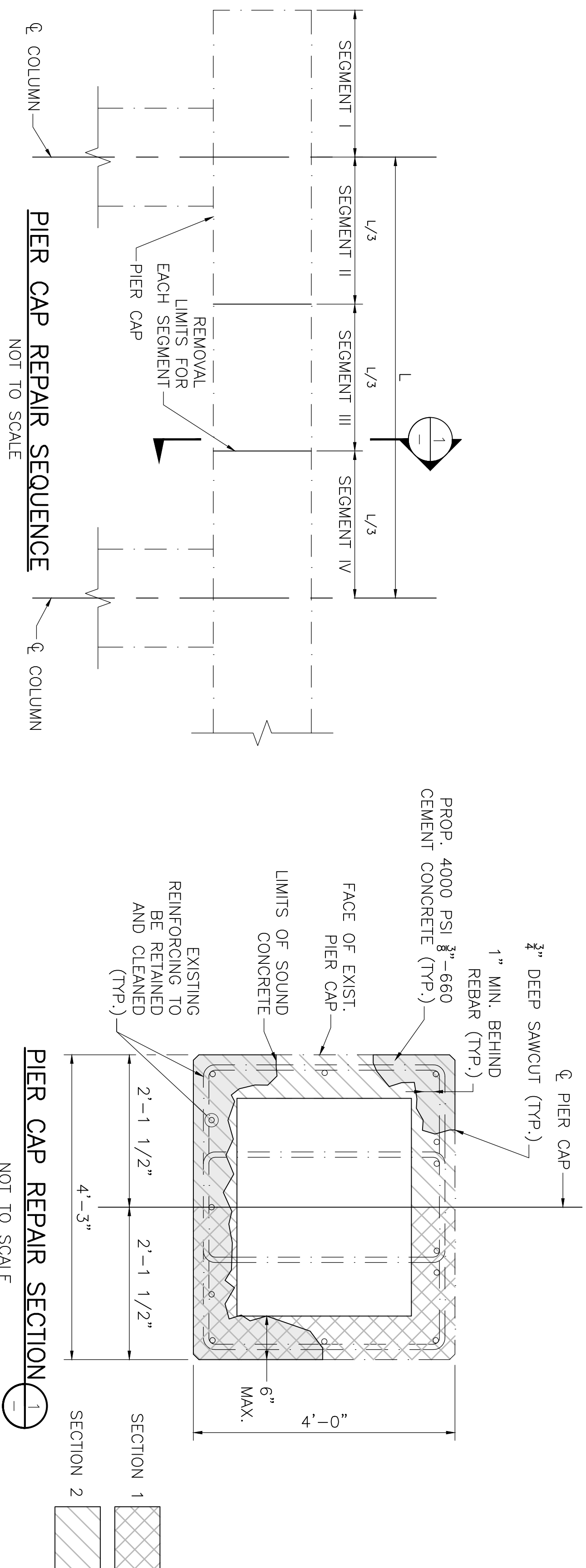
NOTES:

SEE SHEETS 4 & 6

MM/DD/YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

SUBSTRUCTURE CONCRETE REPAIR NOTES:

1. SUBSTRUCTURE REPAIRS SHALL CONSIST OF REMOVING DETERIORATED CONCRETE, PREPARING THE REPAIR SURFACE, FORMING WHERE REQUIRED, PLACING AND FINISHING NEW CONCRETE OR CEMENTITIOUS MORTAR. THE SCOPE OF REPAIRS MAY ALSO REQUIRE APPLYING ELASTOMERIC COATING (ITEM 964.3) TO THE REPAIRED SUBSTRUCTURE UNITS. THE LIMITS FOR THE ELASTOMERIC COATING WILL BE ESTABLISHED BY THE ENGINEER.
2. THE REPAIR IS DESIGNATED AS A DEEP PATCH WHEN THE EXCAVATED DEPTH TO SOUND CONCRETE EXCEEDS 2" FROM THE FACE OF THE CONCRETE OR REINFORCING STEEL IS ENCOUNTERED. SEE PARTIAL DEPTH REPAIR DETAIL ON SHEET 6.
3. THE REPAIR IS DESIGNATED AS A PARTIAL DEPTH WHEN THE DEPTH OF SOUND CONCRETE IS REACHED AT OR LESS THAN 2" FROM THE FACE OF THE CONCRETE AND REINFORCING STEEL IS NOT ENCOUNTERED.
4. 4000 PSI, 3/8 INCH, 660 CEMENT CONCRETE (ITEM 905.) SHALL BE USED FOR ALL DEEP PATCH REPAIRS. ALL PARTIAL DEPTH REPAIRS SHALL BE PATCHED WITH CEMENTITIOUS MORTAR FOR PATCHING (ITEM 909.2).
5. THE CONTRACTOR SHALL ESTABLISH LIMITS OF REPAIRS AT THE DIRECTION OF THE ENGINEER. THE EXTENT, LOCATION AND REPAIR TYPE (DEEP PATCH OR PARTIAL DEPTH REPAIR) ARE TO BE FIELD VERIFIED AND APPROVED BY THE ENGINEER AFTER THE CONTRACTOR HAS SOUNDED AND MARKED OUT THE REPAIR AREA. THE AREAS OF REPAIR SHALL BE MADE APPROXIMATELY RECTANGULAR WITH THE SIDES GENERALLY PERPENDICULAR TO THE SURFACE BEING REPAIRED.
6. THE DETERIORATED CONCRETE SHALL BE REMOVED AS REQUIRED TO PROVIDE GOOD SOUND CONCRETE ON WHICH NEW CONCRETE CAN BE PLACED AND SATISFACTORILY BONDED TO UNDAMAGED OR UNDISTURBED REINFORCEMENT.
7. SAW CUT ALONG NEAT LINES AROUND REPAIR AREA PRIOR TO CONCRETE EXCAVATION. USE SAW CUT DEPTH OF 1", OR AS REQUIRED TO AVOID CUTTING REINFORCING STEEL.
8. SUBSTRUCTURE REPAIR SHOULD INCLUDE THE REMOVAL OF ALL DETERIORATED, LOOSE, SPALLED AND HOLLOW SOUNDING CONCRETE. THE DETERIORATED CONCRETE SHALL BE REMOVED FROM WITHIN THE REPAIR AREAS TO THE DEPTH OF SOUND CONCRETE. WHEN REINFORCING STEEL IS UNCOVERED, CARE SHALL BE TAKEN SO AS NOT TO DAMAGE THE STEEL OR ITS BOND TO THE SURROUNDING CONCRETE. MAXIMUM 25 LB. HAMMERS WITH CHISEL POINTS SHALL BE USED FOR CONCRETE REMOVAL. MAXIMUM 15 LB. HAMMERS SHALL BE USED ONCE REINFORCING STEEL IS EXPOSED.
9. THE CONTRACTOR SHALL STOP REMOVING DETERIORATED CONCRETE WHEN A MAXIMUM DEPTH OF 6 INCHES IS REACHED. THE DISTRICT BRIDGE ENGINEER SHALL BE IMMEDIATELY NOTIFIED TO DETERMINE IF THE EXCAVATION CAN BE CONTINUED.
10. IF REINFORCING STEEL IS EXPOSED THEN CLEAN BY MECHANICAL CLEANING OR HIGH PRESSURE WASHING WITH WATER THAT CONTAINS NO DETERGENTS OR BOND INHIBITING CHEMICALS. WHERE ACTIVE CORROSION HAS OCCURRED THAT WOULD INHIBIT BONDING, CLEAN STEEL USING ABRASIVE BLASTING METHODS ACCEPTABLE TO THE ENGINEER, THEN PAINT WITH A ZINC-RICH PRIMER CONFORMING TO MASSDOT STANDARD SPECIFICATION NO. M.7.04.11.
11. AFTER REMOVAL AND EDGE PREPARATIONS ARE COMPLETE, REMOVE BOND INHIBITING MATERIALS (DIRT, GREASE, LOOSELY BONDED AGGREGATE) BY ABRASIVE BLASTING OR HIGH PRESSURE WATER BLASTING WITH WATER THAT CONTAINS NO DETERGENTS OR BOND INHIBITING CHEMICALS. CHECK THE CONCRETE SURFACES AFTER CLEANING TO ENSURE THAT SURFACE IS FREE FROM ADDITIONAL LOOSE AGGREGATE OR THAT ADDITIONAL DELAMINATIONS ARE NOT PRESENT.
12. EXISTING REINFORCING BARS, WHICH ARE BROKEN OR HAVE LOST 25% OR MORE OF THEIR CROSS SECTIONAL AREA, OR AS ORDERED REPAIRED BY THE ENGINEER, SHALL BE REPAIRED BY SPLICING IN NEW REINFORCING BARS OF THE SAME DIAMETER. SEE EXISTING BRIDGE PLANS FOR BAR SIZES. SPLICE LAPS ARE TO BE AT LEAST 32 BAR DIAMETERS. MISSING OR DETERIORATED REINFORCING STEEL SHALL BE REPLACED AS DIRECTED BY THE ENGINEER AND WILL BE PAID UNDER ITEM 910.11.
13. ALL SURFACES WHERE NEW CONCRETE WILL BE BONDED TO EXISTING CONCRETE SHALL BE PRE-WETTED WITH CLEAN WATER TO SATURATED SURFACE DRY (SSD) CONDITION (WITH NO STANDING WATER) IMMEDIATELY PRIOR TO THE CONCRETE PLACEMENT. IF INDICATED ON THE PLANS OR DIRECTED BY THE ENGINEER, APPLY EPOXY BONDING COMPOUND SUITABLE FOR BONDING FRESH CONCRETE TO HARDENED CONCRETE FOR LOAD BEARING APPLICATIONS TO INTERFACE BETWEEN NEW AND EXISTING CONCRETE. THE EPOXY BONDING COMPOUND SHALL CONFORM TO AASHTO M 235 TYPE V, GRADE AND CLASS SHALL BE SPECIFIED FOR EACH APPLICATION AND SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND THE SPECIAL PROVISIONS. THE COST ASSOCIATED WITH THIS WORK WILL BE INCIDENTAL TO ITEM 905.
14. IN GENERAL, EPOXY BONDING COMPOUND SHALL BE USED FOR ALL PARTIAL DEPTH REPAIR AND HORIZONTAL SURFACES OF DEEP PATCH REPAIR, SUCH AS TOP EXCAVATED SURFACES OF PIER CAP AND BEAM SEAT.
15. IF EPOXY BONDING COMPOUND IS USED, THE FORMS SHALL BE INSTALLED AND FILLED BEFORE THE EPOXY BONDING COMPOUND HARDENS.
16. IF DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL INSTALL CATHODIC PROTECTION ANODES TO THE LIMITS DETERMINED BY THE ENGINEER. ANODE INSTALLATIONS & TESTING SHOULD BE PAID UNDER ITEM 910.01.
17. ALL CONCRETE SURFACES ONCE CURED, SHALL BE RUBBED TO PRODUCE A SMOOTH FINISH TO MATCH EXISTING SURFACES. WET CURING IN ACCORDANCE WITH THE SUPPLEMENTAL SPECIFICATIONS FOR HIGHWAYS AND BRIDGES SECTION 901.65, SUB-SECTION A-2 WILL BE REQUIRED.
18. CONCRETE PIER CAPS, COLUMNS, ABUTMENT SEATS, AND EXPOSED SECTIONS OF ABUTMENT STEMS SHALL (AS DETERMINED BY THE ENGINEER) RECEIVE A CONCRETE PENETRANT/SEALER OR ELASTOMERIC PROTECTIVE COATING (ITEM 964.3), 30 DAYS AFTER ALL REPAIRS HAVE BEEN MADE. CONCRETE PENETRANT/SEALER IS INCIDENTAL TO ITEM 905.
19. THE REPAIR OF PIER CAP SHALL BE COMPLETED PRIOR TO THE START OF ANY COLUMN REPAIR, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
20. THE CONTRACTOR SHALL FOLLOW THE CONCRETE PIER CAPS AND COLUMNS REPAIR SEQUENCE OUTLINED ON THE PLANS. THE CONTRACTOR WILL HAVE THE OPTION TO SUBMIT AN ALTERNATE REPAIR PROCEDURE FOR REVIEW AND APPROVAL. THE CONTRACTOR MAY ALSO USE TEMPORARY SHORING TO COMPLETE THE REPAIRS IN ONE STAGE. IF SHORING IS PROPOSED TO ACCOMMODATE THE CONTRACTOR'S MEANS AND METHODS OR REPAIR SCHEDULE, NO ADDITIONAL COMPENSATION WILL BE ALLOWED. THIS SHALL REQUIRE APPROVAL OF THE ENGINEER AND THE SHORING WILL BE CONSIDERED INCIDENTAL TO THE REPAIR WORK.
21. THE REPAIR PHASING AND SEQUENCE MAY BE MODIFIED BY THE ENGINEER SO THAT THE SECTIONS WITH WORSE DETERIORATION ARE REPAIRED FIRST.
22. THE SERVICE LOAD (DEAD LOAD + LIVE LOAD) REACTION AT EACH BEARING SHALL BE EQUAL TO 160 KIPS. IF LOADING CONDITIONS ARE TO BE MODIFIED DURING CONSTRUCTION, OR ADDITIONAL CONSTRUCTION LOADS APPLIED, CALCULATIONS OF THE REACTIONS FOR JACKING AND/SHORING SHALL BE SUBMITTED BY THE CONTRACTOR FOR REVIEW.



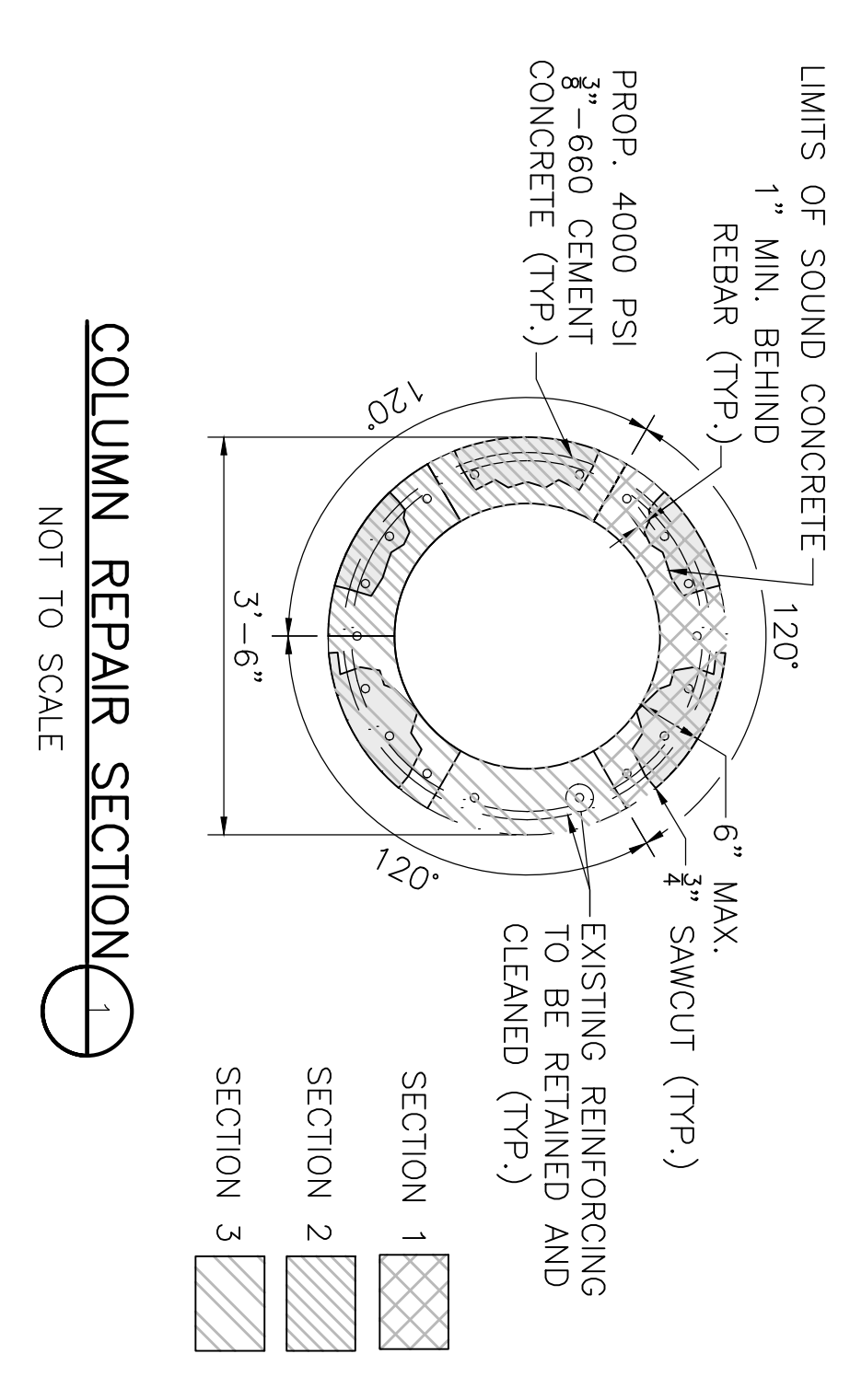
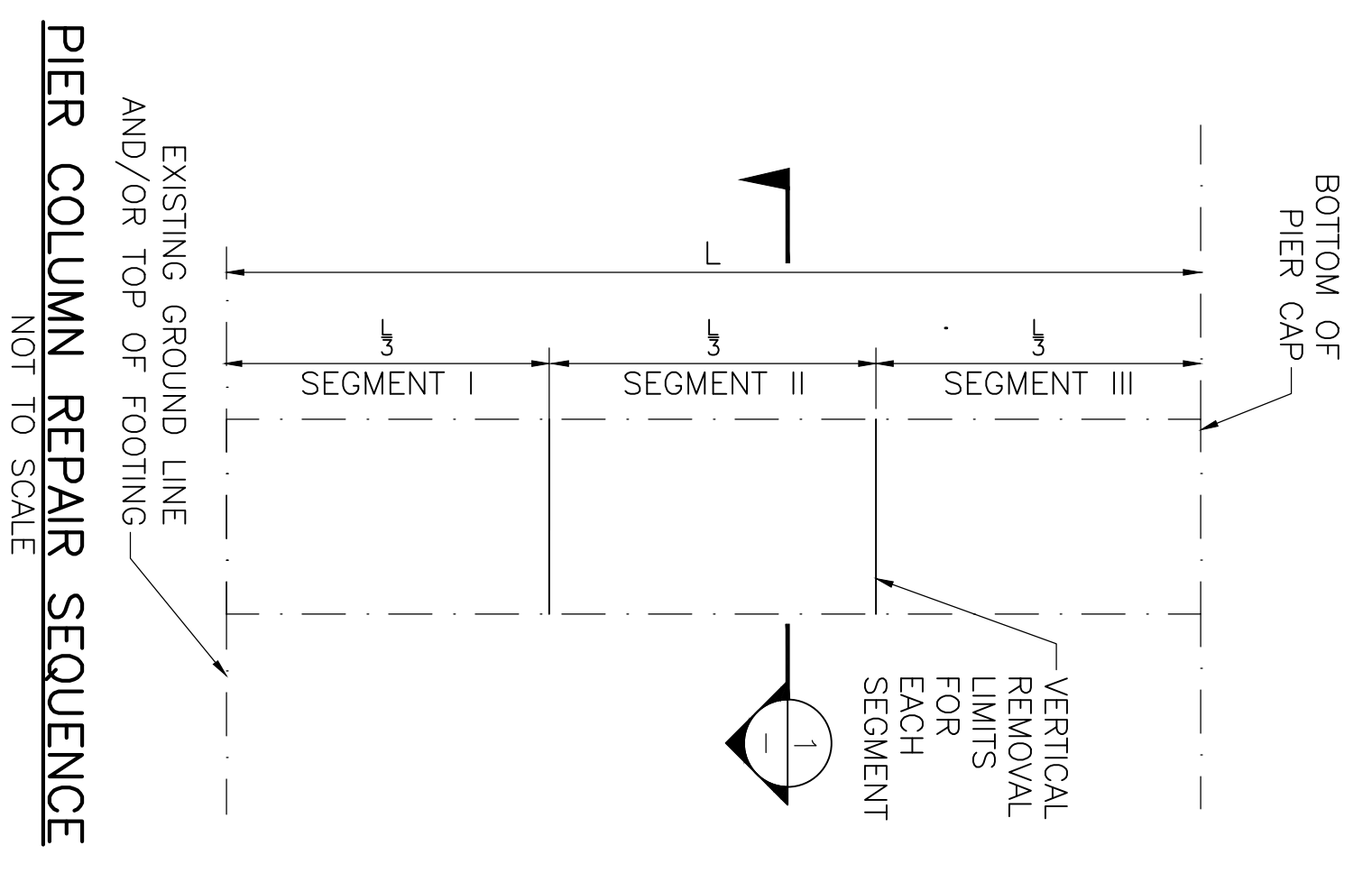
NOTES:

1. CONCRETE ELEMENTS ARE DIVIDED INTO SEGMENTS. WORK TO BE PERFORMED ON SECTIONS AS SHOWN.
2. THE CONTRACTOR SHALL PROVIDE A TEMPORARY SHORING SYSTEM TO SUPPORT THE PIER CAP DEAD AND LIVE LOADS IF THE EXCAVATION LIMITS ARE TO BE EXTENDED PER EVALUATION OF THE DISTRICT BRIDGE ENGINEER.
3. THE CONTRACTOR SHALL PROVIDE A TEMPORARY SHORING SYSTEM TO SUPPORT THE PIER CAP DEAD AND LIVE LOADS IF THE EXCAVATION IS WITHIN 6" OF THE BEARING.
4. CONTRACTOR SHALL STAGE THE WORK SO THAT THE SECTIONS IN POOREST CONDITION ARE REPAIRED FIRST, AS APPROVED BY THE ENGINEER.
5. CONTRACTOR SHALL NOT WORK ON ADJACENT SECTIONS SIMULTANEOUSLY UNLESS APPROVED BY THE DISTRICT BRIDGE ENGINEER.
6. CONTRACTOR SHALL WAIT 72 HOURS AFTER COMPLETING REPAIRS TO A SECTION BEFORE BEGINNING REPAIRS TO ADJACENT SECTIONS. HOWEVER HE/SHE MAY PERFORM WORK ON OTHER BRIDGE ELEMENTS.
7. CONTRACTOR SHALL STOP REMOVING DETERIORATING CONCRETE WHEN A MAXIMUM DEPTH OF 6 IN. IS REACHED. THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED IF MORE REMOVAL SEEMS NECESSARY ON THE BRIDGE SECTION.
8. EXISTING REINFORCING NOT SHOWN.
9. THE CONTRACTOR SHALL SUBMIT AN ALTERNATE REPAIR SEQUENCE FOR APPROVAL OF THE ENGINEER WHEN TEMPORARY SHORING IS UTILIZED DURING REPAIRS.
10. MAXIMUM SEGMENT LENGTH SHALL BE LIMITED TO 8 FEET.

LEXINGTON			
WATERTOWN STREET OVER ST 2			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	4	6
PROJECT FILE NO.		619466	

PIER CAP REPAIR DETAILS

MM/DD/YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	



- NOTES:**
1. CONCRETE ELEMENTS ARE DIVIDED INTO SEGMENTS. WORK TO BE PERFORMED ON SECTIONS AS DEFINED IN THE ABOVE DETAILS.
 2. THE CONTRACTOR SHALL PROVIDE A TEMPORARY SHORING SYSTEM TO SUPPORT THE PIER CAP DEAD AND LIVE LOADS IF THE EXCAVATION LIMITS ARE TO BE EXTENDED PER EVALUATION OF THE DISTRICT BRIDGE ENGINEER.
 3. NOTE CONTRACTOR SHALL STAGE THE WORK SO THAT THE WORSE SECTIONS ARE REPAIRED FIRST.
 4. CONTRACTOR SHALL NOT WORK ON ADJACENT SECTIONS SIMULTANEOUSLY UNLESS APPROVED BY THE DISTRICT BRIDGE ENGINEER.
 5. CONTRACTOR SHALL WAIT 72 HOURS AFTER COMPLETING REPAIRS TO A SECTION BEFORE CHIPPING ADJACENT SECTIONS, HOWEVER HE/SHE MAY PERFORM WORK ON OTHER BRIDGE ELEMENTS.
 6. CONTRACTOR SHALL STOP REMOVING DETERIORATING CONCRETE WHEN A MAXIMUM DEPTH OF 6 IN. IS REACHED. THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED IF MORE REMOVAL SEEMS NECESSARY.
 7. EXISTING REINFORCING NOT SHOWN.
 8. THE CONTRACTOR SHALL SUBMIT AN ALTERNATE REPAIR SEQUENCE FOR APPROVAL OF THE ENGINEER WHEN TEMPORARY SHORING IS UTILIZED DURING REPAIRS.

LEXINGTON
WATERTOWN STREET OVER ST 2

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	5	6
PROJECT FILE NO.		613466	

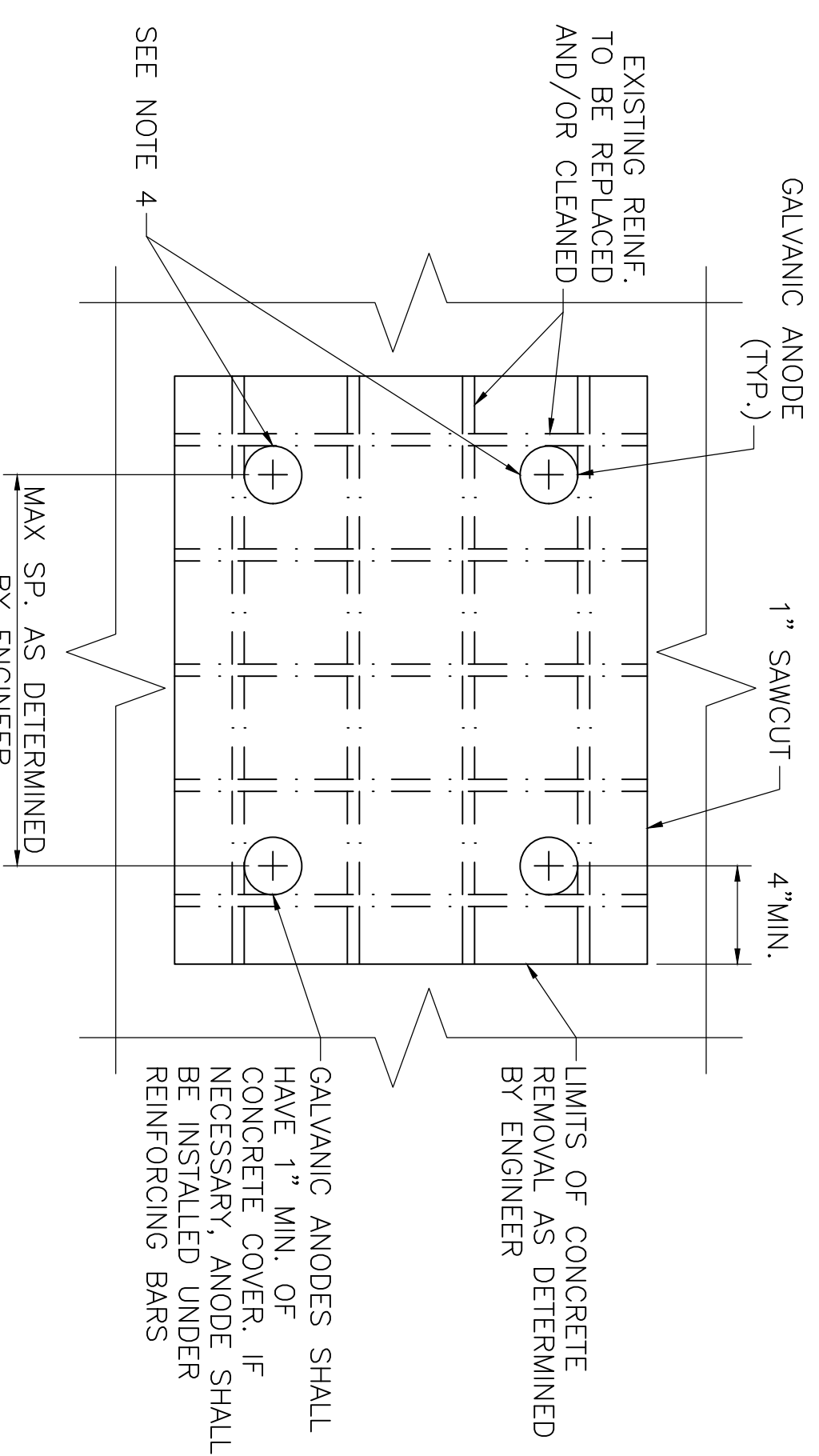
PIER COLUMN REPAIR DETAILS

MM/DD/YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 5 OF 6 SHEETS BRIDGE NO. L-10-020 (2KA)

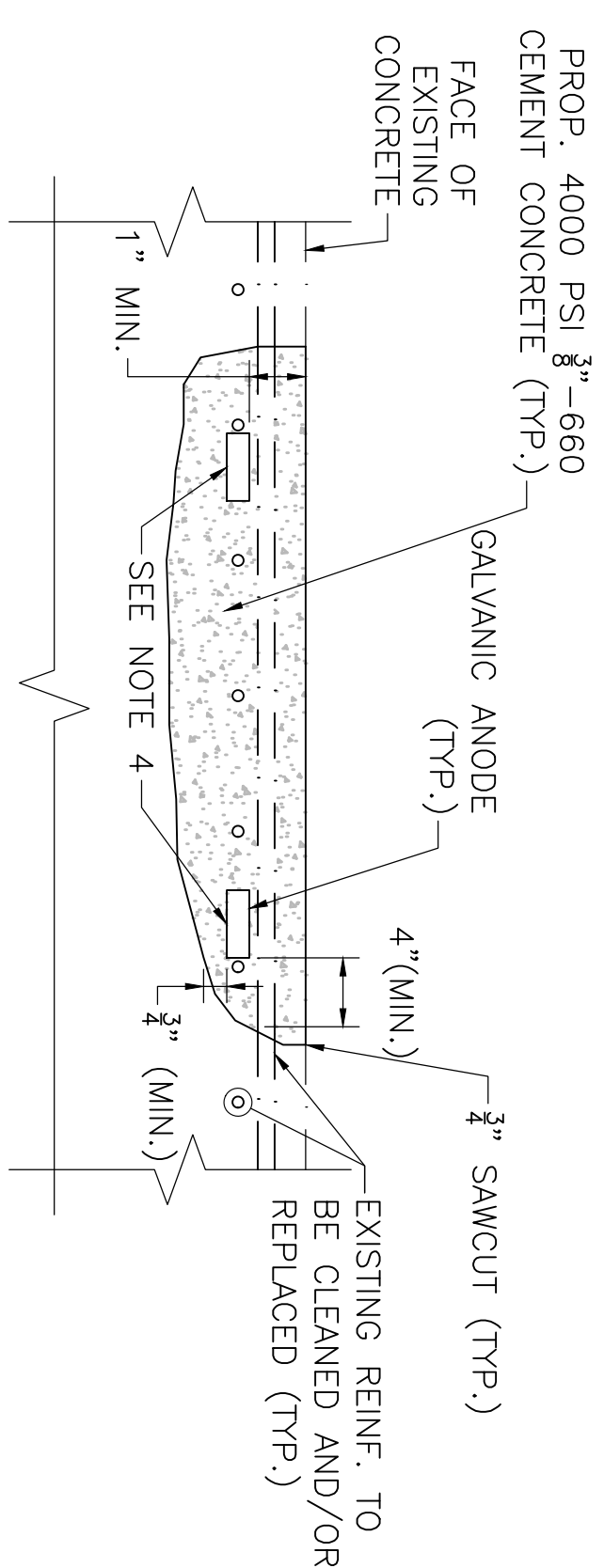
LEXINGTON			
WATERTOWN STREET OVER ST 2			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	6	6
PROJECT FILE NO.		613466	

GALVANIC ANODE INSTALLATION & PARTIAL DEPTH REPAIR DETAILS

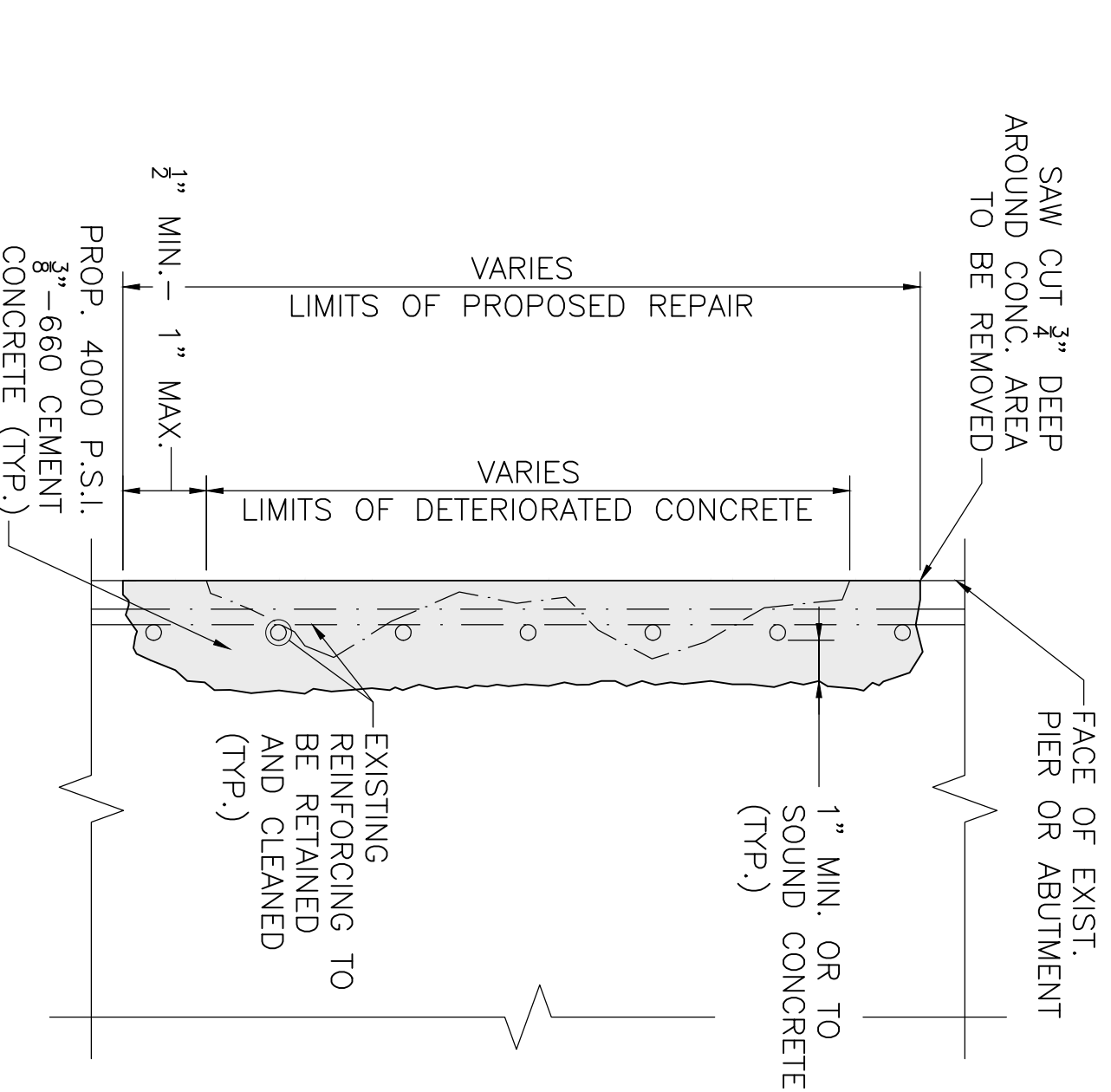


GALVANIC ANODE INSTALLATION DETAIL
NOT TO SCALE

- GALVANIC ANODE NOTES:**
1. REMOVE CONCRETE ACCORDING TO DRAWINGS AND CONTRACT SPECIFICATIONS.
 2. REPLACE, AND/OR CLEAN DAMAGED REINFORCING STEEL. ALL NEW REBAR SHALL BE UNCOATED BLACK STEEL WHEN GALVANIC ANODES ARE USED.
 3. ENSURE ALL EXPOSED REINFORCING STEEL IS SECURELY FASTENED TOGETHER WITH THE WIRE TO PROVIDE ELECTRICAL CONTINUITY.
 4. ATTACH GALVANIC ANODE TO CLEAN REINFORCING STEEL WITHIN THE REPAIR AREA AT SPACING DETERMINED BY ENGINEER AND ACCORDING TO MANUFACTURER'S SPECIFICATIONS. MINIMUM SPACING OF 3/4" BETWEEN ANODES AND EXISTING CONCRETE. A MINIMUM OF 4" EDGE DISTANCE FROM ANY CORNER AND/OR EDGE OF EXCAVATION, AND A MINIMUM OF 1" CONCRETE COVER SHALL BE PROVIDED.
 5. TEST THE ELECTRICAL CONTINUITY BETWEEN THE ANODE TIES AND THE REBAR AND BETWEEN THE REBARS ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.
 6. PLACE REPAIR CONCRETE ACCORDING TO DRAWINGS AND CONTRACT SPECIFICATIONS. WHEN GALVANIC ANODES ARE USED, THE REPAIR MATERIAL USED SHALL BE NON-HP CONCRETE AND APPROVED BY THE ENGINEER.



GALVANIC ANODE INSTALLATION SECTION
NOT TO SCALE



NOTE:
IF THERE IS LESS THAN 1 1/2" CONCRETE COVER, THEN THE CONTRACTOR SHALL BUILD OUT THE FORM TO ENSURE A MINIMUM OF 1 1/2" COVER.

PARTIAL DEPTH REPAIR
NOT TO SCALE

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USE ONLY PRINTS OF LATEST DATE	

DOCUMENT A00804

INSPECTION REPORTS

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STRUCTURES INSPECTION FIELD REPORT

ROUTINE & SPECIAL MEMBER INSPECTION

2-DIST
04

B.I.N.
2DN

BR. DEPT. NO.
A-10-012=B-07-003

CITY/TOWN ARLINGTON=BELMONT	8-STRUCTURE NO. A10012-2DN-DOT-NBI	11-Kilo. POINT 006.325	41-STATUS A:OPEN	90-ROUTINE INSP. DATE JAN 22, 2024
07-FACILITY CARRIED ST 60 PLEASANT ST	MEMORIAL NAME/LOCAL NAME	27-YR BUILT 1967	106-YR REBUILT 0000	YR REHAB'D (NON 106) 0000
06-FEATURES INTERSECTED ST 2	26-FUNCTIONAL CLASS Urban Arterial	DIST. BRIDGE INSPECTION ENGINEER J. Dideo		
43-STRUCTURE TYPE 302 : Steel Stringer/Girder	22-OWNER State Highway Agency	21-MAINTAINER State Highway Agency	TEAM LEADER P. Burke	
107-DECK TYPE 1 : Concrete Cast-in-Place	WEATHER Clear	TEMP. (air) 1°C	TEAM MEMBERS D. BORGELORME	

ITEM 58	6	
DECK		DEF
1. Wearing Surface	6	M-P
2. Deck Condition	6	M-P
3. Stay in Place Forms	N	-
4. Curbs	7	-
5. Median	5	S-A
6. Sidewalks	5	S-A
7. Parapets	N	-
8. Railing	6	M-P
9. Anti Missile Fence	N	-
10. Drainage System	N	-
11. Lighting Standards	N	-
12. Utilities	5	S-A
13. Deck Joints	3	S-A
14.	N	-
15.	N	-
16.	N	-
CURB REVEAL (In millimeters)	E 255	W 265

APPROACHES		DEF
a. Appr. Pavement Condition	7	M-P
b. Appr. Roadway Settlement	7	-
c. Appr. Sidewalk Settlement	5	M-A
d.	N	-

OVERHEAD SIGNS (Attached to bridge)	(Y/N)	Y
		DEF
a. Condition of Welds	7	-
b. Condition of Bolts	6	M-P
c. Condition of Signs	7	M-P

ITEM 59	5	
SUPERSTRUCTURE		DEF
1. Stringers	N	-
2. Floorbeams	N	-
3. Floor System Bracing	N	-
4. Girders or Beams	5	S-P
5. Trusses - General	N	-
a. Upper Chords	N	-
b. Lower Chords	N	-
c. Web Members	N	-
d. Lateral Bracing	N	-
e. Sway Bracings	N	-
f. Portals	N	-
g. End Posts	N	-
6. Pin & Hangers	N	-
7. Conn Plt's, Gussets & Angles	7	-
8. Cover Plates	6	M-P
9. Bearing Devices	6	M-P
10. Diaphragms/Cross Frames	5	S-P
11. Rivets & Bolts	7	-
12. Welds	8	-
13. Member Alignment	8	-
14. Paint/Coating	4	S-A
15.	N	-

Year Painted **1993**

COLLISION DAMAGE: Please explain
None (X) Minor () Moderate () Severe ()

LOAD DEFLECTION: Please explain
None () Minor (X) Moderate () Severe ()

LOAD VIBRATION: Please explain
None () Minor (X) Moderate () Severe ()

Any Fracture Critical Member: (Y/N) **N**

Any Cracks: (Y/N) **N**

ITEM 60	4		
SUBSTRUCTURE		DEF	
1. Abutments	Dive	Cur	5
a. Pedestals	N	N	-
b. Bridge Seats	N	5	M-A
c. Backwalls	N	5	S-A
d. Breastwalls	N	5	S-P
e. Wingwalls	N	7	M-P
f. Slope Paving/Rip-Rap	N	7	-
g. Pointing	N	N	-
h. Footings	N	H	-
i. Piles	N	N	-
j. Scour	N	N	-
k. Settlement	N	8	-
l.	N	N	-
m.	N	N	-
2. Piers or Bents			4
a. Pedestals	N	7	-
b. Caps	N	4	S-A
c. Columns	N	6	M-P
d. Stems/Webs/Pierwalls	N	N	-
e. Pointing	N	N	-
f. Footing	N	H	-
g. Piles	N	N	-
h. Scour	N	N	-
i. Settlement	N	8	-
j.	N	N	-
k.	N	N	-
3. Pile Bents			N
a. Pile Caps	N	N	-
b. Piles	N	N	-
c. Diagonal Bracing	N	N	-
d. Horizontal Bracing	N	N	-
e. Fasteners	N	N	-

UNDERMINING (Y/N) If YES please explain **N**

COLLISION DAMAGE:
None (X) Minor () Moderate () Severe ()

SCOUR: Please explain
None (X) Minor () Moderate () Severe ()

I-60 (Dive Report): **N** I-60 (This Report): **4**

93B-U/W (DIVE) Insp **00/00/0000**

X=UNKNOWN

N=NOT APPLICABLE H=HIDDEN/INACCESSIBLE

R=REMOVED

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2DN	BR. DEPT. NO. A-10-012=B-07-003	8.-STRUCTURE NO. A10012-2DN-DOT-NBI	INSPECTION DATE JAN 22, 2024
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ITEM 61 N

CHANNEL & CHANNEL PROTECTION

	Dive	Cur	DEF
1.Channel Scour	N	N	-
2.Embankment Erosion	N	N	-
3.Debris	N	N	-
4.Vegetation	N	N	-
5.Utilities	N	N	-
6.Rip-Rap/Slope Protection	N	N	-
7.Aggradation	N	N	-
8.Fender System	N	N	-

STREAM FLOW VELOCITY:
Tidal () High () Moderate () Low () None ()

ITEM 61 (Dive Report): N ITEM 61 (This Report): N

93b-U/W INSP. DATE: 00/00/0000

ITEM 36 TRAFFIC SAFETY

	36	COND	DEF
A. Bridge Railing	0	6	M-P
B. Transitions	0	7	-
C. Approach Guardrail	1	5	M-P
D. Approach Guardrail Ends	0	7	-

WEIGHT POSTING Not Applicable X

	H	3	3S2	Single
Actual Posting	N	N	N	N
Recommended Posting	N	N	N	N

Waived Date: 02/18/2005 EJDMT Date: 00/00/0000

At bridge		Other Advance	
N	S	N	S
/	/	/	/

Signs In Place (Y=Yes, N=No, NR=Not Required)
Legibility/Visibility

CLEARANCE POSTING Not X

	E		W		meter
	ft	in	ft	in	
Actual Field Measurement	14	8	16	1	4.47
Posted Clearance		0		0	

At bridge		Advance	
E	W	E	W
/	/	/	/

Signs In Place (Y=Yes, N=No, NR=Not Required)
Legibility/Visibility

ACCESSIBILITY (Y/N/P)

	Needed	Used
Lift Bucket	Y	Y
Ladder	N	N
Boat	N	N
Waders	N	N
Inspector 50	N	N
Rigging	N	N
Staging	N	N
Traffic Control	Y	Y
RR Flagger	N	N
Police	Y	Y
Other:		

TOTAL HOURS 32

PLANS (Y/N): Y

(V.C.R.) (Y/N): N

TAPE#: _____

List of field tests performed:

RATING

Rating Report (Y/N): Y

Date: 10/22/2004

Inspection data at time of existing rating
I 58: 7 I 59: 7 I 60: 5 Date :02/09/2004

Recommend for Rating or Rerating (Y/N): N

If YES please give priority:
HIGH () MEDIUM () LOW ()

REASON: _____

CONDITION RATING GUIDE (For Items 58, 59, 60 and 61)

CODE	CONDITION	DEFECTS
N	NOT APPLICABLE	
G 9	EXCELLENT	Excellent condition.
G 8	VERY GOOD	No problem noted.
G 7	GOOD	Some minor problems.
F 6	SATISFACTORY	Structural elements show some minor deterioration.
F 5	FAIR	All primary structural elements are sound but may have minor section loss, cracking, spalling or scour.
P 4	POOR	Advanced section loss, deterioration, spalling or scour.
P 3	SERIOUS	Loss of section, deterioration, spalling or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.
C 2	CRITICAL	Advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the bridge until corrective action is taken.
C 1	"IMMINENT" FAILURE	Major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective action may put it back in light service.
0	FAILED	Out of service - beyond corrective action.

DEFICIENCY REPORTING GUIDE

DEFICIENCY: A defect in a structure that requires corrective action.

CATEGORIES OF DEFICIENCIES:

M= Minor Deficiency Deficiencies which are minor in nature, generally do not impact the structural integrity of the bridge and could easily be repaired. Examples include but are not limited to: Spalled concrete, Minor pot holes, Minor corrosion of steel, Minor scouring, Clogged drainage, etc.

S= Severe/Major Deficiency Deficiencies which are more extensive in nature and need more planning and effort to repair. Examples include but are not limited to: Moderate to major deterioration in concrete, Exposed and corroded rebars, Considerable settlement, Considerable scouring or undermining, Moderate to extensive corrosion to structural steel with measurable loss of section, etc.

C-S= Critical Structural Deficiency A deficiency in a structural element of a bridge that poses an extreme unsafe condition due to the failure or imminent failure of the element which will affect the structural integrity of the bridge.

C-H= Critical Hazard Deficiency A deficiency in a component or element of a bridge that poses an extreme hazard or unsafe condition to the public, but does not impair the structural integrity of the bridge. Examples include but are not limited to: Loose concrete hanging down over traffic or pedestrians, A hole in a sidewalk that may cause injuries to pedestrians, Missing section of bridge railing, etc.

URGENCY OF REPAIR:

I = Immediate- [Inspector(s) immediately contact District Bridge Inspection Engineer (DBIE) to report the Deficiency and to receive further instruction from him/her].

A = ASAP- [Action/Repair should be initiated by District Maintenance Engineer or the Responsible Party (if not a State owned bridge) upon receipt of the Inspection Report].

P = Prioritize- [Shall be prioritized by District Maintenance Engineer or the Responsible Party (if not a State owned bridge) and repairs made when funds and/or manpower is available].

STRUCTURES INSPECTION FIELD REPORT

ROUTINE & SPECIAL MEMBER INSPECTION

2-DIST
04

B.I.N.
2DN

BR. DEPT. NO.
A-10-012=B-07-003

CITY/TOWN ARLINGTON=BELMONT	8-STRUCTURE NO. A10012-2DN-DOT-NBI	11-Kilo. POINT 006.325	90-ROUTINE INSP. DATE Jan 22, 2024	93*-SPEC. MEMB. INSP. DATE Jan 22, 2024
07-FACILITY CARRIED ST 60 PLEASANT ST		MEMORIAL NAME/LOCAL NAME	27-YR BUILT 1967	106-YR REBUILT 0000
06-FEATURES INTERSECTED ST 2		26-FUNCTIONAL CLASS Urban Arterial	DIST. BRIDGE INSPECTION ENGINEER J. Dideo	
43-STRUCTURE TYPE 302 : Steel Stringer/Girder		22-OWNER State Highway Agency	21-MAINTAINER State Highway Agency	TEAM LEADER P. Burke
107-DECK TYPE 1 : Concrete Cast-in-Place		WEATHER Clear	TEMP. (air) 1°C	TEAM MEMBERS D. BORGELORME

WEIGHT POSTING	<i>Not Applicable</i> <input checked="" type="checkbox"/>	At bridge	Advance	PLANS (Y/N): <input type="checkbox"/> Y
Actual Posting	H <input type="checkbox"/> 3 <input type="checkbox"/> 3S2 <input type="checkbox"/> Single <input type="checkbox"/>	N <input type="checkbox"/> S <input type="checkbox"/>	N <input type="checkbox"/> S <input type="checkbox"/>	(V.C.R.) (Y/N): <input type="checkbox"/> N
Recommended Posting	N <input type="checkbox"/> N <input type="checkbox"/> N <input type="checkbox"/> N <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	TAPE#: _____
Waived Date:	02/18/2005	EJDMT Date:	00/00/0000	

RATING

Rating Report (Y/N): **Y** Date: **10/22/2004** Recommend for Rating or Rerating (Y/N): **N** If YES please give priority: HIGH () MEDIUM () LOW ()

Inspection data at time of existing rating
I 58: 7 I 59: 7 I 60: 5 I 62: - Date :02/09/2004

REASON: _____

SPECIAL MEMBER(S):

	MEMBER	CRACK (Y/N):	WELD'S CONDITION (0-9)	LOCATION OF CORROSION, SECTION LOSS (%), CRACKS, COLLISION DAMAGE, STRESS CONCENTRATION, ETC.	CONDITION		INV. RATING OF MEMBER FROM RATING ANALYSIS			Deficiencies
					PREVIOUS (0-9)	PRESENT (0-9)	H-20	3	3S2	
A	Item 60.2.b - Caps	N		See remarks in comments section.	4	4	Not Rated			S-A
B										
C										
D										
E										

List of field tests performed: _____

	I-58	I-59	I-60	I-62
(Overall Previous Condition)	6	5	4	-
(Overall Current Condition)	6	5	4	-

DEFICIENCY: A defect in a structure that requires corrective action.

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C-S= Critical Structural Deficiency A deficiency in a structural element of a bridge that poses an extreme unsafe condition due to the failure or imminent failure of the element which will affect the structural integrity of the bridge.

C-H= Critical Hazard Deficiency A deficiency in a component or element of a bridge that poses an extreme hazard or unsafe condition to the public, but does not impair the structural integrity of the bridge. Examples include but are not limited to: Loose concrete hanging down over traffic or pedestrians, A hole in a sidewalk that may cause injuries to pedestrians, Missing section of bridge railing, etc.

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P = Prioritize- [Shall be prioritized by District Maintenance Engineer or the Responsible Party (if not a State owned bridge) and repairs made when funds and/or manpower is available].

X=UNKNOWN N=NOT APPLICABLE H=HIDDEN/INACCESSIBLE R=REMOVED

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2DN	BR. DEPT. NO. A-10-012=B-07-003	8.-STRUCTURE NO. A10012-2DN-DOT-NBI	INSPECTION DATE JAN 22, 2024
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REMARKS

BRIDGE ORIENTATION

Bridge No. A-10-012=B-07-003 (2DN) carries State Route 60 (Pleasant Street) over State Route 2. According to the plans, the two simple spans are numbered from south to north and the abutments are labeled "A" and "B" from south to north. For this report, abutments will be labeled South and North. The thirteen beams in each span are numbered from west to the east; 101 to 113 in Span 1 and 201 to 213 in Span 2. The six columns are numbered from west to east **(Sketch 1)**.

GENERAL REMARKS

Vertical Clearance: The minimum vertical under clearance under Span #1, Eastbound, was taken below Beam 101 between the left center and right center lanes and measured at 14' - 8". The minimum vertical under clearance under Span #2, Westbound, was taken below Beam 201 between the left center and right center lanes and measured at 16' - 1". **(Sketch 1)**.

ITEM 58 - DECK

Item 58.1 - Wearing Surface

In the southbound roadway, in both spans, along the west curb line, there is minor transverse and map cracking **(Photo 1)**.

At the northwest corner of Span 1, there is a 2' diameter bituminous concrete patch.

In both spans, along both curbs near the pier joint, there are 6' diameter areas of minor to moderate map cracking and minor breakup.

There is minor to moderate wheel rutting throughout, heaviest at the south end of the southbound roadway and at the north end of the northbound roadway.

Item 58.2 - Deck Condition

The underside of the deck has random hairline transverse and map cracking throughout (some with light efflorescence).

Span 1:

- In Bay 9 at the pier, there is an 8" in diameter x 3" deep spall.
- In Bay 10 at the pier, there is a 6" long x 10" wide x 3" deep spall.
- In Bay 11 at the pier, there is an 18" long x 1' wide x 3" deep spall with exposed rusted rebar **(Photo 2)**.

Span 2:

- In Bay 6, there are areas of hairline map cracking and water staining throughout.
- In Bay 7 at the pier, there is a 10" long x 8" wide x 3" deep spall.
- In Bay 8, there is a small area of minor honeycombing at the north end over the second interior diaphragm from the North Abutment.
- In Bay 11 at the pier, there is a 10" long x 1' wide x 3" deep spall.

Item 58.4 - Curbs

Both granite curbs have very minor chips and scrapes throughout.

Item 58.5 - Median

The median is mostly covered in snow and ice limiting accessibility **(Photo 3)**.

The concrete median has numerous areas of minor to moderate spalling and scaling throughout.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2DN	BR. DEPT. NO. A-10-012=B-07-003	8.-STRUCTURE NO. A10012-2DN-DOT-NBI	INSPECTION DATE JAN 22, 2024
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REMARKS

The steel edging has heavy surface rust throughout, with random small areas of 100% section loss along the bottom.

At the south end of Span 1, there is a 15" wide x up to 12" long spall that is filled with frozen debris. The previous inspection noted that this spall was up to full depth.

At 6' from the south deck joint, there is a 3' long missing section of steel edging on the east face (**Photo 4**).

At the south end of Span 2, there is a 1' long missing section of steel edging on the west face.

Near the north end of Span 2, there is a 15' long x up to full width area of severe spalling and scaling that is filled with frozen debris.

Item 58.6 - Sidewalks

Both sidewalks are covered by snow and ice limiting accessibility (**Photo 5**).

The east sidewalk, on the outside face above the pier, has 4' long area of minor delamination cracking and rust staining (**Photo 6**).

Item 58.8 - Railing

All of the anchor bolts and nuts have moderate surface rust.

The west railing, near the north end, has two areas of minor damage and the chainlink fence is pushed out (**Photos 7 and 8**).

The west railing has a few minor scrapes and dents throughout.

Item 58.12 - Utilities

In Span 1, Bay 1, the first utility support bracket has 100% section loss, leaving the conduits and utility pipe unsupported (**Photo 9**).

In Span 1, Bay 1, the utility pipe is not seated properly over random utility brackets throughout the southern half of the span (**Photo 10**).

In both spans, the utility support brackets adjacent to the pier in Bays 1 and 12 have moderate to heavy laminar rust. In span 1, Bay 1 the southern-most bracket has 3" long area of 100% section loss (**Photo 11**).

In Span 2, Bay 12, there is a severely corroded utility box with exposed wires, located 7' from the pier.

In Span 2, Bay 12, the steel conduit has severe laminar rust and 100% section loss at the backwall (**Photo 12**).

In Span 2, Bay 12, the support for the western-most utility pipe has severe laminar rust.

Item 58.13 - Deck Joints

All joints show evidence of leakage onto the superstructure and substructure elements below.

South Abutment Joint:

- In the southbound and northbound lanes, the headers have been repaired but there is no joint seal (**Photos 13 and 14**).

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2DN	BR. DEPT. NO. A-10-012=B-07-003	8.-STRUCTURE NO. A10012-2DN-DOT-NBI	INSPECTION DATE JAN 22, 2024
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REMARKS

Pier Joint:

- In the southbound and northbound lanes, the headers have been repaired. There appears to be no joint seal and the foam backer material is covered with debris **(Photo 15)**.

North Abutment Joint:

- The joint seal has numerous areas of cracking and tears throughout. The concrete headers have numerous areas of minor cracking and spalling throughout **(Photo 16)**.

APPROACHES

Approaches a - Appr. Pavement Condition

The north approach roadway has 1/16" wide transverse crack about 10' from the deck joint.

Approaches c - Appr. Sidewalk Settlement

The northeast approach sidewalk is settled up to 1".

The southwest approach sidewalk is settled up to 1-1/2" **(Photo 17)**.

The southeast approach sidewalk has up to 1" of settlement with an asphalt leveling patch at the bridge joint.

OVERHEAD SIGNS

Overhead Signs b - Condition of Bolts

There are two signs attached to the west sidewalk fascia above ST-2 eastbound (above the left two lanes and the right two lanes. There is one sign attached to the east sidewalk fascia above ST-2 westbound (above the right lane).

Above the ST-2 westbound right lane, the upper south connection has an up to 1/8" gap between the anchor plate and sidewalk fascia **(Photo 18)**.

Above the ST-2 eastbound right lanes, the three upper connections have up to 1/8" gaps between the anchor plate and sidewalk fascia **(Photo 19)**.

Overhead Signs c - Condition of Signs

Above the eastbound right travel lane, the sign has minor separation of the south edging from the sign panel near mid-height **(Photo 20)**.

ITEM 59 - SUPERSTRUCTURE

Item 59.4 - Girders or Beams

Span 1, Beam 101, above the center left travel lane, the bottom flange and cover plate is bowed down up to 1/4".

Most beam ends have peeling paint and light to moderate rust, with random locations of minor laminar rust to the bottom of the web.

Beams 102 and 202, at the pier, have full height section loss to the web behind the diaphragm connection plates, with as little as 0.50" remaining (original thickness = 0.760"). This section loss extends out 18" long x 7" high beyond the diaphragm connection plate **(Photo 21)**.

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REMARKS

Beam 206 at the pier, has a 2' long x 6" high area of section loss to the bottom of the web, with as little as 0.44" remaining at the end (original thickness = 0.80"). The bottom 3" of the web behind the bearing appears to be bent slightly out of plumb **(Photo 22)**.

Beams 112 and 212, at the pier, have 18" long x full height section loss to the web, with as little as 0.25" remaining to the bottom at the end (original thickness = 0.760"). In front of the bearings, there is section loss to the bottom of the web, 4' long x 6" high, with up to 1/4" loss **(Photos 23 and 24)**.

Item 59.8 - Cover Plates

See Item 59.4 - Girders or Beams.

Item 59.9 - Bearing Devices

Most abutment bearings have areas of minor to moderate laminar rust **(Photo 25)**.

Most pier bearings have moderate laminar rust, heaviest to the bearings below the sidewalks.

Several of the expansion bearings at both abutments are covered with dirt and concrete debris.

Item 59.10 - Diaphragms/Cross Frames

Numerous concrete end diaphragms at the pier and both abutments have moderate to severe delamination cracking and spalling with exposed rusted rebar **(Photo 26)**.

Item 59.14 - Paint/Coating

The superstructure paint system is faded with many areas of peeling, heaviest at the pier and throughout the bottom flanges **(Photo 27)**. See Item 59.4 - Girders or Beams.

SuperStructure Load Deflection Notes

There is minor deflection under heavy loads.

SuperStructure Load Vibration Notes

There is minor vibration under heavy loads.

ITEM 60 - SUBSTRUCTURE

Item 60.1 - Abutments

Item 60.1.b - Bridge Seats

Both bridge seats have a moderate to heavy accumulation of dirt and concrete debris, heaviest on the south seat **(Photo 28)**. Also see Item 60.1.d - Breastwalls.

Item 60.1.c - Backwalls

South Backwall:

- Bay 1 has a 3' wide x 1' high x 12" deep area of deteriorated and missing bricks around the utility pipe **(Photo 29)**.
- Bays 2 - 4 have minor spalling with exposed rusted rebar.
- Bay 12 has a 4' wide x 2-1/2' high x 14" deep area of deteriorated and missing bricks around the west utility pipe, exposing gravel fill **(Photo 30)**.

North Backwall:

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2DN	BR. DEPT. NO. A-10-012=B-07-003	8.-STRUCTURE NO. A10012-2DN-DOT-NBI	INSPECTION DATE JAN 22, 2024
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REMARKS

- Bay 7, there is a 8" wide x 14" high x up to 2" deep spall with exposed rusted rebar and an adjacent delaminated area **(Photo 31)**.
- Behind Beam 209, there is a 4' wide x full height x up to 2" deep area of delamination and spalling with exposed rusted rebar.
- Bay 12 has 1' high x 1' wide x 6" deep areas of deteriorated brick, above and below the west utility pipe.

Item 60.1.d - Breastwalls

South Breastwall:

- Below Beam 102, near the top, there is a 8" long x 2" high x 1" deep spall with exposed rusted rebar.
- Below Bay 3, at the top, there is a 5' long x 8" high area of delamination with an adjacent 20" long x 8" high x 3" deep spall with rust staining **(Photo 32)**
- Below Bay 5, near Beam 105, there is a full height x 1/16" vertical crack.
- Below Bays 10 and 11, at the top, there is a 10' long x 8" high area of delamination.
- Below Bay 11, at the top, there is a 5' long x 1' high x 6" deep spall with exposed rusted rebar that extends up to 2' into the bridge seat **(Photo 33)**.

North Breastwall:

- At the west end, there is an up to 16" long x 28" high x 3" deep spall with exposed rusted rebar **(Photo 34)**.
- Below Bay 2 at the top, there is a 52" long x 8" high area of delamination with rust staining.
- Below Bay 3, at the top, there is a 3' long x 8" high area of delamination with an adjacent 20" long x 8" high x 2-1/2" deep spall.
- Below Bay 9, at the top, there is a 3' long x 8" high area of delamination.
- Below Beam 11, there is a full height x 1/16" wide vertical crack.
- Below Bays 11 and 12, there is a 12' long x 9' high area of delamination with an adjacent 8' long x 5' high x 2" deep spall with exposed rusted rebar **(Photo 35)**.
- Below Bay 12, at the top, there is a 3' long x 10" high x 4" deep spall with exposed rusted rebar.

Item 60.1.e - Wingwalls

The northeast wingwall has a 1/16" wide crack with efflorescence and water staining that extends down from the back of the bridge seat **(Photo 36)**.

Item 60.2 - Piers or Bents

Item 60.2.b - Caps

Both faces of the pier cap have scattered hairline cracking with efflorescence and rust staining
There is moderate to heavy construction debris on top of the cap in all bays.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2DN	BR. DEPT. NO. A-10-012=B-07-003	8.-STRUCTURE NO. A10012-2DN-DOT-NBI	INSPECTION DATE JAN 22, 2024
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REMARKS

The underside, between Columns 1 and 2 has minor 1/2" deep spalling/scaling, several transverse hairline cracks, and minor rust staining.

The underside, between Columns 2 and 3, has several transverse hairline cracks and minor rust staining, with a 3' long x 18" wide area of delamination (**Photo 37**).

The underside, between Columns 3 and 4, along the north edge has a 7' long x up to 18" wide x 5" deep spall with delamination to the old concrete repair (**Photo 38**).

The underside between Columns 4 and 5, is delaminated with rust staining throughout. There is also full length intermittent spalling, up to 2' wide x 3" deep with exposed rusted rebar (**Photo 39**).

The underside between Columns 5 and 6, has full length x up to full width x up to 5" deep spalling with exposed rusted rebar and 100% section loss to two stirrups. The exposed longitudinal rebar are embedded in solid concrete have less the 10% section loss. (**Photos 40 and 41**). This spall extends on the bottom of the north face; 5' long x 10" high x 4" deep. (**Photo 42**).

The south face below Bay 12, there is a 14" long x 6" high x 3" deep spall at the top that extends in to the top face by up to 1'. (**Photo 43**).

The underside of the east overhang has a 5' long x full width x up to 3" deep spall with exposed rusted rebar (**Photo 44**).

The east end of the south face has a 4' long x up to 1/16" diagonal crack that extends up from Column 6 (**Photo 45**).

The east end of the north face has a 3' long hairline diagonal crack that extends up from Column 6 (**Photo 46**).

Item 60.2.c - Columns

All columns have random vertical hairline cracks and random patches.

Column 6, on the top west face, has a 4' high x 3' wide area of moderate delamination cracking and rust staining (**Photo 47**).

TRAFFIC SAFETY

Item 36a - Bridge Railing

The bridge railing is Type AL-3 (does not meet current MassDOT standards). See Item 58.8 - Railing.

Item 36b - Transitions

All four transitions consist of w-beam guardrail with 3' post spacing (non-standard).

Item 36c - Approach Guardrail

All four approaches have w-beam guardrail.

The northeast approach guardrail has a rusted and broken weld (**Photo 48**).

Item 36d - Approach Guardrail Ends

The southeast and southwest approach guardrail ends have boxing glove ends that are non-standard. The northwest and northeast approach guardrails continue well beyond the limits of the bridge.

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REMARKS

Sketch / Photo Log

- Sketch 1 : Framing Plan.
- Photo 1 : Wearing surface with map cracking along the west curb.
- Photo 2 : Spall to the deck at the north end of Bay 11 in Span 1.
- Photo 3 : Median covered in snow and ice.
- Photo 4 : Median in Span 1 with missing curb section near the south end.
- Photo 5 : Both sidewalks are covered in snow and ice.
- Photo 6 : Delamination cracking to the outside face of the east sidewalk above the pier.
- Photo 7 : Minor damage to the west rail at the north end.
- Photo 8 : Minor damage to the west rail near the north end.
- Photo 9 : 100% section loss to the south utility support bracket in Bay 1 of Span 1.
- Photo 10 : Typical area where the utility pipe is not seated properly in Bay 1 of Span 1.
- Photo 11 : Severe laminar rust and section loss to the southern-most utility support in Bay 1 of Span 2 at the pier.
- Photo 12 : Severe laminar rust and section loss to the steel conduit in Bay 12 of Span 2 at the backwall.
- Photo 13 : South abutment joint in the southbound lanes with displace filler martial.
- Photo 14 : South Abutment joint in the northbound lanes.
- Photo 15 : Pier joint in the southbound lanes.
- Photo 16 : North Abutment joint in the southbound lanes.
- Photo 17 : Southwest approach sidewalk settlement.
- Photo 18 : ST-2 westbound overhead sign - Gap between the upper south connection and the sidewalk fascia.
- Photo 19 : ST-2 eastbound overhead sign - Gap between the upper north connection and the sidewalk fascia.
- Photo 20 : ST-2 eastbound overhead sign - Separation of the south edging near mid-height.
- Photo 21 : Beams 102 and 202 at the pier, east face, with rusting and section loss.
- Photo 22 : Beam 206 at the pier with rusting, section loss and slight bent to the bottom of the web.
- Photo 23 : Beams 112 and 212 at the pier, west face, with rusting and section loss.
- Photo 24 : Beam 212 at the pier with rusting and section loss.
- Photo 25 : Typical rusting to the abutment bearings with moderate laminar rust.
- Photo 26 : Typical spalling with exposed rebar to the concrete end diaphragms.
- Photo 27 : Typical paint peeling to the beams.
- Photo 28 : Typical debris on the South Abutment bridge seat.
- Photo 29 : South Backwall in Bay 1 with deteriorated and missing bricks.
- Photo 30 : South Backwall in Bay 12 with deteriorated and missing bricks.
- Photo 31 : North Backwall behind in Bay 7 with spall and adjacent delamination.
- Photo 32 : South breastwall with spall and exposed rebar along the top.
- Photo 33 : South Breastwall below Bay 11 with spall and exposed rusted rebar.
- Photo 34 : North Breastwall at the west end with spall and exposed rusted rebar.
- Photo 35 : North Breastwall under Bays 11 and 12 with spalling, exposed rebar, and delaminations.
- Photo 36 : Northeast wingwall with vertical crack.
- Photo 37 : Pier Cap underside between columns 2 and 3 with cracking, rust staining, and delamination.
- Photo 38 : Pier cap underside, north edge, between Columns 3 and 4 with spall, exposed rebar and delamination to the old repair.
- Photo 39 : Pier cap underside between Columns 4 and 5 with spall and exposed rusted rebar.
- Photo 40 : Pier cap underside between Columns 5 and 6 with spall and exposed rebar.
- Photo 41 : Pier cap underside between Columns 5 and 6 with 100% section loss to two stirrups.
- Photo 42 : North face, between columns 5 and 6 with spall along the bottom.
- Photo 43 : Pier cap, south face, below Bay 12 with spall along the top.
- Photo 44 : Pier cap underside at the east end with spall and exposed rebar.
- Photo 45 : Pier cap, south face, east end with diagonal crack.

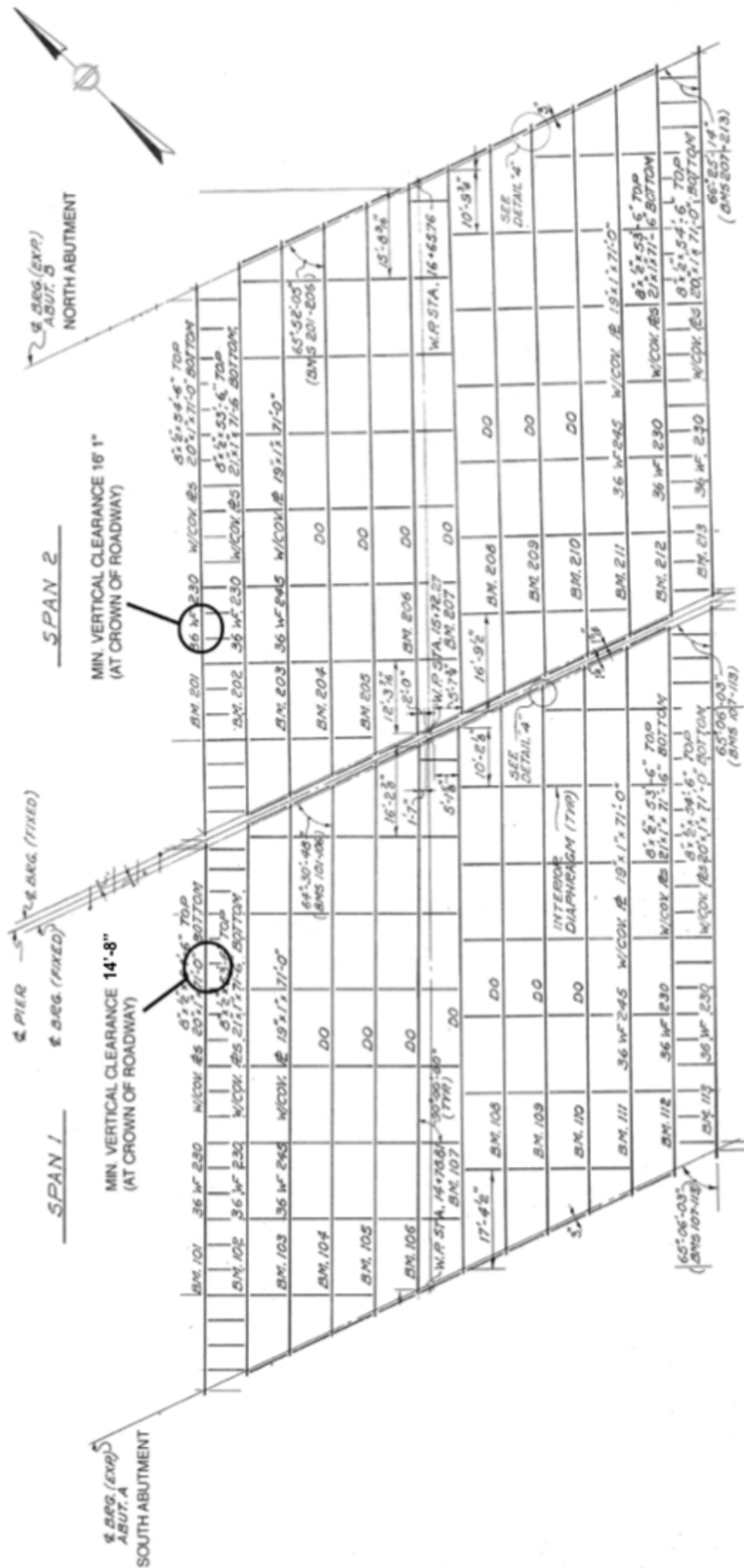
CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2DN	BR. DEPT. NO. A-10-012=B-07-003	8.-STRUCTURE NO. A10012-2DN-DOT-NBI	INSPECTION DATE JAN 22, 2024
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REMARKS

- Photo 46 : Pier cap, north face, east end with diagonal crack.
- Photo 47 : Top west face of Column 6 with delamination and vertical cracking.
- Photo 48 : Northeast approach guardrail with broken weld.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2DN	BR. DEPT. NO. A-10-012-B-07-003	8-STRUCTURE NO. A10012-2DN-DOT-NBI	INSPECTION DATE JAN 22, 2024
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SKETCHES



Sketch 1: Framing Plan.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2DN	BR. DEPT. NO. A-10-012=B-07-003	8.-STRUCTURE NO. A10012-2DN-DOT-NBI	INSPECTION DATE JAN 22, 2024
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PHOTOS



Photo 1: Wearing surface with map cracking along the west curb.



Photo 2: Spall to the deck at the north end of Bay 11 in Span 1.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2DN	BR. DEPT. NO. A-10-012=B-07-003	8.-STRUCTURE NO. A10012-2DN-DOT-NBI	INSPECTION DATE JAN 22, 2024
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PHOTOS



Photo 3: Median covered in snow and ice.



Photo 4: Median in Span 1 with missing curb section near the south end.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2DN	BR. DEPT. NO. A-10-012=B-07-003	8.-STRUCTURE NO. A10012-2DN-DOT-NBI	INSPECTION DATE JAN 22, 2024
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PHOTOS



Photo 5: Both sidewalks are covered in snow and ice.



Photo 6: Delamination cracking to the outside face of the east sidewalk above the pier.

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PHOTOS



Photo 7: Minor damage to the west rail at the north end.



Photo 8: Minor damage to the west rail near the north end.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2DN	BR. DEPT. NO. A-10-012=B-07-003	8.-STRUCTURE NO. A10012-2DN-DOT-NBI	INSPECTION DATE JAN 22, 2024
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PHOTOS



Photo 9: 100% section loss to the south utility support bracket in Bay 1 of Span 1.



Photo 10: Typical area where the utility pipe is not seated properly in Bay 1 of Span 1.

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PHOTOS



Photo 11: Severe laminar rust and section loss to the southern-most utility support in Bay 1 of Span 2 at the pier.



Photo 12: Severe laminar rust and section loss to the steel conduit in Bay 12 of Span 2 at the backwall.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2DN	BR. DEPT. NO. A-10-012=B-07-003	8.-STRUCTURE NO. A10012-2DN-DOT-NBI	INSPECTION DATE JAN 22, 2024
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PHOTOS



Photo 13: South abutment joint in the southbound lanes with displace filler martial.



Photo 14: South Abutment joint in the northbound lanes.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2DN	BR. DEPT. NO. A-10-012=B-07-003	8.-STRUCTURE NO. A10012-2DN-DOT-NBI	INSPECTION DATE JAN 22, 2024
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PHOTOS



Photo 15: Pier joint in the southbound lanes.



Photo 16: North Abutment joint in the southbound lanes.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2DN	BR. DEPT. NO. A-10-012=B-07-003	8.-STRUCTURE NO. A10012-2DN-DOT-NBI	INSPECTION DATE JAN 22, 2024
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PHOTOS



Photo 17: Southwest approach sidewalk settlement.



Photo 18: ST-2 westbound overhead sign - Gap between the upper south connection and the sidewalk fascia.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2DN	BR. DEPT. NO. A-10-012=B-07-003	8.-STRUCTURE NO. A10012-2DN-DOT-NBI	INSPECTION DATE JAN 22, 2024
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PHOTOS



Photo 19: ST-2 eastbound overhead sign - Gap between the upper north connection and the sidewalk fascia.



Photo 20: ST-2 eastbound overhead sign - Separation of the south edging near mid-height.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2DN	BR. DEPT. NO. A-10-012=B-07-003	8.-STRUCTURE NO. A10012-2DN-DOT-NBI	INSPECTION DATE JAN 22, 2024
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PHOTOS



Photo 21: Beams 102 and 202 at the pier, east face, with rusting and section loss.



Photo 22: Beam 206 at the pier with rusting, section loss and slight bent to the bottom of the web.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2DN	BR. DEPT. NO. A-10-012=B-07-003	8.-STRUCTURE NO. A10012-2DN-DOT-NBI	INSPECTION DATE JAN 22, 2024
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PHOTOS



Photo 23: Beams 112 and 212 at the pier, west face, with rusting and section loss.



Photo 24: Beam 212 at the pier with rusting and section loss.

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PHOTOS



Photo 25: Typical rusting to the abutment bearings with moderate laminar rust.



Photo 26: Typical spalling with exposed rebar to the concrete end diaphragms.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2DN	BR. DEPT. NO. A-10-012=B-07-003	8.-STRUCTURE NO. A10012-2DN-DOT-NBI	INSPECTION DATE JAN 22, 2024
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PHOTOS



Photo 27: Typical paint peeling to the beams.



Photo 28: Typical debris on the South Abutment bridge seat.

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PHOTOS



Photo 29: South Backwall in Bay 1 with deteriorated and missing bricks.



Photo 30: South Backwall in Bay 12 with deteriorated and missing bricks.

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PHOTOS



Photo 31: North Backwall behind in Bay 7 with spall and adjacent delamination.



Photo 32: South breastwall with spall and exposed rebar along the top.

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PHOTOS



Photo 33: South Breastwall below Bay 11 with spall and exposed rusted rebar.



Photo 34: North Breastwall at the west end with spall and exposed rusted rebar.

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PHOTOS



Photo 35: North Breastwall under Bays 11 and 12 with spalling, exposed rebar, and delaminations.



Photo 36: Northeast wingwall with vertical crack.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2DN	BR. DEPT. NO. A-10-012=B-07-003	8.-STRUCTURE NO. A10012-2DN-DOT-NBI	INSPECTION DATE JAN 22, 2024
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PHOTOS



Photo 37: Pier Cap underside between columns 2 and 3 with cracking, rust staining, and delamination.



Photo 38: Pier cap underside, north edge, between Columns 3 and 4 with spall, exposed rebar and delamination to the old repair.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2DN	BR. DEPT. NO. A-10-012=B-07-003	8.-STRUCTURE NO. A10012-2DN-DOT-NBI	INSPECTION DATE JAN 22, 2024
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PHOTOS



Photo 39: Pier cap underside between Columns 4 and 5 with spall and exposed rusted rebar.



Photo 40: Pier cap underside between Columns 5 and 6 with spall and exposed rebar.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2DN	BR. DEPT. NO. A-10-012=B-07-003	8.-STRUCTURE NO. A10012-2DN-DOT-NBI	INSPECTION DATE JAN 22, 2024
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PHOTOS



Photo 41: Pier cap underside between Columns 5 and 6 with 100% section loss to two stirrups.



Photo 42: North face, between columns 5 and 6 with spall along the bottom.

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PHOTOS



Photo 43: Pier cap, south face, below Bay 12 with spall along the top.



Photo 44: Pier cap underside at the east end with spall and exposed rebar.

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PHOTOS



Photo 45: Pier cap, south face, east end with diagonal crack.



Photo 46: Pier cap, north face, east end with diagonal crack.

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PHOTOS



Photo 47: Top west face of Column 6 with delamination and vertical cracking.



Photo 48: Northeast approach guardrail with broken weld.

National Bridge Element Inspection

BDEPT# **A-10-012**

Date **01/22/2024**

B.I.N. **2DN**

District Bridge Inspection Eng'r **Joseph Dideo**

Item 8 **A10012-2DN-DOT-NBI**

Inspecting Agency **Mass. Highway Dept.**

Span Group **1**

Team Leader **Patrick Burke**

Town **Arlington**

Team **Davidson Borgelorme**

District **4**

Member(s)

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
12	Re Concrete Deck	sq feet	2	17,900.000	<input type="checkbox"/> %	17,875.000	25.000		
Notes :									
> 1080	<i>Delamination/Spall/Patched Area</i>	sq feet	2	5.000	<input type="checkbox"/> %		5.000		
Notes :									
> 1120	<i>Efflorescence/Rust Staining</i>	sq feet	2	20.000	<input type="checkbox"/> %		20.000		
Notes :									
> 510	<i>Wearing Surfaces</i>	sq feet	2	15,000.000	<input type="checkbox"/> %	14,975.000	25.000		
Notes :									
> > 3210	<i>Del/Spall/Patch/Pot(Wear Surf)</i>	sq feet	2	25.000	<input type="checkbox"/> %		25.000		
Notes :									
> > 3220	<i>Crack (Wearing Surface)</i>	sq feet	2	10.000	<input type="checkbox"/> %	10.000			
Notes :									
107	Steel Opn Girder/Beam	feet	2	2,184.000	<input type="checkbox"/> %	1,639.000	545.000		
Notes :									
> 1000	<i>Corrosion</i>	feet	2	545.000	<input type="checkbox"/> %		545.000		
Notes :									
> 515	<i>Steel Protective Coating</i>	sq feet	2	32,760.000	<input type="checkbox"/> %	24,660.000	8,100.000		
Notes :									
> > 3410	<i>Chalk(Steel Protect Coatings)</i>	sq feet	2	5,500.000	<input type="checkbox"/> %		5,500.000		
Notes :									
> > 3420	<i>Peel/Bub/Crack(Stl Protect Coat)</i>	sq feet	2	2,600.000	<input type="checkbox"/> %		2,600.000		
Notes :									
107	Steel Opn Girder/Beam	feet	3	260.000	<input type="checkbox"/> %		255.000	5.000	
Notes :									

National Bridge Element Inspection

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B.I.N. **2DN**

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Item 8 **A10012-2DN-DOT-NBI**

Inspecting Agency **Mass. Highway Dept.**

Span Group **1**

Team Leader **Patrick Burke**

Town **Arlington**

Team **Davidson Borgelorme**

District **4**

Member(s)

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
> 1000	<i>Corrosion</i>	feet	3	260.000	<input type="checkbox"/> %		255.000	5.000	
Notes :									
> 515	Steel Protective Coating	sq feet	3	3,900.000	<input type="checkbox"/> %		3,825.000	75.000	
Notes :									
> > 3410	<i>Chalk(Steel Protect Coatings)</i>	sq feet	3	3,450.000	<input type="checkbox"/> %		3,450.000		
Notes :									
> > 3420	<i>Peel/Bub/Crack(Stl Protect Coat)</i>	sq feet	3	450.000	<input type="checkbox"/> %		375.000	75.000	
Notes :									
205	Re Conc Column	each	2	6	<input type="checkbox"/> %		3	3	
Notes :									
> 1080	<i>Delamination/Spall/Patched Area</i>	each	2	1	<input type="checkbox"/> %		1		
Notes :									
> 1130	<i>Cracking (RC and Other)</i>	each	2	5	<input type="checkbox"/> %		2	3	
Notes :									
215	Re Conc Abutment	feet	3	201.000	<input type="checkbox"/> %	131.000	66.000	4.000	
Notes :									
> 1080	<i>Delamination/Spall/Patched Area</i>	feet	3	25.000	<input type="checkbox"/> %		21.000	4.000	
Notes :									
> 1130	<i>Cracking (RC and Other)</i>	feet	3	45.000	<input type="checkbox"/> %		45.000		
Notes :									
234	Re Conc Pier Cap	feet	3	101.500	<input type="checkbox"/> %	31.500	40.000	30.000	
Notes :									
> 1080	<i>Delamination/Spall/Patched Area</i>	feet	3	35.000	<input type="checkbox"/> %		15.000	20.000	
Notes :									

National Bridge Element Inspection

BDEPT# **A-10-012**

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B.I.N. **2DN**

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Item 8 **A10012-2DN-DOT-NBI**

Inspecting Agency **Mass. Highway Dept.**

Span Group **1**

Team Leader **Patrick Burke**

Town **Arlington**

Team **Davidson Borgelorme**

District **4**

Member(s)

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
> 1090	<i>Exposed Rebar</i>	feet	3	35.000	<input type="checkbox"/> %		25.000	10.000	
Notes :									
> 1130	<i>Cracking (RC and Other)</i>	feet	3	10.000	<input type="checkbox"/> %	10.000			
Notes :									
302	Compressn Joint Seal	feet	3	258.500	<input type="checkbox"/> %				258.500
Notes :									
> 2310	<i>Leakage</i>	feet	3	129.250	<input type="checkbox"/> %				129.250
Notes :									
> 2330	<i>Seal Damage</i>	feet	3	129.250	<input type="checkbox"/> %				129.250
Notes :									
311	Moveable Bearing	each	3	26	<input type="checkbox"/> %	17	9		
Notes :									
> 1000	<i>Corrosion</i>	each	3	6	<input type="checkbox"/> %		6		
Notes :									
> 2210	<i>Movement</i>	each	3	20	<input type="checkbox"/> %	17	3		
Notes :									
> 515	<i>Steel Protective Coating</i>	sq feet	3	52.000	<input type="checkbox"/> %	47.000	5.000		
Notes :									
> > 3420	<i>Peel/Bub/Crack(Stl Protect Coat)</i>	sq feet	3	5.000	<input type="checkbox"/> %		5.000		
Notes :									
313	Fixed Bearing	each	3	26	<input type="checkbox"/> %	12	14		
Notes :									
> 1000	<i>Corrosion</i>	each	3	14	<input type="checkbox"/> %		14		
Notes :									

National Bridge Element Inspection

BDEPT# **A-10-012**

Date **01/22/2024**

B.I.N. **2DN**

District Bridge Inspection Eng'r **Joseph Dideo**

Item 8 **A10012-2DN-DOT-NBI**

Inspecting Agency **Mass. Highway Dept.**

Span Group **1**

Team Leader **Patrick Burke**

Town **Arlington**

Team **Davidson Borgelorme**

District **4**

Member(s)

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
> 515	Steel Protective Coating	sq feet	3	52.000	<input type="checkbox"/> %	52.000			
Notes :									
321	Re Conc Approach Slab	sq feet	2	2,403.000	<input type="checkbox"/> %	2,403.000			
Notes :									
> 510	Wearing Surfaces	sq feet	2	2,403.000	<input type="checkbox"/> %	2,013.000	325.000	65.000	
Notes :									
> > 3210	<i>Del/Spall/Patch/Pot(Wear Surf)</i>	sq feet	2	40.000	<input type="checkbox"/> %		5.000	35.000	
Notes :									
> > 3220	<i>Crack (Wearing Surface)</i>	sq feet	2	125.000	<input type="checkbox"/> %		95.000	30.000	
Notes :									
> > 3230	<i>Effectiveness (Wearing Surface)</i>	sq feet	2	225.000	<input type="checkbox"/> %		225.000		
Notes :									
330	Metal Bridge Railing	feet	2	488.000	<input type="checkbox"/> %	444.000	42.000	2.000	
Notes :									
> 1020	<i>Connection</i>	feet	2	4.000	<input type="checkbox"/> %		2.000	2.000	
Notes :									
> 1900	<i>Distortion</i>	feet	2	40.000	<input type="checkbox"/> %		40.000		
Notes :									

STRUCTURES INSPECTION FIELD REPORT

ROUTINE & SPECIAL MEMBER INSPECTION

2-DIST
04

B.I.N.
2KA

BR. DEPT. NO.
L-10-020

CITY/TOWN LEXINGTON	8-STRUCTURE NO. L10020-2KA-DOT-NBI	11-Kilo. POINT 215.099	41-STATUS A:OPEN	90-ROUTINE INSP. DATE JAN 3, 2024
07-FACILITY CARRIED HWY WATERTOWN ST	MEMORIAL NAME/LOCAL NAME	27-YR BUILT 1967	106-YR REBUILT 0000	YR REHAB'D (NON 106) 0000
06-FEATURES INTERSECTED ST 2	26-FUNCTIONAL CLASS Urban Minor Arterial	DIST. BRIDGE INSPECTION ENGINEER J. Dideo		
43-STRUCTURE TYPE 302 : Steel Stringer/Girder	22-OWNER State Highway Agency	21-MAINTAINER State Highway Agency	TEAM LEADER O. Moustafa	
107-DECK TYPE 1 : Concrete Cast-in-Place	WEATHER CLEAR	TEMP. (air) 0°C	TEAM MEMBERS B. RAJBHANDARI, N. A. BERGERON	

ITEM 58	5	
DECK		DEF
1. Wearing Surface	7	M-P
2. Deck Condition	5	S-A
3. Stay in Place Forms	N	-
4. Curbs	6	M-P
5. Median	N	-
6. Sidewalks	5	M-P
7. Parapets	N	-
8. Railing	6	M-P
9. Anti Missile Fence	N	-
10. Drainage System	N	-
11. Lighting Standards	N	-
12. Utilities	7	-
13. Deck Joints	7	M-P
14. Timber Shielding	7	-
15. Deck Weeps	4	S-A
16.	N	-
CURB REVEAL (In millimeters)	E 270	W 228

APPROACHES		DEF
a. Appr. Pavement Condition	8	-
b. Appr. Roadway Settlement	8	-
c. Appr. Sidewalk and settlement	6	M-P
d.	N	-

OVERHEAD SIGNS (Attached to bridge)	(Y/N)	Y
		DEF
a. Condition of Welds	7	-
b. Condition of Bolts	7	-
c. Condition of Signs	7	-

ITEM 59	5	
SUPERSTRUCTURE		DEF
1. Stringers	N	-
2. Floorbeams	N	-
3. Floor System Bracing	N	-
4. Girders or Beams	5	S-P
5. Trusses - General	N	-
a. Upper Chords	N	-
b. Lower Chords	N	-
c. Web Members	N	-
d. Lateral Bracing	N	-
e. Sway Bracings	N	-
f. Portals	N	-
g. End Posts	N	-
6. Pin & Hangers	N	-
7. Conn Plt's, Gussets & Angles	7	-
8. Cover Plates	N	-
9. Bearing Devices	6	S-P
10. Diaphragms/Cross Frames	6	M-P
11. Rivets & Bolts	7	-
12. Welds	6	M-P
13. Member Alignment	7	-
14. Paint/Coating	5	S-P
15.	N	-

Year Painted **1994**

COLLISION DAMAGE: Please explain
None () Minor (X) Moderate () Severe ()

LOAD DEFLECTION: Please explain
None () Minor (X) Moderate () Severe ()

LOAD VIBRATION: Please explain
None () Minor () Moderate (X) Severe ()

Any Fracture Critical Member: (Y/N) **N**

Any Cracks: (Y/N) **N**

ITEM 60	4			
SUBSTRUCTURE		DEF		
1. Abutments	Dive	Cur	6	
a. Pedestals	N	N		-
b. Bridge Seats	N	5		S-P
c. Backwalls	N	6		M-P
d. Breastwalls	N	5		S-P
e. Wingwalls	N	6		M-P
f. Slope Paving/Rip-Rap	N	6		M-P
g. Pointing	N	N		-
h. Footings	N	H		-
i. Piles	N	N		-
j. Scour	N	N		-
k. Settlement	N	7		-
l.	N	N		-
m.	N	N		-
2. Piers or Bents			4	
a. Pedestals	N	7		-
b. Caps	N	4		S-A
c. Columns	N	4		S-A
d. Stems/Webs/Pierwalls	N	N		-
e. Pointing	N	N		-
f. Footing	N	H		-
g. Piles	N	N		-
h. Scour	N	N		-
i. Settlement	N	7		-
j.	N	N		-
k.	N	N		-
3. Pile Bents			N	
a. Pile Caps	N	N		-
b. Piles	N	N		-
c. Diagonal Bracing	N	N		-
d. Horizontal Bracing	N	N		-
e. Fasteners	N	N		-

UNDERMINING (Y/N) If YES please explain **N**

COLLISION DAMAGE:
None (X) Minor () Moderate () Severe ()

SCOUR: Please explain
None (X) Minor () Moderate () Severe ()

I-60 (Dive Report): **N** I-60 (This Report): **4**

93B-U/W (DIVE) Insp **00/00/0000**

X=UNKNOWN

N=NOT APPLICABLE H=HIDDEN/INACCESSIBLE

R=REMOVED

CITY/TOWN LEXINGTON	B.I.N. 2KA	BR. DEPT. NO. L-10-020	8.-STRUCTURE NO. L10020-2KA-DOT-NBI	INSPECTION DATE JAN 3, 2024
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ITEM 61 N

CHANNEL & CHANNEL PROTECTION

	Dive	Cur	DEF
1.Channel Scour	N	N	-
2.Embankment Erosion	N	N	-
3.Debris	N	N	-
4.Vegetation	N	N	-
5.Utilities	N	N	-
6.Rip-Rap/Slope Protection	N	N	-
7.Aggradation	N	N	-
8.Fender System	N	N	-

STREAM FLOW VELOCITY:
Tidal () High () Moderate () Low () None (X)

ITEM 61 (Dive Report): N ITEM 61 (This Report): N

93b-U/W INSP. DATE: 00/00/0000

ITEM 36 TRAFFIC SAFETY

	36	COND	DEF
A. Bridge Railing	0	6	M-P
B. Transitions	0	7	-
C. Approach Guardrail	0	5	S-P
D. Approach Guardrail Ends	0	5	M-P

WEIGHT POSTING X *Not Applicable*

	H	3	3S2	Single
Actual Posting	N	N	N	N
Recommended Posting	N	N	N	N

Waived Date: 04/04/2018 EJDMT Date: 00/00/0000

At bridge		Other Advance	
N	S	N	S
/	/	/	/

Signs In Place (Y=Yes, N=No, NR=Not Required)
Legibility/Visibility

CLEARANCE POSTING

Not	E		W		meter
	ft	in	ft	in	
Actual Field Measurement	15	6	14	5	4.39
Posted Clearance	14	4	14	3	

At bridge		Advance	
E	W	E	W
Y	Y	NR	NR
7	7	/	/

Signs In Place (Y=Yes, N=No, NR=Not Required)
Legibility/Visibility

ACCESSIBILITY (Y/N/P)

	Needed	Used
Lift Bucket	Y	Y
Ladder	Y	Y
Boat	N	N
Waders	N	N
Inspector 50	N	N
Rigging	N	N
Staging	N	N
Traffic Control	Y	Y
RR Flagger	N	N
Police	Y	Y
Other:		

TOTAL HOURS 24

PLANS (Y/N): Y

(V.C.R.) (Y/N): N

TAPE#: _____

List of field tests performed:
Hands-On and Visual Inspection

RATING

Rating Report (Y/N): Y

Date: 03/01/2018

Inspection data at time of existing rating
I 58: 5 I 59: 4 I 60: 4 Date :01/24/2018

Recommend for Rating or Rerating (Y/N): N

If YES please give priority:
HIGH () MEDIUM () LOW ()

REASON: _____

CONDITION RATING GUIDE (For Items 58, 59, 60 and 61)

CODE	CONDITION	DEFECTS
N	NOT APPLICABLE	
G 9	EXCELLENT	Excellent condition.
G 8	VERY GOOD	No problem noted.
G 7	GOOD	Some minor problems.
F 6	SATISFACTORY	Structural elements show some minor deterioration.
F 5	FAIR	All primary structural elements are sound but may have minor section loss, cracking, spalling or scour.
P 4	POOR	Advanced section loss, deterioration, spalling or scour.
P 3	SERIOUS	Loss of section, deterioration, spalling or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.
C 2	CRITICAL	Advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the bridge until corrective action is taken.
C 1	"IMMINENT" FAILURE	Major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective action may put it back in light service.
0	FAILED	Out of service - beyond corrective action.

DEFICIENCY REPORTING GUIDE

DEFICIENCY: A defect in a structure that requires corrective action.

CATEGORIES OF DEFICIENCIES:

M= Minor Deficiency Deficiencies which are minor in nature, generally do not impact the structural integrity of the bridge and could easily be repaired. Examples include but are not limited to: Spalled concrete, Minor pot holes, Minor corrosion of steel, Minor scouring, Clogged drainage, etc.

S= Severe/Major Deficiency Deficiencies which are more extensive in nature and need more planning and effort to repair. Examples include but are not limited to: Moderate to major deterioration in concrete, Exposed and corroded rebars, Considerable settlement, Considerable scouring or undermining, Moderate to extensive corrosion to structural steel with measurable loss of section, etc.

C-S= Critical Structural Deficiency A deficiency in a structural element of a bridge that poses an extreme unsafe condition due to the failure or imminent failure of the element which will affect the structural integrity of the bridge.

C-H= Critical Hazard Deficiency A deficiency in a component or element of a bridge that poses an extreme hazard or unsafe condition to the public, but does not impair the structural integrity of the bridge. Examples include but are not limited to: Loose concrete hanging down over traffic or pedestrians, A hole in a sidewalk that may cause injuries to pedestrians, Missing section of bridge railing, etc.

URGENCY OF REPAIR:

I = Immediate- [Inspector(s) immediately contact District Bridge Inspection Engineer (DBIE) to report the Deficiency and to receive further instruction from him/her].

A = ASAP- [Action/Repair should be initiated by District Maintenance Engineer or the Responsible Party (if not a State owned bridge) upon receipt of the Inspection Report].

P = Prioritize- [Shall be prioritized by District Maintenance Engineer or the Responsible Party (if not a State owned bridge) and repairs made when funds and/or manpower is available].

STRUCTURES INSPECTION FIELD REPORT

ROUTINE & SPECIAL MEMBER INSPECTION

2-DIST 04	B.I.N. 2KA
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BR. DEPT. NO. L-10-020

CITY/TOWN LEXINGTON	8.-STRUCTURE NO. L10020-2KA-DOT-NBI	11-Kilo. POINT 215.099	90-ROUTINE INSP. DATE Jan 3, 2024	93*-SPEC. MEMB. INSP. DATE Jan 3, 2024
07-FACILITY CARRIED HWY WATERTOWN ST		MEMORIAL NAME/LOCAL NAME		27-YR BUILT 1967
06-FEATURES INTERSECTED ST 2		26-FUNCTIONAL CLASS Urban Minor Arterial		106-YR REBUILT 0000
43-STRUCTURE TYPE 302 : Steel Stringer/Girder		22-OWNER State Highway Agency	21-MAINTAINER State Highway Agency	*YR REHAB'D (NON 106) 0000
107-DECK TYPE 1 : Concrete Cast-in-Place		WEATHER CLEAR	TEMP. (air) 0°C	DIST. BRIDGE INSPECTION ENGINEER J. Dideo
TEAM LEADER O. Moustafa				
TEAM MEMBERS B. RAJBHANDARI, N. A. BERGERON				

WEIGHT POSTING	Not Applicable <input checked="" type="checkbox"/> X H 3 3S2 Single Actual Posting <input type="checkbox"/> N <input type="checkbox"/> N <input type="checkbox"/> N <input type="checkbox"/> N Recommended Posting <input type="checkbox"/> N <input type="checkbox"/> N <input type="checkbox"/> N <input type="checkbox"/> N Waived Date: <input type="text" value="04/04/2018"/> EJDMT Date: <input type="text" value="00/00/0000"/>	Signs In Place (Y=Yes, N=No, NR=Not Required) Legibility/Visibility At bridge: <table border="1" style="display: inline-table; margin-right: 10px;"><tr><td>N</td><td>S</td></tr><tr><td style="text-align: center;">/</td><td style="text-align: center;">/</td></tr></table> Advance: <table border="1" style="display: inline-table;"><tr><td>N</td><td>S</td></tr><tr><td style="text-align: center;">/</td><td style="text-align: center;">/</td></tr></table>	N	S	/	/	N	S	/	/	PLANS (Y/N): <input type="text" value="Y"/> (V.C.R.) (Y/N): <input type="text" value="N"/> TAPE#: _____
N	S										
/	/										
N	S										
/	/										

RATING	Rating Report (Y/N): <input type="text" value="Y"/> Date: <input type="text" value="03/01/2018"/>	Recommend for Rating or Rerating (Y/N): <input type="text" value="N"/>	If YES please give priority: HIGH () MEDIUM () LOW ()
Inspection data at time of existing rating I 58: 5 I 59: 4 I 60: 4 I 62: - Date :01/24/2018 REASON: <div style="border: 1px solid black; height: 20px; width: 100%;"></div>			

SPECIAL MEMBER(S):										
	MEMBER	CRACK (Y/N):	WELD'S CONDITION (0-9)	LOCATION OF CORROSION, SECTION LOSS (%), CRACKS, COLLISION DAMAGE, STRESS CONCENTRATION, ETC.	CONDITION		INV. RATING OF MEMBER FROM RATING ANALYSIS			Deficiencies
					PREVIOUS (0-9)	PRESENT (0-9)	H-20	3	3S2	
A	Item 60.2.b - Caps	N		See remarks in comments section.	4	4	Not Rated			S-A
B	Item 60.2.c - Columns	N		See remarks in comments section.	4	4	Not Rated			S-A
C										
D										
E										

List of field tests performed: Hands-On and Visual Inspection	<table style="width: 100%; text-align: center;"> <tr> <td style="width: 25%;"></td> <td style="width: 12.5%;">I-58</td> <td style="width: 12.5%;">I-59</td> <td style="width: 12.5%;">I-60</td> <td style="width: 12.5%;">I-62</td> </tr> <tr> <td>(Overall Previous Condition)</td> <td style="border: 1px solid black; padding: 5px;">5</td> <td style="border: 1px solid black; padding: 5px;">5</td> <td style="border: 1px solid black; padding: 5px;">4</td> <td style="border: 1px solid black; padding: 5px;">-</td> </tr> <tr> <td>(Overall Current Condition)</td> <td style="border: 1px solid black; padding: 5px;">5</td> <td style="border: 1px solid black; padding: 5px;">5</td> <td style="border: 1px solid black; padding: 5px;">4</td> <td style="border: 1px solid black; padding: 5px;">-</td> </tr> </table>		I-58	I-59	I-60	I-62	(Overall Previous Condition)	5	5	4	-	(Overall Current Condition)	5	5	4	-
	I-58	I-59	I-60	I-62												
(Overall Previous Condition)	5	5	4	-												
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X=UNKNOWN
N=NOT APPLICABLE
H=HIDDEN/INACCESSIBLE
R=REMOVED

CITY/TOWN LEXINGTON	B.I.N. 2KA	BR. DEPT. NO. L-10-020	8.-STRUCTURE NO. L10020-2KA-DOT-NBI	INSPECTION DATE JAN 3, 2024
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REMARKS

BRIDGE ORIENTATION

Bridge No. L-10-020 (2KA) carries Watertown Street over State Route 2 in Lexington, Massachusetts. The orientation and numbering system used in this report follows the design plan convention. The bridge is oriented in the North-South direction. The two (2) spans are numbered from North to South. In Span 1, the girders are numbered 1-7 from East to West. In Span 2, girders are numbered 8-14 from East to West. The abutments are labeled North and South. The pier columns are numbered from East to West. **See Sketch 1.**

GENERAL REMARKS

Bridge Structure:

The superstructure consists of two (2) simple spans with seven (7) welded built-up steel plate girders that support an 8" thick composite reinforced concrete deck. The substructure consists of two (2) concrete gravity abutments and one (1) concrete pier bent with four (4) circular columns.

Vertical Clearance:

The minimum vertical under clearance for Span 1 (Route 2, Westbound) was taken below Girder 1, at the right curb, and measured 14'-5". The minimum vertical under clearance for Span 2 (Route 2, Eastbound) was taken below Girder 8, at the left curb, at 15'-6".

ITEM 58 - DECK

Item 58.1 - Wearing Surface

The bituminous concrete wearing surface exhibits several random cracks (many sealed) in the roadway lanes and along the deck joints (**see Photo 1**).

There is a full depth deck repair (20' long x 7' wide) in Span 2 of the southbound lane (**see Photo 2**) and (full span length x 4' wide) in Span 1 of the southbound lane (**see Photo 3**)

Item 58.2 - Deck Condition

The underside of deck shows few scattered hairline transverse cracks with efflorescence, several spalls and areas of delamination. The overhangs typically exhibit hairline transverse cracking with light efflorescence throughout (**see Photo 4**).

Specific deficiencies are as follows:

Span 1:

East overhang:

- Minor spall around the north end weep-hole (**see Photo 5**).

Bay 1:

- Utility bay, there is a spall at the northwest bay end.
 - There is an area of spalling and delamination at the pier joint, full width x up to 2.5' long x full depth, with exposed and rusted rebar (**see Photo 6**).

Bay 2:

- There is metal screening between diaphragms 3 - 6 (**see Photo 7**).
 - At cross frame 4, there is a large spall, 9' long x 3' wide x 4" deep, with exposed rebar.
 - At cross frame 6, there is an area of moderate spalling and delamination, up to 7' long x 3.5' wide x up to 3" deep, with exposed reinforcing (**see Photo 8**).

Bay 3:

- Between cross frames 1 and 2, 9" diameter x 1" deep spall with exposed reinforcing.

CITY/TOWN LEXINGTON	B.I.N. 2KA	BR. DEPT. NO. L-10-020	8.-STRUCTURE NO. L10020-2KA-DOT-NBI	INSPECTION DATE JAN 3, 2024
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REMARKS

- Between cross frames 1 and 2, 2' long hollow haunch along Girder 3 and a 5' long hollow haunch along Girder 4.

Bay 4:

- Areas of moderate map cracking with minor dampness and efflorescence.

Bay 5:

- Between cross frames 1 and 2, 7' long hollow haunch along Girder 6.
- Between cross frames 3 and 4, 2' long x 1' wide x 2" deep haunch spall along Girder 6 (**see Photo 9**).

Bay 6:

- Between cross frames 5 and 7 - Hairline map cracking with water and rust stains with minor scaling.

West overhang:

- 1' wide x 6" long x 4" deep spall at the north end.

Span 2:

Bay 7:

- There is a timber shielding at the pier over the left travel lane (**see Photo 10**).
- Partial depth concrete repair at south and north ends of the span. At the south end there is adjacent spalling with exposed reinforcing.

Bay 8:

- Areas of cracking and minor delamination along the longitudinal construction joint.

Bay 9:

- Between cross frames 5 and 6, two spalls, 1' diameter x 1" deep and 18" wide x 2" long x up to 1" deep with exposed reinforcing. There are full bay width transverse hairline cracks with efflorescence between first and second cross frames.

Bay 10:

- Between cross frames 5 and 6, 1.5' wide x 1' long x 3" deep spall with exposed rebar.
- Between cross frames 4 and 5, 2 haunch spalls, up to 1' long x 3" wide x 3" deep.

Bay 11:

- Full depth, full span concrete deck repair and two haunch spalls near girder G13 and G12, up to 1' long x 3" deep x 3" wide and adjacent hairline map cracking with light efflorescence (**see Photo 11**).

Bay 12:

- There is a haunch spalling adjacent to girder G14 top flange between diaphragms 1 and 2, up to 6" long x full height x full width.
- Between the Pier and the 1st cross frame, there are two haunch spalls at girder G14 flange, up to 1' long x full height x full width.
- There is an area of hairline map cracking with light efflorescence near south abutment.

West overhang:

- 2' long x 8" high x up to 12" deep spall with exposed rebar at the pier (**see Photo 12**).

CITY/TOWN LEXINGTON	B.I.N. 2KA	BR. DEPT. NO. L-10-020	8.-STRUCTURE NO. L10020-2KA-DOT-NBI	INSPECTION DATE JAN 3, 2024
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REMARKS

Item 58.4 - Curbs

The west granite curb exhibits minor chipping along its edge.

The east granite curb at the pier deck joint is displaced and shifted 3" towards the roadway (**see Photo 13**).

Item 58.6 - Sidewalks

The east sidewalk and west safetywalk exhibit large areas of severe scaling/spalling behind the granite curb up to 6" wide (**see Photo 14**).

There is a small concrete repair area in the east sidewalk at the pier joint, 3' long x 14" wide (**see Photo 13**).

The west fascia of the safetywalk shows an area of spalling, 4' long x 4" high x up to 3" deep near the north abutment and scattered areas of hairline map cracking (**see Photo 15**).

Item 58.8 - Railing

The AL-3 bridge rail shows rusted anchor bolts and a few missing anchor bolt nuts.

The missing bolts at the east railing are at post #12 (from south) in span 2, post #23 over the pier, post #24, post #28, post #31 and post #40 (**see Photo 16**).

At the west safetywalk, one of the bolts at post #10 from the pier in span 1 is under-threaded (**see Photo 17**).

The bridge railing exhibits few small dents/tears at the top rail in several locations (**see Photo 18**).

The safety fence along the west bridge rail shows an area of disconnection (gap) near the south end (**see Photo 19**).

The east and west bridge railing show heavy vegetation growth at the south and north ends.

Item 58.13 - Deck Joints

All deck joints at both abutments and over the pier have been repaired since last inspection (**see Photo 20**).

The west end of the south abutment deck joint exhibits up to 3' long x 1/4" transverse crack/separation (**see Photo 21**).

Item 58.14 - Timber Shielding

- There is metal screening between diaphragms 3 - 6 in span 1, bay 2 (**see Photo 7**).

-There is a timber shielding at the pier over the left travel lane in span 2, bay 7 (**see Photo 10**).

Item 58.15 - Deck Weeps

The deck weep holes at the northeast corner are frozen and clogged. They are also not extended below the beams bottom flanges (**see Photo 5**).

APPROACHES

Approaches a - Appr. Pavement Condition

Both approach roadway wearing surface has been repaved since last inspection (**see Photo 22**).

CITY/TOWN LEXINGTON	B.I.N. 2KA	BR. DEPT. NO. L-10-020	8.-STRUCTURE NO. L10020-2KA-DOT-NBI	INSPECTION DATE JAN 3, 2024
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REMARKS

Approaches c - Appr. Sidewalk and settlement

The southwest approach curb exhibits settlement and horizontal misalignment, up to 3" x 30' long (**see Photo 23**).

The northeast approach sidewalk shows displaced curb sections at the bridge, several longitudinal and transverse cracks, up to full width x 1/8" wide, areas of settlement up to 3" deep throughout (**see Photo 24**).

There is a diagonal crack in the northeast concrete approach sidewalk, 3.5' long x 1/8" wide (**see Photo 25**).

ITEM 59 - SUPERSTRUCTURE

Item 59.4 - Girders or Beams

The steel girders show chalky peeling paint with moderate to heavy rusting (**see Photo 26**).

There are several areas of web repair and impact damage to several girders. Specific deficiencies are as follows:

Span 1:

Girder 1:

-There is minor impact damage to the bottom flange and web at mid-span over the 2nd right lane with minor lateral misalignment of girder stiffeners and there is small gap between the stiffener bottom edge and the lower flange (**see Photos 27 & 28**).

-There are repair plates to the lower web and bearing stiffeners at the north abutment bearing that show heavy rusting with minor steel delamination (**see Photos 29 & 30**).

Girder 5:

-There is minor impact damage to the bottom flange at mid-span with minor bent of girder stiffener (**see Photo 31**).

Girder 6:

-There is minor impact damage to the bottom flange at mid-span with minor dent to the bottom flange and repair angle (**see Photo 32**).

-On the east face, the 1st web stiffener south of cross frame 3 is bent at the bottom.

Girder 7:

-There is minor collision scrapes to the bottom flange at mid-span.

Span 2:

Girder 8:

-There is heavy rusting to the lower web at the pier with a 1" wide x 2" high hole above the bearing and a 1" diameter hole 2.75' from the end of the girder. There is a 1" diameter hole just south of the web stiffener at the bearing (**see Photo 33**).

-The west face of the girder at the pier is covered by timber shielding and the previously noted deficiency (3' long x 2.5' high x 1/8" deep section loss and the bearing stiffeners at the west side show 100% section loss at the bottom) could not be verified (**see Photo 34**).

CITY/TOWN LEXINGTON	B.I.N. 2KA	BR. DEPT. NO. L-10-020	8.-STRUCTURE NO. L10020-2KA-DOT-NBI	INSPECTION DATE JAN 3, 2024
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REMARKS

-The girder end at the south abutment exhibits area of minor section loss to the west face of the web. The west leg of the bottom flange exhibits heavy lamination with 3/16" section loss over a length of 7' (**see Photo 35**).

Girder 14, at the pier:

-There are repair plates on both sides of the lower web and bearing stiffeners that exhibit heavy rusting (**see Photo 36**).

Item 59.9 - Bearing Devices

The majority of the bearings at the abutments and pier exhibit typical moderate rusting. The exterior bearings exhibit heavy rusting (**see Photos 29, 30, 33, 36 & 37**). There is debris behind the bearings at the pier (**see Photos 36 & 37**).

Item 59.10 - Diaphragms/Cross Frames

Span 1, bay 6 diaphragm encasement at the pier exhibits up to full length delamination with rust stains and an 18" long x up to full width x up to 1.5" deep spall with exposed rebar (**see Photo 38**).

Span 2, bay 12 at the south abutment, next to girder G14, the bottom of the diaphragm encasement exhibits several longitudinal hairline cracks with efflorescence.

The steel cross frames show areas of peeling paint with heavy rusting, especially to the bottom horizontal members (**see Photo 38**).

Item 59.12 - Welds

Span 1, Girders 1, 5 and 6 have longitudinal welds along the web and bottom flange at the repair angle. Girder 5 and 6 welds have minor surface rusting.

Item 59.14 - Paint/Coating

The paint system is faded and chalky with areas of peeling paint throughout (**see Photos 26, 32, 35, and 38**).

SuperStructure Collision Notes

There is varying degrees of impact damage to the bottom flanges of Girders 1, 5, 6, and 7 in Span 1. See item 59.4.

SuperStructure Load Deflection Notes

There is minor deflection of the girders under heavy live loads.

SuperStructure Load Vibration Notes

There is minor to moderate vibration of the girders under heavy live loads.

ITEM 60 - SUBSTRUCTURE

Item 60.1 - Abutments

Item 60.1.b - Bridge Seats

There is a severe scaling/spalling with exposed, de-bonded and rusted rebar at the west end of the north bridge seat, full width, extending to Girder 7 (**see Photo 39**).

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REMARKS

Item 60.1.c - Backwalls

The backwalls show a few scattered hairline vertical cracks, scaling, spalls, and rust staining throughout. Specific deficiencies are noted as follows:

North Backwall:

- East end at the top, there is a 1' high x 6" wide x up to 10" deep spall (**see Photo 40**).
- Bays 3 & 4: Minor separation along the horizontal cold joint at the bottom of the backwall.
- Bay 4: Full height vertical crack with efflorescence.
- Bay 6: heavy efflorescence throughout.
- West End: There is a spall, full height x 3.5' wide x 8" deep with exposed rebar (**see Photo 41**).

South Backwall:

- Bay 8: Minor spalling along the horizontal construction joint at the bottom of the backwall.
- Bay 10: Minor spalling along the horizontal construction joint at the bottom of the backwall.
- Bay 12: Spall, behind Girder 14 - full height x up to 1.0' wide x 5" deep (**see Photo 42**).

Item 60.1.d - Breastwalls

Both abutments exhibit several narrow to medium random horizontal and vertical cracks at the top of the breastwall along the bridge seat with areas of rust staining throughout.

Specific deficiencies are as follows:

North Breastwall:

- Bay 1: the top of the wall exhibits 15" wide x 12" high x up to 1" deep spall with exposed rusted rebar and adjacent delamination area (**see Photo 43**).
- Random horizontal and vertical cracks with rust staining at the top of the wall under bay 3, girder 4, and bay 6.
- West end: shows a severe area of scaling/spalling with exposed reinforcing throughout the west face, full width x full height x up to 8" deep (**see Photo 39**).

South Breastwall:

- Bay 8, there is a 1' wide x 1' high x 2" deep spall with delaminated area and adjacent cracking up to 1/16" wide at the top.
- Bay 9, there is a 3' long horizontal hairline crack with rust staining at the top.
- Bays 10 & 11: there is a full bay length horizontal hairline crack at the top with rust staining.
- North face at the west end, Bay 12: there is a spall with exposed rusted rebar at the top measuring 2' wide x 1' high x up to 5" deep, an adjacent full bay length horizontal crack x 1/16" wide and a full height vertical crack x 1/8" wide with efflorescence and delamination area at the bottom (**see Photo 44**).
- West end: 2' long x 3' high x 3" deep spall with exposed and rusted rebar (**see Photo 44**).

Item 60.1.e - Wingwalls

The northwest and northeast wingwalls show minor areas of cracking with efflorescence and rust staining.

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REMARKS

The northeast wingwall shows a few narrow cracks with efflorescence at the abutment and a long narrow diagonal crack up to 1/8" wide extending from the bridge seat/backwall area (**see Photo 45**).

There is heavy vegetation along northwest and southeast wingwall.

Item 60.1.f - Slope Paving/Rip-Rap

The south stone slope protection shows 2.5" wide separation from the abutment breastwall (**see Photo 46**) and a longitudinal crack through the pointing (**see Photo 47**)

The south slope has minor vegetation accumulation at both west and east end.

The north stone slope protection shows scattered areas of slight settlement and/or heaving with areas of minor vegetation growth, especially outside of the bridge face.

Item 60.2 - Piers or Bents

Item 60.2.b - Caps

The pier cap has areas of moderate cracking, delamination, hollow sounds, and spalling throughout all faces, with rust and efflorescence. There is active leakage onto the cap throughout under the pier joint.

Specific deficiencies are as follows:

South Face:

-At the west end, there is a 7' long x 1/4" wide horizontal crack at the top under girder G14 and a full height vertical hairline crack with rust staining and light efflorescence (**see Photo 48**).

-Starting between Columns C3 & C4 and ending at the west end, there is spalling along the bottom edge extending into the bottom face, 8' long x 1.5' high x up to 4" deep with exposed and rusted rebar (**see Photo 49**).

-Above column 3 at the bottom, there is a 2' long x 1/8" wide crack with efflorescence and rust staining.

-Between Columns C1 & C2, there is spalling along the bottom edge extending into the bottom face, 9' long x 1' high x up to 5" deep with exposed and rusted through rebar (**see Photo 50**) and there is a horizontal crack at the top column C1 up to 3' long x 1/16" wide with rust staining.

Bottom Face:

-Between Columns C1 & C2, there is sever spalling with exposed and broken rebar, 8' long x full width x up to 5" deep (50% section remaining on exposed rebar) (**see Photo 51**).

-Between Columns C2 & C3, there are two spalls with exposed rebar, measuring 2' diameter x 4" deep and 2' long x 3' wide x up to 4" deep (**see Photo 52**).

-Between Columns C3 & C4, there is severe spalling adjacent to Column C4, 6' long x full width x 5" deep with exposed rebar (50% section remaining on exposed rebar) (**see Photo 53**).

-The west nose area has severe spalling with exposed and broken rebar, full width x full length x 5" deep (25% section remaining on exposed rebar) (**see Photo 54**).

North Face:

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REMARKS

-Above Column C1, there is moderate spalling extending into the bottom face, 10' long x 1' high x 4" deep with exposed rebar (**see Photo 55**).

-Above Column C3 at the bottom, there is a minor spall, 6" long x 2" high x up to 2" deep. Above Column C3 at the top, there is a 3' long x 1/4" wide horizontal crack with efflorescence and rust staining (**see Photo 56**).

-Above Column C4, there is moderate spalling extending into the bottom face, 9' long x 1' high x 4" deep with exposed rebar (**see Photo 57**).

West Face:

-The west nose has spalling along the top edge, full width x 1' high x 4" deep, with exposed and rusted through rebar (**see Photo 58**).

Item 60.2.c - Columns

All columns have areas of moderate to severe cracking, delamination, and spalling throughout.

Specific deficiencies are as follows:

Column C1: exhibits severe spalling throughout the south and west face, full height x up to 4" deep, with exposed and rusted through rebar (50% section remaining on exposed rebar) (**see Photo 59**).

Column C2: exhibits moderate spalling throughout the bottom half of the south face, 6.5' high x 5' wide x 4" deep, with exposed rebar (50% section remaining on exposed rebar) (**see Photo 60**).

Column C3: exhibits moderate spalling throughout the bottom half of the southwest face, 7' high x 4' wide x 4" deep, with exposed rebar (50% section remaining on exposed rebar) (**see Photo 61**).

Column C4:

-The south face has severe spalling throughout the south face, 8' high x 4' wide x 4" deep, with exposed rebar (50% section remaining on exposed rebar) (**see Photo 62**).

-The north face has a spall at the bottom, 3' diameter x 4" deep, with exposed rebar (50% section remaining on exposed rebar) (**see Photo 63**).

TRAFFIC SAFETY

Item 36a - Bridge Railing

The AL-3 type bridge railing does not conform to MassDOT standards. See Item 58.8 for comments.

Item 36b - Transitions

The W-beam guardrail transitions do not conform to MassDOT standards. The posts are not spaced properly.

Item 36c - Approach Guardrail

There are W-beam approach guardrails at all four corners of the bridge. The approach guardrails have steel spacer blocks and do not conform to MassDOT standards.

There is minor to moderate collision damage at the northeast, northwest and southeast corners (**see Photo 64**).

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REMARKS

The rails exhibit several areas of minor rusting, a few dents and minor displacement (pushed back slightly) of the rail.

Item 36d - Approach Guardrail Ends

The southeast approach guardrail has a buried end, the northwest approach guardrail runs well beyond the bridge and the northeast and southwest approach guardrails have terminal ends. There is impact damage at the southwest guardrail ends (**see Photo 65**) and there is a tear at the northeast guardrail end (**see Photo 66**).

Sketch / Photo Log

- Sketch 1 : Framing Plan
- Photo 1 : Wearing surface: random sealed cracks throughout. (Span 1, looking South).
- Photo 2 : Wearing surface: full depth deck repair (20' long x 7' wide) in Span 2 of the southbound lane. (Looking West).
- Photo 3 : Wearing surface: full depth deck repair, (full span length x 4' wide) in Span 1 of the southbound lane. (Looking South).
- Photo 4 : Typical hairline transverse cracks with light efflorescence throughout the deck overhangs. (Span 2, east overhang shown).
- Photo 5 : Span 1, east overhang: minor spall around the north end weep-hole. Also note the frozen and clogged deck weeps.
- Photo 6 : Deck, span 1, bay 1: area of spalling and delamination at the pier joint, full width x up to 2.5' long x full depth, with exposed reinforcing.
- Photo 7 : Deck, span 1, bay 2: metal screening between diaphragms 3 - 6.
- Photo 8 : Deck, span 1, bay 2: at cross frame 6, spalling and delamination, up to 7' long x 3.5' wide x up to 3" deep, with exposed rebar.
- Photo 9 : Deck, span 1, bay 5: between cross frames 3 and 4, 2' long x 1' wide x 2" deep haunch spall along Girder 6.
- Photo 10 : Deck, span 2, bay 7: timber shielding at the pier over the left travel lane.
- Photo 11 : Deck, span 2, bay 11: haunch spall near girder G13 , up to 1' long x 3" deep x 3" wide and adjacent hairline map cracking with light efflorescence.
- Photo 12 : Deck, span 2, west overhang: 2' long x 8" high x up to 12" deep spall with exposed rebar at the pier.
- Photo 13 : East granite curb at the pier deck joint is displaced and shifted 3" towards the roadway. Also, note the concrete repaired area at the sidewalk. (Looking South).
- Photo 14 : West safetywalk: large areas of severe scaling/spalling behind the granite curb up to 6" wide. (Span 2, Looking South).
- Photo 15 : west fascia of the safetywalk: spalling, 4' long x 4" high x up to 3" deep near the north abutment and scattered areas of hairline map cracking.
- Photo 16 : East railing: missing anchor bolt nuts at post #31.
- Photo 17 : West safetywalk, Under-threaded bolt at post #10 from the pier in span 1.
- Photo 18 : Bridge railing: small dent/tear at the top rail in several locations. (Southwest corner shown).
- Photo 19 : Safety fence along the west bridge rail: area of disconnection (gap) near the south end.
- Photo 20 : Deck joints at north abutments has been repaired since last inspection.
- Photo 21 : West end of south abutment deck joint exhibits up to 3' long x 1/4" transverse crack/ separation.
- Photo 22 : Approach roadway wearing surface has been repaved since last inspection. (South approach shown).
- Photo 23 : Southwest approach curb exhibits settlement and horizontal misalignment, up to 3" x 30' long. (Looking South).

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- Photo 24 : Northeast approach sidewalk: displaced curb sections, several longitudinal and transverse cracks, areas of settlement up to 3" deep throughout. (Looking South).

There is a diagonal crack in the northeast concrete approach sidewalk, 3.5' long x 1/8" wide (see Photo 25).
- Photo 25 : Diagonal crack in the northeast concrete approach sidewalk, 3.5' long x 1/8" wide. Also note the displaced curb section.
- Photo 26 : Steel girders: chalky peeling paint with moderate to heavy rusting. (Girder G5 shown, Looking Northwest).
- Photo 27 : Girder 1, span 1: minor lateral misalignment of girder stiffeners and there is small gap between the stiffener bottom edge and the lower flange.
- Photo 28 : Girder 1, span 1: minor impact damage to the bottom flange and web at mid-span over the 2nd right lane. (Looking South).
- Photo 29 : Girder 1: repair plates to the lower web and bearing stiffeners at the north abutment bearing with heavy rusting and minor steel delamination. Also note bearing rust. (East face shown).
- Photo 30 : Girder 1: repair plates to the lower web and bearing stiffeners at the north abutment bearing with heavy rusting and minor steel delamination. Also note bearing rust. (West face shown).
- Photo 31 : Girder 5, span 1: minor impact damage to the bottom flange at mid-span with minor bent of girder stiffener. Looking South).
- Photo 32 : Girder 6, span 1: minor impact damage to the bottom flange at mid-span with minor dent to the bottom flange and repair angle. (Looking South).
- Photo 33 : Girder 8, span 2: web with heavy rusting, 1" W x 2" H hole above the bearing, 1" Diam hole 2.75' from the end and 1" Diam hole just south of the web stiffener at the bearing. (East face shown).
- Photo 34 : West face of Girder 8, span 2 is hidden by timber shielding.
- Photo 35 : Girder 8, south end with minor section loss to the west face of the web. The west leg of the bottom flange exhibits heavy lamination with 3/16" section loss over a length of 7'.
- Photo 36 : Girder 14, span 2 at the pier: repair plates on both sides of the lower web and bearing stiffeners that exhibit heavy rusting. Also note bearing rust. (East face shown).
- Photo 37 : Bearings at the pier: moderate rusting and debris behind the bearings. (Bearings of beams G7 and G14 shown).
- Photo 38 : Span 1, bay 6 diaphragm encasement at the pier: full length delamination, rust stains, 18" L x full width x 1.5" D spall with exposed rebar. Also notes steel cross frames peeling paint & rusting.
- Photo 39 : West end of the north bridge seat and breastwall: severe scaling/spalling with exposed, de-bonded and rusted rebar, full width, extending to Girder 7.
- Photo 40 : North Backwall, east end at the top, 1' high x 6" wide x up to 10" deep spall.
- Photo 41 : West end of the north backwall: full height x 3.5' wide x 8" deep spall with exposed rebar.
- Photo 42 : South backwall, bay 12: Spall behind Girder 14, full height x up to 1.0' wide x 5" deep.
- Photo 43 : North breastwall, bay 1: 15" wide x 12" high x up to 1" deep spall with exposed and rusted rebar with adjacent delamination.
- Photo 44 : West end of south breastwall: spalls with exposed rebar, horizontal and vertical cracks with efflorescence and adjacent delamination area.
- Photo 45 : Northeast wingwall: cracks with efflorescence at the abutment and a long narrow diagonal crack extending from the bridge seat/backwall area. (Looking West).
- Photo 46 : South stone slope protection: 2.5" wide separation from the abutment breastwall. (West end shown).
- Photo 47 : South stone slope protection: longitudinal crack through the pointing.
- Photo 48 : Pier cap south Face west end: 7' long x 1/4" wide horizontal crack at the top under girder G14 and a full height vertical hairline crack with rust staining and light efflorescence.

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- Photo 49 : Pier cap, south face: starting between Columns 3 & 4 and ending at the west end, spalling along the bottom edge extending into the bottom face with exposed and rusted rebar.
- Photo 50 : Pier cap, south face, between C1 & C2: spalling along the bottom edge extending into the bottom face with exposed and rusted through rebar.
- Photo 51 : Pier cap, bottom Face, between Columns 1 & 2: sever spalling with exposed and broken rebar.
- Photo 52 : Pier cap, bottom face, between Columns 2 & 3: two spalls with exposed rebar.
- Photo 53 : Pier cap, bottom face, between Columns 3 & 4: severe spalling adjacent to Column C4 with exposed rebar.
- Photo 54 : Pier cap, bottom face, west nose area: severe spalling with exposed and broken rebar.
- Photo 55 : Pier cap, north face, above Column C1: moderate spalling extending into the bottom face with exposed rebar.
- Photo 56 : Pier cap, north face, above Column 3: spall and horizontal crack with efflorescence and rust staining.
- Photo 57 : Pier cap, north face, above Column C4: moderate spalling extending into the bottom face with exposed rebar.
- Photo 58 : Pier cap, west nose: spalling along the top edge with exposed and rusted through rebar.
- Photo 59 : Column C1: severe spalling throughout the south and west face, full height x up to 4" deep, with exposed and rusted through rebar.
- Photo 60 : Column C2: moderate spalling throughout the bottom half of the south face, 6.5' high x 5' wide x 4" deep, with exposed rebar.
- Photo 61 : Column C3: moderate spalling throughout the bottom half of the southwest face, 7' high x 4' wide x 4" deep, with exposed rebar.
- Photo 62 : Column C4, south face: severe spalling throughout the south face, 8' high x 4' wide x 4" deep, with exposed rebar.
- Photo 63 : Column C4, north face: spall at the bottom, 3' diameter x 4" deep, with exposed rebar.
- Photo 64 : moderate collision damage at the northeast approach guardrail.
- Photo 65 : Impact damage at the southwest guardrail ends.
- Photo 66 : Tear at the northeast guardrail end.

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PHOTOS



Photo 1: Wearing surface: random sealed cracks throughout. (Span 1, looking South).



Photo 2: Wearing surface: full depth deck repair (20' long x 7' wide) in Span 2 of the southbound lane. (Looking West).

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PHOTOS

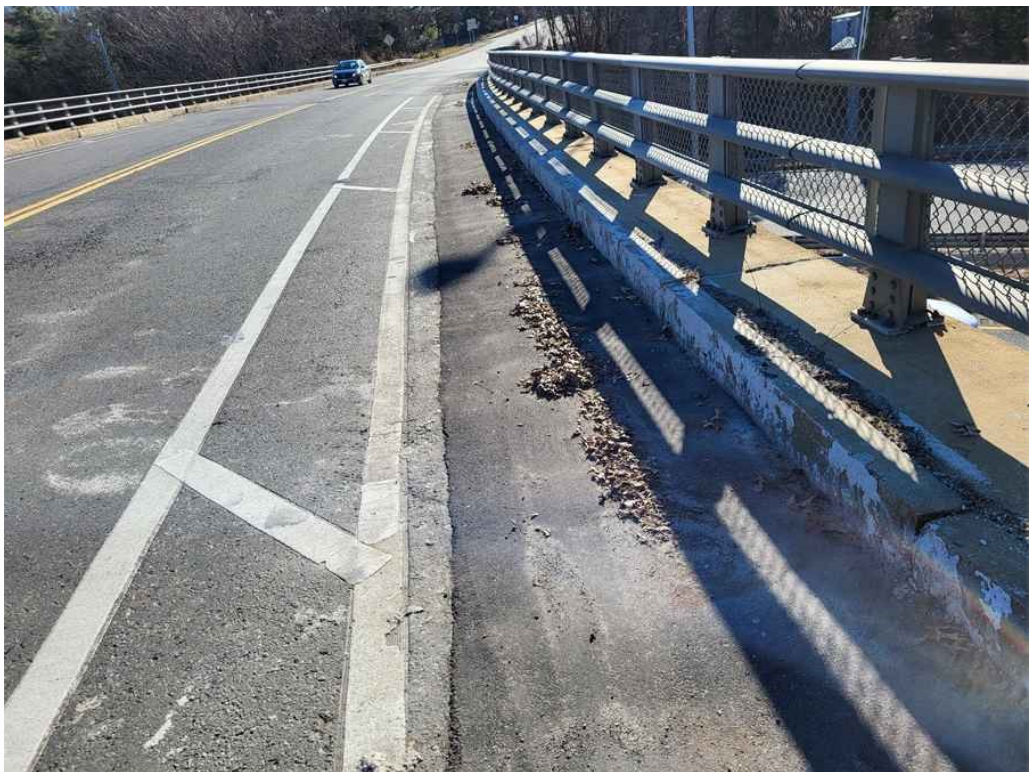


Photo 3: Wearing surface: full depth deck repair, (full span length x 4' wide) in Span 1 of the southbound lane. (Looking South).



Photo 4: Typical hairline transverse cracks with light efflorescence throughout the deck overhangs. (Span 2, east overhang shown).

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PHOTOS



Photo 5: Span 1, east overhang: minor spall around the north end weep-hole. Also note the frozen and clogged deck weeps.

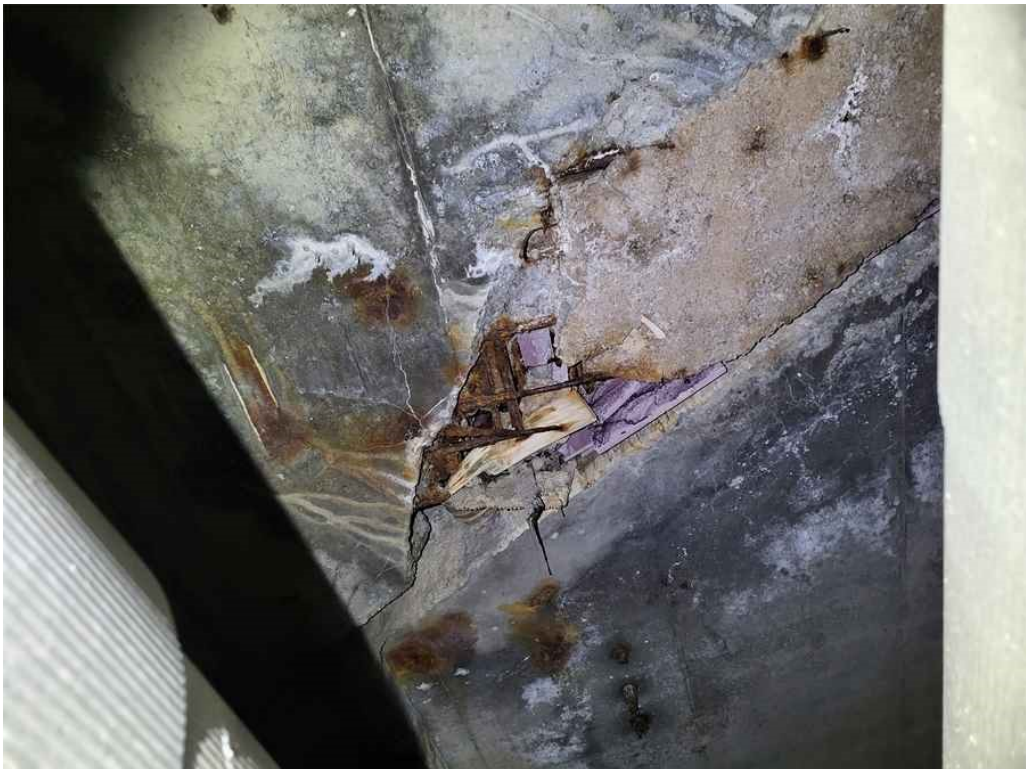


Photo 6: Deck, span 1, bay 1: area of spalling and delamination at the pier joint, full width x up to 2.5' long x full depth, with exposed reinforcing.

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Photo 7: Deck, span 1, bay 2: metal screening between diaphragms 3 - 6.



Photo 8: Deck, span 1, bay 2: at cross frame 6, spalling and delamination, up to 7' long x 3.5' wide x up to 3" deep, with exposed rebar.

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Photo 9: Deck, span 1, bay 5: between cross frames 3 and 4, 2' long x 1' wide x 2" deep haunch spall along Girder 6.



Photo 10: Deck, span 2, bay 7: timber shielding at the pier over the left travel lane.

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Photo 11: Deck, span 2, bay 11: haunch spall near girder G13 , up to 1' long x 3" deep x 3" wide and adjacent hairline map cracking with light efflorescence.



Photo 12: Deck, span 2, west overhang: 2' long x 8" high x up to 12" deep spall with exposed rebar at the pier.

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Photo 13: East granite curb at the pier deck joint is displaced and shifted 3" towards the roadway. Also, note the concrete repaired area at the sidewalk. (Looking South).



Photo 14: West safetywalk: large areas of severe scaling/spalling behind the granite curb up to 6" wide. (Span 2, Looking South).

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Photo 15: west fascia of the safetywalk: spalling, 4' long x 4" high x up to 3" deep near the north abutment and scattered areas of hairline map cracking.



Photo 16: East railing: missing anchor bolt nuts at post #31.

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Photo 17: West safetywalk, Under-threaded bolt at post #10 from the pier in span 1.



Photo 18: Bridge railing: small dent/tear at the top rail in several locations. (Southwest corner shown).

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Photo 19: Safety fence along the west bridge rail: area of disconnection (gap) near the south end.



Photo 20: Deck joints at north abutments has been repaired since last inspection.

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Photo 21: West end of south abutment deck joint exhibits up to 3' long x 1/4" transverse crack/separation.



Photo 22: Approach roadway wearing surface has been repaved since last inspection. (South approach shown).

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Photo 23: Southwest approach curb exhibits settlement and horizontal misalignment, up to 3" x 30' long. (Looking South).



Photo 24: Northeast approach sidewalk: displaced curb sections, several longitudinal and transverse cracks, areas of settlement up to 3" deep throughout. (Looking South).

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Photo 25: Diagonal crack in the northeast concrete approach sidewalk, 3.5' long x 1/8" wide. Also note the displaced curb section.



Photo 26: Steel girders: chalky peeling paint with moderate to heavy rusting. (Girder G5 shown, Looking Northwest).

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Photo 27: Girder 1, span 1: minor lateral misalignment of girder stiffeners and there is small gap between the stiffener bottom edge and the lower flange.



Photo 28: Girder 1, span 1: minor impact damage to the bottom flange and web at mid-span over the 2nd right lane. (Looking South).

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Photo 29: Girder 1: repair plates to the lower web and bearing stiffeners at the north abutment bearing with heavy rusting and minor steel delamination. Also note bearing rust. (East face shown).



Photo 30: Girder 1: repair plates to the lower web and bearing stiffeners at the north abutment bearing with heavy rusting and minor steel delamination. Also note bearing rust. (West face shown).

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Photo 31: Girder 5, span 1: minor impact damage to the bottom flange at mid-span with minor bent of girder stiffener. Looking South).



Photo 32: Girder 6, span 1: minor impact damage to the bottom flange at mid-span with minor dent to the bottom flange and repair angle. (Looking South).

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PHOTOS



Photo 33: Girder 8, span 2: web with heavy rusting, 1" W x 2" H hole above the bearing, 1" Diam hole 2.75' from the end and 1" Diam hole just south of the web stiffener at the bearing. (East face shown).



Photo 34: West face of Girder 8, span 2 is hidden by timber shielding.

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PHOTOS



Photo 35: Girder 8, south end with minor section loss to the west face of the web. The west leg of the bottom flange exhibits heavy lamination with 3/16" section loss over a length of 7'.



Photo 36: Girder 14, span 2 at the pier: repair plates on both sides of the lower web and bearing stiffeners that exhibit heavy rusting. Also note bearing rust. (East face shown).

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PHOTOS



Photo 37: Bearings at the pier: moderate rusting and debris behind the bearings. (Bearings of beams G7 and G14 shown).



Photo 38: Span 1, bay 6 diaphragm encasement at the pier: full length delamination, rust stains, 18" L x full width x 1.5" D spall with exposed rebar. Also notes steel cross frames peeling paint & rusting.

CITY/TOWN LEXINGTON	B.I.N. 2KA	BR. DEPT. NO. L-10-020	8.-STRUCTURE NO. L10020-2KA-DOT-NBI	INSPECTION DATE JAN 3, 2024
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PHOTOS



Photo 39: West end of the north bridge seat and breastwall: severe scaling/spalling with exposed, de-bonded and rusted rebar, full width, extending to Girder 7.



Photo 40: North Backwall, east end at the top, 1' high x 6" wide x up to 10" deep spall.

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PHOTOS



Photo 41: West end of the north backwall: full height x 3.5' wide x 8" deep spall with exposed rebar.



Photo 42: South backwall, bay 12: Spall behind Girder 14, full height x up to 1.0' wide x 5" deep.

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PHOTOS

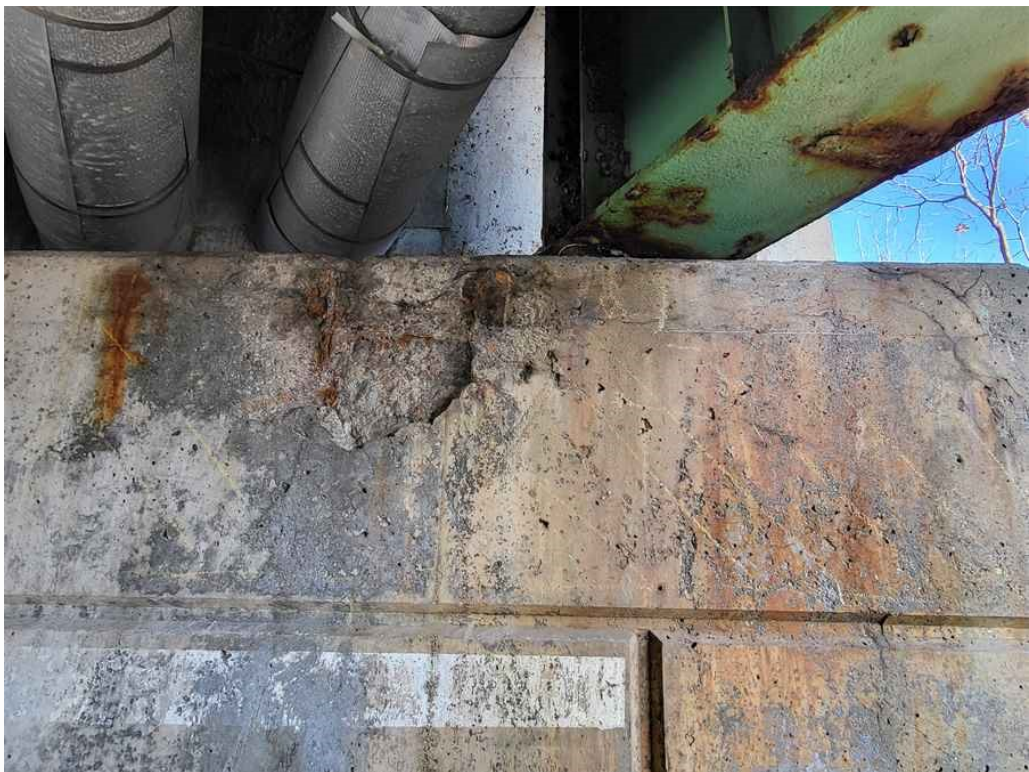


Photo 43: North breastwall, bay 1: 15" wide x 12" high x up to 1" deep spall with exposed and rusted rebar with adjacent delamination.



Photo 44: West end of south breastwall: spalls with exposed rebar, horizontal and vertical cracks with efflorescence and adjacent delamination area.

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PHOTOS



Photo 45: Northeast wingwall: cracks with efflorescence at the abutment and a long narrow diagonal crack extending from the bridge seat/backwall area. (Looking West).



Photo 46: South stone slope protection: 2.5" wide separation from the abutment breastwall. (West end shown).

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PHOTOS



Photo 47: South stone slope protection: longitudinal crack through the pointing.



Photo 48: Pier cap south Face west end: 7' long x 1/4" wide horizontal crack at the top under girder G14 and a full height vertical hairline crack with rust staining and light efflorescence.

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PHOTOS



Photo 49: Pier cap, south face: starting between Columns 3 & 4 and ending at the west end, spalling along the bottom edge extending into the bottom face with exposed and rusted rebar.



Photo 50: Pier cap, south face, between C1 & C2: spalling along the bottom edge extending into the bottom face with exposed and rusted through rebar.

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PHOTOS



Photo 51: Pier cap, bottom Face, between Columns 1 & 2: sever spalling with exposed and broken rebar.



Photo 52: Pier cap, bottom face, between Columns 2 & 3: two spalls with exposed rebar.

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PHOTOS



Photo 53: Pier cap, bottom face, between Columns 3 & 4: severe spalling adjacent to Column C4 with exposed rebar.



Photo 54: Pier cap, bottom face, west nose area: severe spalling with exposed and broken rebar.

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PHOTOS



Photo 55: Pier cap, north face, above Column C1: moderate spalling extending into the bottom face with exposed rebar.



Photo 56: Pier cap, north face, above Column 3: spall and horizontal crack with efflorescence and rust staining.

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PHOTOS



Photo 57: Pier cap, north face, above Column C4: moderate spalling extending into the bottom face with exposed rebar.



Photo 58: Pier cap, west nose: spalling along the top edge with exposed and rusted through rebar.

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PHOTOS



Photo 59: Column C1: severe spalling throughout the south and west face, full height x up to 4" deep, with exposed and rusted through rebar.

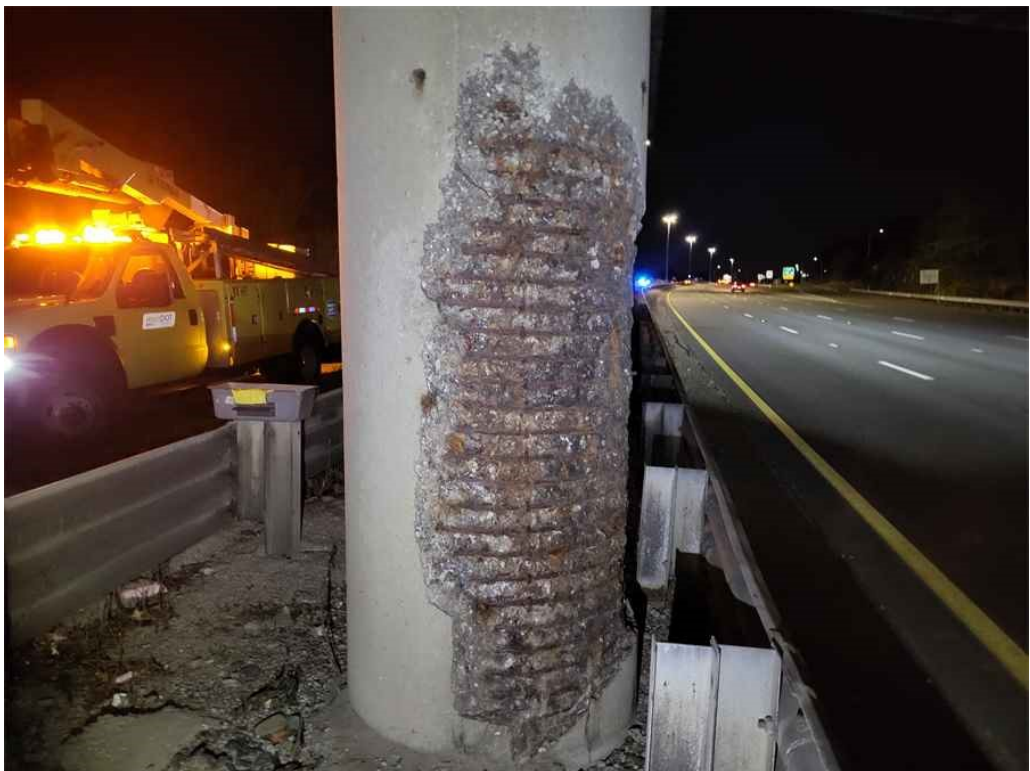


Photo 60: Column C2: moderate spalling throughout the bottom half of the south face, 6.5' high x 5' wide x 4" deep, with exposed rebar.

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PHOTOS



Photo 61: Column C3: moderate spalling throughout the bottom half of the southwest face, 7' high x 4' wide x 4" deep, with exposed rebar.



Photo 62: Column C4, south face: severe spalling throughout the south face, 8' high x 4' wide x 4" deep, with exposed rebar.

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PHOTOS



Photo 63: Column C4, north face: spall at the bottom, 3' diameter x 4" deep, with exposed rebar.



Photo 64: moderate collision damage at the northeast approach guardrail.

CITY/TOWN LEXINGTON	B.I.N. 2KA	BR. DEPT. NO. L-10-020	8.-STRUCTURE NO. L10020-2KA-DOT-NBI	INSPECTION DATE JAN 3, 2024
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PHOTOS



Photo 65: Impact damage at the southwest guardrail ends.



Photo 66: Tear at the northeast guardrail end.

State Information				Classification				Code			
BDEPT# = L10020	Agency Br.No.			(112) NBIS Bridge Length				Y			
Town = Lexington	L.O. MHD			(104) Highway System				Y			
B.I.N = 2KA	AASHTO= 059.8			(26) Functional Class -	Urban Minor Arterial			16			
RANK = 227	H.I. = 74.0 %	FHWA Select List= Y (6/21/2017)		(100) Defense Highway				0			
Identification				(101) Parallel Structure				N			
(8) Structure Number	L100202KADOTNBI			(102) Direction of Traffic -	2-way traffic			2			
(5) Inventory Route	151000000			(103) Temporary Structure				N			
(2) State Highway Department District	04			(105) Federal Lands Highways				0			
(3) County Code 017	(4) Place code	35215		(110) Designated National Network				N			
(6) Features Intersected	ST 2			(20) Toll -	On free road			3			
(7) Facility Carried	HWY WATERTOWN ST			(21) Maintain -	State Highway Agency			01			
(9) Location	0.75 MI E PLEASANT ST			(22) Owner -	State Highway Agency			01			
(11) Kilometerpoint	0215.099			(37) Historical Significance	built after 1949 presumed to be not eligi			Z			
(12) Base Highway Network	Y			Condition				Code			
(13) LRS Inventory Route & Subroute	000000000000			(58) Deck				5			
(16) Latitude	42 DEG 25 MIN 03.03 SEC			(59) Superstructure				5			
(17) Longitude	71 DEG 12 MIN 17.45 SEC			(60) Substructure				4			
(98) Border Bridge State Code	Share %			(61) Channel & Channel Protection				N			
(99) Border Bridge Structure No. #				(62) Culverts				N			
Structure Type and Material				Load Rating and Posting				Code			
(43) Structure Type Main:	Steel	Code 302		(31) Design Load -	H 20=M 18			4			
Stringer/Girder	Jointless bridge type: Not applicable			(63) Operating Rating Method -	Load Factor (LF)			1			
(44) Structure Type Appr:	Other Code 000			(64) Operating Rating				79.0			
(45) Number of spans in main unit	002			(65) Inventory Rating Method -	Load Factor (LF)			1			
(46) Number of approach spans	0000			(66) Inventory Rating				47.3			
(107) Deck Structure Type -	Concrete Cast-in-Place	Code 1		(70) Bridge Posting				5			
(108) Wearing Surface / Protective System:				(41) Structure -	Open			A			
A) Type of wearing surface -	Bituminous	Code 6		Appraisal				Code			
B) Type of membrane -	None	Code 0		(67) Structural Evaluation				4			
C) Type of deck protection -	None	Code 0		(68) Deck Geometry				6			
Age and Service				(69) Underclearances, vert. and horiz.				3			
(27) Year Built	1967			(71) Waterway adequacy				N			
(106) Year Reconstructed	0000			(72) Approach Roadway Alignment				8			
(42) Type of Service: On -	Highway-Ped			(36) Traffic Safety Features	0 0 0 0			N			
Under - Highway	Code 51			(113) Scour Critical Bridges				N			
(28) Lanes: On Structure	02	Under structure 08		Inspections							
(29) Average Daily Traffic	011600			(90) Inspection Date	01/03/24			(91) Frequency	12 MO		
(30) Year of ADT	2020	(109) Truck ADT	05 %	(92) Critical Feature Inspection:				(93) CFI DATE			
(19) Bypass, detour length	006 KM			(A) Fracture Critical Detail	N	00	MO A)	00/00/00			
Geometric Data				(B) Underwater Inspection	N	00	MO B)	00/00/00			
(48) Length of maximum span	0032.9 M			(C) Other Special Inspection	Y	12	MO C)	01/03/24			
(49) Structure Length	00064.6 M			(*) Other Inspection (Freeze-Thaw)	N	00	MO *)	08/19/21			
(50) Curb or sidewalk:	Left	01.4 M	Right 00.5 M	(*) Closed Bridge	N	00	MO *)	00/00/00			
(51) Bridge Roadway Width Curb to Curb	013.4 M			(*) UW Special Inspection	N	00	MO *)	00/00/00			
(52) Deck Width Out to Out	016.3 M			(*) Damage Inspection				MO *) 03/21/14			
(32) Approach Roadway Width (w/shoulders)	013.4 M			Rating Loads							
(33) Bridge Median -	No median	Code 0		Report Date	03/01/18	H20	Type 3	Type 3S2	Type HS		
(34) Skew	30 DEG	(35) Structure Flared	N	Operating	51.0	54.0	64.0	56.0			
(10) Inventory Route MIN Vert Clear	99.99 M			Inventory	23.0	25.0	29.0	26.0			
(47) Inventory Route Total Horiz Clear	13.4 M			Field Posting							
(53) Min Vert Clear Over Bridge Rdwy	99.99 M			Status	WAIVED			Posting Date	04/04/18		
(54) Min Vert Underclear ref	H	04.39 M					2 Axle	3 Axle	5 Axle	Single	
(55) Min Lat Underclear RT ref	H	00.9 M		Actual							
(56) Min Lat Underclear LT	00.7 M			Recommended							
Navigation Data				Missing Signs	N			Misc.			
(38) Navigation Control -	Not applicable, no waterway Code N			Bridge Name	N Anti-missile fence N Acrow Panel N Jointless Bridge						
(111) Pier Protection	Code			Freeze/Thaw	1 : Known problematic history of concrete deterioration						
(39) Navigation Vertical Clearance	000.0 M			# Stairs On/Adjacent	0 Stair Owner(s)						
(116) Vert-lift Bridge Nav Min Vert Clear	M			Accessibility (Needed/Used)							
(40) Navigation Horizontal Clearance	0000.0 M			Y / Y	Liftbucket	N / N	Rigging	_ / _ Other			
				Y / Y	Ladder	N / N	Staging				
				N / N	Boat	Y / Y	Traffic Control				
				N / N	Wader	N / N	RR Flagperson	Inspection			
				N / N	Inspector 50	Y / Y	Police	Hours: 024			

National Bridge Element Inspection

BDEPT# **L-10-020**

Date **01/03/2024**

B.I.N. **2KA**

District Bridge Inspection Eng'r **Joseph Dideo**

Item 8 **L10020-2KA-DOT-NBI**

Inspecting Agency **Mass. Highway Dept.**

Span Group **1**

Team Leader **Osama Moustafa**

Town **Lexington**

Team **Baibhav Rajbhandari, Nia A.**

District **4**

Member(s) **Bergeron**

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
12	Re Concrete Deck	sq feet	3	11,283.000	<input type="checkbox"/> %	11,097.000	94.000	92.000	

Notes : Deck Area = 53.25' x 211.90' = 11,283 sf

> 1080	<i>Delamination/Spall/Patched Area</i>	sq feet	3	101.000	<input type="checkbox"/> %		24.000	77.000	
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Notes : Spalled Areas:
 Span 1: CS 3 - E. overhang = 0.5 sf, Bay 1 = 0.5 sf + 15 sf, Bay 2 = 27 sf + 24.5 sf, Bay 3 = 1 sf, Bay 5 = 2 sf, W. overhang = 0.5 sf
 Span 2: CS 3 - Bay 10 = 1.5 sf + 0.5 sf, Bay 11 = 1.5 sf, E. overhang = 2 sf
 Delaminated Area:
 Span 1: CS 2 - Bay 3 = 7 sf, Bay 5 = 7 sf
 Span 2: CS 2 - Bay 1 = 10 sf (partial deck repair)
 Total CS 3 = 76.5 sf Say 77 sf
 Total CS 2 = 24 sf

> 1120	<i>Efflorescence/Rust Staining</i>	sq feet	3	65.000	<input type="checkbox"/> %		50.000	15.000	
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Notes : Efflorescence:
 Span 1 - CS 2: Bay 6 = 14 sf (2 trans. HLC with efflo.)
 Span 2 - CS 2: Bay 10 = 15 sf (MC with efflo.), Bay 13 = 21 sf (HLC with efflo.)
 Efflorescence with Rust Stains:
 Span 1 - CS 3: Bay 6 = 15 sf (HLC with rust stains)
 Total CS 2 = 50 sf
 Total CS 3 = 15 sf

> 1130	<i>Cracking (RC and Other)</i>	sq feet	3	20.000	<input type="checkbox"/> %		20.000		
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Notes : Span 1:
 CS 2: Bay 4 = 20 sf (Mod. MC),

> 510	Wearing Surfaces	sq feet	3	9,324.000	<input type="checkbox"/> %	8,390.000	467.000	467.000	
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Notes : Area of Wearing Surface = 44' x 211.90' = 9323.6 sf Say 9324 sf

> > 3220	<i>Crack (Wearing Surface)</i>	sq feet	3	934.000	<input type="checkbox"/> %		467.000	467.000	
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Notes : CS 2 = 0.05 x 9324 = 466.2 sf Say 467 sf (Approx. 5% with unsealed moderate cracks).
 CS 3 = 0.05 x 9324 = 466.2 sf Say 467 sf (Approx. 5% with wide cracks).
 All the remaining cracks are sealed and considered under CS 1.

107	Steel Opn Girder/Beam	feet	3	1,446.000	<input type="checkbox"/> %	280.000	1,157.000	7.000	2.000
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Notes : Span 1 = 105.80' x 7 = 740.61 ft
 Span 2 = 100.69' x 7 = 704.85 ft

National Bridge Element Inspection

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Date **01/03/2024**

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District Bridge Inspection Eng'r **Joseph Dideo**

Item 8 **L10020-2KA-DOT-NBI**

Inspecting Agency **Mass. Highway Dept.**

Span Group **1**

Team Leader **Osama Moustafa**

Town **Lexington**

Team **Baibhav Rajbhandari, Nia A.**

District **4**

Member(s) **Bergeron**

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
Notes : Element 107, Steel Opn Girder/Beam, Environment 3 (Notes contd.) Total Length of Girders = 1445.46 ft Say 1446 ft									
> 1000	Corrosion	feet	3	1,164.000	<input type="checkbox"/> %		1,157.000	7.000	
Notes : Span 2, Girder 8: CS 3 = 3' + 4' = 7 ft CS 2 = Approx. 80% of the Girders Length exhibit freckled rust = 0.80 x 1446' = 1156.8 ft Say 1157 ft									
> 1010	Cracking	feet	3	2.000	<input type="checkbox"/> %				2.000
Notes : Span 1, Girder 1 crack: CS 4 - 2 ft									
> 7000	Damage	feet	3	3.000	<input type="checkbox"/> %			3.000	
Notes : Impact Damage/Collision Scrapes - Span 1 (Girders 5, 6, and 7): CS 3 = 3 feet									
> 515	Steel Protective Coating	sq feet	3	21,682.000	<input type="checkbox"/> %	20,598.000	542.000	542.000	
Notes : Average Paint Perimeter = 15 ft Span 1 = 105.80' x 15' x 7 beams = 11109.00 sf Span 2 = 100.69 x 15' x 7 beams = 10572.45 sf Total = 21682 sf									
> > 3440	Eff (Stl Protect Coat)	sq feet	3	1,084.000	<input type="checkbox"/> %		542.000	542.000	
Notes : Consider 2.5% is substantially effective and another 2.5% is limited effective. CS 2 = CS 3 = 0.025 x 21682 = 542 sf									
205	Re Conc Column	each	3	4	<input type="checkbox"/> %			4	
Notes : Number of Columns = 4									
> 1080	Delamination/Spall/Patched Area	each	3	4	<input type="checkbox"/> %			4	
Notes : CS3 = 4 (All the columns with extensive spalling)									
215	Re Conc Abutment	feet	3	121.000	<input type="checkbox"/> %	97.000	13.000	11.000	
Notes : North Abutment = 63.63' South Abutment = 57.25' Total = 120.88 ft, Say 121 ft									
> 1080	Delamination/Spall/Patched Area	feet	3	14.000	<input type="checkbox"/> %		3.000	11.000	
Notes : North Abutment: CS 3 = 2' (spall at west end), CS 3 = 2' (spall in Bay 1) South Abutment: CS 3 = 5' (spall in Bay 8), CS 3 = 1' (spall in Bay 13), CS 3 = 0.5' (spall at west end)									

National Bridge Element Inspection

BDEPT# **L-10-020**

Date **01/03/2024**

B.I.N. **2KA**

District Bridge Inspection Eng'r **Joseph Dideo**

Item 8 **L10020-2KA-DOT-NBI**

Inspecting Agency **Mass. Highway Dept.**

Span Group **1**

Team Leader **Osama Moustafa**

Town **Lexington**

Team **Baibhav Rajbhandari, Nia A.**

District **4**

Member(s) **Bergeron**

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
Notes : Element 1080, Delamination/Spall/Patched Area, Environment 3 (Notes contd.) CS 2 = 0.5' + 0.5' (spall at CJ), CS 2 = 2' (delam) Total CS 2 = 3 ft, CS 3 = 11 ft									
> 1130	Cracking (RC and Other)	feet	3	10.000	<input type="checkbox"/> %		10.000		
Notes : Total Cracking CS 2 = 10 ft									
234	Re Conc Pier Cap	feet	3	59.000	<input type="checkbox"/> %	27.000	16.000	16.000	
Notes : Length of the Pier Cap = 59 ft.									
> 1080	Delamination/Spall/Patched Area	feet	3	32.000	<input type="checkbox"/> %		16.000	16.000	
Notes : Between Col. 1 & 2: CS 3 = 6' (Spall) Between Col. 1 & 2: CS 2 = 10' - 6' = 4' (delam) Between Col. 2 & 3: CS 2 = 4.5' (delam.) Between Col. 3 & 4: CS 2 = 5' (delam.) Above Col. 4: CS 2 = 2' (delam.) West Overhang: CS 3 - 10' (Spall) Total CS 2 = 16 ft, CS 3 = 16 ft									
306	Other Joint	feet	3	160.000	<input type="checkbox"/> %	87.000	29.000	44.000	
Notes : Length of the Joint = 53.25' out to out width x 3 = 159.75', Say 160'									
> 2310	Leakage	feet	3	14.000	<input type="checkbox"/> %		14.000		
Notes : Pier Joint Bay 1 and 6 - Leakage: CS 2 = 14 ft									
> 2360	Adjacent Deck or Header	feet	3	44.000	<input type="checkbox"/> %			44.000	
Notes : North Abutment Joint Header - Cracking, Heaving, and Spalling: CS3 = 44 ft									
> 510	Wearing Surfaces	sq feet	3	92.000	<input type="checkbox"/> %	33.000	15.000	44.000	
Notes : The condition state for the Pier Joint and South Abutment Joint are classified in the wearing surface.									
> > 3210	Del/Spall/Patch/Pot(Wear Surf)	sq feet	3	15.000	<input type="checkbox"/> %		15.000		
Notes : South Abutment Patches: CS 2 = 15 ft									
> > 3220	Crack (Wearing Surface)	sq feet	3	44.000	<input type="checkbox"/> %			44.000	
Notes : South Abutment Cracking - CS3 = 20 ft Pier Cracking - CS 3 = 24 ft									

National Bridge Element Inspection

BDEPT# **L-10-020**

Date **01/03/2024**

B.I.N. **2KA**

District Bridge Inspection Eng'r **Joseph Dideo**

Item 8 **L10020-2KA-DOT-NBI**

Inspecting Agency **Mass. Highway Dept.**

Span Group **1**

Team Leader **Osama Moustafa**

Town **Lexington**

Team **Baibhav Rajbhandari, Nia A.**

District **4**

Member(s) **Bergeron**

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
311	Moveable Bearing	each	3	14	<input type="checkbox"/> %		10	4	
Notes : Total Moveable Bearings = 14									
> 1000	<i>Corrosion</i>	each	3	14	<input type="checkbox"/> %		10	4	
Notes : Exterior Bearings CS 3 = 4 Interior Bearings CS 2 = 10									
> 515	Steel Protective Coating	sq feet	3	28.000	<input type="checkbox"/> %	12.000	4.000	4.000	8.000
Notes : Assume 2 sf of paint per bearing = 2 sf x 14 = 28 sf									
> > 3440	<i>Eff (Stl Protect Coat)</i>	sq feet	3	28.000	<input type="checkbox"/> %	12.000	4.000	4.000	8.000
Notes : CS4 = 8 sf CS 3 = 4 sf CS 2 = 4 sf									
313	Fixed Bearing	each	3	14	<input type="checkbox"/> %		10	4	
Notes : Total Fixed Bearings = 14									
> 1000	<i>Corrosion</i>	each	3	14	<input type="checkbox"/> %		10	4	
Notes : Exterior Bearings CS 3 = 4 Interior Bearings CS 2 = 10									
> 515	Steel Protective Coating	sq feet	3	28.000	<input type="checkbox"/> %	12.000	4.000	4.000	8.000
Notes : Assume 2 sf of paint per bearing = 2 sf x 14 = 28 sf									
> > 3440	<i>Eff (Stl Protect Coat)</i>	sq feet	3	28.000	<input type="checkbox"/> %	12.000	4.000	4.000	8.000
Notes : CS4 = 4 bearings = 8 sf CS 3 = 2 bearings = 4 sf CS 2 = 2 bearings = 4 sf									
330	Metal Bridge Railing	feet	3	517.000	<input type="checkbox"/> %	510.000	4.000	3.000	
Notes : East Rail = 262 ft West Rail = 255 ft Total = 517 ft									
> 1020	<i>Connection</i>	feet	3	7.000	<input type="checkbox"/> %		4.000	3.000	
Notes : 3 posts with missing anchor bolt nut: CS 3 = 3									

National Bridge Element Inspection

BDEPT# **L-10-020**

Date **01/03/2024**

B.I.N. **2KA**

District Bridge Inspection Eng'r **Joseph Dideo**

Item 8 **L10020-2KA-DOT-NBI**

Inspecting Agency **Mass. Highway Dept.**

Span Group **1**

Team Leader **Osama Moustafa**

Town **Lexington**

Team **Baibhav Rajbhandari, Nia A.**

District **4**

Member(s) **Bergeron**

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
> 7000	Damage	feet	3	5.000	<input type="checkbox"/> %		5.000		

Notes : Damage to the fence and rail: CS 2 = 5'

STRUCTURES INSPECTION FIELD REPORT

ROUTINE & SPECIAL MEMBER INSPECTION

2-DIST
04

B.I.N.
2LK

BR. DEPT. NO.
A-10-020=B-07-007

CITY/TOWN ARLINGTON=BELMONT	8-STRUCTURE NO. A10020-2LK-DOT-NBI	11-Kilo. POINT 000.000	41-STATUS P:POSTED	90-ROUTINE INSP. DATE DEC 28, 2022
07-FACILITY CARRIED HWY PARK AVE	MEMORIAL NAME/LOCAL NAME	27-YR BUILT 1967	106-YR REBUILT 0000	YR REHAB'D (NON 106) 0000
06-FEATURES INTERSECTED ST 2	26-FUNCTIONAL CLASS Urban Minor Arterial	DIST. BRIDGE INSPECTION ENGINEER J. Dideo		
43-STRUCTURE TYPE 302 : Steel Stringer/Girder	22-OWNER State Highway Agency	21-MAINTAINER State Highway Agency	TEAM LEADER T. Leiper	
107-DECK TYPE 1 : Concrete Cast-in-Place	WEATHER Cloudy	TEMP. (air) -1°C	TEAM MEMBERS O. MOUSTAFA, L. J BURGoyNE	

ITEM 58	5	
DECK		DEF
1. Wearing surface	5	S-A
2. Deck Condition	5	S-A
3. Stay in Place Forms	N	-
4. Curbs	6	M-P
5. Median	6	M-P
6. Sidewalks	6	M-P
7. Parapets	N	-
8. Railing	6	M-P
9. Anti Missile Fence	6	M-P
10. Drainage System	4	S-A
11. Lighting Standards	N	-
12. Utilities	4	S-A
13. Deck Joints	4	S-A
14. Screening	7	-
15.	N	-
16.	N	-
CURB REVEAL (In millimeters)	E 222	W 216

APPROACHES		DEF
a. Appr. pavement condition	5	M-P
b. Appr. Roadway Settlement	7	-
c. Appr. Sidewalk Settlement	5	M-P
d.	N	-

OVERHEAD SIGNS (Attached to bridge)	(Y/N)	Y
		DEF
a. Condition of Welds	7	-
b. Condition of Bolts	7	M-P
c. Condition of Signs	6	M-P

ITEM 59	5	
SUPERSTRUCTURE		DEF
1. Stringers	N	-
2. Floorbeams	N	-
3. Floor System Bracing	N	-
4. Girders or Beams	5	S-A
5. Trusses - General	N	-
a. Upper Chords	N	-
b. Lower Chords	N	-
c. Web Members	N	-
d. Lateral Bracing	N	-
e. Sway Bracings	N	-
f. Portals	N	-
g. End Posts	N	-
6. Pin & Hangers	N	-
7. Conn Plt's, Gussets & Angles	7	-
8. Cover Plates	5	S-A
9. Bearing Devices	6	M-P
10. Diaphragms/Cross Frames	5	S-A
11. Rivets & Bolts	7	-
12. Welds	7	-
13. Member Alignment	6	M-P
14. Paint/Coating	4	S-A
15.	N	-

Year Painted **1993**

COLLISION DAMAGE: Please explain
None () Minor (X) Moderate () Severe ()

LOAD DEFLECTION: Please explain
None (X) Minor () Moderate () Severe ()

LOAD VIBRATION: Please explain
None () Minor (X) Moderate () Severe ()

Any Fracture Critical Member: (Y/N) **N**

Any Cracks: (Y/N) **N**

ITEM 60	4		
SUBSTRUCTURE		DEF	
1. Abutments	Dive	Cur	4
a. Pedestals	N	N	-
b. Bridge Seats	N	5	M-P
c. Backwalls	N	5	M-P
d. Breastwalls	N	4	S-A
e. Wingwalls	N	5	M-P
f. Slope Paving/Rip-Rap	N	6	M-P
g. Pointing	N	N	-
h. Footings	N	H	-
i. Piles	N	N	-
j. Scour	N	N	-
k. Settlement	N	8	-
l.	N	N	-
m.	N	N	-
2. Piers or Bents			4
a. Pedestals	N	6	M-P
b. Caps	N	4	S-A
c. Columns	N	4	S-A
d. Stems/Webs/Pierwalls	N	N	-
e. Pointing	N	N	-
f. Footing	N	H	-
g. Piles	N	N	-
h. Scour	N	N	-
i. Settlement	N	8	-
j.	N	N	-
k.	N	N	-
3. Pile Bents			N
a. Pile Caps	N	N	-
b. Piles	N	N	-
c. Diagonal Bracing	N	N	-
d. Horizontal Bracing	N	N	-
e. Fasteners	N	N	-

UNDERMINING (Y/N) If YES please explain **N**

COLLISION DAMAGE:
None (X) Minor () Moderate () Severe ()

SCOUR: Please explain
None (X) Minor () Moderate () Severe ()

I-60 (Dive Report): **N** I-60 (This Report): **4**

93B-U/W (DIVE) Insp **00/00/0000**

X=UNKNOWN

N=NOT APPLICABLE H=HIDDEN/INACCESSIBLE

R=REMOVED

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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ITEM 61 N

CHANNEL & CHANNEL PROTECTION

	Dive	Cur	DEF
1.Channel Scour	N	N	-
2.Embankment Erosion	N	N	-
3.Debris	N	N	-
4.Vegetation	N	N	-
5.Utilities	N	N	-
6.Rip-Rap/Slope Protection	N	N	-
7.Aggradation	N	N	-
8.Fender System	N	N	-

STREAM FLOW VELOCITY:
Tidal () High () Moderate () Low () None (X)

ITEM 61 (Dive Report): N ITEM 61 (This Report): N

93b-U/W INSP. DATE: 00/00/0000

ITEM 36 TRAFFIC SAFETY

	36	COND	DEF
A. Bridge Railing	0	6	M-P
B. Transitions	0	5	M-P
C. Approach Guardrail	0	5	M-P
D. Approach Guardrail Ends	0	N	-

WEIGHT POSTING Not Applicable

	H	3	3S2	Single
Actual Posting	20	25	32	N
Recommended Posting	20	25	32	N

Waived Date: 00/00/0000 EJDMT Date: 00/00/0000

At bridge		Other Advance	
N	S	N	S
Y	Y	Y	Y
8	8	8	8

Signs In Place (Y=Yes, N=No, NR=Not Required)
Legibility/Visibility

CLEARANCE POSTING

	E		W		meter
	ft	in	ft	in	
Actual Field Measurement	14	9	16	2	4.49
Posted Clearance		0		0	

Not

At bridge		Advance	
E	W	E	W
/	/	/	/

Signs In Place (Y=Yes, N=No, NR=Not Required)
Legibility/Visibility

ACCESSIBILITY (Y/N/P)

	Needed	Used
Lift Bucket	Y	Y
Ladder	N	N
Boat	N	N
Waders	N	N
Inspector 50	N	N
Rigging	N	N
Staging	N	N
Traffic Control	Y	Y
RR Flagger	N	N
Police	Y	Y
Other:		
	N	N

TOTAL HOURS 32

PLANS (Y/N): Y

(V.C.R.) (Y/N): N

TAPE#: _____

List of field tests performed:
Visual & Hands-on

RATING

Rating Report (Y/N): Y

Date: 01/01/2019

Inspection data at time of existing rating
I 58: 5 I 59: 5 I 60: 5 Date : 12/21/2016

Recommend for Rating or Rerating (Y/N): N

If YES please give priority:
HIGH () MEDIUM () LOW ()

REASON: _____

CONDITION RATING GUIDE (For Items 58, 59, 60 and 61)

CODE	CONDITION	DEFECTS
N	NOT APPLICABLE	
G 9	EXCELLENT	Excellent condition.
G 8	VERY GOOD	No problem noted.
G 7	GOOD	Some minor problems.
F 6	SATISFACTORY	Structural elements show some minor deterioration.
F 5	FAIR	All primary structural elements are sound but may have minor section loss, cracking, spalling or scour.
P 4	POOR	Advanced section loss, deterioration, spalling or scour.
P 3	SERIOUS	Loss of section, deterioration, spalling or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.
C 2	CRITICAL	Advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the bridge until corrective action is taken.
C 1	"IMMINENT" FAILURE	Major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective action may put it back in light service.
0	FAILED	Out of service - beyond corrective action.

DEFICIENCY REPORTING GUIDE

DEFICIENCY: A defect in a structure that requires corrective action.

CATEGORIES OF DEFICIENCIES:

M= Minor Deficiency Deficiencies which are minor in nature, generally do not impact the structural integrity of the bridge and could easily be repaired. Examples include but are not limited to: Spalled concrete, Minor pot holes, Minor corrosion of steel, Minor scouring, Clogged drainage, etc.

S= Severe/Major Deficiency Deficiencies which are more extensive in nature and need more planning and effort to repair. Examples include but are not limited to: Moderate to major deterioration in concrete, Exposed and corroded rebars, Considerable settlement, Considerable scouring or undermining, Moderate to extensive corrosion to structural steel with measurable loss of section, etc.

C-S= Critical Structural Deficiency A deficiency in a structural element of a bridge that poses an extreme unsafe condition due to the failure or imminent failure of the element which will affect the structural integrity of the bridge.

C-H= Critical Hazard Deficiency A deficiency in a component or element of a bridge that poses an extreme hazard or unsafe condition to the public, but does not impair the structural integrity of the bridge. Examples include but are not limited to: Loose concrete hanging down over traffic or pedestrians, A hole in a sidewalk that may cause injuries to pedestrians, Missing section of bridge railing, etc.

URGENCY OF REPAIR:

I = Immediate- [Inspector(s) immediately contact District Bridge Inspection Engineer (DBIE) to report the Deficiency and to receive further instruction from him/her].

A = ASAP- [Action/Repair should be initiated by District Maintenance Engineer or the Responsible Party (if not a State owned bridge) upon receipt of the Inspection Report].

P = Prioritize- [Shall be prioritized by District Maintenance Engineer or the Responsible Party (if not a State owned bridge) and repairs made when funds and/or manpower is available].

STRUCTURES INSPECTION FIELD REPORT

ROUTINE & SPECIAL MEMBER INSPECTION

2-DIST **04** B.I.N. **2LK**

BR. DEPT. NO. **A-10-020=B-07-007**

CITY/TOWN ARLINGTON=BELMONT		8-STRUCTURE NO. A10020-2LK-DOT-NBI		11-Kilo. POINT 000.000	90-ROUTINE INSP. DATE Dec 28, 2022	93*-SPEC. MEMB. INSP. DATE Dec 28, 2022
07-FACILITY CARRIED HWY PARK AVE		MEMORIAL NAME/LOCAL NAME		27-YR BUILT 1967	106-YR REBUILT 0000	*YR REHAB'D (NON 106) 0000
06-FEATURES INTERSECTED ST 2		26-FUNCTIONAL CLASS Urban Minor Arterial		DIST. BRIDGE INSPECTION ENGINEER J. Dideo		
43-STRUCTURE TYPE 302 : Steel Stringer/Girder		22-OWNER State Highway Agency	21-MAINTAINER State Highway Agency	TEAM LEADER T. Leiper		
107-DECK TYPE 1 : Concrete Cast-in-Place		WEATHER Cloudy	TEMP. (air) -1°C	TEAM MEMBERS O. MOUSTAFA, L. J BURGoyNE		

WEIGHT POSTING		<i>Not Applicable</i>				At bridge				Advance				PLANS (Y/N): <input checked="" type="checkbox"/>	
						N		S		N		S			
						Y		Y		Y		Y		SIGN IN PLACE (Y=Yes, N=No, NR=Not Required)	
Actual Posting						8		8		8		8		Legibility/Visibility	
Recommended Posting						8		8		8		8		TAPES: _____	
Waived Date: 00/00/0000		EJDMT Date: 00/00/0000													

RATING

Rating Report (Y/N): Date: **01/01/2019** Recommend for Rating or Rerating (Y/N): If YES please give priority: HIGH () MEDIUM () LOW ()

Inspection data at time of existing rating
I 58: 5 I 59: 5 I 60: 5 I 62: - Date : 12/21/2016

REASON: _____

SPECIAL MEMBER(S):

	MEMBER	CRACK (Y/N):	WELD'S CONDITION (0-9)	LOCATION OF CORROSION, SECTION LOSS (%), CRACKS, COLLISION DAMAGE, STRESS CONCENTRATION, ETC.	CONDITION		INV. RATING OF MEMBER FROM RATING ANALYSIS			Deficiencies
					PREVIOUS (0-9)	PRESENT (0-9)	H-20	3	3S2	
A	Item 60.1.d - Breastwalls	N		See remarks in comments section.	5	4				S-A
B	Item 60.2.b - Caps	N		See remarks in comments section.	5	4				S-A
C	Item 60.2.c - Columns	N		See remarks in comments section.	5	4				S-A
D										
E										

List of field tests performed:
Visual & Hands-on

	I-58	I-59	I-60	I-62
(Overall Previous Condition)	5	5	5	-
(Overall Current Condition)	5	5	4	-

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A = ASAP- [Action/Repair should be initiated by District Maintenance Engineer or the Responsible Party (if not a State owned bridge) upon receipt of the Inspection Report].

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X=UNKNOWN N=NOT APPLICABLE H=HIDDEN/INACCESSIBLE R=REMOVED

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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REMARKS

BRIDGE ORIENTATION

The two span structure carries Park Avenue over ST 2. The abutments are labeled south and north. The spans are numbered from south to north. The beams and bays are numbered from west to east. The beams are numbered BM. 101 to BM. 111 in Span 1 and BM. 201 to BM. 211 in Span 2. **See Sketch 1.**

ITEM 58 - DECK

Item 58.1 - Wearing surface

Both roadways have random areas of moderate cracking, mostly along the curbs. **See Photo 1.**

The south deck end has severe cracking, delamination, and patches along the full width of both roadways. **See Photo 2.**

There is patches along the pier joint and the abutment joints in both roadways where the old steel armor joints were removed. **See Photos 2 - 4.**

Northbound Roadway:

There is a patch just south of the north abutment joint adjacent to the east curb, up to 8' wide x 20' long. **See Photo 5.**

Item 58.2 - Deck Condition

In both spans, all bays have areas of random hairline cracking, some with efflorescence.

Span 1:

The west overhang has minor spalling at the pier joint.

Bay 2 has areas of minor delamination along the longitudinal construction joint.

Bay 6 has a spall at the north end, 15" wide x 9" long x 3" deep. **See Photo 6.**

Bay 7 has been repaired. **See Photo 7.**

Bay 10, utility bay, has a spall near the north end, 1.5' diameter x 4" deep, with exposed rebar. **See Photo 8.**

Span 2:

The east overhang had minor spalling around a utility conduct with active leakage.

Bays 2, 7, and 9 have areas of minor delamination and efflorescence along the full length of the longitudinal construction joint.

Bay 4 is screened between diaphragms 3 & 4. **See Photo 9.**

Bay 4 has a repair between the diaphragm 4 and the north abutment. **See Photo 10.**

Bay 5 has moderate hairline mapcracking throughout.

Bay 8 has a spall over the pier, 17" long x 3' wide x 1.5" deep, with exposed rusted rebar. **See Photo 11.**

Bay 9 has been repaired between diaphragms 4 - 6. **See Photo 12.**

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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REMARKS

Item 58.4 - Curbs

The west curb has a repair at the north approach corner near the abutment joint. **See Photo 13.**

The east curb has a repair at the north approach corner near the abutment joint. **See Photo 14.**

The steel curbs along both faces of the median have areas of moderate rust and delamination throughout. Both faces are have been repaired at the north end. **See Photos 2 & 5.**

Item 58.5 - Median

The concrete median has areas of moderate scaling and spalling along the curb joint, up to 2" deep. **See Photo 15.**

The north end has been repaired. **See Photos 2 & 5.**

Item 58.6 - Sidewalks

Both sidewalks have spalling along the curb joint, up to 1' wide x 2" deep. **See Photo 16.**

Item 58.8 - Railing

Both bridge rails have rust throughout the base plates and anchor nuts.

The west rail has a missing post and a loose fence area at the bottom of panels 8 - 10.

Item 58.9 - Anti Missile Fence

See Item 58.8 - Railing.

Item 58.10 - Drainage System

Span 1, Bay 1, the weep-holes do not have PVCs extending below the bottom flanges. **See Photo 17.**

Item 58.12 - Utilities

All utility brackets have varying degrees of rust and delamination. At the pier several of the brackets have severe section loss, up to 100% section loss. **See Photo 18.**

In Bay 10, the utility conduits have moderate to severe rust at both abutments and the pier joints with exposed wires. **See Photos 19 & 20.**

In Bay 10, in both spans, there are hand-boxes with severe rusting and deterioration leaving the underside of the boxes open exposing the wires inside. **See Photos 21 & 22.**

Item 58.13 - Deck Joints

There are sings of leakage onto both abutments and pier.

All three joints have had the armor style joint removed and have been paved over. **See Photos 2 - 4.**

The north joint has a full width by 1/2" wide crack that allows water to pass through and fall onto the bridge seat below. **See Photo 3.**

Item 58.14 - Screening

See Item 58.2 - Deck Condition.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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REMARKS

APPROACHES

Approaches a - Appr. pavement condition

Both approach roadways have severe mapcracking, some sealed, throughout with potholes forming. **See Photo 23.**

Approaches c - Appr. Sidewalk Settlement

The northwest approach sidewalk is 1" higher than the west sidewalk.

Both southeast and southwest approach sidewalks have settlement, full width x up to 2". **See Photo 24.**

OVERHEAD SIGNS

Overhead Signs b - Condition of Bolts

All bolts have minor rust.

Overhead Signs c - Condition of Signs

In Span 1, the west elevation overhead sign has minor impact damage over the low speed lane.

ITEM 59 - SUPERSTRUCTURE

Item 59.4 - Girders or Beams

Both Spans:

All beams have areas of moderate rust, delamination, and paint failure throughout the web, flanges, and coverplates. **See Photo 25.**

All beams have moderate rust and delamination at both ends of the web with areas of negligible to minor section losses, less than 10% section loss, in up to 3' high x 2' long areas starting at the edges of the web. **See Photo 26.**

Span 1:

Beam 106 has 7/16" section loss to the bottom of the web at the pier (57% thickness remaining). **See Photo 26.**

Span 2:

Beam 211 shows signs of distortion in the web at the pier joint. The web is bowed out towards the east, up to 2" gap at the top edge. **See Photo 27.**

Item 59.8 - Cover Plates

See Item 59.4 - Beams.

Item 59.9 - Bearing Devices

All bearings at the north abutment and pier have moderate rust and minor delamination. **See Photos 26 & 28.**

Item 59.10 - Diaphragms/Cross Frames

All concrete diaphragms at both abutments and pier and have areas of cracking, delamination, and spalling, with exposed rebar. **See Photo 29.**

Item 59.13 - Member Alignment

See Item 59.4 - Beams.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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REMARKS

Item 59.14 - Paint/Coating

The paint system is peeling, flaking, and has failed throughout large areas of all superstructure elements. **See Photos 25 - 28.**

SuperStructure Collision Notes

See Item 59.4 - Beams.

SuperStructure Load Vibration Notes

There is minor vibration during heavier live loads.

ITEM 60 - SUBSTRUCTURE

Item 60.1 - Abutments

Item 60.1.b - Bridge Seats

Both abutments have moderate dirt and debris along several bays.

See Item 60.1.d - Breastwalls.

Item 60.1.c - Backwalls

Both backwalls have random cracks and areas of scaling, with rust and efflorescence.

South Backwall:

The east and west ends have full height cracking with efflorescence.

Bay 2 has two full height x 1' x 6" deep spalls with debris. **See Photo 30.**

There is active leakage onto Bays 2-5, with moderate efflorescence and corrosion staining.

North Backwall:

Bays 1 and 10 have moderate spalling along the top edge, up to 4' wide x up to 2' high x 12" deep, with exposed rusted rebar. **See Photo 20.**

Bays 4 & 5 have several minor surface spalls, up to 1.5' diameter x 2" deep.

Bay 9, behind Beam 210, has a spall, full height x 30" wide x 7" deep, with exposed rusted rebar. **See Photo 31.**

Item 60.1.d - Breastwalls

Both breastwalls have random hairline cracks, some with rust and efflorescence.

South Abutment, at the top below Beam 106, has a spall, 21" wide x 10" high x 2" deep, with exposed rebar.

North Breastwall:

Bays 1 & 2 have moderate spalling along the top edge, 8' wide x up to 1' high x 5" deep, with debonded rebar, extending into the seat area. **See Photo 32.**

Below Beam 202, there is a 11.25' high x 7' wide x 6" deep spall, with seven total exposed rusted rebar, one of which is broken. There is also adjacent hollow areas. **See Photo 33.**

Bay 2, near the top, has a spall 27" high x 13" wide x 2" deep. **See Photo 34.**

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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REMARKS

At the bottom below Beams 203 & 204, three (3) minor spalls with adjacent delamination.

At the bottom below Beams 204 & 205, two (2) spalls, 2' wide x 20" high x 2" deep & 8" wide x 20" high x 1/2" deep, with adjacent delamination. **See Photo 35.**

Bay 5 has a spall along the top edge, 2' wide x 6" high and extends full depth into the bridge seat, with exposed rebar. **See Photo 36.**

Bay 7 has a spall along the top edge, 6' wide x 14" high x 4" deep, with exposed rebar. **See Photo 37.**

Bay 10 has a spall along the construction joint near mid-height, 58" high x 17" wide x 6" deep with exposed rebar. **See Photo 38.**

Item 60.1.e - Wingwalls

Both north wingwalls/retaining walls have moderate to severe cracking with efflorescence and rust stains near the top adjacent to the bridge seat area.

Item 60.1.f - Slope Paving/Rip-Rap

Both slope pavings have cracks in the grout with areas of moderate vegetation between blocks.

Item 60.2 - Piers or Bents

Item 60.2.a - Pedestals

All pedestals have random hairline cracking and minor spalling along the edges.

Pedestal for Beam 103 has spalling on the southwest corner. **See Photo 39.**

Item 60.2.b - Caps

Both faces of the cap and underside have numerous vertical and horizontal cracks throughout, some with rust and efflorescence.

There are areas of moderate debris throughout the seat area.

South Face:

Spall under Beams 103 & 104, 32" high x 10' wide x 10" deep, with exposed and broken rebar that extends into the top face and undermines Pedestal 103, 14" long x 2" deep. **See Photo 39.**

Spall under Beams 108 & 109, 11" high x 6' wide x 6.5" deep, with exposed rusted rebar that extends into the top face and undermines Pedestal 109, 13.5" long x 2" deep. **See Photo 40.**

Spall above Column 5 along the bottom edge, 2' wide x 1' high x 3" deep.

East nose, at the bottom, corner spall, that continues into the underside, 6" high x 48" long x 1' wide. **See Photo 41.**

Underside Face:

Between Columns 1 & 2, there is severe spalling, 7' long x 34" wide x 4" deep, with exposed rusted rebar and continuation into the south face. **See Photo 42.**

Between Columns 2 & 3, there is severe spalling, up to full width x 15' long x 4" deep (average), with exposed rebar, that extends into the south face up to 17", into Column 2, and into the north face up to 7". **See Photo 43.**

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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REMARKS

Between Columns 3 & 4, there is severe spalling, up to full width x 9.5' long x 7" deep, with exposed rusted rebar. **See Photo 44.**

Between Columns 4 & 5, there is severe spalling, up to full width x 13.5' long x 3" deep (average), with exposed and debonded rebar, that extends into the south face up to 14", into Column 4, and into the north face up to 16". **See Photo 45.**

Between Columns 5 & 6, there is severe spalling, up to full width x 15' long x 3" deep (average), with exposed rebar, that extends into the south face up to 22", and into the north face up to 7". **See Photo 46.**

East nose, there is a spall, 26" wide x 40" long x 3" deep, with exposed rusted rebar. **See Photo 41.**

North Face:

Spall under Beams 205 & 206, 39" long x 9" high x 7" deep, with exposed rebar that extends into the top face. **See Photo 47.**

Spall under Beams 208 & 209, 11" high x 5' long x 17" deep, with an exposed rusted rebar that extends into the top face. **See Photo 48.**

Item 60.2.c - Columns

Column 1, spall on the north face, 6' high x 38" wide x 2" deep, with exposed spiral rebar. **See Photo 49.**

Column 2:

-Spall on the north face, 5' high x 32" wide x 2" deep, with exposed spiral rebar. **See Photo 50.**

-Spall on the south face, 6' high x 32" wide x 3.5" deep, with exposed spiral rebar. **See Photo 39.**

Column 4, spall on the north face, 34" high x 21" wide x 2" deep, with exposed spiral rebar. **See Photo 51.**

Column 5 has severe spalling on the south face, full height x up to 7' wide x 5" deep, with exposed spiral rebar that has significant corrosion with areas of 100% section loss. The exposed concrete is hollow sounding. **See Photo 52.**

Column 6 has severe spalling, 11' high x 69" wide x 4" deep, with exposed spiral rebar that has significant corrosion with areas of 100% section loss. The exposed concrete is hollow sounding. **See Photo 53.**

TRAFFIC SAFETY

Item 36a - Bridge Railing

Both bridge rails consist of AL-3 railings and anti-missile fences. See Item 58.8 - Railing.

Item 36b - Transitions

The south approach consist of w-beam panels mounted on steel posts and spacers, and tied to the concrete end posts. The north approaches consist of concrete retaining walls.

Both south corners have areas of collision damage. **See Photo 54.**

Item 36c - Approach Guardrail

The south approach consist of w-beam panels mounted on steel posts and spacers, and tied to the concrete end posts. The north approaches consist of concrete retaining walls.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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REMARKS

Both south corners have areas of collision damage. **See Photo 54.**

Item 36d - Approach Guardrail Ends

All four corners are continuous with the roadway.

Sketch / Photo Log

- Sketch 1 : Framing Plan
- Photo 1 : Wearing surface, typical cracking along the fog line in both spans.
- Photo 2 : Southbound roadway, deterioration along the south deck end.
- Photo 3 : North abutment joint. Note the full length crack in the joint and repaired nose to the median.
- Photo 4 : Southbound roadway, Pier joint.
- Photo 5 : Northbound roadway, patch just south of the north abutment joint. Note the repaired nose to the median.
- Photo 6 : Span 1, Bay 6, spalling at the north end.
- Photo 7 : Span 1, Bay 7, repair area.
- Photo 8 : Span 1, Bay 10, spalling at the north end.
- Photo 9 : Span 2, Bay 4 screening.
- Photo 10 : Span 2, Bay 4 repair area.
- Photo 11 : Span 2, Bay 8 spall over the pier.
- Photo 12 : Span 2, Bay 9 repair between diaphragms 4 - 6.
- Photo 13 : West curb, repaired section in the north approach corner.
- Photo 14 : East curb, repaired section in the north approach corner.
- Photo 15 : Typical spalling along both edges of the median; typical rust throughout the steel curbs.
- Photo 16 : Typical sidewalk spalling along the curb joint.
- Photo 17 : Span 1, Bay 1 weep-holes with no PVCs extending below the bottom flanges.
- Photo 18 : Bay 10 utility bracket at the pier joint with 100% section loss.
- Photo 19 : Bay 10 utility pipe rust at the pier joint.
- Photo 20 : Bay 10 utility pipes rusted through at the north backwall. Note the spall in the backwall.
- Photo 21 : Span 1, Bay 10 utility hand-box rusted through with exposed wires.
- Photo 22 : Span 2, Bay 10 utility hand-box rusted through with exposed wires.
- Photo 23 : North approach roadway - typical severe map cracking throughout with potholes.
- Photo 24 : Southwest approach sidewalk settlement.
- Photo 25 : Typical rust and paint failure throughout all beams.
- Photo 26 : Typical rust and delamination throughout all beam ends at the pier joint.
- Photo 27 : Span 2, Beam 211, deformation at the south end (Pier).
- Photo 28 : Typical rust throughout all bearings; view at north abutment.
- Photo 29 : Typical concrete end diaphragm spalling; view at pier.
- Photo 30 : South backwall, full height spalling in Bay 2.
- Photo 31 : North backwall, Bay 9, spalling behind Beam 210.
- Photo 32 : North breastwall, spalling along the top edge of Bays 1 & 2.
- Photo 33 : North abutment spall below Beam 202.
- Photo 34 : North breastwall, Bay 2 spalling near the top.
- Photo 35 : North breastwall, below Beams 204 & 205, spalling.
- Photo 36 : North breastwall, Bay 5 spalling.
- Photo 37 : North breastwall, Bay 7 spalling.
- Photo 38 : North breastwall, Bay 10 spalling.
- Photo 39 : Pier pedestal for Beam 103 has spalling on the southwest corner. Note the spalling in the south face of the cap and Column 2.
- Photo 40 : Pier cap, spall between Beams 108 & 109.
- Photo 41 : Pier cap, spall on the east nose.

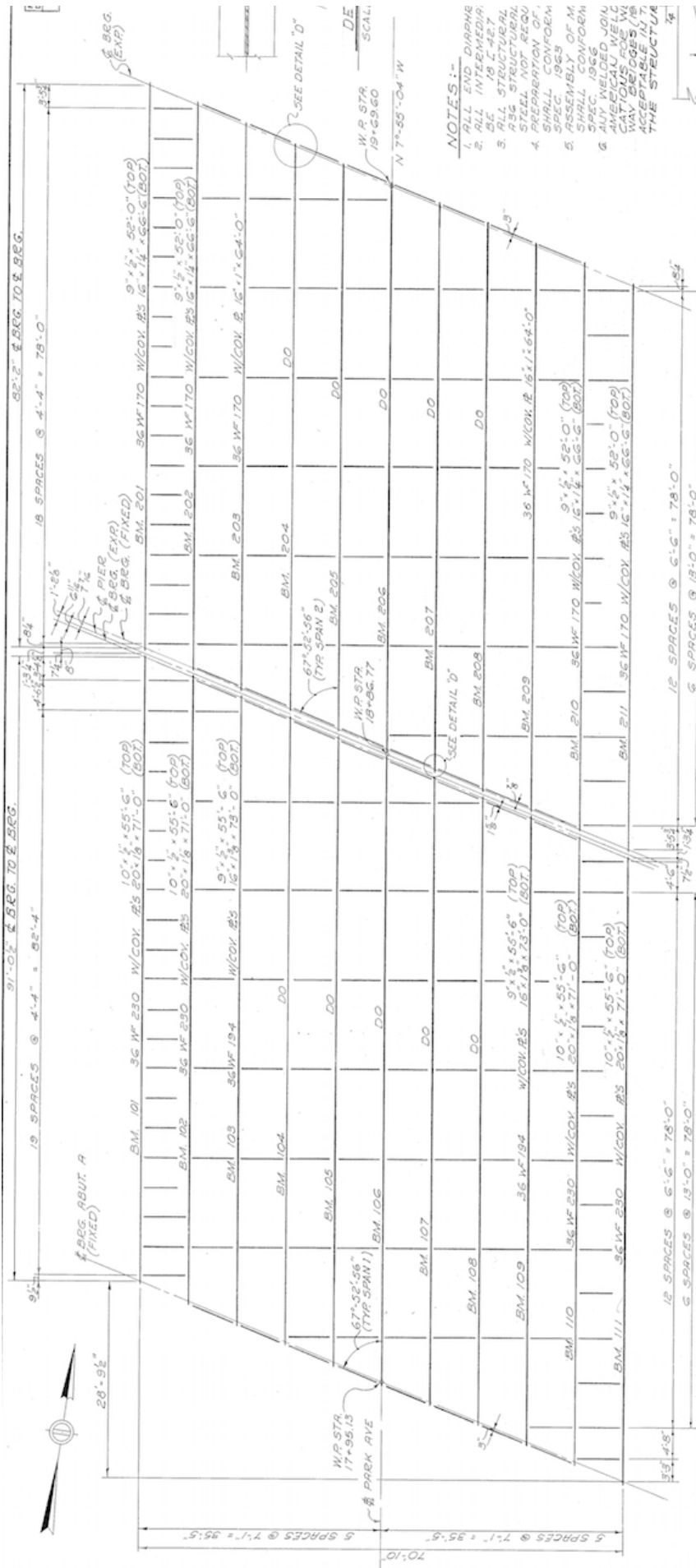
CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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REMARKS

- Photo 42 : Pier cap, spall between Columns 1 & 2.
- Photo 43 : Pier cap, spall between Columns 2 & 3.
- Photo 44 : Pier cap, spall between Columns 3 & 4.
- Photo 45 : Pier cap, spall between Columns 4 & 5.
- Photo 46 : Pier cap, spall between Columns 5 & 6.
- Photo 47 : Pier cap, spall between Beams 205 & 206.
- Photo 48 : Pier cap, spall between Beams 208 & 209.
- Photo 49 : Column 1 spall.
- Photo 50 : Column 2 spall on the north face.
- Photo 51 : Column 4 spall.
- Photo 52 : Column 5 spall.
- Photo 53 : Column 6 spall.
- Photo 54 : Southeast approach rail damage.

CITY/TOWN ARLINGTON=BELMONT	B.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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SKETCHES



Sketch 1: Framing Plan

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 1: Wearing surface, typical cracking along the fog line in both spans.



Photo 2: Southbound roadway, deterioration along the south deck end.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 3: North abutment joint. Note the full length crack in the joint and repaired nose to the median.



Photo 4: Southbound roadway, Pier joint.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 5: Northbound roadway, patch just south of the north abutment joint. Note the repaired nose to the median.



Photo 6: Span 1, Bay 6, spalling at the north end.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 7: Span 1, Bay 7, repair area.



Photo 8: Span 1, Bay 10, spalling at the north end.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 9: Span 2, Bay 4 screening.



Photo 10: Span 2, Bay 4 repair area.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 11: Span 2, Bay 8 spall over the pier.



Photo 12: Span 2, Bay 9 repair between diaphragms 4 - 6.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 13: West curb, repaired section in the north approach corner.



Photo 14: East curb, repaired section in the north approach corner.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 15: Typical spalling along both edges of the median; typical rust throughout the steel curbs.



Photo 16: Typical sidewalk spalling along the curb joint.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 17: Span 1, Bay 1 weep-holes with no PVCs extending below the bottom flanges.



Photo 18: Bay 10 utility bracket at the pier joint with 100% section loss.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 19: Bay 10 utility pipe rust at the pier joint.



Photo 20: Bay 10 utility pipes rusted through at the north backwall. Note the spall in the backwall.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 21: Span 1, Bay 10 utility hand-box rusted through with exposed wires.



Photo 22: Span 2, Bay 10 utility hand-box rusted through with exposed wires.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 23: North approach roadway - typical severe map cracking throughout with potholes.



Photo 24: Southwest approach sidewalk settlement.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 25: Typical rust and paint failure throughout all beams.



Photo 26: Typical rust and delamination throughout all beam ends at the pier joint.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 27: Span 2, Beam 211, deformation at the south end (Pier).



Photo 28: Typical rust throughout all bearings; view at north abutment.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 29: Typical concrete end diaphragm spalling; view at pier.



Photo 30: South backwall, full height spalling in Bay 2.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 31: North backwall, Bay 9, spalling behind Beam 210.



Photo 32: North breastwall, spalling along the top edge of Bays 1 & 2.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 33: North abutment spall below Beam 202.



Photo 34: North breastwall, Bay 2 spalling near the top.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 35: North breastwall, below Beams 204 & 205, spalling.



Photo 36: North breastwall, Bay 5 spalling.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 37: North breastwall, Bay 7 spalling.



Photo 38: North breastwall, Bay 10 spalling.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 39: Pier pedestal for Beam 103 has spalling on the southwest corner. Note the spalling in the south face of the cap and Column 2.



Photo 40: Pier cap, spall between Beams 108 & 109.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 41: Pier cap, spall on the east nose.



Photo 42: Pier cap, spall between Columns 1 & 2.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 43: Pier cap, spall between Columns 2 & 3.



Photo 44: Pier cap, spall between Columns 3 & 4.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 45: Pier cap, spall between Columns 4 & 5.



Photo 46: Pier cap, spall between Columns 5 & 6.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 47: Pier cap, spall between Beams 205 & 206.



Photo 48: Pier cap, spall between Beams 208 & 209.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 49: Column 1 spall.



Photo 50: Column 2 spall on the north face.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 51: Column 4 spall.



Photo 52: Column 5 spall.

CITY/TOWN ARLINGTON=BELMONT	B.I.N. 2LK	BR. DEPT. NO. A-10-020=B-07-007	8.-STRUCTURE NO. A10020-2LK-DOT-NBI	INSPECTION DATE DEC 28, 2022
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PHOTOS



Photo 53: Column 6 spall.



Photo 54: Southeast approach rail damage.

National Bridge Element Inspection

BDEPT# **A-10-020**

Date **12/28/2022**

B.I.N. **2LK**

District Bridge Inspection Eng'r **Joseph Dideo**

Item 8 **A10020-2LK-DOT-NBI**

Inspecting Agency **Mass. Highway Dept.**

Span Group **1**

Team Leader **Thomas Leiper**

Town **Arlington**

Team **Osama Moustafa, Leo J**

District **4**

Member(s) **Burgoyne**

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
12	Re Concrete Deck	sq feet	2	14,938.000	<input type="checkbox"/> %	12,788.000	1,650.000	500.000	
Notes :									
> 1080	<i>Delamination/Spall/Patched Area</i>	sq feet	2	750.000	<input type="checkbox"/> %		550.000	200.000	
Notes :									
> 1090	<i>Exposed Rebar</i>	sq feet	2	750.000	<input type="checkbox"/> %		550.000	200.000	
Notes :									
> 1120	<i>Efflorescence/Rust Staining</i>	sq feet	2	300.000	<input type="checkbox"/> %		250.000	50.000	
Notes :									
> 1130	<i>Cracking (RC and Other)</i>	sq feet	2	350.000	<input type="checkbox"/> %		300.000	50.000	
Notes :									
> 510	Wearing Surfaces	sq feet	2	13,888.000	<input type="checkbox"/> %	12,988.000	600.000	300.000	
Notes :									
> > 3210	<i>Del/Spall/Patch/Pot(Wear Surf)</i>	sq feet	2	300.000	<input type="checkbox"/> %		200.000	100.000	
Notes :									
> > 3220	<i>Crack (Wearing Surface)</i>	sq feet	2	600.000	<input type="checkbox"/> %		400.000	200.000	
Notes :									
107	Steel Opn Girder/Beam	feet	2	1,914.000	<input type="checkbox"/> %	1,914.000			
Notes :									
> 515	Steel Protective Coating	sq feet	2	15,108.000	<input type="checkbox"/> %			15,108.000	
Notes :									
> > 3420	<i>Peel/Bub/Crack(Stl Protect Coat)</i>	sq feet	2	15,108.000	<input type="checkbox"/> %			15,108.000	
Notes :									
107	Steel Opn Girder/Beam	feet	3	220.000	<input type="checkbox"/> %	180.000	40.000		
Notes :									

National Bridge Element Inspection

BDEPT# **A-10-020**

Date **12/28/2022**

B.I.N. **2LK**

District Bridge Inspection Eng'r **Joseph Dideo**

Item 8 **A10020-2LK-DOT-NBI**

Inspecting Agency **Mass. Highway Dept.**

Span Group **1**

Team Leader **Thomas Leiper**

Town **Arlington**

Team **Osama Moustafa, Leo J**

District **4**

Member(s) **Burgoyne**

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
> 1000	<i>Corrosion</i>	feet	3	40.000	<input type="checkbox"/> %		40.000		
Notes :									
> 515	Steel Protective Coating	sq feet	3	1,634.000	<input type="checkbox"/> %			1,634.000	
Notes :									
> > 3420	<i>Peel/Bub/Crack(Stl Protect Coat)</i>	sq feet	3	1,634.000	<input type="checkbox"/> %			1,634.000	
Notes :									
205	Re Conc Column	each	3	6	<input type="checkbox"/> %	1	2	1	2
Notes :									
> 1080	<i>Delamination/Spall/Patched Area</i>	each	3	5	<input type="checkbox"/> %		2	1	2
Notes :									
215	Re Conc Abutment	feet	2	279.000	<input type="checkbox"/> %	244.000	33.000	2.000	
Notes :									
> 1080	<i>Delamination/Spall/Patched Area</i>	feet	2	23.000	<input type="checkbox"/> %		21.000	2.000	
Notes :									
> 1130	<i>Cracking (RC and Other)</i>	feet	2	12.000	<input type="checkbox"/> %		12.000		
Notes :									
234	Re Conc Pier Cap	feet	3	83.000	<input type="checkbox"/> %		19.000	64.000	
Notes :									
> 1080	<i>Delamination/Spall/Patched Area</i>	feet	3	60.000	<input type="checkbox"/> %		9.000	51.000	
Notes :									
> 1130	<i>Cracking (RC and Other)</i>	feet	3	23.000	<input type="checkbox"/> %		10.000	13.000	
Notes :									
306	Other Joint	feet	2	124.000	<input type="checkbox"/> %		99.000	10.000	15.000
Notes :									

National Bridge Element Inspection

BDEPT# **A-10-020**

Date **12/28/2022**

B.I.N. **2LK**

District Bridge Inspection Eng'r **Joseph Dideo**

Item 8 **A10020-2LK-DOT-NBI**

Inspecting Agency **Mass. Highway Dept.**

Span Group **1**

Team Leader **Thomas Leiper**

Town **Arlington**

Team **Osama Moustafa, Leo J**

District **4**

Member(s) **Burgoyne**

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
> 2310	<i>Leakage</i>	feet	2	75.000	<input type="checkbox"/> %		50.000	10.000	15.000
Notes :									
311	Moveable Bearing	each	3	22	<input type="checkbox"/> %		22		
Notes :									
> 1000	<i>Corrosion</i>	each	3	22	<input type="checkbox"/> %		22		
Notes :									
> 515	Steel Protective Coating	sq feet	3	66.000	<input type="checkbox"/> %			66.000	
Notes :									
> > 3420	<i>Peel/Bub/Crack(Stl Protect Coat)</i>	sq feet	3	66.000	<input type="checkbox"/> %			66.000	
Notes :									
313	Fixed Bearing	each	2	22	<input type="checkbox"/> %		22		
Notes :									
> 1000	<i>Corrosion</i>	each	2	22	<input type="checkbox"/> %		22		
Notes :									
> 515	Steel Protective Coating	sq feet	2	66.000	<input type="checkbox"/> %			66.000	
Notes :									
> > 3420	<i>Peel/Bub/Crack(Stl Protect Coat)</i>	sq feet	2	66.000	<input type="checkbox"/> %			66.000	
Notes :									
321	Re Conc Approach Slab	sq feet	2	1,860.000	<input type="checkbox"/> %	1,860.000			
Notes :									
330	Metal Bridge Railing	feet	2	385.000	<input type="checkbox"/> %	385.000			
Notes :									

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STRUCTURES INSPECTION FIELD REPORT

2-DIST
04

B.I.N.
2LX

ROUTINE INSPECTION

BR. DEPT. NO.
L-10-017

CITY/TOWN LEXINGTON	8-STRUCTURE NO. L10017-2LX-DOT-NBI	11-Kilo. POINT 000.000	41-STATUS A:OPEN	90-ROUTINE INSP. DATE OCT 16, 2023
07-FACILITY CARRIED HWY SPRING ST	MEMORIAL NAME/LOCAL NAME	27-YR BUILT 1967	106-YR REBUILT 0000	YR REHAB'D (NON 106) 0000
06-FEATURES INTERSECTED ST 2	26-FUNCTIONAL CLASS Urban Minor Arterial	DIST. BRIDGE INSPECTION ENGINEER J. Dideo		
43-STRUCTURE TYPE 302 : Steel Stringer/Girder	22-OWNER State Highway Agency	21-MAINTAINER State Highway Agency	TEAM LEADER O. Moustafa	
107-DECK TYPE 1 : Concrete Cast-in-Place	WEATHER P.Cloudy	TEMP. (air) 14°C	TEAM MEMBERS L. SALVI	

ITEM 58 5

DECK DEF

1. Wearing surface	6	M-P
2. Deck Condition	5	M-P
3. Stay in Place Forms	N	-
4. Curbs	5	M-P
5. Median	N	-
6. Sidewalk and Safety Walls	5	M-P
7. Parapets	N	-
8. Railing	6	M-P
9. Anti Missile Fence	N	-
10. Drainage System	N	-
11. Lighting Standards	N	-
12. Utilities	5	S-A
13. Deck Joints	6	M-P
14. Shielding	7	-
15.	N	-
16.	N	-

CURB REVEAL (In millimeters)

E	W
292	267

ITEM 59 6

SUPERSTRUCTURE DEF

1. Stringers	N	-
2. Floorbeams	N	-
3. Floor System Bracing	N	-
4. Girders or Beams	6	M-P
5. Trusses - General	N	-
a. Upper Chords	N	-
b. Lower Chords	N	-
c. Web Members	N	-
d. Lateral Bracing	N	-
e. Sway Bracings	N	-
f. Portals	N	-
g. End Posts	N	-
6. Pin & Hangers	N	-
7. Conn Plt's, Gussets & Angles	N	-
8. Cover Plates	N	-
9. Bearing Devices	6	M-P
10. Diaphragms/Cross Frames	6	S-P
11. Rivets & Bolts	7	-
12. Welds	7	-
13. Member Alignment	8	-
14. Paint/Coating	6	M-P
15.	N	-

Year Painted 2008

COLLISION DAMAGE: *Please explain*
None (X) Minor () Moderate () Severe ()

LOAD DEFLECTION: *Please explain*
None (X) Minor () Moderate () Severe ()

LOAD VIBRATION: *Please explain*
None () Minor (X) Moderate () Severe ()

Any Fracture Critical Member: (Y/N) N

Any Cracks: (Y/N) N

ITEM 60 6

SUBSTRUCTURE DEF

1. Abutments	Dive	Cur	7	
a. Pedestals	N	N		-
b. Bridge Seats	N	6		M-P
c. Backwalls	N	6		M-P
d. Breastwalls	N	7		M-P
e. Wingwalls	N	6		M-P
f. Slope Paving/Rip-Rap	N	6		M-P
g. Pointing	N	N		-
h. Footings	N	H		-
i. Piles	N	N		-
j. Scour	N	N		-
k. Settlement	N	8		-
l.	N	N		-
m.	N	N		-
2. Piers or Bents			6	
a. Pedestals	N	N		-
b. Caps	N	6		M-P
c. Columns	N	6		M-P
d. Stems/Webs/Pierwalls	N	N		-
e. Pointing	N	N		-
f. Footing	N	H		-
g. Piles	N	N		-
h. Scour	N	N		-
i. Settlement	N	8		-
j.	N	N		-
k.	N	N		-
3. Pile Bents			N	
a. Pile Caps	N	N		-
b. Piles	N	N		-
c. Diagonal Bracing	N	N		-
d. Horizontal Bracing	N	N		-
e. Fasteners	N	N		-

UNDERMINING (Y/N) If YES please explain N

COLLISION DAMAGE:
None (X) Minor () Moderate () Severe ()

SCOUR: Please explain
None (X) Minor () Moderate () Severe ()

I-60 (Dive Report): N I-60 (This Report): 6

93B-U/W (DIVE) Insp 00/00/0000

X=UNKNOWN N=NOT APPLICABLE H=HIDDEN/INACCESSIBLE R=REMOVED

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ITEM 61 N

CHANNEL & CHANNEL PROTECTION

	Dive	Cur	DEF
1.Channel Scour	N	N	-
2.Embankment Erosion	N	N	-
3.Debris	N	N	-
4.Vegetation	N	N	-
5.Utilities	N	N	-
6.Rip-Rap/Slope Protection	N	N	-
7.Aggradation	N	N	-
8.Fender System	N	N	-

STREAM FLOW VELOCITY:
Tidal () High () Moderate () Low () None (X)

ITEM 61 (Dive Report): N ITEM 61 (This Report): N

93b-U/W INSP. DATE: 00/00/0000

ITEM 36 TRAFFIC SAFETY

	36	COND	DEF
A. Bridge Railing	0	6	M-P
B. Transitions	0	7	M-P
C. Approach Guardrail	1	7	M-P
D. Approach Guardrail Ends	0	7	-

WEIGHT POSTING X *Not Applicable*

	H	3	3S2	Single
Actual Posting	N	N	N	N
Recommended Posting	N	N	N	N

Waived Date: 11/04/1997 EJDMT Date: 00/00/0000

At bridge		Other Advance	
N	S	N	S
/	/	/	/

Signs In Place (Y=Yes, N=No, NR=Not Required)
Legibility/Visibility

CLEARANCE POSTING X

	E		W		meter
	ft	in	ft	in	
Actual Field Measurement	14	8	15	7	4.47
Posted Clearance		0		0	

At bridge		Advance	
E	W	E	W
/	/	/	/

Signs In Place (Y=Yes, N=No, NR=Not Required)
Legibility/Visibility

ACCESSIBILITY (Y/N/P)

	Needed	Used
Lift Bucket	Y	Y
Ladder	Y	Y
Boat	N	N
Waders	N	N
Inspector 50	N	N
Rigging	N	N
Staging	N	N
Traffic Control	Y	Y
RR Flagger	N	N
Police	Y	Y
Other:		
	N	N

TOTAL HOURS 24

PLANS (Y/N): Y

(V.C.R.) (Y/N): N

TAPE#: _____

List of field tests performed:
Visual and hands-on Inspection

RATING

Rating Report (Y/N): Y

Date: 10/01/1997

Inspection data at time of existing rating
I 58: 7 I 59: 7 I 60: 5 Date : 12/01/1995

Recommend for Rating or Rerating (Y/N): N

If YES please give priority:
HIGH () MEDIUM () LOW ()

REASON: _____

CONDITION RATING GUIDE (For Items 58, 59, 60 and 61)

CODE	CONDITION	DEFECTS
N	NOT APPLICABLE	
G 9	EXCELLENT	Excellent condition.
G 8	VERY GOOD	No problem noted.
G 7	GOOD	Some minor problems.
F 6	SATISFACTORY	Structural elements show some minor deterioration.
F 5	FAIR	All primary structural elements are sound but may have minor section loss, cracking, spalling or scour.
P 4	POOR	Advanced section loss, deterioration, spalling or scour.
P 3	SERIOUS	Loss of section, deterioration, spalling or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.
C 2	CRITICAL	Advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the bridge until corrective action is taken.
C 1	"IMMINENT" FAILURE	Major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective action may put it back in light service.
0	FAILED	Out of service - beyond corrective action.

DEFICIENCY REPORTING GUIDE

DEFICIENCY: A defect in a structure that requires corrective action.

CATEGORIES OF DEFICIENCIES:

M= Minor Deficiency Deficiencies which are minor in nature, generally do not impact the structural integrity of the bridge and could easily be repaired. Examples include but are not limited to: Spalled concrete, Minor pot holes, Minor corrosion of steel, Minor scouring, Clogged drainage, etc.

S= Severe/Major Deficiency Deficiencies which are more extensive in nature and need more planning and effort to repair. Examples include but are not limited to: Moderate to major deterioration in concrete, Exposed and corroded rebars, Considerable settlement, Considerable scouring or undermining, Moderate to extensive corrosion to structural steel with measurable loss of section, etc.

C-S= Critical Structural Deficiency A deficiency in a structural element of a bridge that poses an extreme unsafe condition due to the failure or imminent failure of the element which will affect the structural integrity of the bridge.

C-H= Critical Hazard Deficiency A deficiency in a component or element of a bridge that poses an extreme hazard or unsafe condition to the public, but does not impair the structural integrity of the bridge. Examples include but are not limited to: Loose concrete hanging down over traffic or pedestrians, A hole in a sidewalk that may cause injuries to pedestrians, Missing section of bridge railing, etc.

URGENCY OF REPAIR:

I = Immediate- [Inspector(s) immediately contact District Bridge Inspection Engineer (DBIE) to report the Deficiency and to receive further instruction from him/her].

A = ASAP- [Action/Repair should be initiated by District Maintenance Engineer or the Responsible Party (if not a State owned bridge) upon receipt of the Inspection Report].

P = Prioritize- [Shall be prioritized by District Maintenance Engineer or the Responsible Party (if not a State owned bridge) and repairs made when funds and/or manpower is available].

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REMARKS

BRIDGE ORIENTATION

The two span structure carries Spring Street over State Route 2 in the Town of Lexington, Massachusetts. The approaches and abutments are labeled North and South. According to the design plans, spans are numbered from South to North and the beams are numbered 1 through 14 from West to East, starting in Span 1 (**see Sketch 1**).

ITEM 58 - DECK

Item 58.1 - Wearing surface

There are several random longitudinal sealed and non-sealed cracks throughout both travel lanes, up to 1/2" wide and a few patched potholes, up to 9" diameter (**see Photo 1**).

In both spans there is a sealed longitudinal crack that runs along the double yellow center lines.

In Span 2, near the north deck joint, the large pothole and the heaving adjacent to the west curb were repaired and the bituminous wearing surface at the repaired section was replaced with concrete since last inspection (**see Photo 2**). The repair exhibits minor full width hairline cracks throughout (**see Photo 3**).

There is an area of ponding and standing water in span 2 over the pier (**see Photo 4**).

Item 58.2 - Deck Condition

Both deck overhangs exhibit several random full width hairline cracks, some with efflorescence (**see photo 5**).

Span 1:

- Bay 1, multiple transverse hairline cracks with light efflorescence near south abutment, up to full bay width (**see Photo 6**).
- Bays 2, 3, 5, 6: typical full bay width hairline crack over the second cross frame (**see Photo 7**).
- Bay 4, shielded over the left three travel lanes of the eastbound roadway (**see Photo 8**).
- Bay 4, full length delamination with moderate efflorescence, rust staining and dampness along the longitudinal construction joint (**see Photo 9**).
- Bay 5, near the Pier - spall measuring 12" diameter x 3" deep with exposed rebar adjacent to the concrete end diaphragm.
- Bay 6, several random full width transverse hairline cracks throughout.

Span 2:

- West overhang at north abutment, up to 2.5' long x 1.5' wide area of delamination (**see Photo 10**).
- Bay 2, over the second right lane, full bay width transverse hairline crack.
- Bay 3, near mid-span, area of several spalls running parallel to Beam 11, up to 2.5' long x 7" wide x 2" deep with exposed rebar (**see Photo 11**).
- Bay 4, shielded over all travel lanes of the westbound roadway (**see Photo 12**).
- Bay 4, full bay width x 2' long delamination with moderate efflorescence, rust staining and dampness along the longitudinal construction joint over the north abutment slope protection between second and third cross frames from the north (**see Photo 13**).
- Bay 4, above the shielded area over the third cross frame, south of the pier (over the median area behind the guardrail of the westbound roadway), there is an area of spalling, up to 32" wide x 7' long x 3" deep with exposed and rusted rebar and adjacent hollow area, 3' long x 2.5' wide (**see Photo 14**).
- Bay 5, near the North Abutment, spall measuring 12" diameter x 3" deep with exposed rebar and water staining.

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REMARKS

- Bay 5, between second and third cross frames, diagonal crack with light efflorescence, water and rust staining.
- Bay 6, several random full width transverse hairline cracks with light efflorescence and water staining between first and third cross frames from north (**see Photo 15**).

Item 58.4 - Curbs

At all four approach corners, the curb sections are leaning into the roadway, up to 3" (**see Photo 16**).

At the west curb, south deck joint, the granite section has full height cracks, up to 1/2" wide (**see Photo 17**).

Item 58.6 - Sidewalk and Safety Walk

The west sidewalk and east safety walk, both have random areas of minor vegetation growth throughout.

specific deficiencies are as follows:

West Sidewalk:

-There are several hairline transverse, longitudinal and map cracking near the south end (**see Photo 18**).

-In both spans, there are typical edge spalls behind the curb, up to 10' long x 6" wide x 1.5" deep (**see Photo 19**).

-Starting over the pier, there is longitudinal hairline cracking that continues up to full span 2 length (**see Photo 20**).

East Safety walk:

- In both spans, there are typical areas of edge spalling behind the curb, up to full span length x 5" wide x 1.5" deep.

- In span 2, there are two spalls near mid-span up to 1' diameter x 2" deep.

- Over the pier, there is a spall, 5' long x 5" high x 4" deep with exposed and rusted rebar along the outside edge (**see Photo 21**).

Item 58.8 - Railing

All anchors and bolts at the post's base exhibit typical minor surface rust.

There are several random minor dents along the top hand rail on the east railing and the metal fencing is detached at post #16 from the south (**see photo 22**).

The top rail is disconnected at the joint over the pier in the east railing (**see photo 23**).

The metal fencing is detached at the first panel from the north in the east railing (**see Photo 24**).

There is moderate vegetation growth around the railing at the southwest corner.

Item 58.12 - Utilities

In bay 1, the utility support bracket at the pier exhibit severe rust with several areas of 100% section loss throughout. The adjacent conduit pipes exhibit 100% section loss (**see Photo 25**).

Span 2, Bay 1, the third utility bracket from the North Abutment has a broken "U" bracket (**see Photo 26**).

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REMARKS

Span 1, Bay 1, the first utility bracket from the pier has rusted with 100% section loss (**see Photo 27**).

At north abutment, the coupling anchor-bolts/screws of the watermain exhibit 100% section loss. The pipe has missing insulation section and exhibit moderate surface rust (**see Photo 28**).

Item 58.13 - Deck Joints

There is active leakage onto both abutments and the pier cap.

The north deck joint has been repaired since the previous inspection. The joint exhibits several longitudinal cracks, up to full joint length x 1/8" wide (**see Photo 29**).

The pier joint and south joint, both exhibit minor transverse and longitudinal cracks throughout, up to 1/8" wide.

Item 58.14 - Shielding

Bay 4 has been shielded over the left three travel lanes of the eastbound roadway in span 1 and shielded over all travel lanes of the westbound roadway in span 2 (**see photos 8 & 12**).

APPROACHES

Approaches a - Appr. pavement condition

Both approach roadways exhibit several sealed and non-sealed longitudinal and transverse cracks throughout both travel lanes, up to 1/2" wide (**see Photo 30**).

Approaches b - Appr. Roadway Settlement

Both approaches exhibit minor wheel rutting and minor shoving throughout. The south approach exhibits up to 2" settlement at the south deck joint.

Approaches c - Appr. Sidewalk and Settlement

Both approach curbs exhibit vertical and horizontal misalignment, up to 3" and several areas of settlement (**see Photo 31**). The curb at the southeast corner has settled 5" deep.

The southwest approach concrete sidewalk is heaved, up to 2" along with diagonal and longitudinal corner cracks, up to 1/2" wide. (**see Photo 32**). The asphalt exhibits several areas of settlement throughout, up to 3" deep.

At the northwest approach sidewalk, several concrete pads are cracked at the east corners, up to 1" wide with moderate vegetation growth (**see Photo 33**). The asphalt portion exhibits heavy map cracking up to 3/4" wide with several areas of depression (**see Photo 34**).

ITEM 59 - SUPERSTRUCTURE

Item 59.4 - Girders or Beams

Throughout both spans, several beams exhibit typical random areas of minor rusting to the bottom flanges (**see Photo 35**).

Span 1:

Beam 1, west face has two rusted areas of an old bracket that was removed (**see Photo 36**).

Beam 7 has two areas of 100% section loss at the north end of the web beyond the bearings measuring 7" high x 4" wide at the bottom (**see Photo 37**) and 10" high x 3" wide near mid-height (**see Photo 38**). The

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REMARKS

east stiffener at the very end has an area of 100% section loss, 3" wide x 2" high (**see Photo 37 & 39**). The end of the beam is rusted nearly full height.

Span 2:

Beam 14, east face has abandoned brackets (**see Photo 40**).

Beam 14 has an areas of 100% section loss at the south end of the web beyond the bearings measuring 5" high x 3" wide at the bottom (**see Photo 41**).

The southern most 3 vertical stiffeners of Beam 8 on the east side of the web are knifed down significantly adjacent to the bottom flange. The end of the beam is rusted nearly full height (**see Photo 42**).

Item 59.9 - Bearing Devices

The majority of the bearings exhibit failing paint, moderate surface rust and lamination due to active water leaking from deck joints (**see Photos 42 & 43**).

At the south abutment, bearing of beam 1, the east anchor is slightly bent towards the south (**see Photo 44**).

At the pier, bearing of beam 8, the west anchor is slightly bent towards the north (**see Photo 43**).

Most of the bearings at the pier are partially covered by dirt and debris (**see Photo 45**).

The bearings of beams 8 - 10 at the north abutment are partially covered by dirt and debris.

Item 59.10 - Diaphragms/Cross Frames

Several concrete diaphragms at both abutments exhibit minor hairline cracking along the bottom face.

Several concrete diaphragms at the Pier have moderate to severe spalling and delamination along the bottom edge, up to full bay length x full width x 3" deep with exposed and rusted rebar (**see Photo 46**).

The connection plates of the cross frames over the pier in both spans exhibit typical minor to moderate surface rust due to leakage from the joint above (**see Photo 47**).

The bottom chord of the first cross frame at the north abutment (span 2, bay 6) and also at the south abutment (span 1, bay 5), both exhibit light surface rust with paint peeling and light accumulation of efflorescence (**see Photo 48**).

Item 59.14 - Paint/Coating

The majority of the bearings and the ends of beams at the pier exhibit failing paint with minor to moderate rust due to leakage from deck joints.

SuperStructure Load Vibration Notes

There is minor vibration during heavy live loads.

ITEM 60 - SUBSTRUCTURE

Item 60.1 - Abutments

Item 60.1.b - Bridge Seats

The bridge seats are covered with dirt and debris at the pier.

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REMARKS

Item 60.1.c - Backwalls

South backwall:

Bay 4, there is a horizontal hairline crack, 4' long with efflorescence and rust staining.

Bay 6, there is a spall at the top, 2' wide x 1' high x 1.5" deep (**see Photo 49**).

Behind Beam 7, there is an active leakage, formwork left in place, a vertical crack up to 2" wide x full height and an adjacent spall, 6" wide x full height x 3" deep with exposed rebar (**see Photo 50**).

North backwall:

Bay 1: there are two spalls around the utility pipes, 7" diameter and 1.5' wide x 9" high x 8" deep (**see Photo 28**).

Behind beam 14, there is a spall up to full height x up to 6" wide x 2" deep (**see Photo 51**).

Item 60.1.d - Breastwalls

Both breastwalls have random horizontal cracking, up to 1/8" wide, with rust staining throughout.

North breastwall: there is a horizontal crack with minor rust staining under bays 3 - 5, up to 1/8" wide (**see photo 52**).

South breastwall at the east corner: there is a horizontal crack under bays 6, full bay length x up to 1/8" wide (**see photo 53**).

South breastwall at the west corner: there are two horizontal hairline cracks under bay 1, full bay length.

Item 60.1.e - Wingwalls

The northwest wingwall has a full height vertical crack with minor spalling at the top corner, up to 1" wide (**see Photo 54**).

The southeast wingwall has a full height vertical crack, up to 3" wide (**see Photo 55**).

Item 60.1.f - Slope Paving/Rip-Rap

There is a 3" to 4" wide gap at the top of the slope pavement at both abutments (**see Photo 56**).

At the South Abutment, under Bay 3, there is a 1" wide diagonal crack at the bottom half (**see Photo 57**).

Item 60.2 - Piers or Bents

Item 60.2.b - Caps

There is active leakage and moderate debris on the Pier cap throughout (**see Photo 58**).

Both faces of the cap exhibit random horizontal and vertical hairline cracking throughout with efflorescence, rust staining, and active leakage.

Specific deficiencies are as follows:

South face of pier cap:

-From the west end to bay 1, there are full bay length horizontal cracks with light efflorescence, diagonal and vertical cracks under beam 1 with rust staining, up to 1/8" wide. There is also a spall, up to 8" diameter x 1" deep at mid height in the middle of the bay (**see Photo 59**).

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REMARKS

-Under beam 2, there is up to 3' long x 1/8" wide horizontal crack the top and several horizontal cracks at the bottom up to 1/8" wide x 4' long.

-Bay 2, there is a corner spall at the bottom, 2' wide x 1.5' high x up to 1' deep.

-Under beam 3, there are horizontal and diagonal cracks at the top and at mid height, up to 2.5' long x 1/8" wide.

-Under beam 4, there is a full height vertical crack with moderate efflorescence, up to 1/8" wide and several hairline map cracking throughout bay 3 (**see Photo 60**).

-Bay 4, there is a full height vertical hairline crack at the middle of the bay.

-Bay 5, there are two spalls at the top, 3' wide x 1.5' high x 3" deep with exposed rebar and 1.5' wide x 6" high x 2" deep. There is also a 1/4" wide horizontal crack between the spalls (**see Photo 61**).

-Bay 6, there are three spalls with rust staining and efflorescence, up to 9" diameter x 1.5" deep and a full height x 1/8" wide vertical crack, several horizontal hairline cracks along with active leakage (**see Photo 62**).

Bottom face of pier cap:

-between columns 1 & 2, there is a corner spall with exposed rebar, 2' wide x 1.5' high x up to 1' deep and adjacent hollow area up to 2.5' wide x 2' long and several spots of rust staining.

-between columns 2 & 3, there are random longitudinal and transverse cracks, up to full width x 1/8" wide and a couple spots of rust staining.

North face of pier cap:

-Bay 6, there is an area of active leakage with moderate rust and efflorescence staining. There is also a 9" wide x 4" high x 5" deep spall at the top corner and scattered hairline cracks under beam 13 (**see Photo 63**).

-Under beam 12, there is a 2' long hairline vertical crack.

-Bay 4, there are several horizontal cracks at the bottom, up to full bay length x 1/8" wide and several spots of rust staining. There is also a full height x 1/8" wide vertical crack under beam 11 (**see Photo 64**).

-Bay 1, there are several full height vertical cracks x 1/16" wide throughout and rust staining under beam 8. There is also a corner spall at the bottom, 1' wide x 5" high x 4" deep (**see Photo 65**).

Item 60.2.c - Columns

Column 1 exhibits several full height vertical hairline cracks and two spalls at the south face, up to 2' high x 1.5' wide x 3" deep with 7 exposed rebar (**see Photo 66**).

Column 2 exhibits nine (9) full height vertical cracks up to 1/4" wide and a hollow area at the top half. There is a spall at the west face, 15" wide x 5" high x 1.5" deep (**see Photo 67**).

Column 3 exhibits several vertical and horizontal hairline cracks throughout and a spall, 8" wide x 3" high x 1" deep.

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REMARKS

TRAFFIC SAFETY

Item 36a - Bridge Railing

Both east and west bridge railings are not high enough. The railings height is 40" only.

Both bridge rails consist of AL-3 type railing. See Item 58.8 - Railing.

Item 36b - Transitions

All four corners consist of type "ss" highway guardrail panels mounted on steel posts and spacers, 3' spacing, tied to the concrete end-posts.

Both the southeast and southwest transitions are missing one bolt (**See Photo 68**).

Item 36c - Approach Guardrail

All four corners consist of type "SS" highway guardrail panels mounted on steel posts and spacers.

The northeast approach guardrail exhibits minor impact damage (**see Photo 69**).

Item 36d - Approach Guardrail Ends

Both north approach guardrails corners have buried ends and both south approach guardrails corners have boxing glove ends.

Sketch / Photo Log

- Sketch 1 : Framing plan
- Photo 1 : Wearing surface: several random longitudinal sealed and non-sealed cracks and a few patched potholes throughout. (Span 2 shown, Looking South).
- Photo 2 : Wearing surface, Span 2, repair along the west curb. (Looking South).
- Photo 3 : Wearing surface: typical full repair width transverse hairline cracks adjacent to the west curb.
- Photo 4 : Wearing surface, span 1: area of ponding and standing water over the pier. (Looking North).
- Photo 5 : Deck overhangs: Typical random full width hairline cracks, some with light efflorescence.
- Photo 6 : Deck ,Span 1, Bay 1: Multiple transverse hairline cracks with light efflorescence near south abutment, up to full bay width.
- Photo 7 : Deck, span 1, bays 2, 3, 5, 6: typical full bay width hairline crack over the second cross frame. (Bay 3 shown).
- Photo 8 : Deck, span 1: bay 4 shielded over the eastbound roadway over the left three travel lanes. (Looking North).
- Photo 9 : Deck, bay 4: full length delamination with moderate efflorescence, rust staining and dampness along the longitudinal construction joint.
- Photo 10 : Deck, west overhang at north abutment: up to 2.5' long x 1.5' wide area of delamination.
- Photo 11 : Deck, span 2, bay 3 near mid-span: several spalls running parallel to Beam 11 with exposed rebar.
- Photo 12 : Deck, span 2: Bay 4 shielded over the westbound roadway. (Looking South).
- Photo 13 : Deck, span 2, bay 4: full length delamination with moderate efflorescence, rust staining and dampness along the longitudinal construction joint.
- Photo 14 : Deck, span 2 Bay 4, above the shielding: area of spalling, up to 32" wide x 7' long x 3" deep with 16 exposed/rusted rebar and adjacent hollow area, 3' long x 2.5' wide.
- Photo 15 : Deck, span 2, Bay 6: several random full bay width transverse hairline cracks with light efflorescence and dampness.
- Photo 16 : Curb at northeast corner is leaning into the roadway, up to 3". (Looking north).
- Photo 17 : West curb, at south deck joint, granite section has full height cracks, up to 1/2" wide.
- Photo 18 : West Sidewalk: hairline transverse, longitudinal and map hairline cracking near the south end.

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REMARKS

- Photo 19 : West curb, span 1, edge spalling behind the curb, up to 10' long x 6" wide x 1.5" deep. (Looking North).
- Photo 20 : West curb: longitudinal hairline cracking that continues up to full span 2 length. (Looking South).
- Photo 21 : East safety walk: over the pier spall, 5' long x 5" high x 4" deep with exposed and rusted rebar along the outside edge.
- Photo 22 : Several random minor dents along the top hand rail on the east railing. Also note the detached metal fencing. (Post #16 from south shown)
- Photo 23 : East railing, the top rail is disconnected at the joint over the pier.
- Photo 24 : The metal fencing is detached at the first panel from the north in the east railing.
- Photo 25 : Bay 1, utility support bracket at the pier with severe rust and several areas of 100% section loss throughout. Also note the 100% section loss of the conduit pipes.
- Photo 26 : Span 2, Bay 1, the third utility bracket from the North Abutment has a broken "U" bracket. (Looking South).
- Photo 27 : Span 1, Bay 1, the first utility bracket from the pier has rusted with 100% section loss. (Looking North).
- Photo 28 : Utilities, north abutment, coupling anchor-bolts/screws of the watermain with 100% section loss. Also note the missing insulation, moderate surface rust and the spall underneath. (Looking South).
- Photo 29 : North deck joint has been repaired since previous inspection. Also note several longitudinal cracks, up to full joint length x 1/8" wide. (Looking East).
- Photo 30 : Approach roadways: several sealed and non-sealed longitudinal and transverse cracks throughout both travel lanes, up to 1/2" wide (North approach shown).
- Photo 31 : Southwest approach curb: vertical and horizontal misalignment, up to 3" and several areas of settlement. (Looking North).
- Photo 32 : Southwest approach sidewalk is heaved, up to 2" along with diagonal and longitudinal corner cracks, up to 1/2" wide. (Looking South).
- Photo 33 : Northwest approach sidewalk: several concrete pads are cracked at the east corners, up to 1" wide with moderate vegetation growth. (Looking North).
- Photo 34 : Northwest approach sidewalk: the asphalt portion exhibits heavy map cracking with several areas of depression. (Looking North).
- Photo 35 : Beams: typical random areas of minor rusting to the bottom flange. (Beams 2 - 4, span 1 near south abutment shown).
- Photo 36 : Beam 1, span 1, west face: two rusted areas of an old bracket that was previously removed.
- Photo 37 : Beam 7: area of 100% section loss at the north end of the web beyond the bearings measuring 7" high x 4" wide at the bottom.
Also note the 100% section loss to the stiffener 3" high x 2" wide.
- Photo 38 : Beam 7: areas of 100% section loss at the north end of the web beyond the bearings measuring 10" high x 3" wide near mid-height.
- Photo 39 : Beam 7, span 1: east stiffener at the very end has an area of 100% section loss, 3" wide x 2" high.
- Photo 40 : Span 2, beam 14, east face has abandoned brackets.
- Photo 41 : Beam 14 in span 2: areas of 100% section loss at the south end of the web beyond the bearings measuring 5" high x 3" wide at the bottom.
- Photo 42 : Beam 8: the southern most 3 vertical stiffeners on the east side of the web are knifed down significantly adjacent to the bottom flange. Also note the moderate rust to the bearing.
- Photo 43 : Bearings: moderate rust, lamination and active water leaking from deck joints. Also note west anchor of beam 8 is bent towards North. (Bearing of beams 1 & 8 at pier shown).
- Photo 44 : Bearing of beam 1, south abutment: east anchor is slightly bent towards the south.
- Photo 45 : Bearings are partially covered by dirt and debris at the pier. (Bay 1, span 1 shown, looking North).

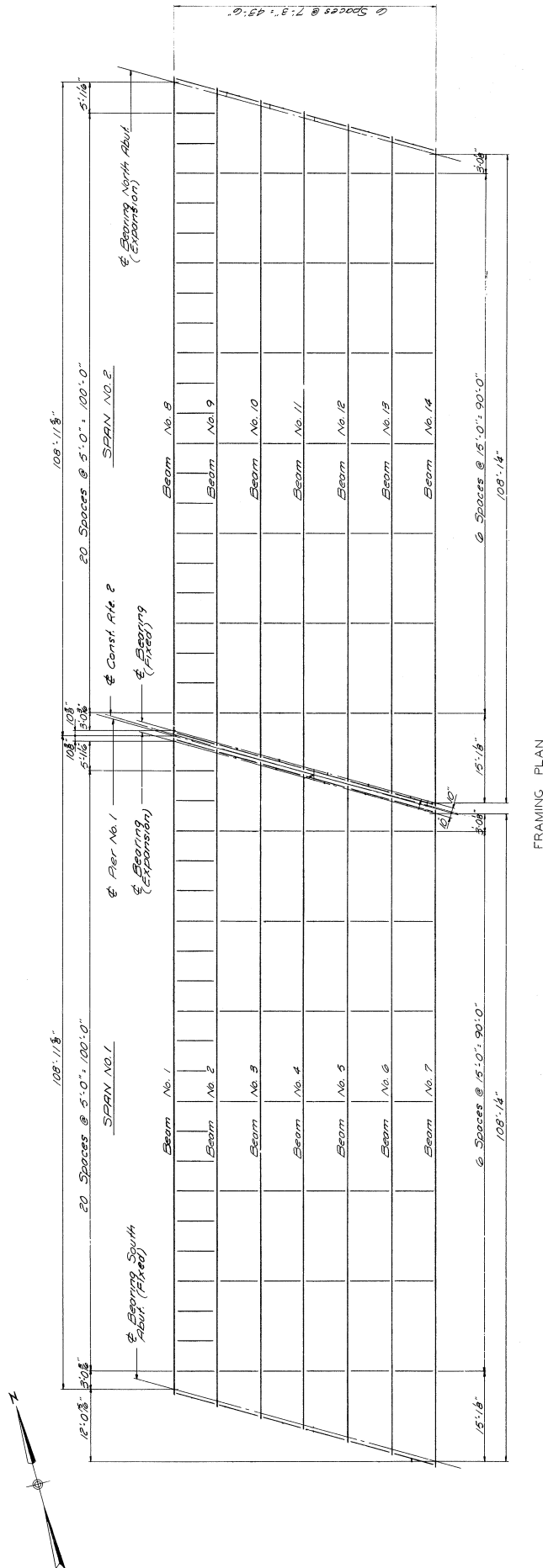
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REMARKS

- Photo 46 : Concrete diaphragms at the Pier: moderate/severe spalling and delamination, full bay length x full width x 3" deep with exposed and rusted rebar, typical. (Bay 2, span 2 shown).
- Photo 47 : Connection plates of the cross frames over the pier in both spans: typical minor/moderate surface rust due to leakage from the joint above.
- Photo 48 : Bottom chord of the first cross frame at the south abutment (span 1, bay 5), light surface rust, paint peeling and light accumulation of efflorescence.
- Photo 49 : South backwall, bay 6: spall at the top, 2' wide x 1' high x 1.5" deep.
- Photo 50 : South backwall, behind Beam 7: active leakage, formwork left in place, vertical crack 2" wide x full height and adjacent spall 6" wide x full height x 3" deep with exposed rebar.
- Photo 51 : North backwall, behind beam 14: full height spall x 6" wide x 2" deep.
- Photo 52 : North breastwall: horizontal crack with minor rust staining under bays 3 - 5, up to 1/8" wide. (Looking East).
- Photo 53 : South breastwall, east corner: horizontal crack under bays 6, full bay length x up to 1/8" wide.
- Photo 54 : Northwest wingwall: full height vertical crack with minor spalling at the top corner, up to 1" wide.
- Photo 55 : Southeast wingwall: full height vertical crack, up to 3" wide.
- Photo 56 : Slope paving at south abutment: 3" to 4" wide gap at the top of the slope pavement.
- Photo 57 : Slope paving at south abutment, under Bay 3: up to 1" wide diagonal crack at the bottom half.
- Photo 58 : Pier cap, moderate debris and active leakage throughout the top of the pier cap. (Bay 4, south face shown).
- Photo 59 : Pier, south face, bay 1, full bay length horizontal cracks, diagonal and vertical cracks under beam 1 with rust staining, up to 1/8" wide and up to 8" diameter x 1" deep spall.
- Photo 60 : Pier cap, west face, under beam 4, full height vertical crack with light efflorescence, up to 1/8" wide and several hairline map cracking throughout bay 3.
- Photo 61 : Pier cap, south face, bay 5, two spalls at the top, up to 3' wide x 1.5' high x 3" deep with exposed rebar and a 1/4" wide horizontal crack between the spalls.
- Photo 62 : Pier cap, south face, bay 6, three spalls, rust staining and efflorescence, up to 9" diameter x 1.5" deep and several vertical and horizontal crack with active leakage.
- Photo 63 : Pier cap, north face, bay 6, active leakage, moderate rust, efflorescence and a 9" wide x 4" high x 5" deep spall at the top. Also note the debris at the top of the pier cap.
- Photo 64 : Pier cap, north face, bay 4, horizontal cracks at the bottom, up to full bay length x 1/8" wide, several spots of rust staining and full height x 1/8" wide vertical crack under beam 11.
- Photo 65 : Pier cap, north face, bay 1, several full height vertical cracks x 1/16" wide throughout, rust staining under beam 8 and a corner spall at the bottom, 1' wide x 5" high x 4" deep.
- Photo 66 : Column 1: several full height vertical hairline cracks, two spalls at the south face, up to 2' high x 1.5' wide x 3" deep with 7 exposed rebar.
- Photo 67 : Column 2: nine (9) full height vertical cracks up to 1/4" wide, hollow area at the top half and a spall at the west face, 15" wide x 5" high x 1.5" deep.
- Photo 68 : Southwest transitions is missing one bolt.
- Photo 69 : Northeast approach guard rail with minor impact damage.

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SKETCHES



Sketch 1: Framing plan

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PHOTOS



Photo 1: Wearing surface: several random longitudinal sealed and non-sealed cracks and a few patched potholes throughout. (Span 2 shown, Looking South).



Photo 2: Wearing surface, Span 2, repair along the west curb. (Looking South).

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PHOTOS



Photo 3: Wearing surface: typical full repair width transverse hairline cracks adjacent to the west curb.



Photo 4: Wearing surface, span 1: area of ponding and standing water over the pier. (Looking North).

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PHOTOS



Photo 5: Deck overhangs: Typical random full width hairline cracks, some with light efflorescence.



Photo 6: Deck ,Span 1, Bay 1: Multiple transverse hairline cracks with light efflorescence near south abutment, up to full bay width.

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PHOTOS



Photo 7: Deck, span 1, bays 2, 3, 5, 6: typical full bay width hairline crack over the second cross frame. (Bay 3 shown).



Photo 8: Deck, span 1: bay 4 shielded over the eastbound roadway over the left three travel lanes. (Looking North).

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PHOTOS



Photo 9: Deck, bay 4: full length delamination with moderate efflorescence, rust staining and dampness along the longitudinal construction joint.



Photo 10: Deck, west overhang at north abutment: up to 2.5' long x 1.5' wide area of delamination.

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PHOTOS



Photo 11: Deck, span 2, bay 3 near mid-span: several spalls running parallel to Beam 11 with exposed rebar.



Photo 12: Deck, span 2: Bay 4 shielded over the westbound roadway. (Looking South).

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PHOTOS



Photo 13: Deck, span 2, bay 4: full length delamination with moderate efflorescence, rust staining and dampness along the longitudinal construction joint.



Photo 14: Deck, span 2 Bay 4, above the shielding: area of spalling, up to 32" wide x 7' long x 3" deep with 16 exposed/rusted rebar and adjacent hollow area, 3' long x 2.5' wide.

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PHOTOS



Photo 15: Deck, span 2, Bay 6: several random full bay width transverse hairline cracks with light efflorescence and dampness.



Photo 16: Curb at northeast corner is leaning into the roadway, up to 3". (Looking north).

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PHOTOS



Photo 17: West curb, at south deck joint, granite section has full height cracks, up to 1/2" wide.



Photo 18: West Sidewalk: hairline transverse, longitudinal and map hairline cracking near the south end.

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PHOTOS



Photo 19: West curb, span 1, edge spalling behind the curb, up to 10' long x 6" wide x 1.5" deep. (Looking North).



Photo 20: West curb: longitudinal hairline cracking that continues up to full span 2 length. (Looking South).

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PHOTOS



Photo 21: East safety walk: over the pier spall, 5' long x 5" high x 4" deep with exposed and rusted rebar along the outside edge.



Photo 22: Several random minor dents along the top hand rail on the east railing. Also note the detached metal fencing. (Post #16 from south shown)

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PHOTOS



Photo 23: East railing, the top rail is disconnected at the joint over the pier.



Photo 24: The metal fencing is detached at the first panel from the north in the east railing.

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PHOTOS



Photo 25: Bay 1, utility support bracket at the pier with severe rust and several areas of 100% section loss throughout. Also note the 100% section loss of the conduit pipes.



Photo 26: Span 2, Bay 1, the third utility bracket from the North Abutment has a broken "U" bracket. (Looking South).

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PHOTOS



Photo 27: Span 1, Bay 1, the first utility bracket from the pier has rusted with 100% section loss. (Looking North).

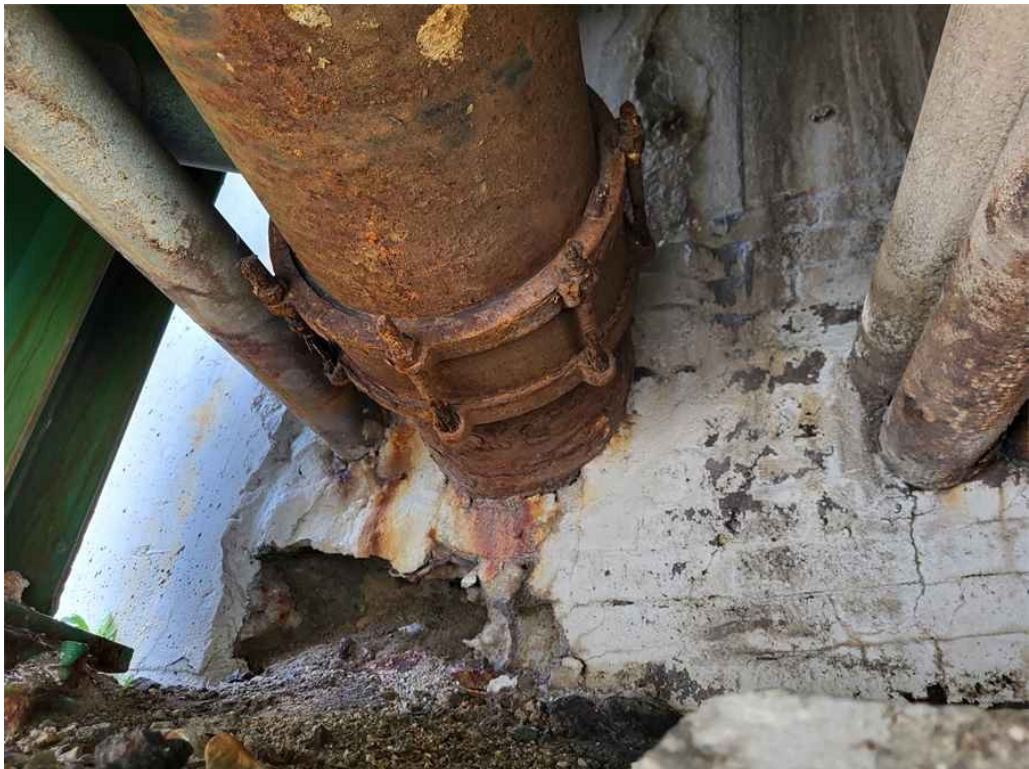


Photo 28: Utilities, north abutment, coupling anchor-bolts/screws of the watermain with 100% section loss. Also note the missing insulation, moderate surface rust and the spall underneath. (Looking South).

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PHOTOS

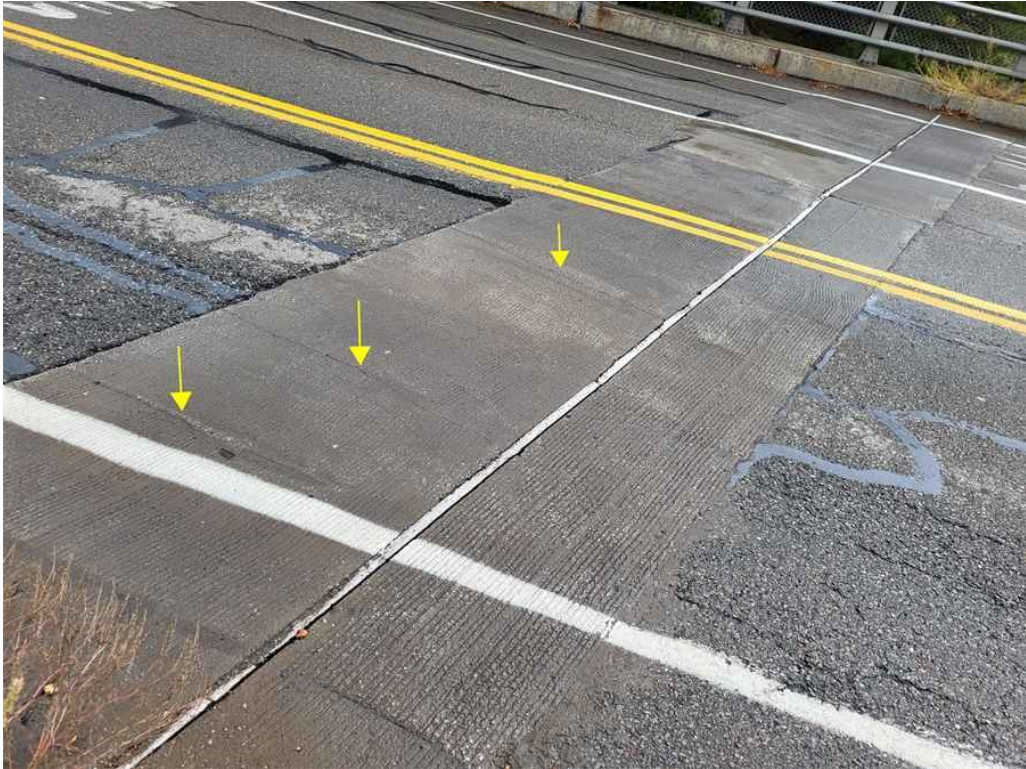


Photo 29: North deck joint has been repaired since previous inspection. Also note several longitudinal cracks, up to full joint length x 1/8" wide. (Looking East).



Photo 30: Approach roadways: several sealed and non-sealed longitudinal and transverse cracks throughout both travel lanes, up to 1/2" wide (North approach shown).

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PHOTOS



Photo 31: Southwest approach curb: vertical and horizontal misalignment, up to 3" and several areas of settlement. (Looking North).



Photo 32: Southwest approach sidewalk is heaved, up to 2" along with diagonal and longitudinal corner cracks, up to 1/2" wide. (Looking South).

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PHOTOS



Photo 33: Northwest approach sidewalk: several concrete pads are cracked at the east corners, up to 1" wide with moderate vegetation growth. (Looking North).



Photo 34: Northwest approach sidewalk: the asphalt portion exhibits heavy map cracking with several areas of depression. (Looking North).

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PHOTOS



Photo 35: Beams: typical random areas of minor rusting to the bottom flange. (Beams 2 - 4, span 1 near south abutment shown).



Photo 36: Beam 1, span 1, west face: two rusted areas of an old bracket that was previously removed.

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PHOTOS



Photo 37: Beam 7: area of 100% section loss at the north end of the web beyond the bearings measuring 7" high x 4" wide at the bottom. Also note the 100% section loss to the stiffener 3" high x 2" wide.



Photo 38: Beam 7: areas of 100% section loss at the north end of the web beyond the bearings measuring 10" high x 3" wide near mid-height.

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PHOTOS



Photo 39: Beam 7, span 1: east stiffener at the very end has an area of 100% section loss, 3" wide x 2" high.



Photo 40: Span 2, beam 14, east face has abandoned brackets.

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PHOTOS



Photo 41: Beam 14 in span 2: areas of 100% section loss at the south end of the web beyond the bearings measuring 5" high x 3" wide at the bottom.



Photo 42: Beam 8: the southern most 3 vertical stiffeners on the east side of the web are knifed down significantly adjacent to the bottom flange. Also note the moderate rust to the bearing.

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PHOTOS



Photo 43: Bearings: moderate rust, lamination and active water leaking from deck joints. Also note west anchor of beam 8 is bent towards North. (Bearing of beams 1 & 8 at pier shown).



Photo 44: Bearing of beam 1, south abutment: east anchor is slightly bent towards the south.

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PHOTOS



Photo 45: Bearings are partially covered by dirt and debris at the pier. (Bay 1, span 1 shown, looking North).



Photo 46: Concrete diaphragms at the Pier: moderate/severe spalling and delamination, full bay length x full width x 3" deep with exposed and rusted rebar, typical. (Bay 2, span 2 shown).

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PHOTOS



Photo 47: Connection plates of the cross frames over the pier in both spans: typical minor/moderate surface rust due to leakage from the joint above.



Photo 48: Bottom chord of the first cross frame at the south abutment (span 1, bay 5), light surface rust, paint peeling and light accumulation of efflorescence.

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PHOTOS



Photo 49: South backwall, bay 6: spall at the top, 2' wide x 1' high x 1.5" deep.



Photo 50: South backwall, behind Beam 7: active leakage, formwork left in place, vertical crack 2" wide x full height and adjacent spall 6" wide x full height x 3" deep with exposed rebar.

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PHOTOS



Photo 51: North backwall, behind beam 14: full height spall x 6" wide x 2" deep.



Photo 52: North breastwall: horizontal crack with minor rust staining under bays 3 - 5, up to 1/8" wide. (Looking East).

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PHOTOS



Photo 53: South breastwall, east corner: horizontal crack under bays 6, full bay length x up to 1/8" wide.



Photo 54: Northwest wingwall: full height vertical crack with minor spalling at the top corner, up to 1" wide.

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PHOTOS



Photo 55: Southeast wingwall: full height vertical crack, up to 3" wide.



Photo 56: Slope paving at south abutment: 3" to 4" wide gap at the top of the slope pavement.

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PHOTOS



Photo 57: Slope paving at south abutment, under Bay 3: up to 1" wide diagonal crack at the bottom half.



Photo 58: Pier cap, moderate debris and active leakage throughout the top of the pier cap. (Bay 4, south face shown).

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PHOTOS



Photo 59: Pier, south face, bay 1, full bay length horizontal cracks, diagonal and vertical cracks under beam 1 with rust staining, up to 1/8" wide and up to 8" diameter x 1" deep spall.



Photo 60: Pier cap, west face, under beam 4, full height vertical crack with light efflorescence, up to 1/8" wide and several hairline map cracking throughout bay 3.

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PHOTOS



Photo 61: Pier cap, south face, bay 5, two spalls at the top, up to 3' wide x 1.5' high x 3" deep with exposed rebar and a 1/4" wide horizontal crack between the spalls.



Photo 62: Pier cap, south face, bay 6, three spalls, rust staining and efflorescence, up to 9" diameter x 1.5" deep and several vertical and horizontal crack with active leakage.

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PHOTOS



Photo 63: Pier cap, north face, bay 6, active leakage, moderate rust, efflorescence and a 9" wide x 4" high x 5" deep spall at the top. Also note the debris at the top of the pier cap.



Photo 64: Pier cap, north face, bay 4, horizontal cracks at the bottom, up to full bay length x 1/8" wide, several spots of rust staining and full height x 1/8" wide vertical crack under beam 11.

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PHOTOS



Photo 65: Pier cap, north face, bay 1, several full height vertical cracks x 1/16" wide throughout, rust staining under beam 8 and a corner spall at the bottom, 1' wide x 5" high x 4" deep.



Photo 66: Column 1: several full height vertical hairline cracks, two spalls at the south face, up to 2' high x 1.5' wide x 3" deep with 7 exposed rebar.

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PHOTOS



Photo 67: Column 2: nine (9) full height vertical cracks up to 1/4" wide, hollow area at the top half and a spall at the west face, 15" wide x 5" high x 1.5" deep.



Photo 68: Southwest transitions is missing one bolt.

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PHOTOS



Photo 69: Northeast approach guard rail with minor impact damage.

State Information				Classification				Code			
BDEPT# = L10017	Agency Br.No.			(112) NBIS Bridge Length				Y			
Town = Lexington	L.O. MHD			(104) Highway System				N			
B.I.N = 2LX	AASHTO= 079.5			(26) Functional Class -	Urban Minor Arterial			16			
RANK = 2146	H.I. = 93.9 %	FHWA Select List= N (6/21/2017)		(100) Defense Highway				0			
Identification				(101) Parallel Structure				N			
(8) Structure Number	L100172LXDOTNBI			(102) Direction of Traffic -	2-way traffic			2			
(5) Inventory Route	151000000			(103) Temporary Structure				N			
(2) State Highway Department District	04			(105) Federal Lands Highways				0			
(3) County Code 017	(4) Place code	35215		(110) Designated National Network				N			
(6) Features Intersected	ST 2			(20) Toll -	On free road			3			
(7) Facility Carried	HWY SPRING ST			(21) Maintain -	State Highway Agency			01			
(9) Location	0.5 MI E OF ST-128			(22) Owner -	State Highway Agency			01			
(11) Kilometerpoint	0000.000			(37) Historical Significance	built after 1949 presumed to be not eligi			Z			
(12) Base Highway Network	N			Condition							
(13) LRS Inventory Route & Subroute	000000000000			Code							
(16) Latitude	42 DEG 25 MIN 26.18 SEC			(58) Deck				5			
(17) Longitude	71 DEG 15 MIN 03.45 SEC			(59) Superstructure				6			
(98) Border Bridge State Code	Share %			(60) Substructure				6			
(99) Border Bridge Structure No. #				(61) Channel & Channel Protection				N			
Structure Type and Material				Load Rating and Posting				Code			
(43) Structure Type Main:	Steel	Code 302		(31) Design Load -	H 20=M 18			4			
Stringer/Girder	Jointless bridge type: Not applicable			(63) Operating Rating Method -	Allowable Stress (AS)			2			
(44) Structure Type Appr:	Other Code 000			(64) Operating Rating				53.8			
(45) Number of spans in main unit	002			(65) Inventory Rating Method -	Allowable Stress (AS)			2			
(46) Number of approach spans	0000			(66) Inventory Rating				23.0			
(107) Deck Structure Type -	Concrete Cast-in-Place	Code 1		(70) Bridge Posting				5			
(108) Wearing Surface / Protective System:				(41) Structure -	Open			A			
A) Type of wearing surface -	Bituminous	Code 6		Appraisal				Code			
B) Type of membrane -	Unknown	Code 8		(67) Structural Evaluation				5			
C) Type of deck protection -	None	Code 0		(68) Deck Geometry				5			
Age and Service				(69) Underclearances, vert. and horiz.				3			
(27) Year Built	1967			(71) Waterway adequacy				N			
(106) Year Reconstructed	0000			(72) Approach Roadway Alignment				8			
(42) Type of Service: On -	Highway-Ped			(36) Traffic Safety Features	0 0 1 0						
Under - Highway	Code 51			(113) Scour Critical Bridges				N			
(28) Lanes: On Structure	02	Under structure 06		Inspections							
(29) Average Daily Traffic	012434			(90) Inspection Date	10/16/23			(91) Frequency	24 MO		
(30) Year of ADT	2019	(109) Truck ADT	02 %	(92) Critical Feature Inspection:				(93) CFI DATE			
(19) Bypass, detour length	003 KM			(A) Fracture Critical Detail	N	00	MO A)	00/00/00			
Geometric Data				(B) Underwater Inspection	N	00	MO B)	00/00/00			
(48) Length of maximum span	0033.2 M			(C) Other Special Inspection	N	00	MO C)	00/00/00			
(49) Structure Length	00068.0 M			(*) Other Inspection (Freeze Thaw)	N	00	MO *)	08/06/23			
(50) Curb or sidewalk:	Left	00.5 M	Right 01.5 M	(*) Closed Bridge	N	00	MO *)	00/00/00			
(51) Bridge Roadway Width Curb to Curb	012.2 M			(*) UW Special Inspection	N	00	MO *)	00/00/00			
(52) Deck Width Out to Out	015.0 M			(*) Damage Inspection				MO *)	00/00/00		
(32) Approach Roadway Width (w/shoulders)	012.2 M			Rating Loads							
(33) Bridge Median -	No median	Code 0		Report Date	10/01/97	H20	Type 3	Type 3S2	Type HS		
(34) Skew	16 DEG	(35) Structure Flared	N	Operating	33.0	58.0	67.0	59.0			
(10) Inventory Route MIN Vert Clear	99.99 M			Inventory	23.0	24.0	28.0	25.0			
(47) Inventory Route Total Horiz Clear	12.2 M			Field Posting							
(53) Min Vert Clear Over Bridge Rdwy	99.99 M			Status	WAIVED			Posting Date	11/04/97		
(54) Min Vert Underclear ref	H	04.47 M					2 Axle	3 Axle	5 Axle	Single	
(55) Min Lat Underclear RT ref	H	00.9 M		Actual							
(56) Min Lat Underclear LT	09.1 M			Recommended							
Navigation Data				Missing Signs	N			Misc.			
(38) Navigation Control -	Not applicable, no waterway Code N			Bridge Name	N Anti-missile fence N Acrow Panel N Jointless Bridge						
(111) Pier Protection	Code			Freeze/Thaw	1 : Known problematic history of concrete deterioration						
(39) Navigation Vertical Clearance	000.0 M			# Stairs On/Adjacent	0 Stair Owner(s)						
(116) Vert-lift Bridge Nav Min Vert Clear	M			Accessibility (Needed/Used)							
(40) Navigation Horizontal Clearance	0000.0 M			Y / Y	Liftbucket	N / N	Rigging	N / N Other			
				Y / Y	Ladder	N / N	Staging				
				N / N	Boat	Y / Y	Traffic Control				
				N / N	Wader	N / N	RR Flagperson	Inspection			
				N / N	Inspector 50	Y / Y	Police	Hours: 024			

National Bridge Element Inspection

BDEPT# **L-10-017**

Date **10/16/2023**

B.I.N. **2LX**

District Bridge Inspection Eng'r **Joseph Dideo**

Item 8 **L10017-2LX-DOT-NBI**

Inspecting Agency **Mass. Highway Dept.**

Span Group **1**

Team Leader **Osama Moustafa**

Town **Lexington**

Team **Logan Salvi**

District **4**

Member(s)

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
12	Re Concrete Deck	sq feet	2	12,700.000	<input type="checkbox"/> %	11,400.000	900.000	400.000	
Notes :									
> 1120	<i>Efflorescence/Rust Staining</i>	sq feet	2	550.000	<input type="checkbox"/> %		350.000	200.000	
Notes :									
> 1130	<i>Cracking (RC and Other)</i>	sq feet	2	750.000	<input type="checkbox"/> %		550.000	200.000	
Notes :									
> 510	Wearing Surfaces	sq feet	2	10,650.000	<input type="checkbox"/> %	10,400.000	250.000		
Notes :									
> > 3220	<i>Crack (Wearing Surface)</i>	sq feet	2	250.000	<input type="checkbox"/> %		250.000		
Notes :									
107	Steel Opn Girder/Beam	feet	2	1,390.000	<input type="checkbox"/> %	1,357.000	20.000	10.000	3.000
Notes :									
> 1000	<i>Corrosion</i>	feet	2	33.000	<input type="checkbox"/> %		20.000	10.000	3.000
Notes :									
> 515	Steel Protective Coating	sq feet	2	19,575.000	<input type="checkbox"/> %	19,075.000	500.000		
Notes :									
> > 3430	<i>Ox Flm/Txt Adhr(Stl Prot Coat)</i>	sq feet	2	1,700.000	<input type="checkbox"/> %	1,200.000	500.000		
Notes :									
107	Steel Opn Girder/Beam	feet	3	140.000	<input type="checkbox"/> %		140.000		
Notes :									
> 1000	<i>Corrosion</i>	feet	3	140.000	<input type="checkbox"/> %		140.000		
Notes :									
> 515	Steel Protective Coating	sq feet	3	2,175.000	<input type="checkbox"/> %	1,825.000	250.000	100.000	
Notes :									

National Bridge Element Inspection

BDEPT# **L-10-017**

Date **10/16/2023**

B.I.N. **2LX**

District Bridge Inspection Eng'r **Joseph Dideo**

Item 8 **L10017-2LX-DOT-NBI**

Inspecting Agency **Mass. Highway Dept.**

Span Group **1**

Team Leader **Osama Moustafa**

Town **Lexington**

Team Member(s) **Logan Salvi**

District **4**

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
> > 3430	<i>Ox Flm/Txt Adhr(Stl Prot Coat)</i>	sq feet	3	350.000	<input type="checkbox"/> %		250.000	100.000	
Notes :									
205	Re Conc Column	each	2	3	<input type="checkbox"/> %	2	1		
Notes :									
> 1130	<i>Cracking (RC and Other)</i>	each	2	1	<input type="checkbox"/> %		1		
Notes :									
215	Re Conc Abutment	feet	3	102.000	<input type="checkbox"/> %		77.000	25.000	
Notes :									
> 1120	<i>Efflorescence/Rust Staining</i>	feet	3	40.000	<input type="checkbox"/> %		30.000	10.000	
Notes :									
> 1130	<i>Cracking (RC and Other)</i>	feet	3	62.000	<input type="checkbox"/> %		47.000	15.000	
Notes :									
234	Re Conc Pier Cap	feet	3	50.000	<input type="checkbox"/> %	18.000	15.000	17.000	
Notes :									
> 1120	<i>Efflorescence/Rust Staining</i>	feet	3	25.000	<input type="checkbox"/> %		15.000	10.000	
Notes :									
> 1130	<i>Cracking (RC and Other)</i>	feet	3	7.000	<input type="checkbox"/> %			7.000	
Notes :									
301	Pourable Joint Seal	feet	3	40.026	<input type="checkbox"/> %	40.026			
Notes :									
306	Other Joint	feet	2	80.000	<input type="checkbox"/> %		40.000	30.000	10.000
Notes :									
> 2310	<i>Leakage</i>	feet	2	80.000	<input type="checkbox"/> %		40.000	30.000	10.000
Notes :									

National Bridge Element Inspection

BDEPT# **L-10-017**

Date **10/16/2023**

B.I.N. **2LX**

District Bridge Inspection Eng'r **Joseph Dideo**

Item 8 **L10017-2LX-DOT-NBI**

Inspecting Agency **Mass. Highway Dept.**

Span Group **1**

Team Leader **Osama Moustafa**

Town **Lexington**

Team **Logan Salvi**

District **4**

Member(s)

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
311	Moveable Bearing	each	3	14	<input type="checkbox"/> %	14			
Notes :									
> 515	Steel Protective Coating	sq feet	3	28.000	<input type="checkbox"/> %	28.000			
Notes :									
313	Fixed Bearing	each	3	14	<input type="checkbox"/> %	14			
Notes :									
> 515	Steel Protective Coating	sq feet	3	28.000	<input type="checkbox"/> %	28.000			
Notes :									
330	Metal Bridge Railing	feet	2	494.000	<input type="checkbox"/> %	494.000			
Notes :									

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TRAFFIC MANAGEMENT PLANS

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MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION

ARLINGTON / BELMONT / LEXINGTON PLEASANT ST, PARK AVE, SPRING ST, AND WATERTOWN ST OVER RTE 2			
STATE	FED AID PROJ NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	1	57
PROJECT FILE NO. 613466		TITLE SHEET & INDEX	

PLAN AND PROFILE OF

PLEASANT STREET, PARK AVE, WATERTOWN STREET, AND SPRING STREET OVER ROUTE 2
(BRIDGES NO. A-10-012, A-10-020, L-10-017, L-10-020)

IN THE TOWNS OF

ARLINGTON, BELMONT, AND LEXINGTON
MIDDLESEX COUNTY

FEDERAL AID PROJECT NO. NFA

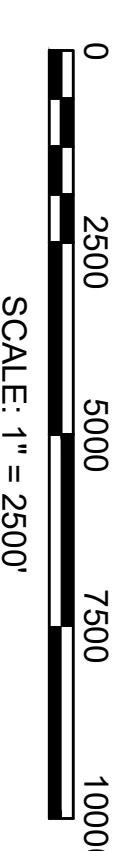
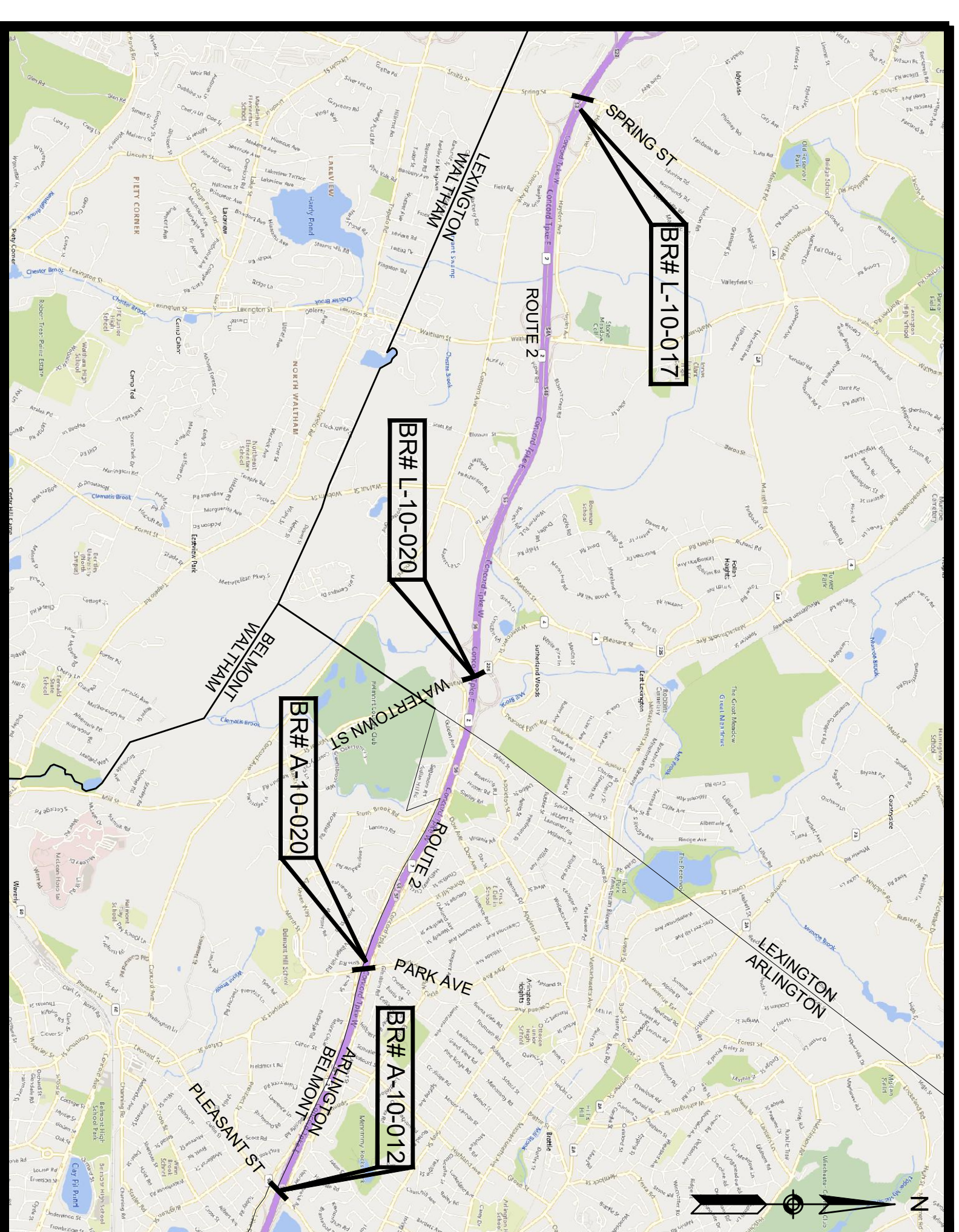
THESE PLANS ARE SUPPLEMENTED BY THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1988 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET & INDEX
2	LEGEND & ABBREVIATIONS
3-11	TEMPORARY TRAFFIC CONTROL PLANS - SPRING STREET
12-21	TEMPORARY TRAFFIC CONTROL PLANS - WATERTOWN STREET
22-35	TEMPORARY TRAFFIC CONTROL PLANS - PARK AVE
36-54	TEMPORARY TRAFFIC CONTROL PLANS - PLEASANT STREET
55-57	TEMPORARY TRAFFIC CONTROL DETAILS

DESIGN DESIGNATION

POSTED SPEED	ROUTE 2	55 MPH
ADT (2023)		76,586
K		10%
D		57%
T (PEAK HOUR)		1%
T (AVERAGE DAY)		2%
DHV (2023)		7,657
DDHV (2023)		4,364
FUNCTIONAL CLASSIFICATION		URBAN PRINCIPAL ARTERIAL



101 ARCH STREET, SUITE 301 BOSTON, MA 02110		Massachusetts Department of Transportation Highway Division	
DATE	DESCRIPTION	REV#	
MM/DD/YYYY	ISSUED FOR CONSTRUCTION	0	

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		JERSEY BARRIER
		CATCH BASIN
		CATCH BASIN CURB INLET
		FLAG POLE
		GAS PUMP
		MAIL BOX
		POST SQUARE
		WELL
		ELECTRIC HANDHOLE
		FENCE GATE POST
		GAS GATE
		BORING HOLE
		MONITORING WELL
		TEST PIT
		HYDRANT
		LIGHT POLE
		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
		MASSACHUSETTS HIGHWAY BOUND
		MONUMENT
		STONE BOUND
		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
		TROLLEY POLE OR GUY POLE
		TRANSMISSION POLE
		UTILITY POLE W/ FIREBOX
		UTILITY POLE WITH DOUBLE LIGHT
		UTILITY POLE W/ 1 LIGHT
		UTILITY POLE
		BUSH
		TREE
		STUMP
		SWAMP / MARSH
		WATER GATE
		PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
		CONTOURS (ON-THE-GROUND SURVEY DATA)
		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		GUARD RAIL - DOUBLE FACE - STEEL POSTS
		GUARD RAIL - DOUBLE FACE - WOOD POSTS
		CHAIN LINK OR METAL FENCE
		WOOD FENCE
		SEDIMENT CONTROL BARRIER
		TREE LINE
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

TRAFFIC SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		CONTROLLER PHASE ACTUATED
		TRAFFIC SIGNAL HEAD (SIZE AS NOTED)
		WIRE LOOP DETECTOR (6' x 6' TYP UNLESS OTHERWISE SPECIFIED)
		VIDEO DETECTION CAMERA
		MICROWAVE DETECTOR
		PEDESTRIAN PUSH BUTTON SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
		EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT
		VEHICULAR SIGNAL HEAD
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD, (TYPE AS NOTED OR AS SPECIFIED)
		RAILROAD SIGNAL
		SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)
		MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)
		HIGH MAST POLE OR TOWER
		SIGN AND POST
		SIGN AND POST (2 POSTS)
		MAST ARM WITH LUMINAIRE
		OPTICAL PRE-EMPTION DETECTOR
		CONTROL CABINET - GROUND MOUNTED
		CONTROL CABINET - POLE MOUNTED
		FLASHING BEACON CONTROL AND METER PEDESTAL
		LOAD CENTER ASSEMBLY
		PULL BOX 12'x12" (OR AS NOTED)
		ELECTRIC HANDHOLE 12'x24" (OR AS NOTED)
		TRAFFIC SIGNAL CONDUIT
		REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS

PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
		LEGEND "ONLY" - WHITE
		STOP LINE
		CROSSWALK
		SOLID WHITE LINE
		SOLID YELLOW LINE
		BROKEN WHITE LINE
		BROKEN YELLOW LINE
		DOTTED WHITE LINE
		DOTTED YELLOW LINE
		DOTTED WHITE LINE EXTENSION
		DOTTED YELLOW LINE EXTENSION
		DOUBLE WHITE LINE
		DOUBLE YELLOW LINE

ABBREVIATIONS

GENERAL	DESCRIPTION
AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADJ	ADJUST
APPROX.	APPROXIMATE
A.C.	ASPHALT CONCRETE
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE
BIT.	BITUMINOUS
BC	BOTTOM OF CURB
BD	BOUND
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BR	BRIDGE
CB	CATCH BASIN
CBGI	CATCH BASIN WITH CURB INLET
CC	CEMENT CONCRETE
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CSP	CORRUGATED STEEL PIPE
CO	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
CONST	CONSTRUCTION
CR GR	CROWN GRADE
DHV	DESIGN HOURLY VOLUME
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DW	STEADY DON'T WALK - PORTLAND ORANGE
DWY	DRIVEWAY
ELEV (or EL.)	ELEVATION
EMB	EMBANKMENT
EOP	EDGE OF PAVEMENT
EXIST (or EX)	EXISTING
EXC	EXCAVATION
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FDN.	FOUNDATION
FLDSTN	FIELDSTONE
GAR	GARAGE
GD	GROUND
GG	GAS GATE
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GRAN	GRANITE
GRAV	GRAVEL
GRD	GUARD
HDW	HEADWALL
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HVD	HYDRANT
INV	INVERT
JCT	JUNCTION
L	LENGTH OF CURVE
LB	LEACH BASIN
LP	LEACH POLE
LT	LEFT
MAX	MAXIMUM
MB	MAILBOX
MH	MANHOLE
MNB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
NIC	NOT IN CONTRACT
NO.	NUMBER
PC	POINT OF CURVATURE
PCG	POINT OF COMPOUND CURVATURE
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
POC	POINT OF INTERSECTION
POT	POINT ON CURVE
POT	POINT ON TANGENT
PRJ	POINT OF REVERSE CURVATURE
PROJ	PROJECT
PROP	PROPOSED
PSB	PLANTABLE SOIL BORROW
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PWMT	PAVEMENT
PWW	PAVED WATER WAY

ABBREVIATIONS (cont.)

GENERAL	DESCRIPTION
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISPOSE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REM	REMOVE
RET	RETAIN
RET WALL	RETAINING WALL
ROW	RIGHT OF WAY
RR	RAILROAD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RT	RIGHT
SB	STONE BOUND
SHLD	SHOULDER
SMH	SEWER MANHOLE
ST	STREET
STA	STATION
SSD	STOPPING SIGHT DISTANCE
SHLO	STATE HIGHWAY LAYOUT LINE
SW	SIDEWALK
T	TANGENT
TAN	TANGENT DISTANCE OF CURVE/TRUCK %
TEMP	TEMPORARY
TC	TANGENT
TOS	TOP OF CURB
TYP	TOP OF SLOPE
UP	TYPICAL
VAR	VARIABLES
VERT	VERTICAL
VC	VERTICAL CURVE
WC	WHEEL CHAIR RAMP
WGR	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN
X-SECT	CROSS SECTION

TRAFFIC SIGNAL ABBREVIATIONS

DESCRIPTION	ABBREVIATION
CABINET	CAB
CLOSED CIRCUIT VIDEO EQUIPMENT	CCVE
STEADY UPRAISED HAND	DW
FLASHING UPRAISED HAND	FDW
FLASHING CIRCULAR RED	FRL
FLASHING RED LEFT ARROW	FRL
FLASHING RED RIGHT ARROW	FRR
FLASHING CIRCULAR YELLOW	FYL
FLASHING YELLOW LEFT ARROW	FYL
FLASHING YELLOW RIGHT ARROW	FYR
STEADY CIRCULAR GREEN	G
STEADY GREEN LEFT ARROW	GL
STEADY GREEN RIGHT ARROW	GR
STEADY GREEN SLASH LEFT ARROW	GSL
STEADY GREEN SLASH RIGHT ARROW	GSR
STEADY GREEN VERTICAL ARROW	GV
OVERLAP	OL
PEDESTRIAN	PED
PAN, TILT, ZOOM	PAN, TLT, ZOOM
STEADY CIRCULAR RED	R
STEADY RED LEFT ARROW	RL
STEADY RED RIGHT ARROW	RR
TRAFFIC SIGNAL	TR SIG
TRAFFIC SIGNAL CONDUIT	TSC
STEADY WALKING PERSON	W
STEADY CIRCULAR YELLOW	Y
STEADY YELLOW LEFT ARROW	YL

ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST. PARK AVE. SPRING ST.
 AND WATERTOWN ST OVER RTE 2

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	NO. SHEETS
		2
		57

PROJECT FILE NO. 613466

LEGEND & ABBREVIATIONS

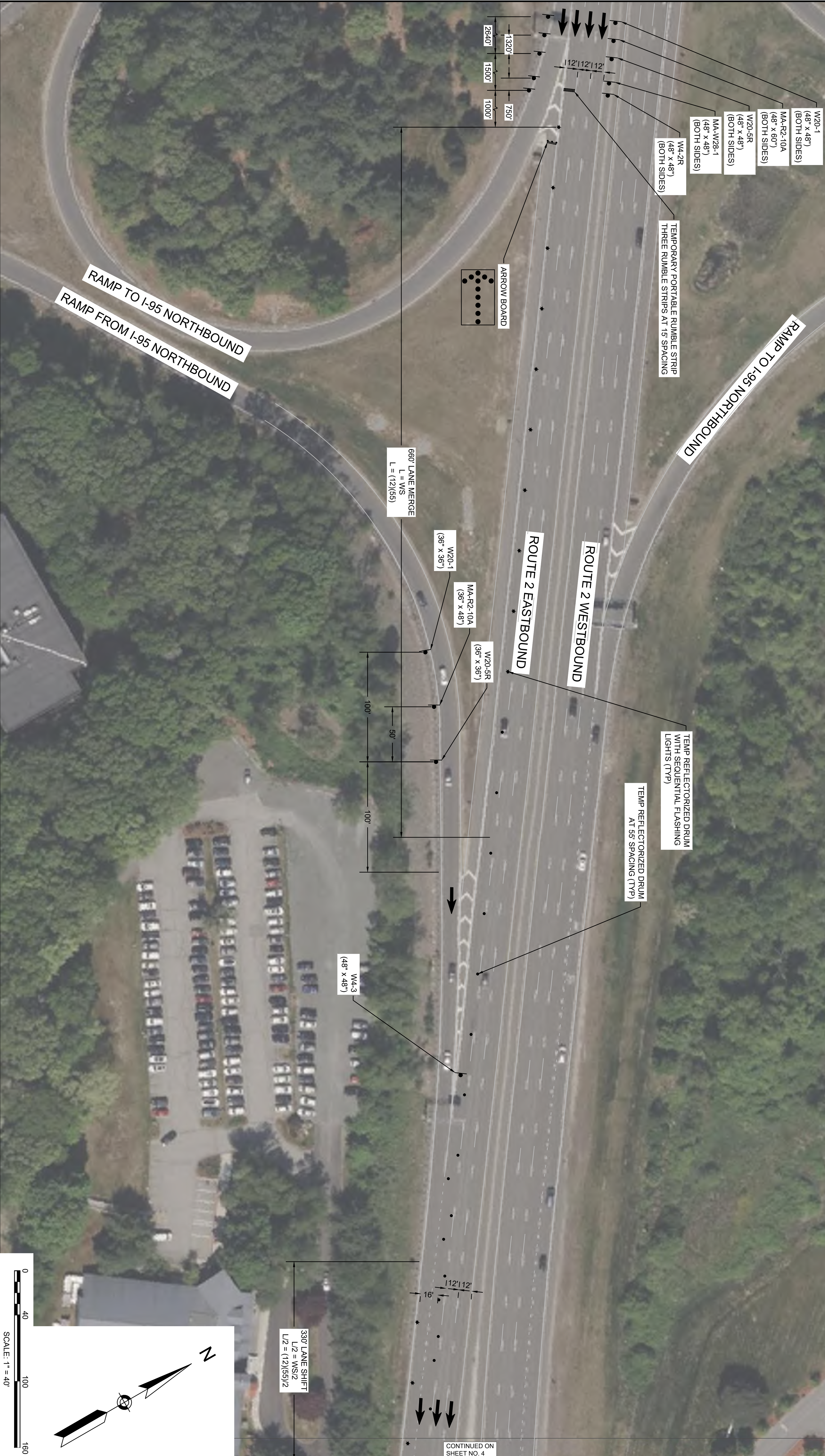
MAJOR ITEMS REQUIRED		
PAY ITEM	QUANTITY	UNITS
852	282	SF
853.403	1 (PER DAY)	EA
853.8	1 (PER DAY)	EA
854.6	1 (PER DAY)	EA
856	1 (PER DAY)	EA
859	28 (PER DAY)	EA
859.1	2 (PER DAY)	EA

BRIDGE	ROADWAY	CASE	TIMING	DETAIL
L-10-017 (2LX)	ROUTE 2 EB RAMP FROM I-95 NB RAMP TO CONCORD AVE	RIGHT LANE CLOSURE SHEETS 3-5	NIGHT 8PM - 5AM	852.7.3 SEE SHEET 55
L-10-017 (2LX)	ROUTE 2 WB RAMP FROM HAVDEN AVE	RIGHT LANE CLOSURE RAMP LANE SHIFT SHEETS 6-8	NIGHT 9PM - 5AM	852.9.3 SEE SHEET 57
L-10-017 (2LX)	ROUTE 2 EB AND WB	LEFT LANE CLOSURES SHEETS 9-11	NIGHT 8PM - 5AM	852.7.4 SEE SHEET 55

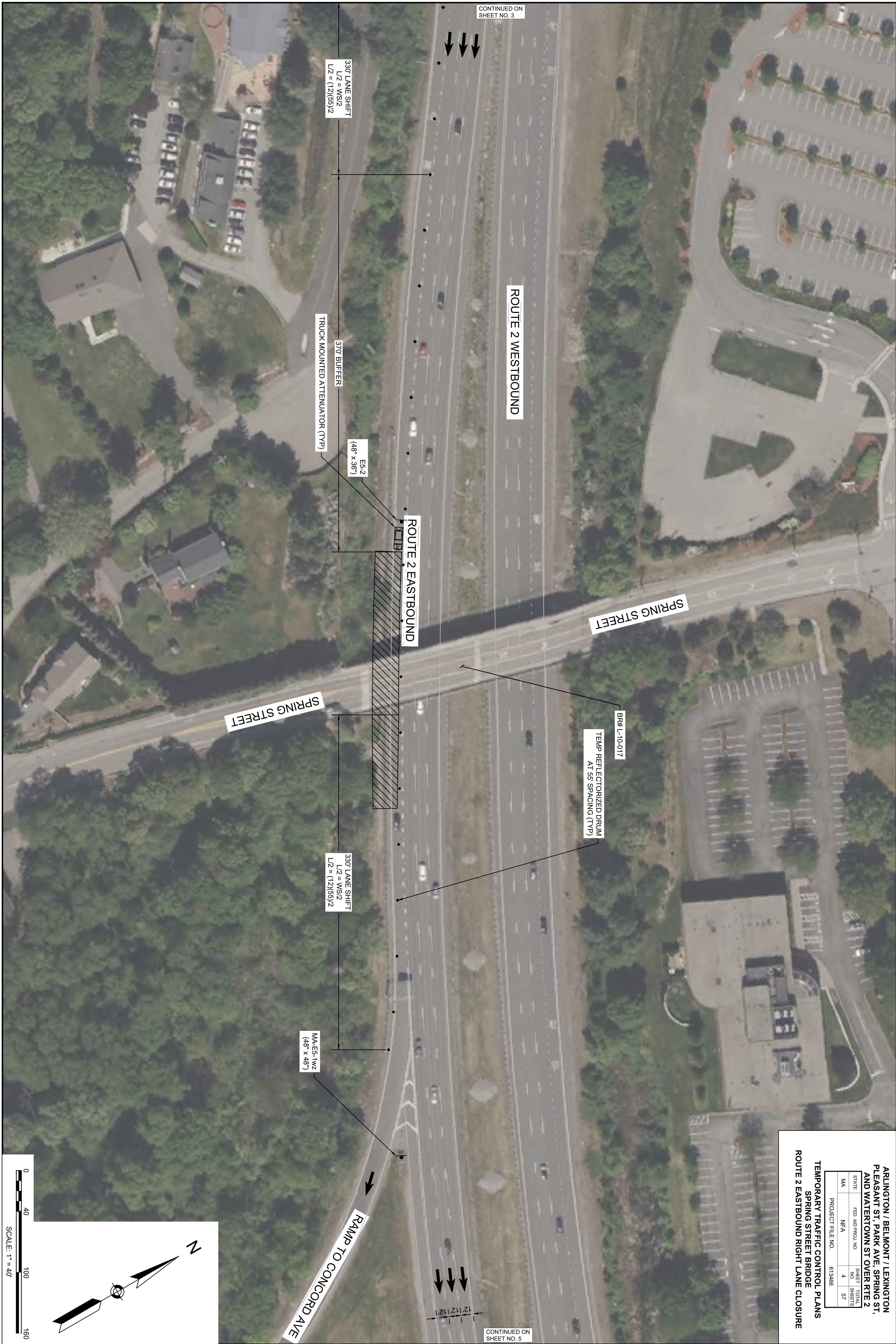
NOTES:
 1. THIS PLAN DEPICTS THE TRAFFIC MANAGEMENT NECESSARY TO COMPLETE BRIDGE AND ABUTMENT REPAIRS ALONG THE SOUTHERN END OF THE SPRING STREET BRIDGE.
 2. ADVANCE WARNING SIGNS ARE NOT SHOWN IN THEIR EXACT LOCATIONS. CONTRACTOR SHALL INSTALL SIGNS AT THE DISTANCES SHOWN.

ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST. PARK AVE. SPRING ST.
 AND WATER TOWN ST OVER RTE 2
 STATE MA NFA SHEET TOTAL
 PROJECT FILE NO. 613466 3 57

TEMPORARY TRAFFIC CONTROL PLANS
 SPRING STREET BRIDGE
 ROUTE 2 EASTBOUND RIGHT LANE CLOSURE



CONTINUED ON SHEET NO. 4

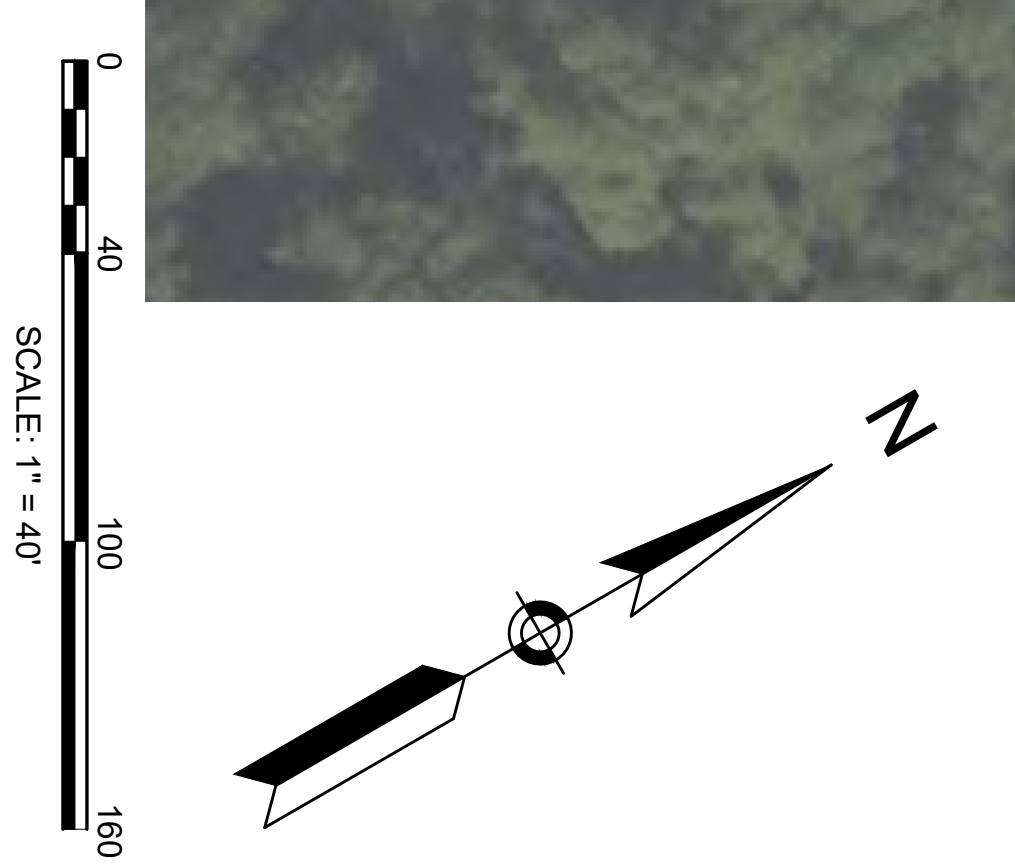


ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST. PARK AVE. SPRING ST.
 AND WATERTOWN ST OVER RTE 2

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	40 / 57
		4 / 57

PROJECT FILE NO. 613466

TEMPORARY TRAFFIC CONTROL PLANS
 SPRING STREET BRIDGE
 ROUTE 2 EASTBOUND RIGHT LANE CLOSURE





CONTINUED ON SHEET NO. 4

MA-R2-10E
(60' x 48')

RAMP TO CONCORD AVE

RAMP FROM CONCORD AVE

RAMP FROM HAYDEN AVE

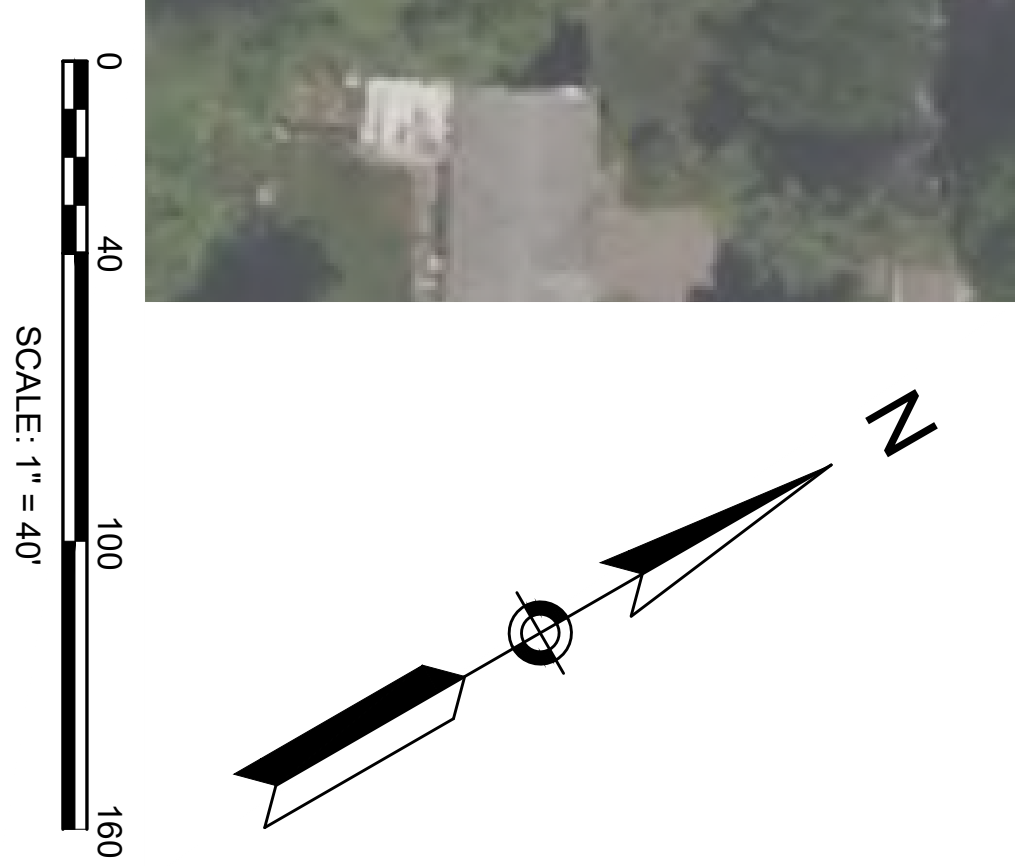
ROUTE 2 WESTBOUND

ROUTE 2 EASTBOUND

ARLINGTON / BELMONT / LEXINGTON
PLEASANT ST. PARK AVE. SPRING ST.
AND WATERTOWN ST OVER RTE 2
PROJECT FILE NO. 613466

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	57
		5

TEMPORARY TRAFFIC CONTROL PLANS
SPRING STREET BRIDGE
ROUTE 2 EASTBOUND RIGHT LANE CLOSURE



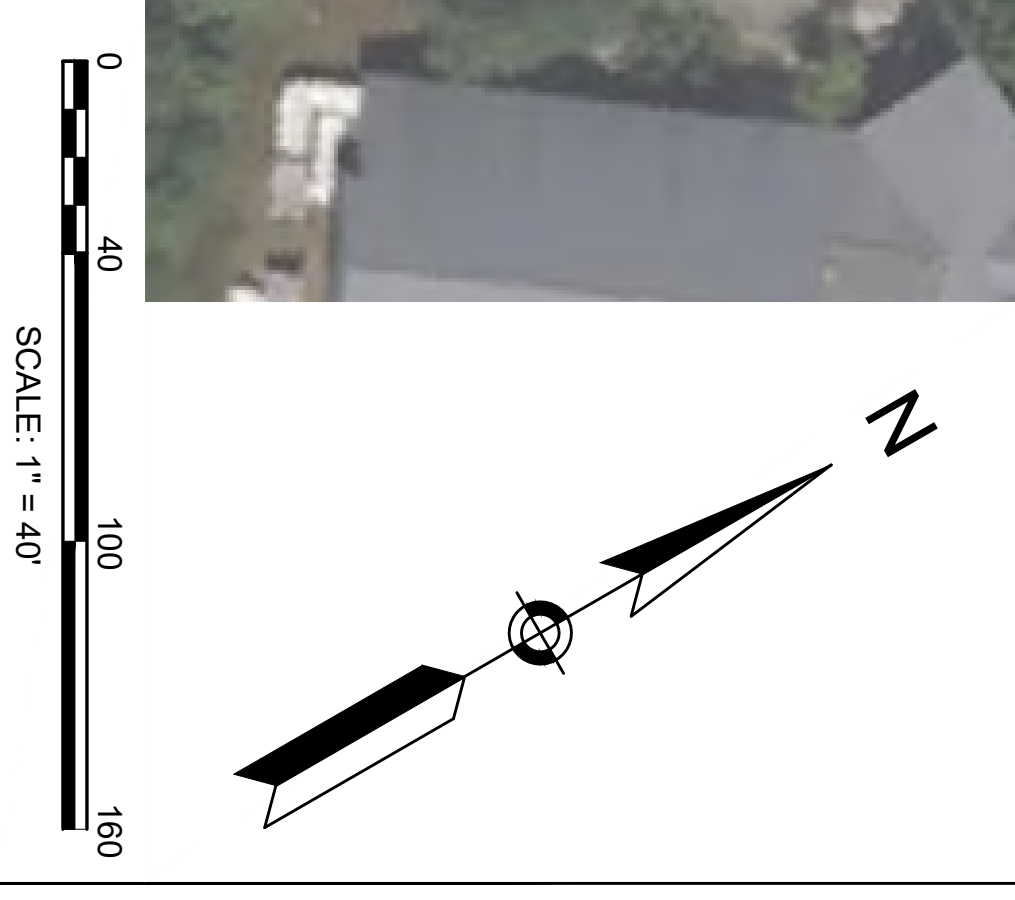
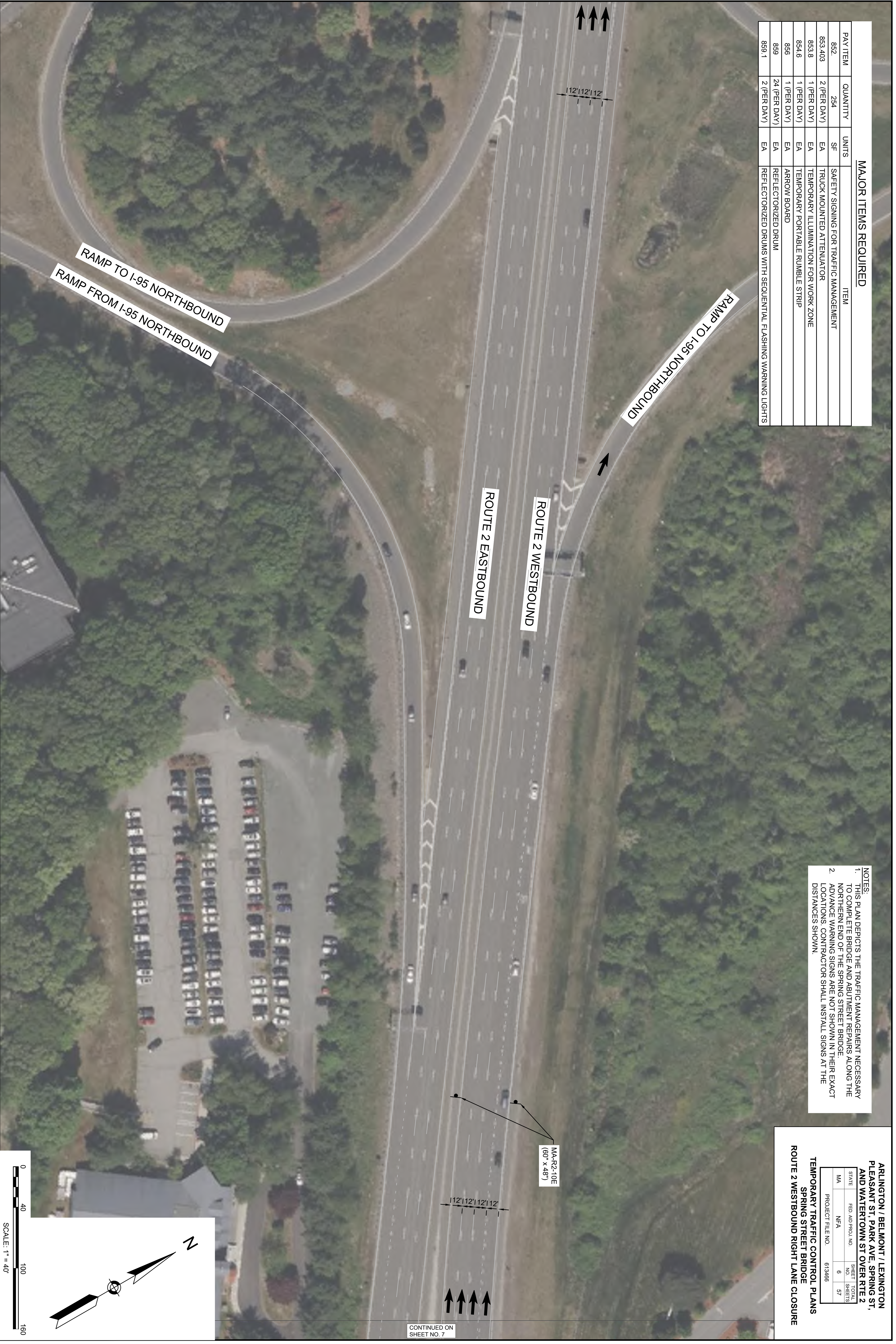
MAJOR ITEMS REQUIRED			
PAY ITEM	QUANTITY	UNITS	ITEM
852	254	SF	SAFETY SIGNING FOR TRAFFIC MANAGEMENT
853.403	2 (PER DAY)	EA	TRUCK MOUNTED ATTENUATOR
853.8	1 (PER DAY)	EA	TEMPORARY ILLUMINATION FOR WORK ZONE
854.6	1 (PER DAY)	EA	TEMPORARY PORTABLE RUMBLE STRIP
856	1 (PER DAY)	EA	ARROW BOARD
859	24 (PER DAY)	EA	REFLECTORIZED DRUM
859.1	2 (PER DAY)	EA	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS

- NOTES:
1. THIS PLAN DEPICTS THE TRAFFIC MANAGEMENT NECESSARY TO COMPLETE BRIDGE AND ABUTMENT REPAIRS ALONG THE NORTHERN END OF THE SPRING STREET BRIDGE. ADVANCE WARNING SIGNS ARE NOT SHOWN IN THEIR EXACT LOCATIONS. CONTRACTOR SHALL INSTALL SIGNS AT THE DISTANCES SHOWN.

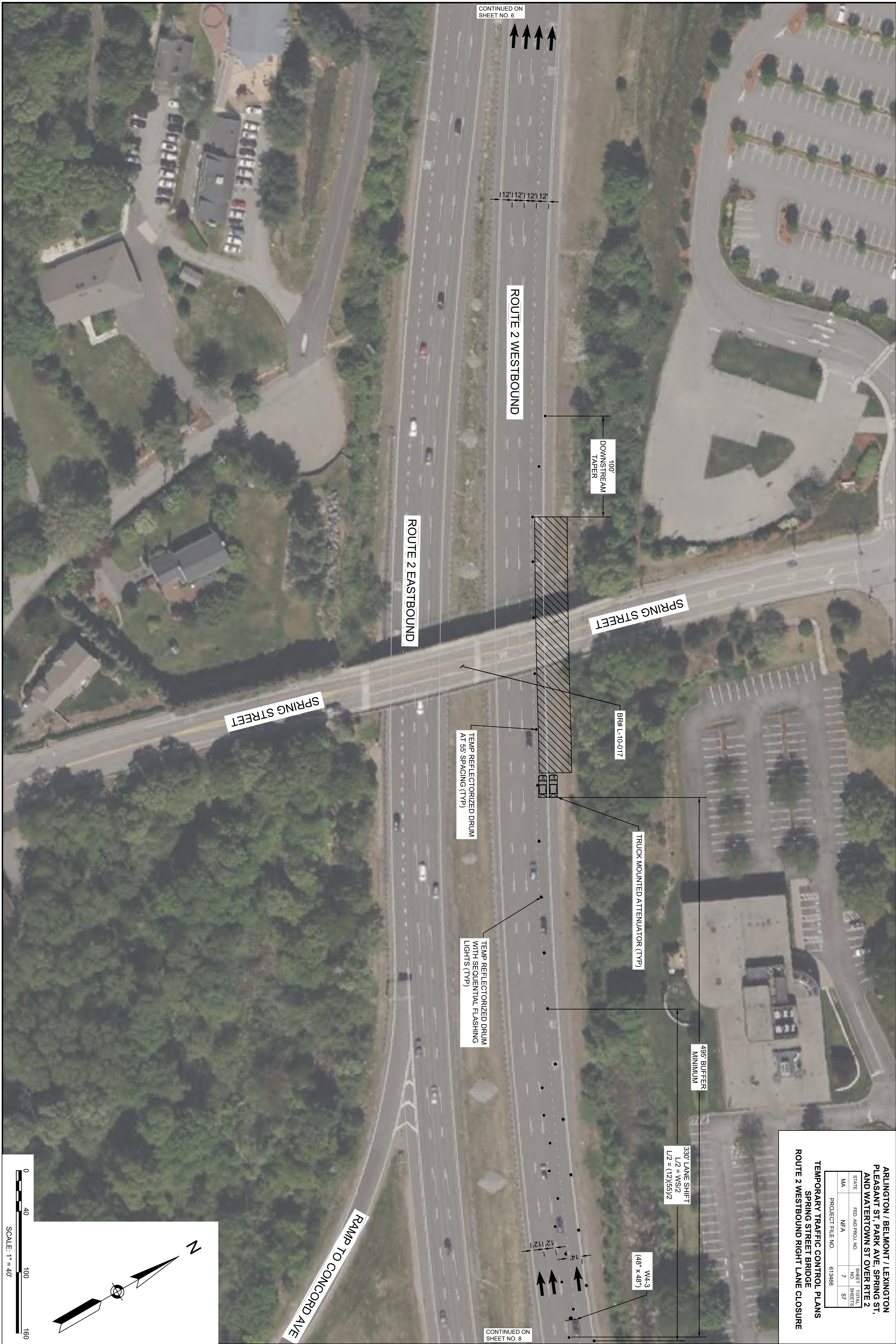
ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST. PARK AVE. SPRING ST.
 AND WATERTOWN ST OVER RTE 2

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	N/A	6 / 57
PROJECT FILE NO. 613466		

TEMPORARY TRAFFIC CONTROL PLANS
 SPRING STREET BRIDGE
 ROUTE 2 WESTBOUND RIGHT LANE CLOSURE



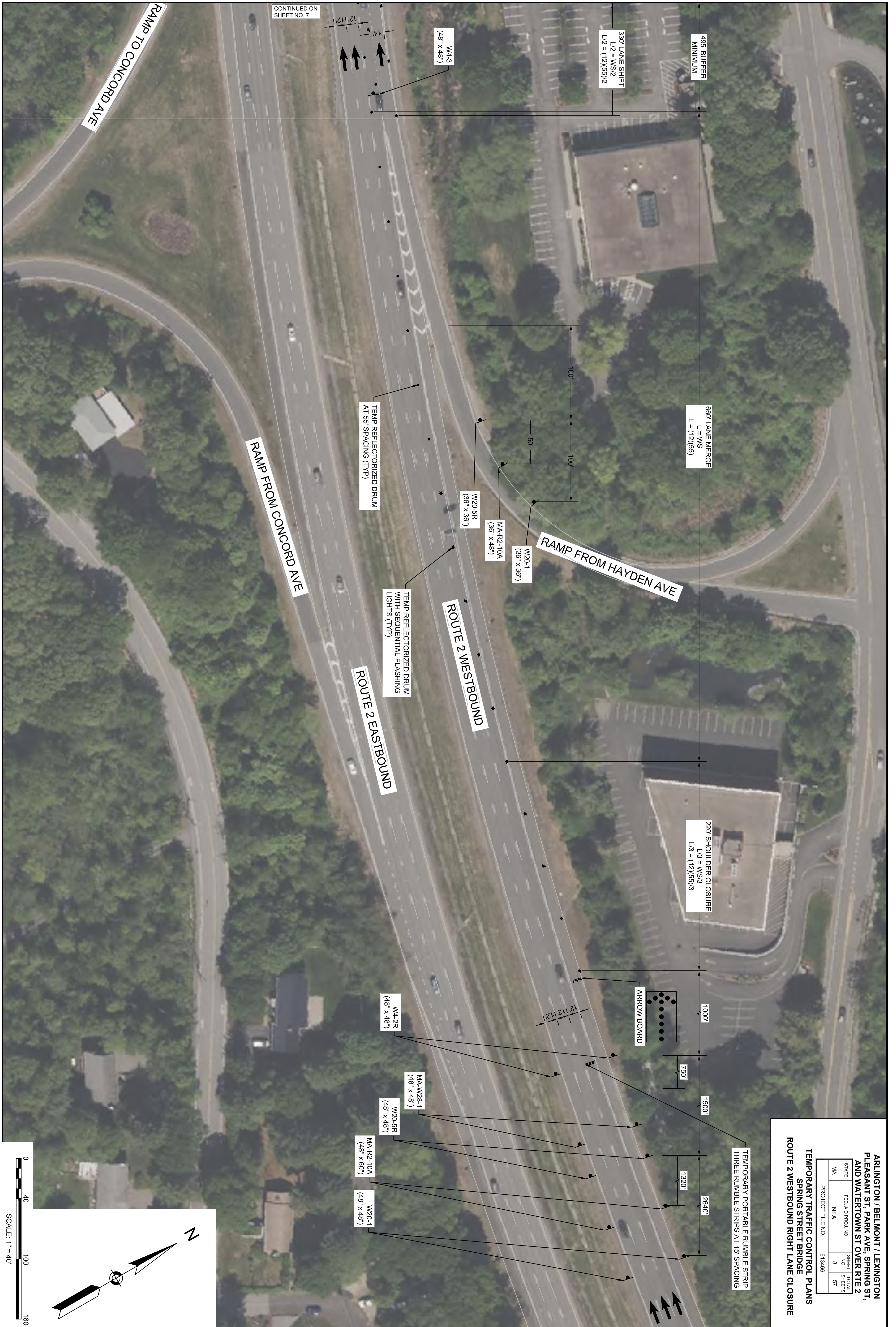
CONTINUED ON SHEET NO. 7



ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST. PARK AVE. SPRING ST.
 AND WATERTOWN ST OVER RTE 2
 TEMPORARY TRAFFIC CONTROL PLANS
 SPRING STREET BRIDGE
 ROUTE 2 WESTBOUND RIGHT LANE CLOSURE

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	7
		57

PROJECT FILE NO. 613466



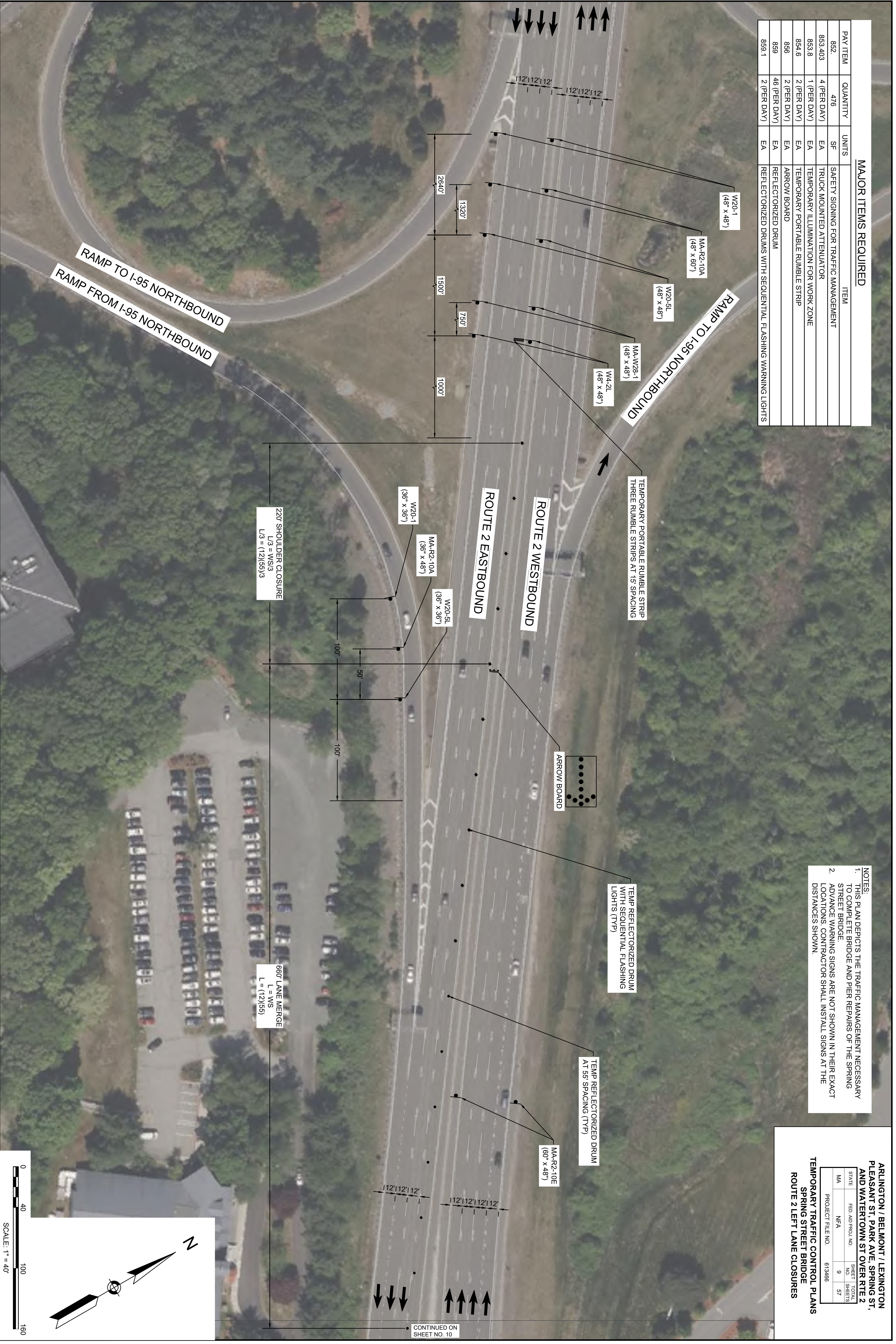
ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST., PARK AVE., SPRING ST.,
 AND WATERTOWN ST OVER RTE 2

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	9
		57

PROJECT FILE NO. 613466

TEMPORARY TRAFFIC CONTROL PLANS
 SPRING STREET BRIDGE
 ROUTE 2 WESTBOUND RIGHT LANE CLOSURE

MAJOR ITEMS REQUIRED			
PAY ITEM	QUANTITY	UNITS	ITEM
852.	476	SF	SAFETY SIGNING FOR TRAFFIC MANAGEMENT
853.403	4 (PER DAY)	EA	TRUCK MOUNTED ATTENUATOR
853.8	1 (PER DAY)	EA	TEMPORARY ILLUMINATION FOR WORK ZONE
854.6	2 (PER DAY)	EA	TEMPORARY PORTABLE RUMBLE STRIP
856	2 (PER DAY)	EA	ARROW BOARD
859	46 (PER DAY)	EA	REFLECTORIZED DRUM
859.1	2 (PER DAY)	EA	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS

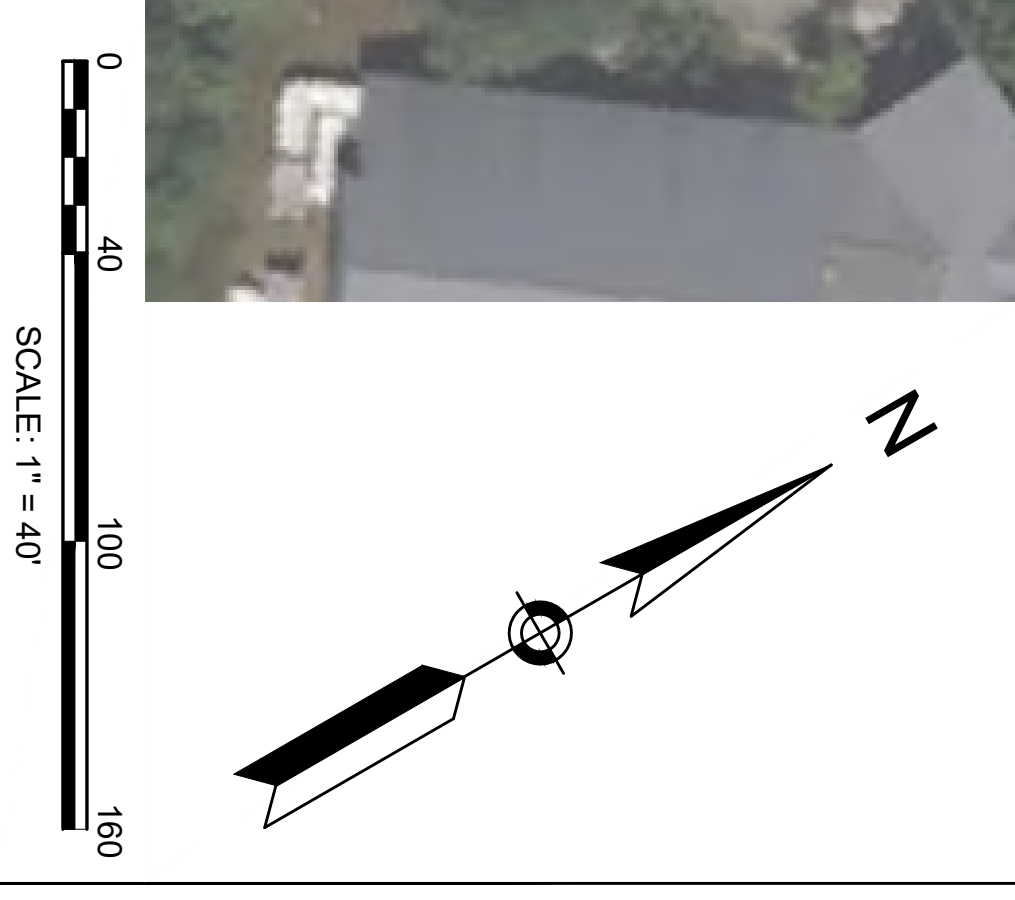


- NOTES:
1. THIS PLAN DEPICTS THE TRAFFIC MANAGEMENT NECESSARY TO COMPLETE BRIDGE AND PIER REPAIRS OF THE SPRING STREET BRIDGE.
 2. ADVANCE WARNING SIGNS ARE NOT SHOWN IN THEIR EXACT LOCATIONS. CONTRACTOR SHALL INSTALL SIGNS AT THE DISTANCES SHOWN.

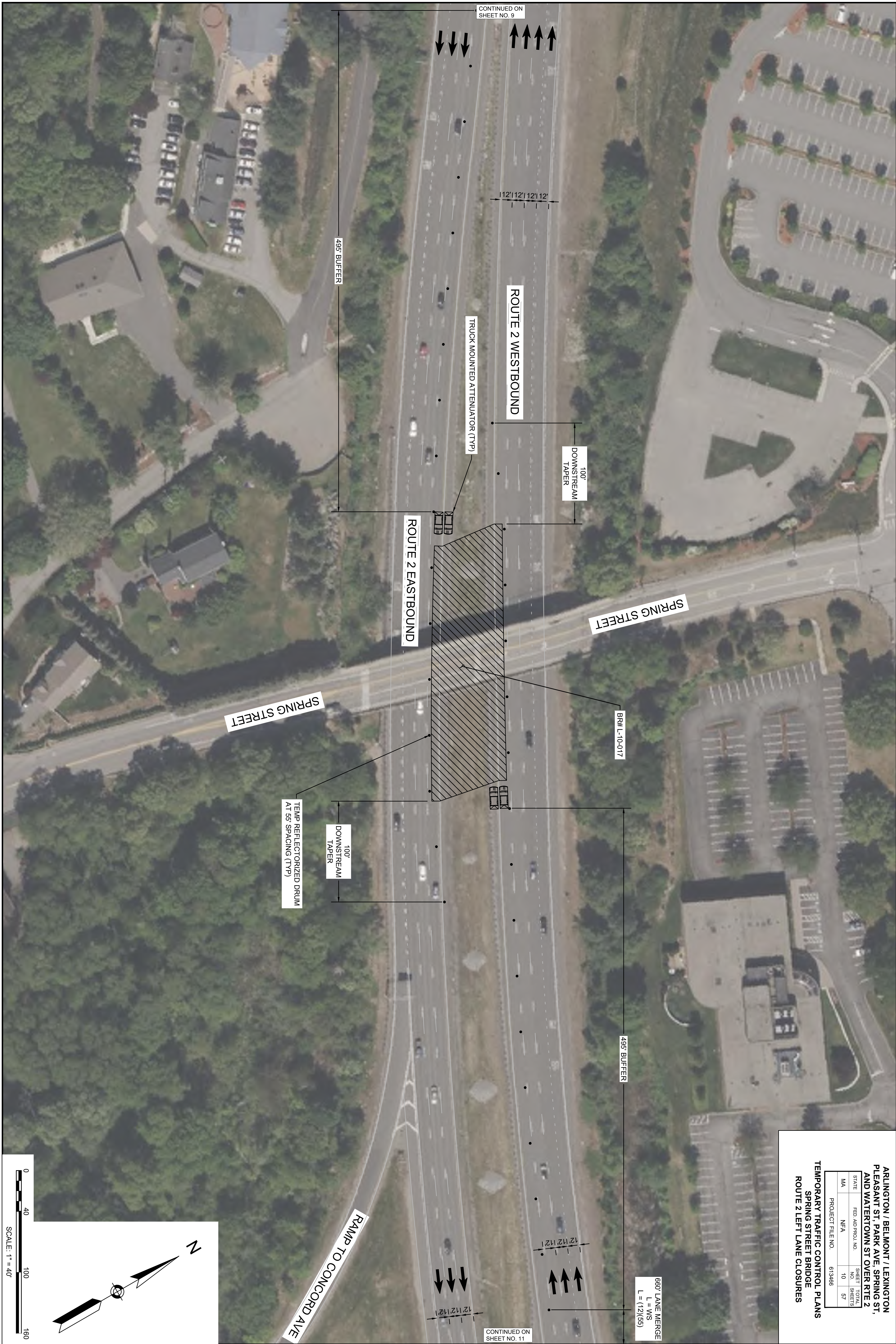
ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST. PARK AVE. SPRING ST.
 AND WATERTOWN ST OVER RTE 2

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	9 OF 57
PROJECT FILE NO. 613466		

TEMPORARY TRAFFIC CONTROL PLANS
 SPRING STREET BRIDGE
 ROUTE 2 LEFT LANE CLOSURES



CONTINUED ON SHEET NO. 10

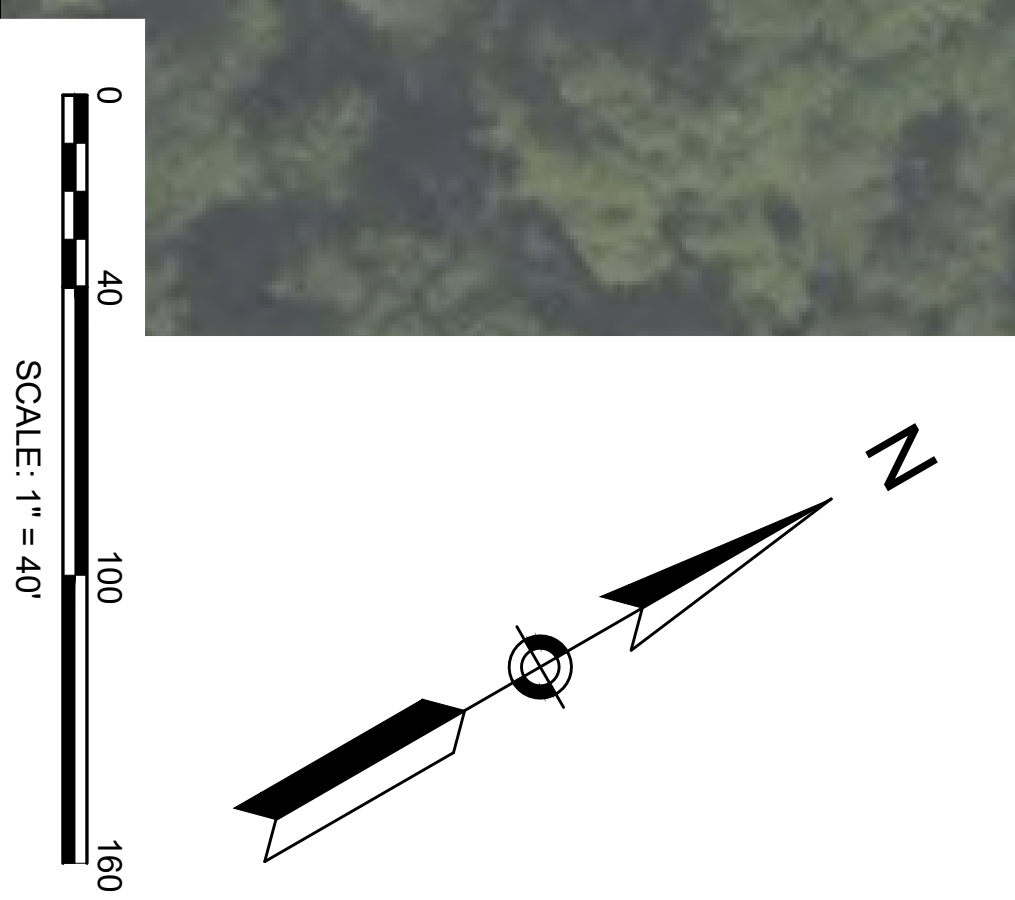


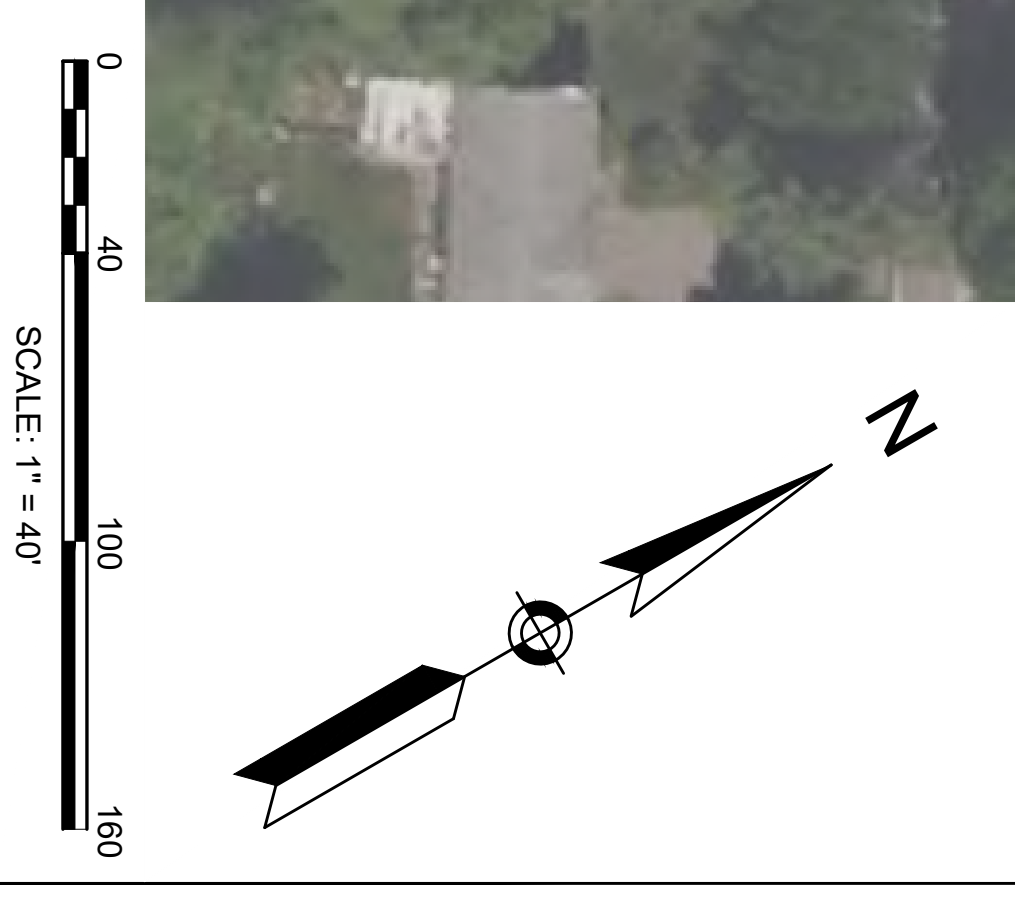
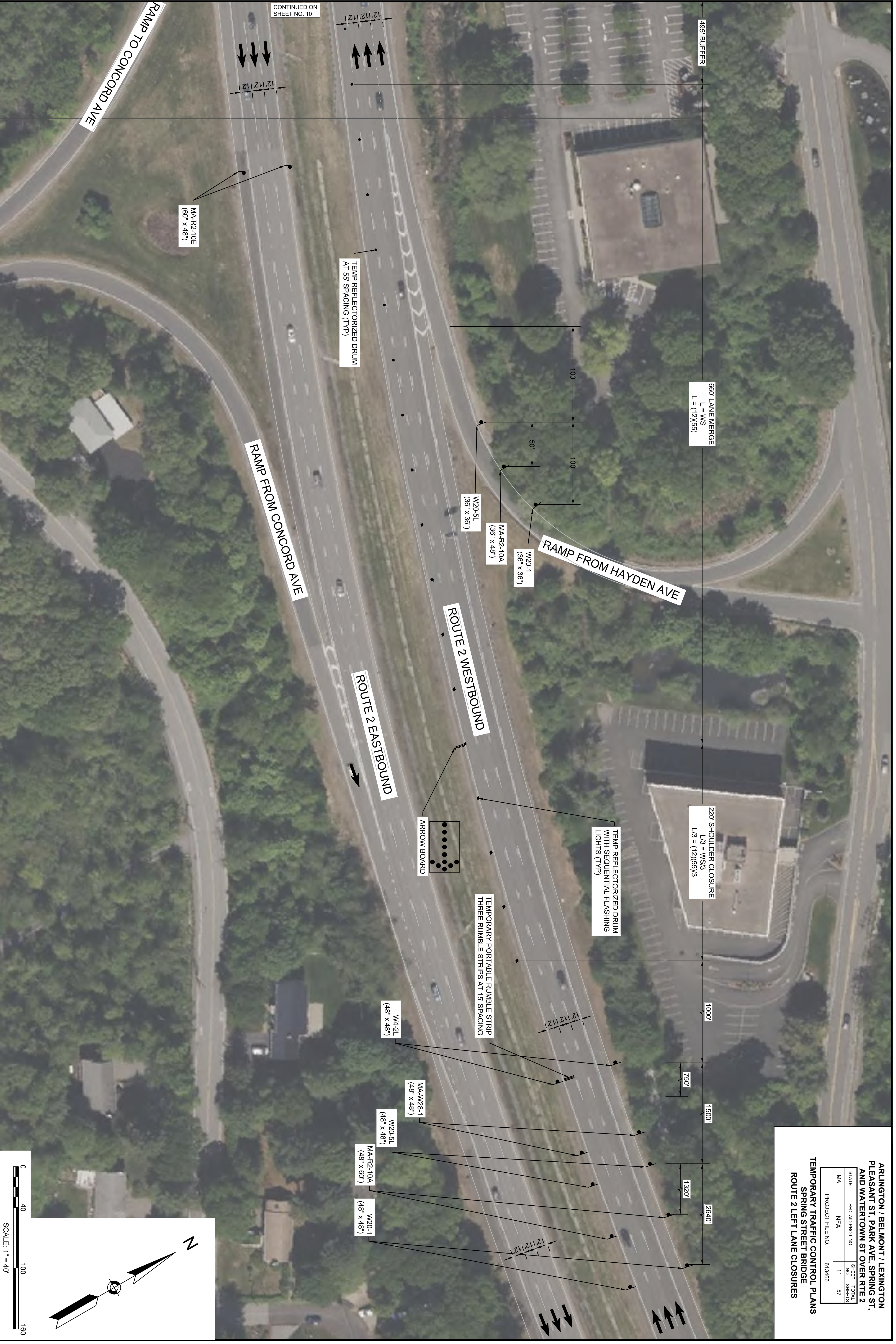
ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST. PARK AVE. SPRING ST.
 AND WATEROWN ST OVER RTE 2
 SPRING STREET BRIDGE
 ROUTE 2 LEFT LANE CLOSURES

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	10
		57

PROJECT FILE NO. 613466

660' LANE MERGE
 L = WS
 L = (12)(55)





MAJOR ITEMS REQUIRED

PAY ITEM	QUANTITY	UNITS	ITEM
852	562	SF	SAFETY SIGNING FOR TRAFFIC MANAGEMENT
853.1	4	EA	PORTABLE BREAKAWAY BARRICADE TYPE III
853.8	1 (PER DAY)	EA	TEMPORARY ILLUMINATION FOR WORK ZONE
853.403	2 (PER DAY)	EA	TRUCK MOUNTED ATTENUATOR
856	1 (PER DAY)	EA	ARROW BOARD
856.12	3 (PER DAY)	EA	PORTABLE CHANGEABLE MESSAGE SIGN
859	24 (PER DAY)	EA	REFLECTORIZED DRUM
859.1	1 (PER DAY)	EA	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS

BRIDGE	ROADWAY	CASE	TIMING	DETAIL
L-10-020 (2KA)	ROUTE 2 EB RAMP TO WATERTOWN STREET RAMP TO PILGRIM ROAD	ON RAMP DETOUR OFF-RAMP DETOUR SHEETS 12-14	NIGHT 8PM - 5AM	852.3.3 SEE SHEET 57
L-10-020 (2KA)	ROUTE 2 WB RAMP FROM WATERTOWN STREET	RIGHT SHOULDER CLOSURE ON RAMP DETOUR SHEETS 16-17	NIGHT 9PM - 5AM	852.7.1 SEE SHEET 55
L-10-020 (2KA)	ROUTE 2 EB AND WB	LEFT LANE CLOSURES SHEETS 19-21	NIGHT 8PM - 5AM	852.7.4 SEE SHEET 55

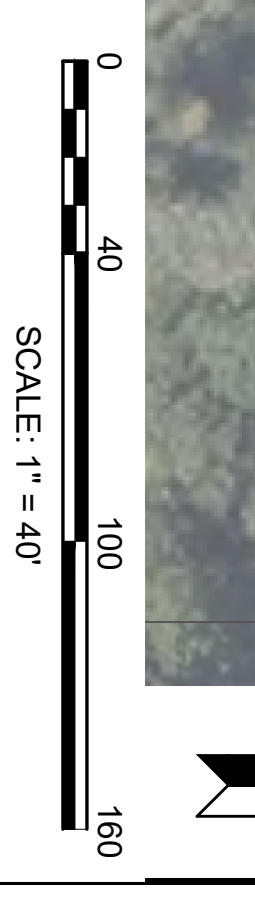
NOTES:

- THIS PLAN DEPICTS THE TRAFFIC MANAGEMENT NECESSARY TO COMPLETE BRIDGE AND ABUTMENT REPAIRS ALONG THE SOUTHERN END OF THE WATERTOWN STREET BRIDGE.
- ADVANCE WARNING SIGNS ARE NOT SHOWN IN THEIR EXACT LOCATIONS. CONTRACTOR SHALL INSTALL SIGNS AT THE DISTANCES SHOWN.

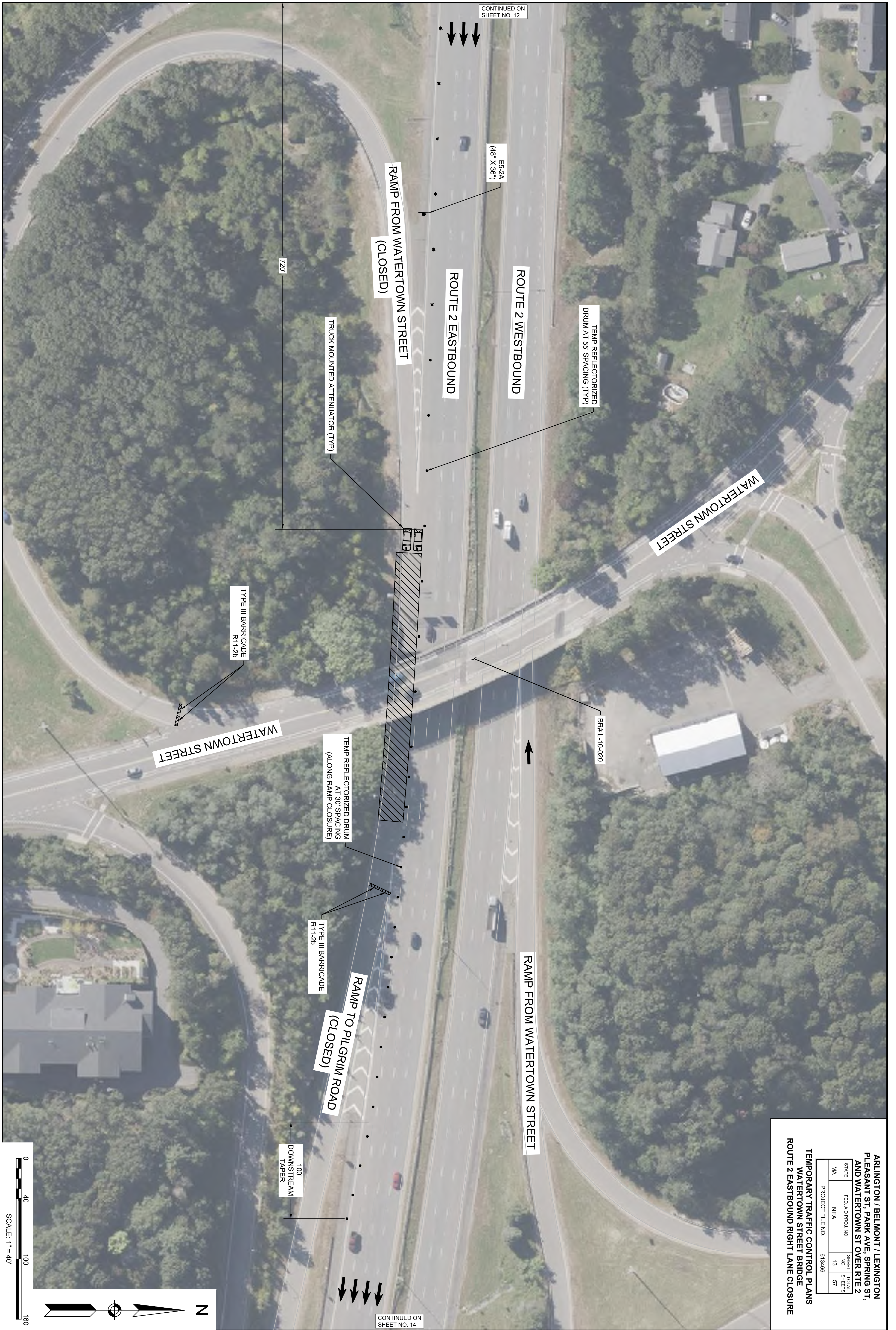
**ARLINGTON / BELMONT / LEXINGTON
PLEASANT ST. PARK AVE. SPRING ST.
AND WATERTOWN ST OVER RTE 2**

STATE	FED. AID PROJ. NO.	SHEET TOTAL
MA	NFA	12
PROJECT FILE NO.		57
613466		

**TEMPORARY TRAFFIC CONTROL PLANS
WATERTOWN STREET BRIDGE
ROUTE 2 EASTBOUND RIGHT LANE CLOSURE**



CONTINUED ON SHEET NO. 13



ARLINGTON / BELMONT / LEXINGTON
PLEASANT ST. PARK AVE. SPRING ST.
AND WATERTOWN ST OVER RTE 2
TEMPORARY TRAFFIC CONTROL PLANS
WATERTOWN STREET BRIDGE
ROUTE 2 EASTBOUND RIGHT LANE CLOSURE

STATE	FED AID PROJ NO.	SHEET TOTAL
MA	NFA	13
		57
PROJECT FILE NO.	613466	



ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST. PARK AVE. SPRING ST.
 AND WATERTOWN ST OVER RTE 2
 TEMPORARY TRAFFIC CONTROL PLANS
 WATERTOWN STREET BRIDGE
 ROUTE 2 EASTBOUND RIGHT LANE CLOSURE

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	14
		57
PROJECT FILE NO.		613466



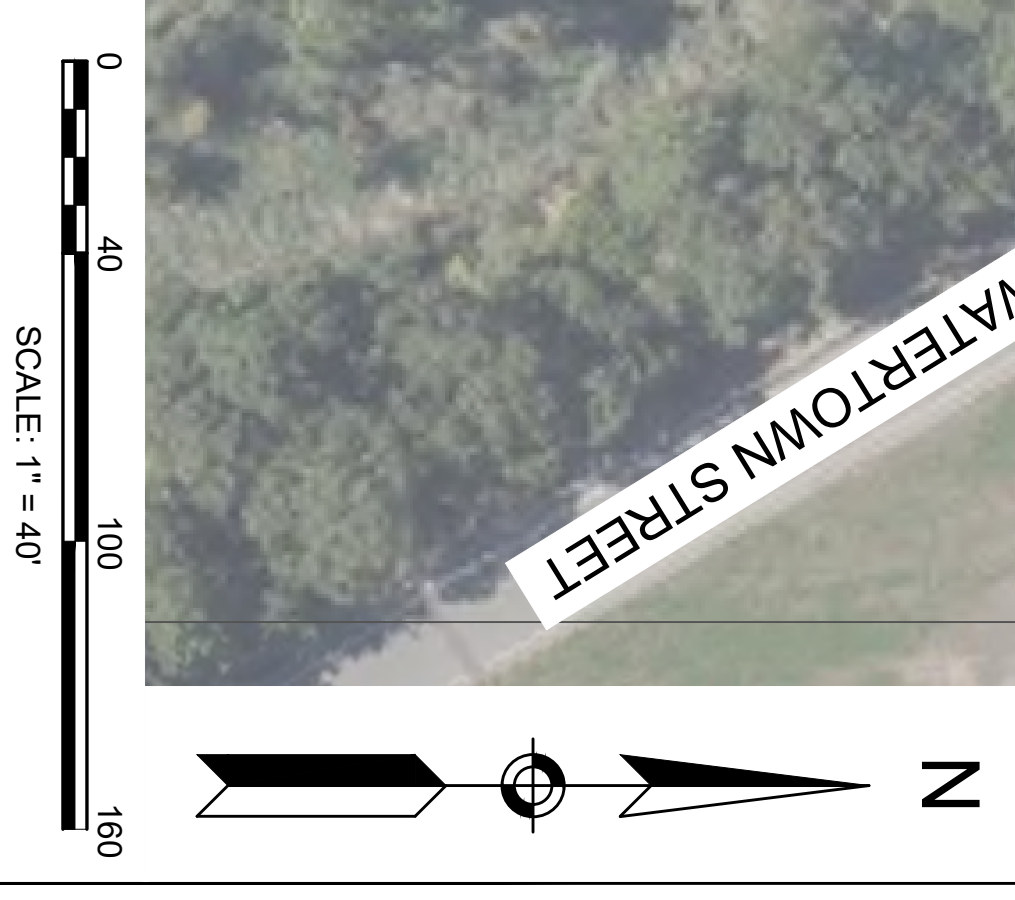
MAJOR ITEMS REQUIRED

PAY ITEM	QUANTITY	UNITS	ITEM
852	329	SF	SAFETY SIGNING FOR TRAFFIC MANAGEMENT
853.1	4	EA	PORTABLE BREAKAWAY BARRICADE TYPE III
853.403	2 (PER DAY)	EA	TRUCK MOUNTED ATTENUATOR
853.8	1 (PER DAY)	EA	TEMPORARY ILLUMINATION FOR WORK ZONE
856	1 (PER DAY)	EA	ARROW BOARD
856.12	2 (PER DAY)	EA	PORTABLE CHANGEABLE MESSAGE SIGN
859	9 (PER DAY)	EA	REFLECTORIZED DRUM
859.1	1 (PER DAY)	EA	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS

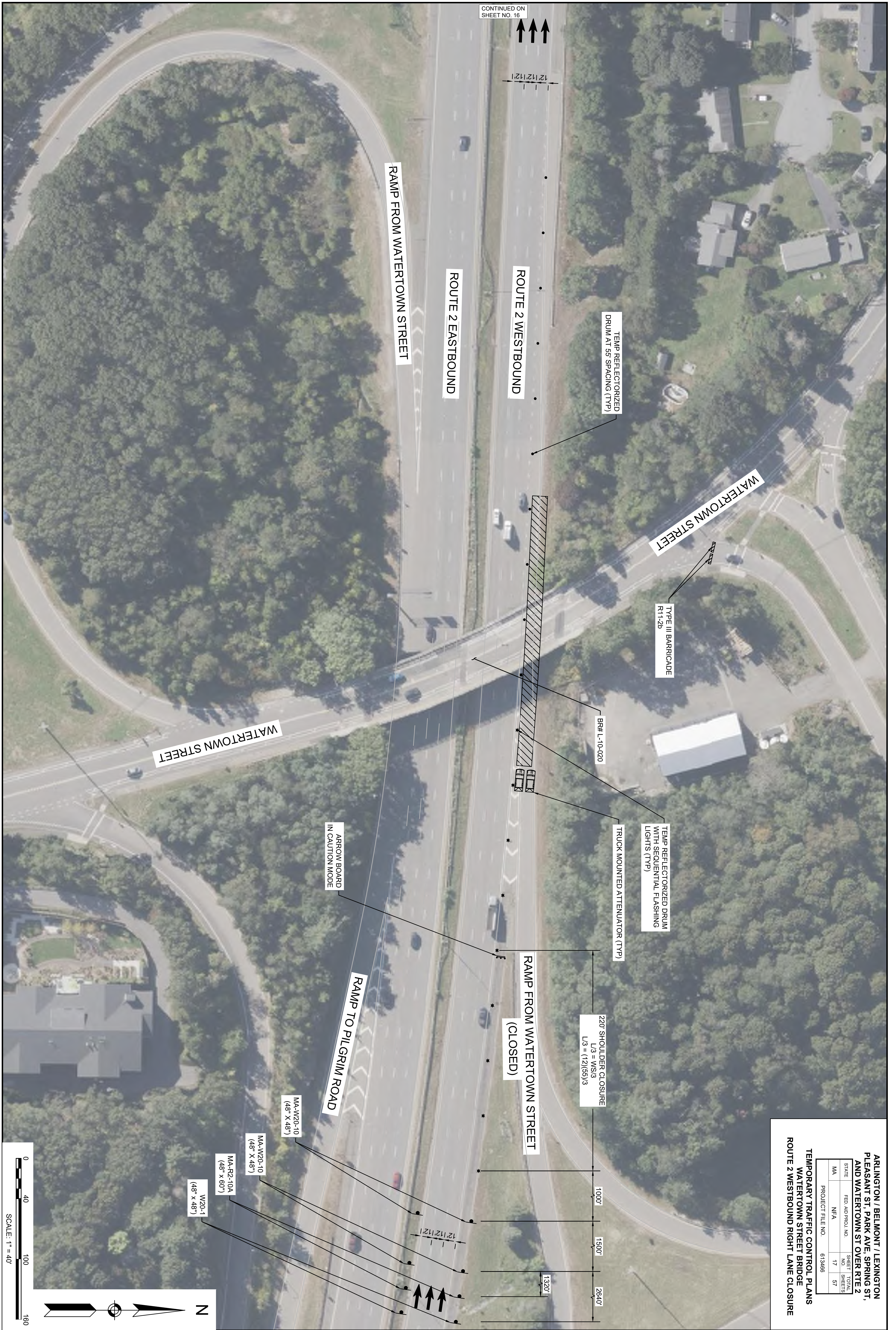
- NOTES:**
1. THIS PLAN DEPICTS THE TRAFFIC MANAGEMENT NECESSARY TO COMPLETE BRIDGE AND ABUTMENT REPAIRS ALONG THE NORTHERN END OF THE WATERTOWN STREET BRIDGE.
 2. ADVANCE WARNING SIGNS ARE NOT SHOWN IN THEIR EXACT LOCATIONS. CONTRACTOR SHALL INSTALL SIGNS AT THE DISTANCES SHOWN.

ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST. PARK AVE. SPRING ST.
 AND WATERTOWN ST OVER RTE 2
 TEMPORARY TRAFFIC CONTROL PLANS
 WATERTOWN STREET BRIDGE
 ROUTE 2 WESTBOUND RIGHT LANE CLOSURE

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	18
PROJECT FILE NO.		57
613466		

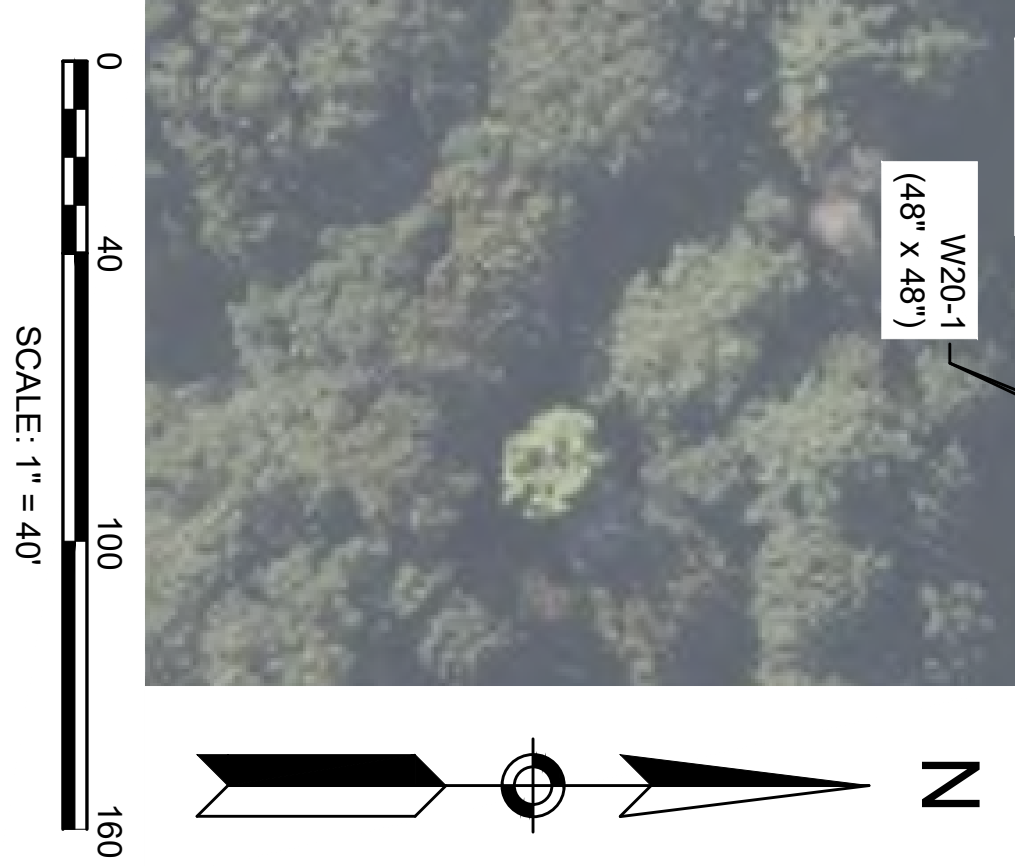


CONTINUED ON SHEET NO. 17



ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST. PARK AVE. SPRING ST.
 AND WATERTOWN ST OVER RTE 2
 TEMPORARY TRAFFIC CONTROL PLANS
 WATERTOWN STREET BRIDGE
 ROUTE 2 WESTBOUND RIGHT LANE CLOSURE

STATE	FED AID PROJ NO.	SHEET TOTAL
MA	NFA	17
		57
PROJECT FILE NO. 613466		

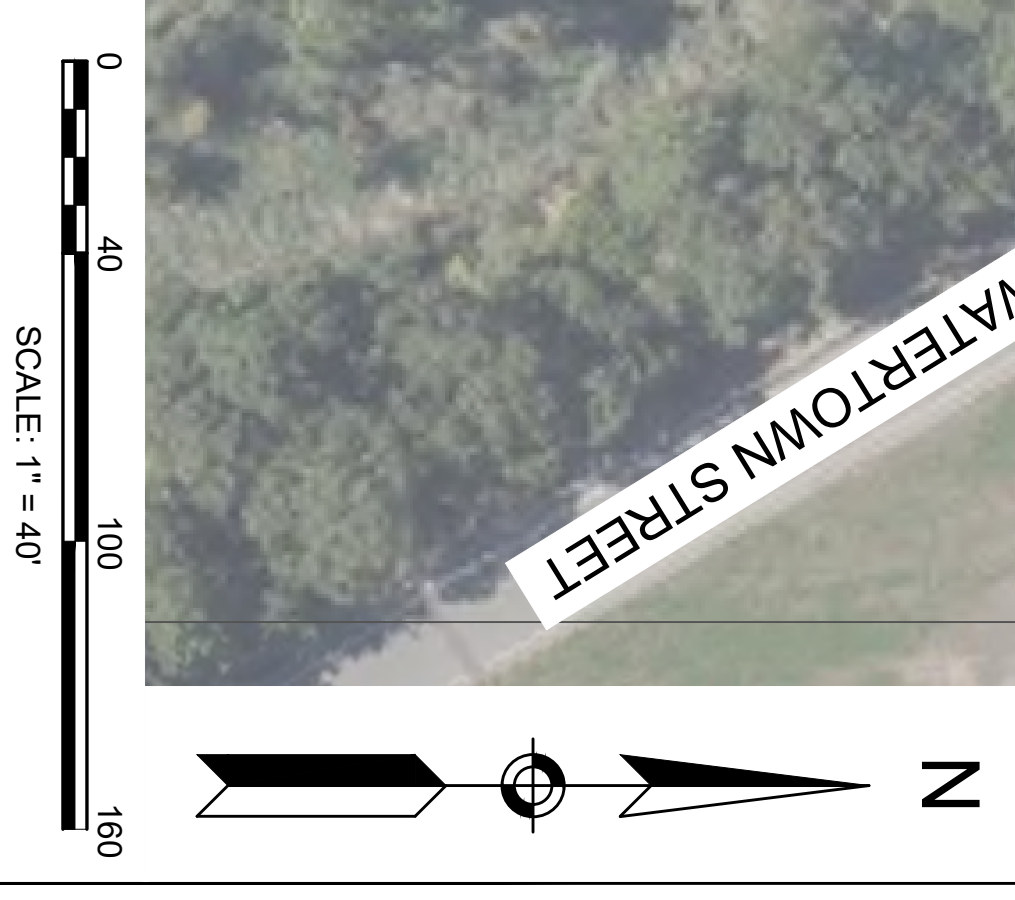


MAJOR ITEMS REQUIRED			
PAY ITEM	QUANTITY	UNITS	ITEM
852	416	SF	SAFETY SIGNING FOR TRAFFIC MANAGEMENT
853.403	2 (PER DAY)	EA	TRUCK MOUNTED ATTENUATOR
853.8	1 (PER DAY)	EA	TEMPORARY ILLUMINATION FOR WORK ZONE
854.6	2 (PER DAY)	EA	TEMPORARY PORTABLE RUMBLE STRIP
856	2 (PER DAY)	EA	ARROW BOARD
859	48 (PER DAY)	EA	REFLECTORIZED DRUM
859.1	2 (PER DAY)	EA	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS

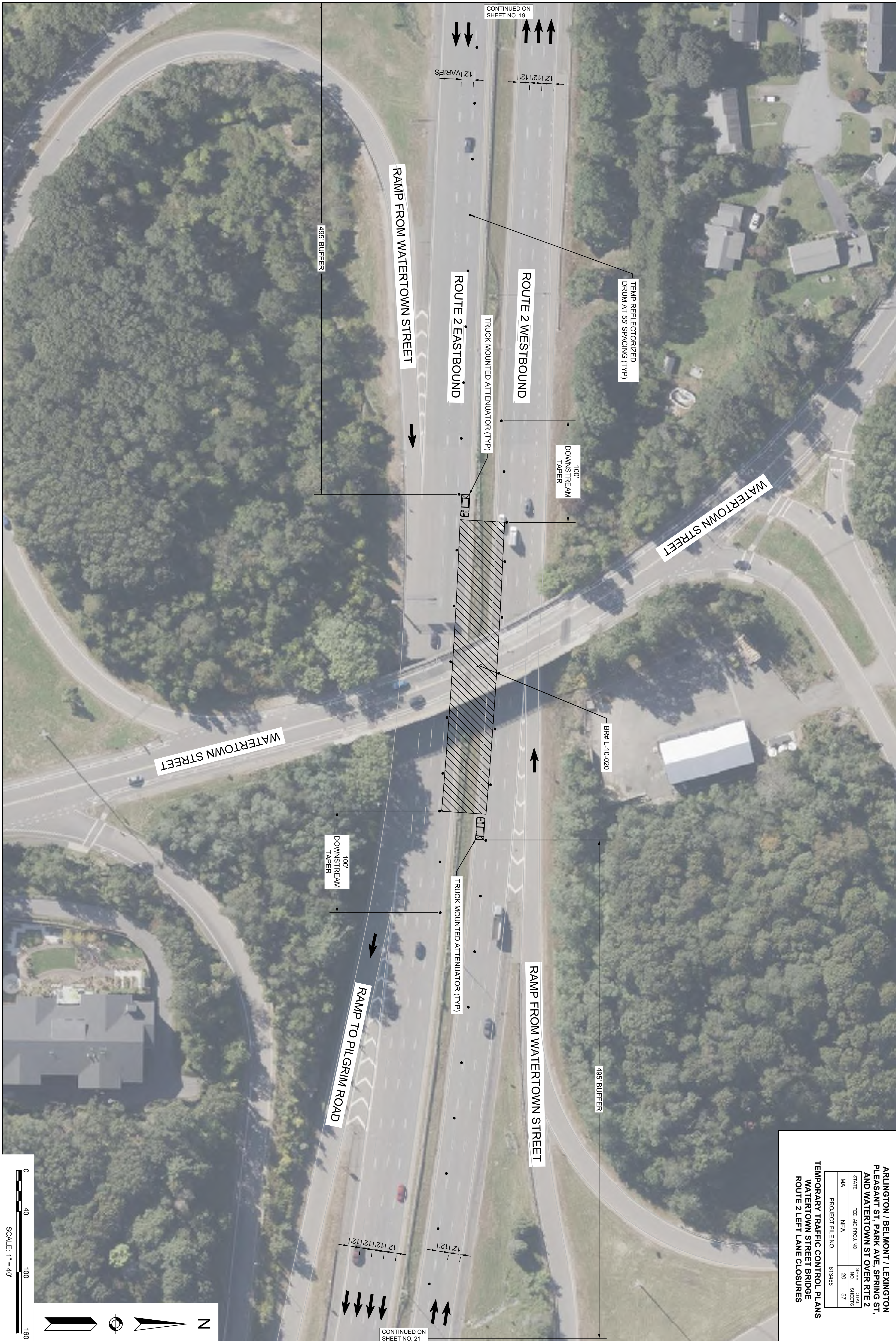
- NOTES:
1. THIS PLAN DEPICTS THE TRAFFIC MANAGEMENT NECESSARY TO COMPLETE BRIDGE AND PIER REPAIRS OF THE WATERTOWN STREET BRIDGE.
 2. ADVANCE WARNING SIGNS ARE NOT SHOWN IN THEIR EXACT LOCATIONS. CONTRACTOR SHALL INSTALL SIGNS AT THE DISTANCES SHOWN.

ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST. PARK AVE. SPRING ST.
 AND WATERTOWN ST OVER RTE 2
 TEMPORARY TRAFFIC CONTROL PLANS
 WATERTOWN STREET BRIDGE
 ROUTE 2 LEFT LANE CLOSURES

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	N/A	19 OF 57
PROJECT FILE NO. 613466		



CONTINUED ON SHEET NO. 20



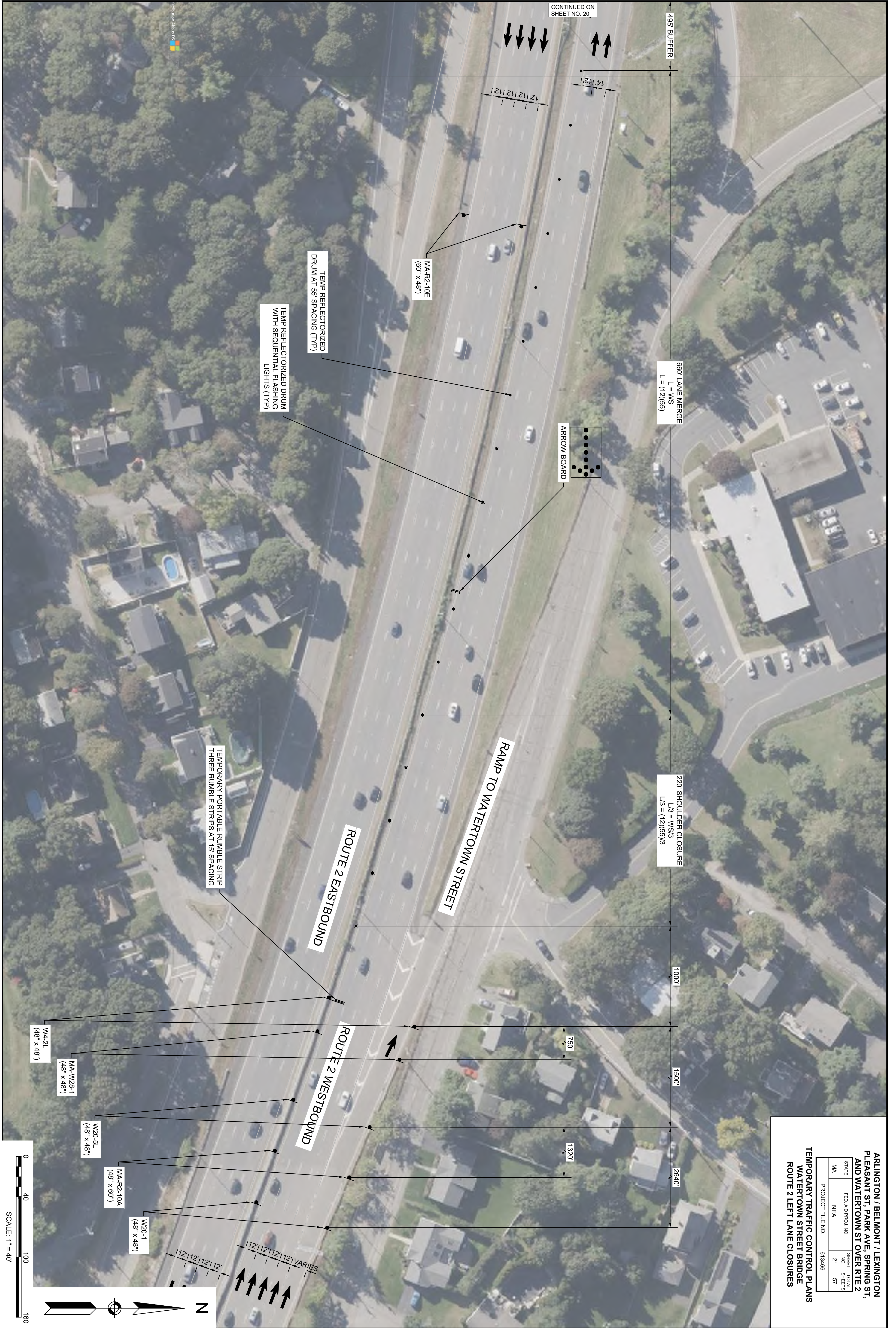
ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST. PARK AVE. SPRING ST.
 AND WATERTOWN ST OVER RTE 2
 TEMPORARY TRAFFIC CONTROL PLANS
 WATERTOWN STREET BRIDGE
 ROUTE 2 LEFT LANE CLOSURES

STATE	FED AID PROJ NO.	SHEET TOTAL
MA	NFA	20
		57
PROJECT FILE NO.		613466



CONTINUED ON SHEET NO. 21

CONTINUED ON SHEET NO. 19



ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST. PARK AVE. SPRING ST.
 AND WATERTOWN ST OVER RTE 2
 WATERTOWN STREET BRIDGE
 ROUTE 2 LEFT LANE CLOSURES

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	21
		57

PROJECT FILE NO. 613466

TEMPORARY TRAFFIC CONTROL PLANS

WATERTOWN STREET BRIDGE

ROUTE 2 LEFT LANE CLOSURES

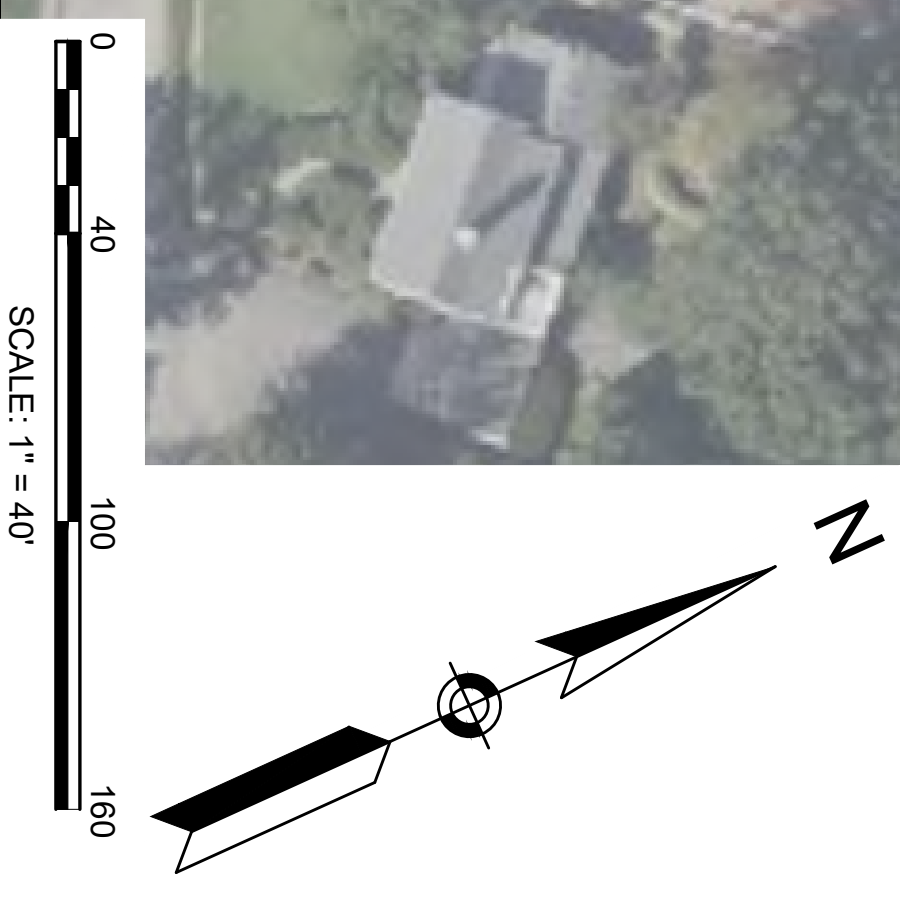
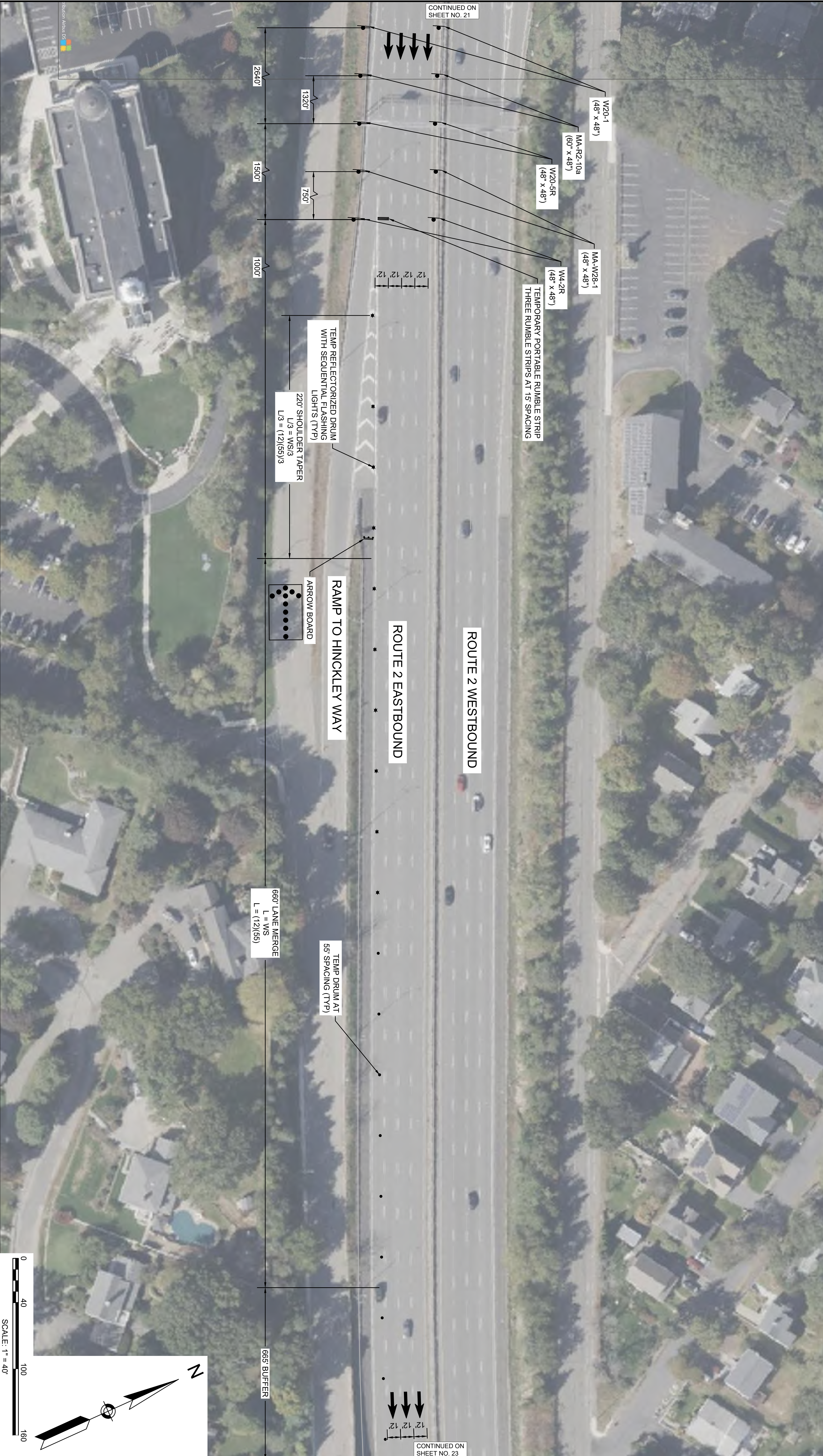
MAJOR ITEMS REQUIRED			
PAY ITEM	QUANTITY	UNITS	ITEM
852	208	SF	SAFETY SIGNING FOR TRAFFIC MANAGEMENT
853.403	2 (PER DAY)	EA	TRUCK MOUNTED ATTENUATOR
853.8	1 (PER DAY)	EA	TEMPORARY ILLUMINATION FOR WORK ZONE
854.6	1 (PER DAY)	EA	TEMPORARY PORTABLE RUMBLE STRIP
856	1 (PER DAY)	EA	ARROW BOARD
859	25 (PER DAY)	EA	REFLECTORIZED DRUM
859.1	1 (PER DAY)	EA	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS

BRIDGE	ROADWAY	CASE	TIMING	DETAIL
A-10-020	ROUTE 2 EB	RIGHT LANE CLOSURE SHEETS 22-23	NIGHT 8PM - 5AM	852.7.3 SEE SHEET 55
A-10-020	ROUTE 2 WB	RIGHT LANE CLOSURE SHEETS 24-25	NIGHT 8PM - 5AM	852.7.3 SEE SHEET 55
A-10-020	ROUTE 2 EB AND WB	LEFT LANE CLOSURES SHEETS 26-28	ALL DAY	852.7.6 SEE SHEET 56
A-10-020	ROUTE 2 EB AND WB	LEFT LANE CLOSURES SHEETS 29-35	NIGHT 8PM - 5AM	852.7.9 SEE SHEET 56

NOTES:
 1. THIS PLAN DEPICTS THE TRAFFIC MANAGEMENT NECESSARY TO COMPLETE BRIDGE AND ABUTMENT REPAIRS ALONG THE SOUTHERN END OF THE PARK AVE BRIDGE.
 2. ADVANCE WARNING SIGNS ARE NOT SHOWN IN THEIR EXACT LOCATIONS. CONTRACTOR SHALL INSTALL SIGNS AT THE DISTANCE SHOWN.

ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST. PARK AVE. SPRING ST.
 AND WATER TOWN ST OVER RTE 2
 TEMPORARY TRAFFIC CONTROL PLANS
 PARK AVE BRIDGE
 ROUTE 2 EASTBOUND RIGHT LANE CLOSURE

STATE	FED. AID PROJ. NO.	SHEET TOTAL
MA	NFA	22
PROJECT FILE NO.		57
613466		



CONTINUED ON SHEET NO. 23



ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST. PARK AVE. SPRING ST.
 AND WATERLOO ST OVER RTE 2
 TEMPORARY TRAFFIC CONTROL PLANS
 PARK AVE BRIDGE
 ROUTE 2 EASTBOUND RIGHT LANE CLOSURE

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	29
		57
PROJECT FILE NO. 613466		



MAJOR ITEMS REQUIRED			
PAY ITEM	QUANTITY	UNITS	ITEM
852	208	SF	SAFETY SIGNING FOR TRAFFIC MANAGEMENT
853.403	2 (PER DAY)	EA	TRUCK MOUNTED ATTENUATOR
853.8	1 (PER DAY)	EA	TEMPORARY ILLUMINATION FOR WORK ZONE
854.6	1 (PER DAY)	EA	TEMPORARY PORTABLE RUMBLE STRIP
856	1 (PER DAY)	EA	ARROW BOARD
859	19 (PER DAY)	EA	REFLECTORIZED DRUM
859.1	1 (PER DAY)	EA	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS

- NOTES:
1. THIS PLAN DEPICTS THE TRAFFIC MANAGEMENT NECESSARY TO COMPLETE BRIDGE AND ABUTMENT REPAIRS ALONG THE NORTHERN END OF THE PARK AVE BRIDGE.
 2. ADVANCE WARNING SIGNS ARE NOT SHOWN IN THEIR EXACT LOCATIONS. CONTRACTOR SHALL INSTALL SIGNS AT THE DISTANCE SHOWN.

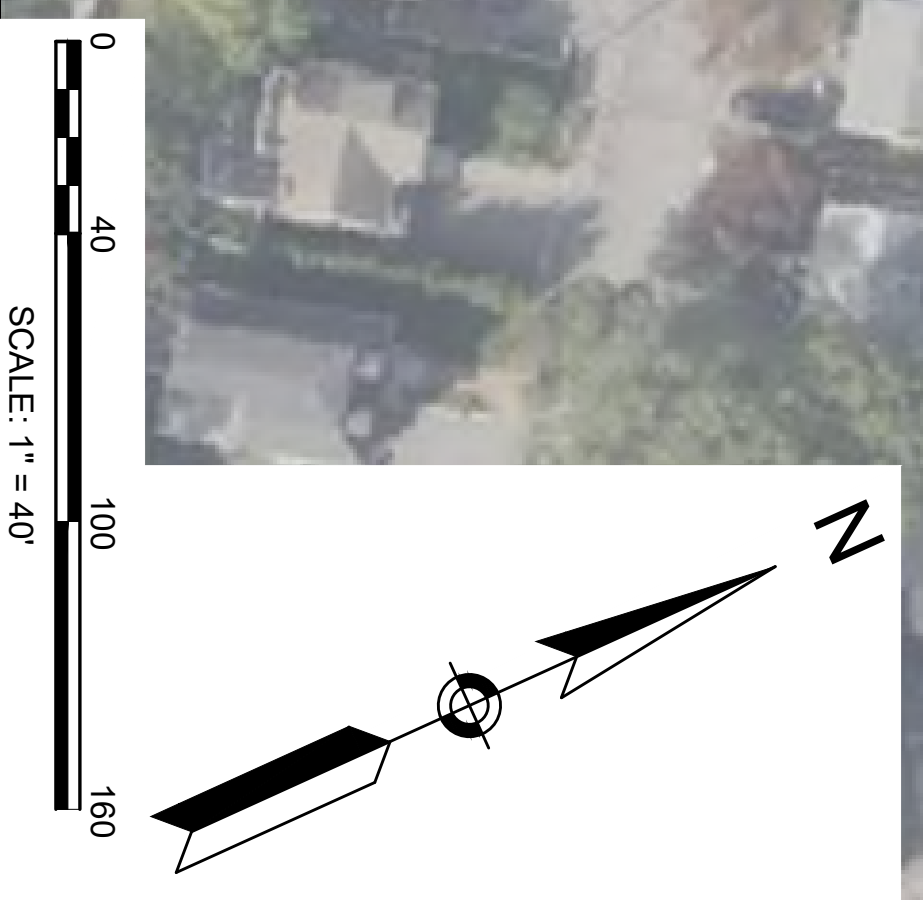
ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST. PARK AVE. SPRING ST.
 AND WATERTOWN ST OVER RTE 2
 TEMPORARY TRAFFIC CONTROL PLANS
 PARK AVE BRIDGE
 ROUTE 2 WESTBOUND RIGHT LANE CLOSURE

STATE	FED AND PROJ. NO.	SHEET TOTAL
MA	NFA	24 / 57
PROJECT FILE NO.	613466	



CONTINUED ON SHEET NO. 23

CONTINUED ON SHEET NO. 25





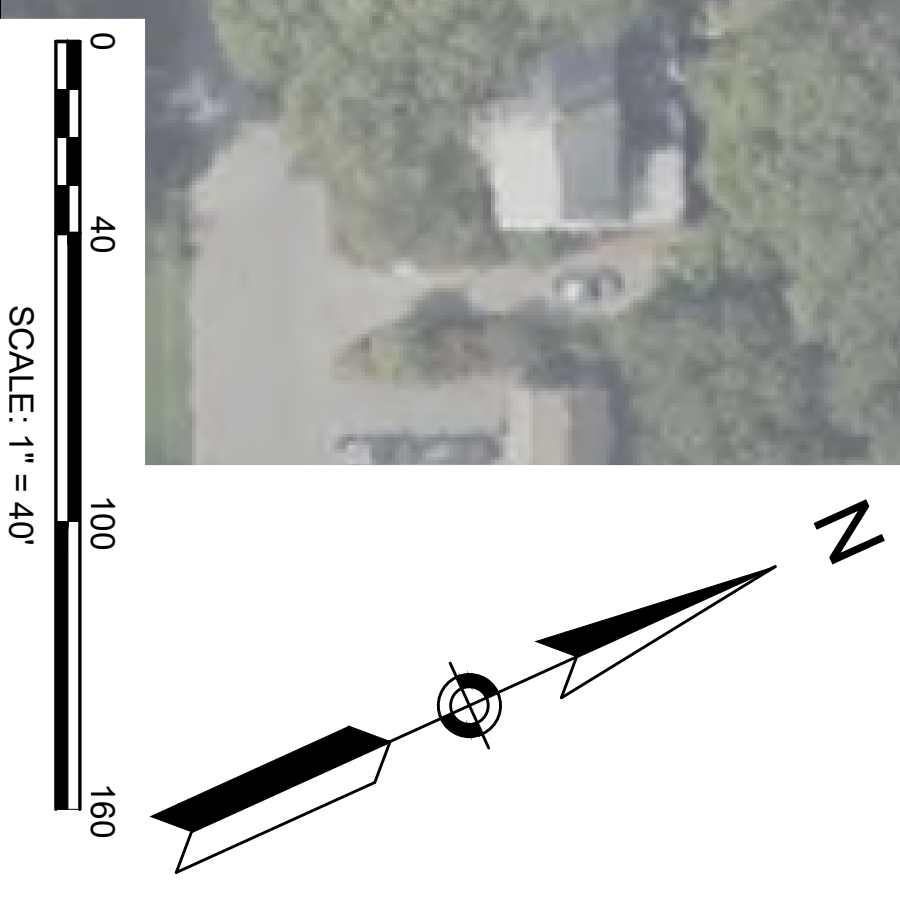
CONTINUED ON SHEET NO. 24

ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST. PARK AVE. SPRING ST.
 AND WATERLOO ST OVER RTE 2

STATE	FED AID PROJ NO.	SHEET TOTAL
MA	N/A	28
		57

PROJECT FILE NO. 613466

TEMPORARY TRAFFIC CONTROL PLANS
 PARK AVE BRIDGE
 ROUTE 2 WESTBOUND RIGHT LANE CLOSURE

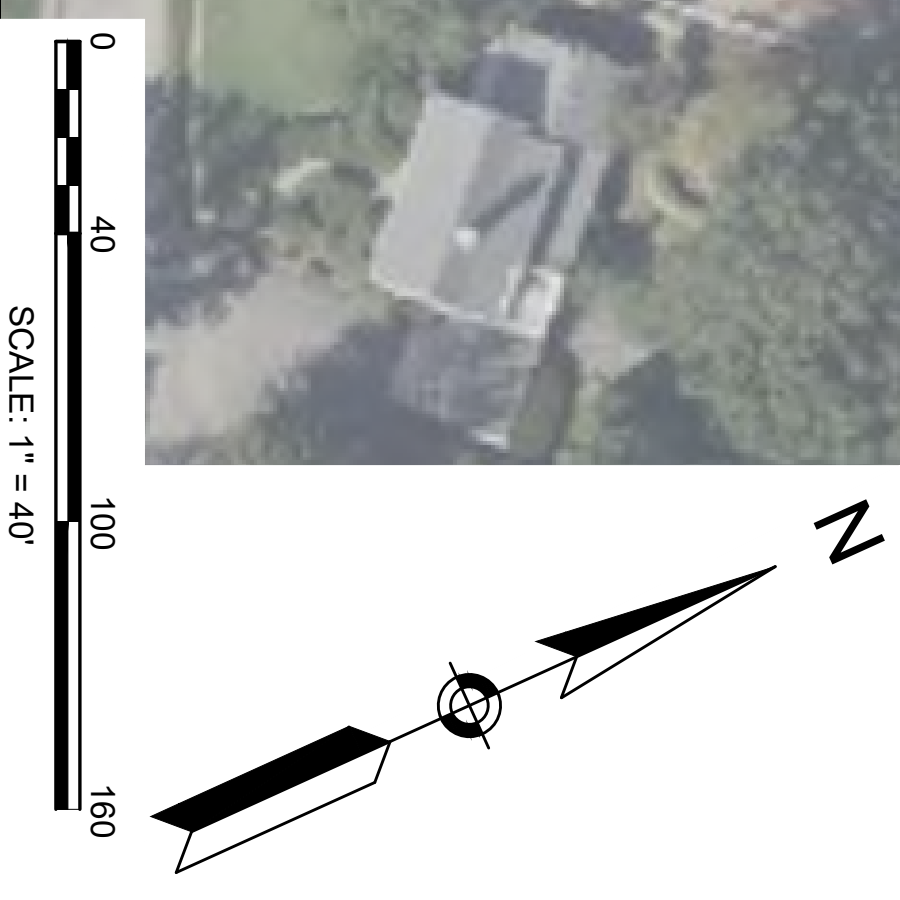


MAJOR ITEMS REQUIRED			
PAY ITEM	QUANTITY	UNITS	ITEM
628.315	2	EA	TEMPORARY IMPACT ATTENUATOR, REDIRECTIVE, TL-3
852.	352	SF	SAFETY SIGNING FOR TRAFFIC MANAGEMENT
853.33	500	LF	TEMPORARY BARRIER - LIMITED DEFLECTION (TL-3)
854.016	1320	LF	TEMPORARY PAVING MARKING - 6 INCH (PAINT)
856	2 (PER DAY)	EA	ARROW BOARD
859	37 (PER DAY)	EA	REFLECTORIZED DRUM
859.1	2 (PER DAY)	EA	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS

- NOTES:
1. THIS PLAN DEPICTS THE TRAFFIC MANAGEMENT NECESSARY TO COMPLETE BRIDGE AND PIER REPAIRS OF THE PARK AVE BRIDGE.
 2. ADVANCE WARNING SIGNS ARE NOT SHOWN IN THEIR EXACT LOCATIONS. CONTRACTOR SHALL INSTALL SIGNS AT THE DISTANCE SHOWN.

ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST., PARK AVE., SPRING ST.,
 AND WATER TOWN ST OVER RTE 2
 TEMPORARY TRAFFIC CONTROL PLANS
 PARK AVE BRIDGE
 ROUTE 2 LEFT LANE CLOSURES
 LONG TERM SETUP

STATE	FED AND PROJ. NO.	SHEET TOTAL
MA	NFA	28 OF 57
PROJECT FILE NO.	613466	



CONTINUED ON SHEET NO. 27

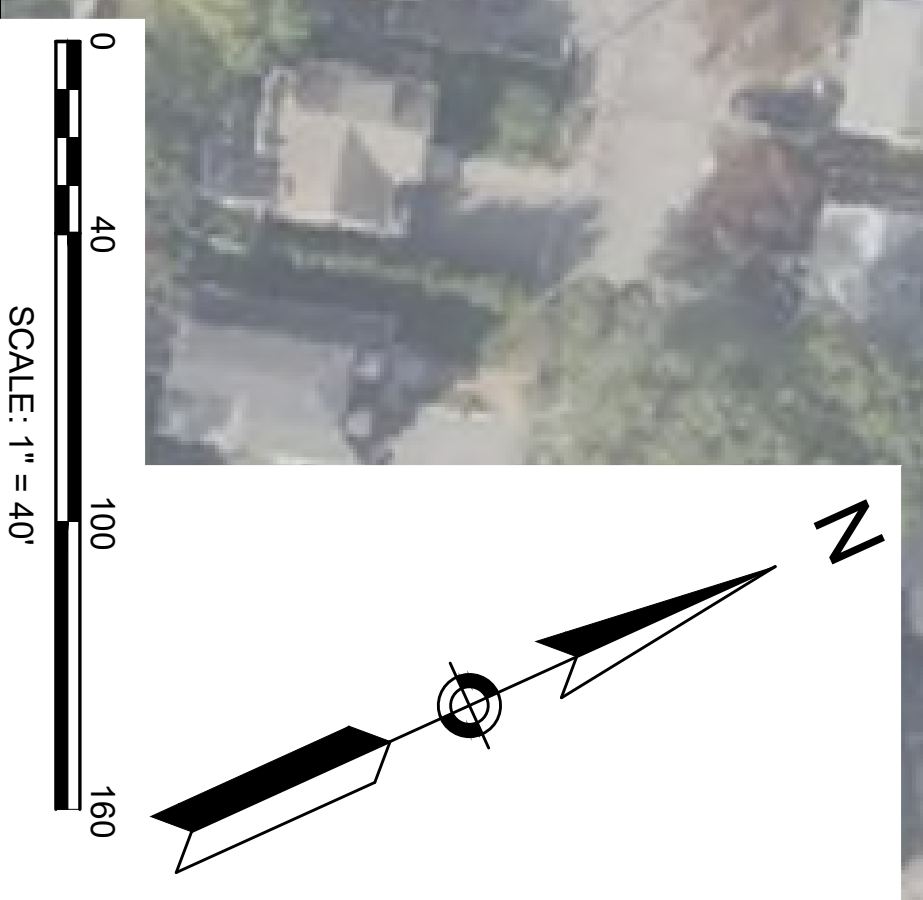


ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST, PARK AVE, SPRING ST,
 AND WATERLOO ST OVER RTE 2

STATE	FED AID PROJ NO.	SHEET TOTAL
MA	NFA	27
		57

PROJECT FILE NO. 613466

TEMPORARY TRAFFIC CONTROL PLANS
 PARK AVE BRIDGE
 ROUTE 2 LEFT LANE CLOSURES
 LONG TERM SETUP

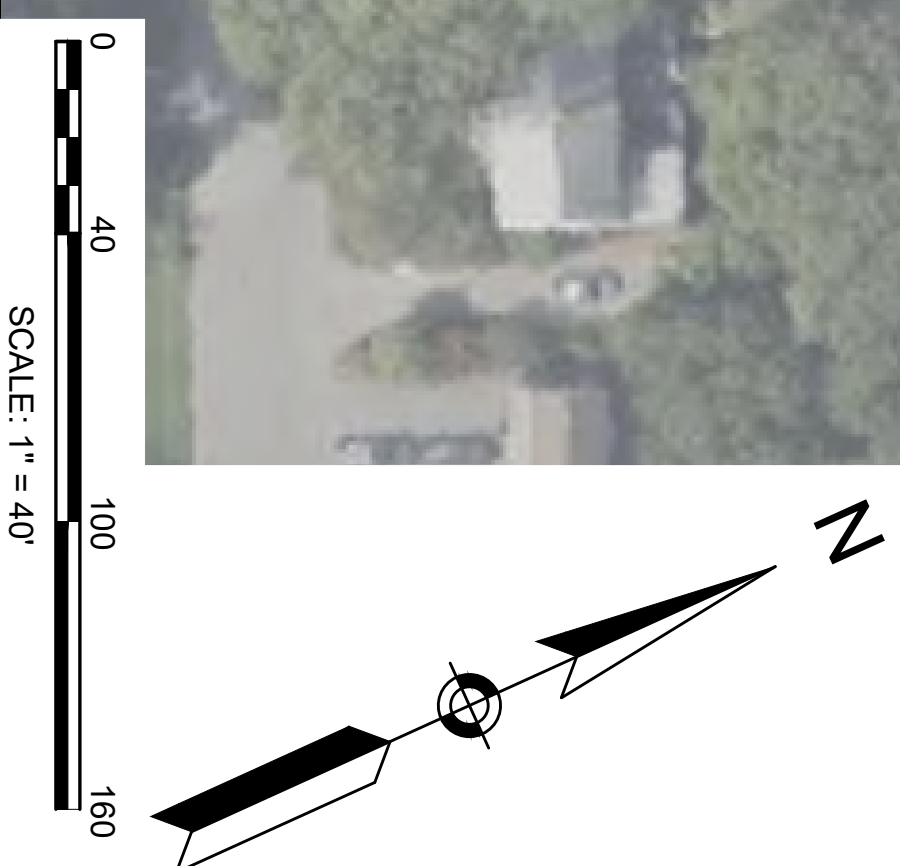




ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST., PARK AVE., SPRING ST.,
 AND WATERTOWN ST OVER RTE 2

TEMPORARY TRAFFIC CONTROL PLANS
 PARK AVE BRIDGE
 ROUTE 2 LEFT LANE CLOSURES
 LONG TERM SETUP

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	N/A	28
		57
PROJECT FILE NO. 613466		



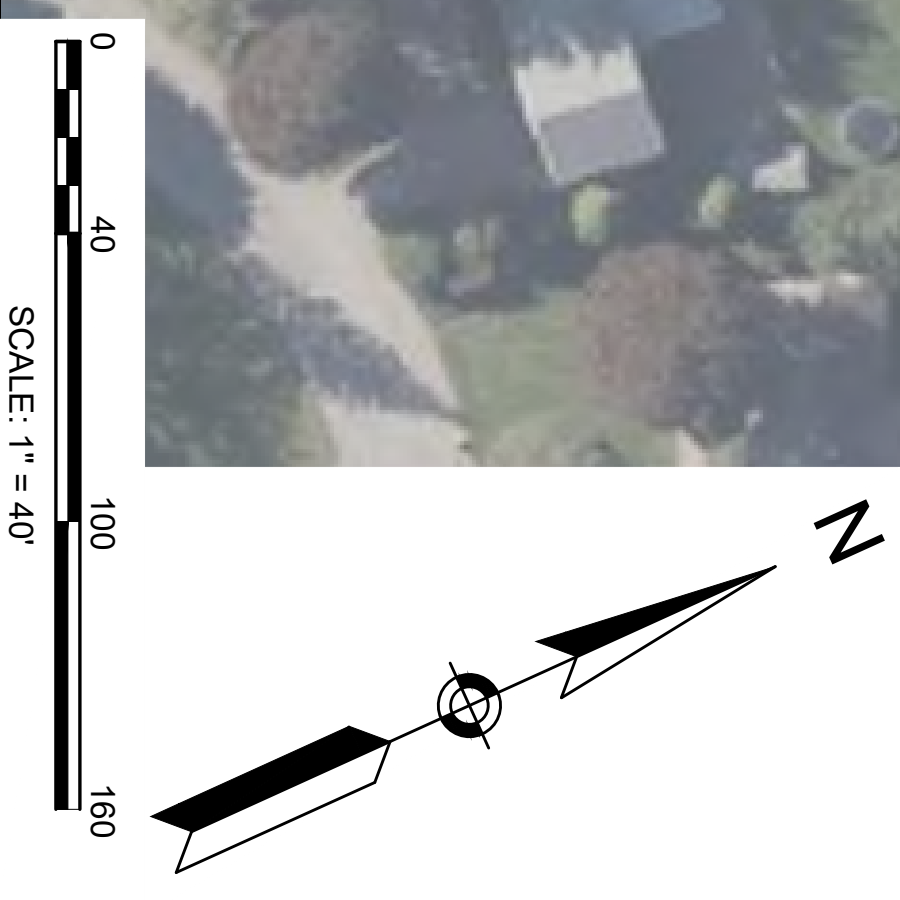
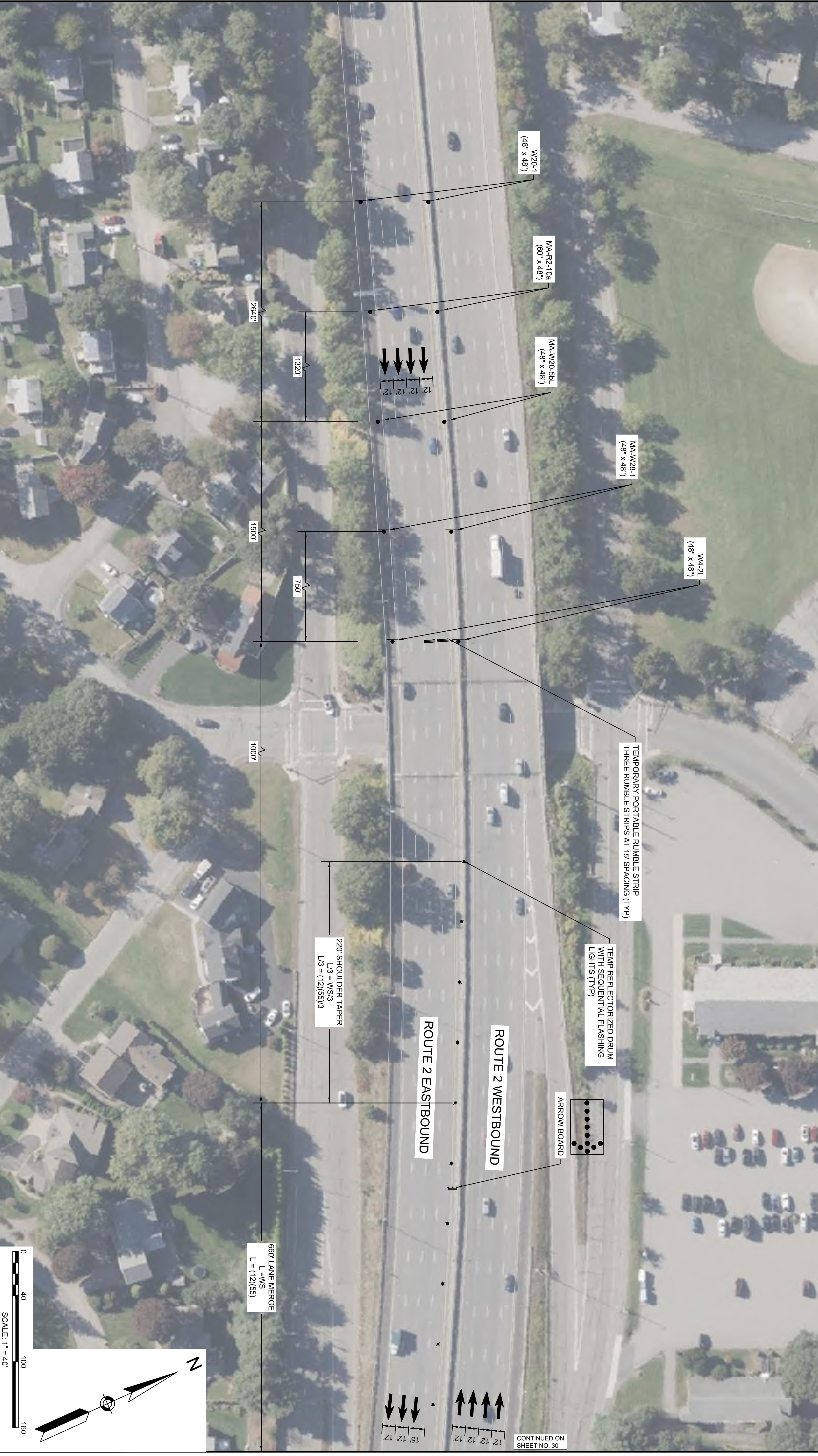
MAJOR ITEMS REQUIRED			
PAY ITEM	QUANTITY	UNITS	ITEM
852	480	SF	SAFETY SIGNING FOR TRAFFIC MANAGEMENT
853.403	2 (PER DAY)	EA	TRUCK MOUNTED ATTENUATOR
853.8	1 (PER DAY)	EA	TEMPORARY ILLUMINATION FOR WORK ZONE
854.6	6 (PER DAY)	EA	TEMPORARY PORTABLE RUMBLE STRIP
856	4 (PER DAY)	EA	ARROW BOARD
859	106 (PER DAY)	EA	REFLECTORIZED DRUM
859.1	4 (PER DAY)	EA	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS

- NOTES:
1. THIS PLAN DEPICTS THE TRAFFIC MANAGEMENT NECESSARY TO COMPLETE BRIDGE AND PIER REPAIRS OF THE PARK AVE BRIDGE.
 2. ADVANCE WARNING SIGNS ARE NOT SHOWN IN THEIR EXACT LOCATIONS. CONTRACTOR SHALL INSTALL SIGNS AT THE DISTANCE SHOWN.

ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST. PARK AVE. SPRING ST.
 AND WATERTOWN ST OVER RTE 2

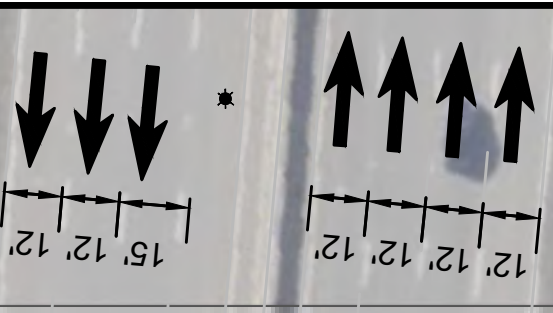
STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	29 OF 57
PROJECT FILE NO.	613466	

TEMPORARY TRAFFIC CONTROL PLANS
 PARK AVE BRIDGE
 ROUTE 2 LEFT TWO LANES CLOSURES
 NIGHT TIME SETUP





CONTINUED ON SHEET NO. 29



660' LANE MERGE
L = WMS
L = (12)/(55)

TEMP DRUM AT
55' SPACING (TYP)

RAMP TO CONCORD TURNPIKE

ROUTE 2 WESTBOUND

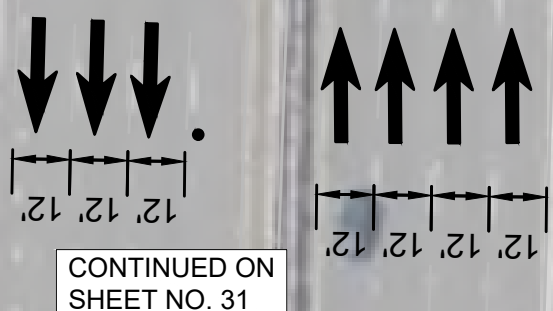
ROUTE 2 EASTBOUND

TEMPORARY PORTABLE RUMBLE STRIP
THREE RUMBLE STRIPS AT 15' SPACING (TYP)

1320'
2L = 2WS
2L = 2(12)/(55)

W4-2L
(48' x 48')

660'

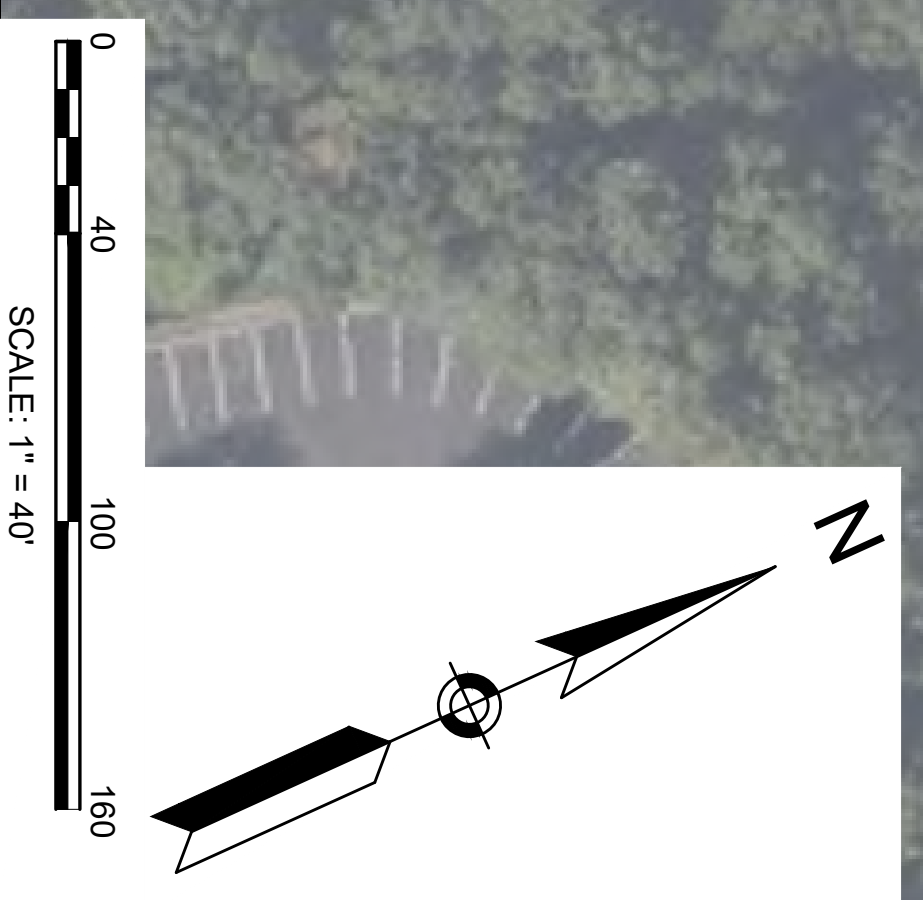


CONTINUED ON SHEET NO. 31

ARLINGTON / BELMONT / LEXINGTON
PLEASANT ST., PARK AVE., SPRING ST.,
AND WATERTOWN ST OVER RTE 2

TEMPORARY TRAFFIC CONTROL PLANS
PARK AVE BRIDGE
ROUTE 2 LEFT TWO LANES CLOSURES
NIGHT TIME SETUP

STATE	FED AID PROJ NO.	SHEET TOTAL
MA	NFA	30
		57
PROJECT FILE NO.		613466





CONTINUED ON SHEET NO. 30

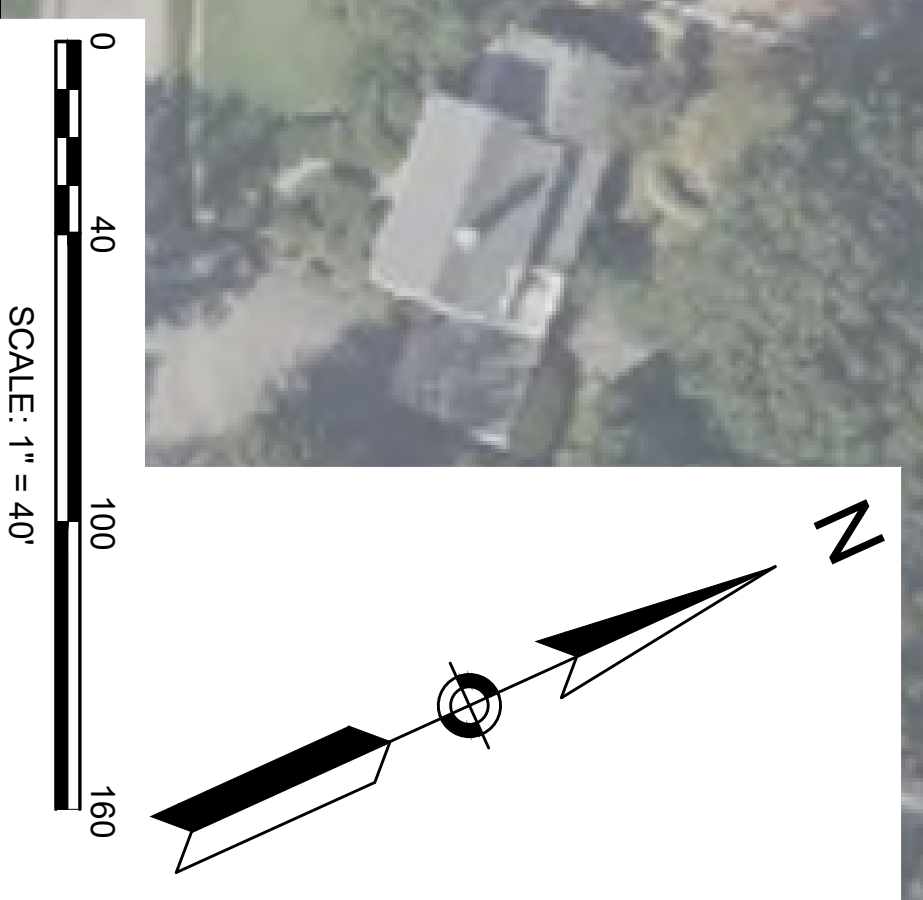
CONTINUED ON SHEET NO. 32

ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST., PARK AVE., SPRING ST.,
 AND WATER TOWN ST OVER RTE 2

TEMPORARY TRAFFIC CONTROL PLANS
 PARK AVE BRIDGE
 ROUTE 2 LEFT TWO LANES CLOSURES
 NIGHT TIME SETUP

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	31
		57

PROJECT FILE NO. 613466





ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST, PARK AVE, SPRING ST,
 AND WATER TOWN ST OVER RTE 2

STATE	FED AID PROJ NO.	SHEET TOTAL
MA	NFA	32 OF 57
PROJECT FILE NO. 613466		SHEET NO. 32

TEMPORARY TRAFFIC CONTROL PLANS
 PARK AVE BRIDGE
 ROUTE 2 LEFT TWO LANES CLOSURES
 NIGHT TIME SETUP



CONTINUED ON SHEET NO. 33



CONTINUED ON SHEET NO. 32

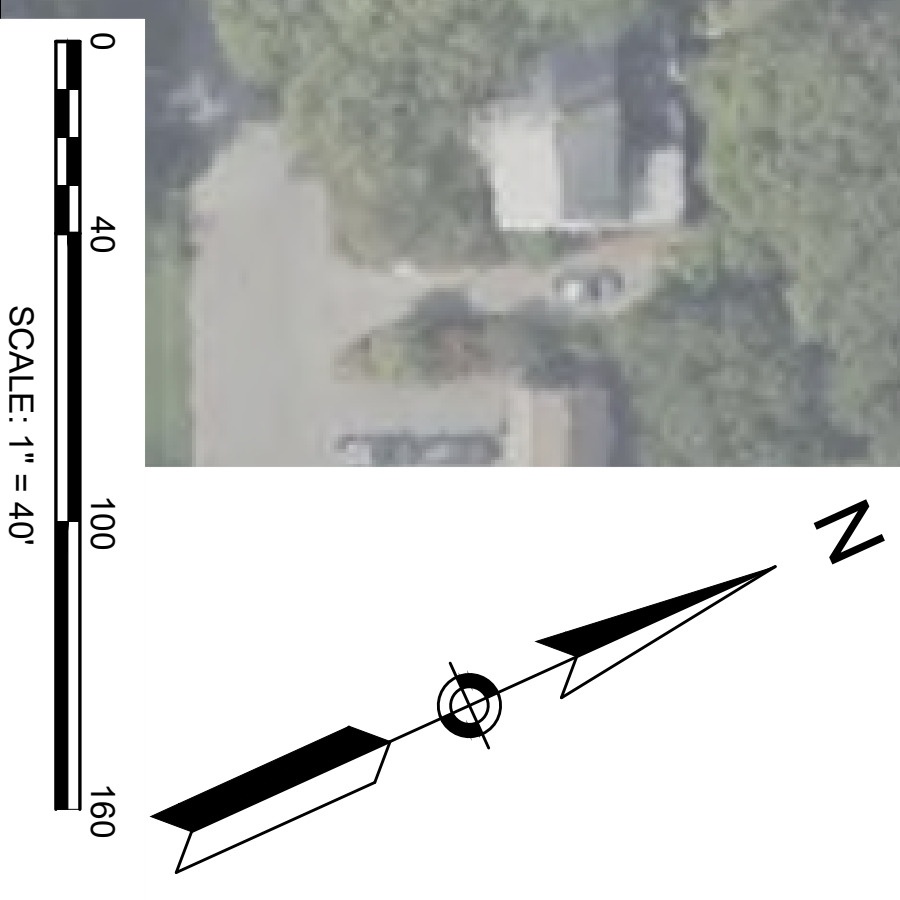
CONTINUED ON SHEET NO. 34

ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST. PARK AVE. SPRING ST.
 AND WATEROWN ST OVER RTE 2

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	39
		57

PROJECT FILE NO. 613466

TEMPORARY TRAFFIC CONTROL PLANS
 PARK AVE BRIDGE
 ROUTE 2 LEFT TWO LANES CLOSURES
 NIGHT TIME SETUP





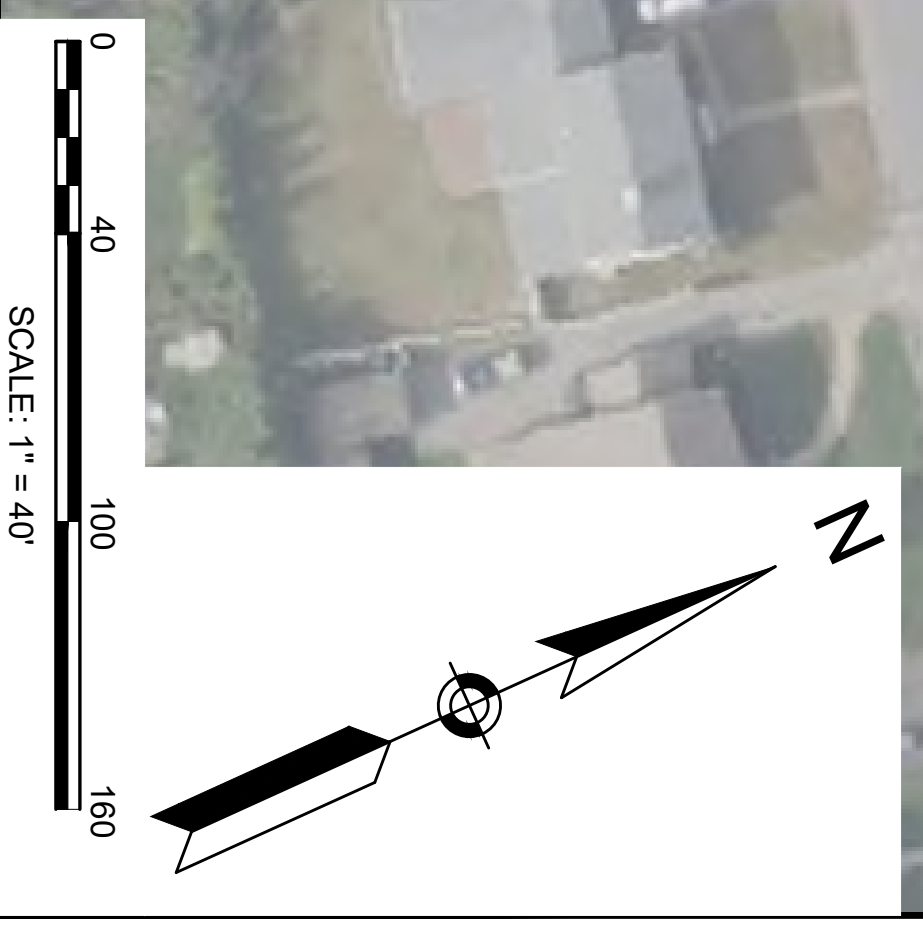
CONTINUED ON SHEET NO. 33

CONTINUED ON SHEET NO. 35

ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST. PARK AVE. SPRING ST.
 AND WATERTOWN ST OVER RTE 2

TEMPORARY TRAFFIC CONTROL PLANS
 PARK AVE BRIDGE
 ROUTE 2 LEFT TWO LANES CLOSURES
 NIGHT TIME SETUP

STATE	FED AID PROJ NO.	SHEET TOTAL
MA	NFA	34
		57
PROJECT FILE NO.		613466





ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST. PARK AVE. SPRING ST.
 AND WATERLOO ST OVER RTE 2

STATE	FED AID PROJ NO.	SHEET TOTAL
MA	NFA	38
		57

PROJECT FILE NO. 613466

TEMPORARY TRAFFIC CONTROL PLANS
 PARK AVE BRIDGE
 ROUTE 2 LEFT TWO LANES CLOSURES
 NIGHT TIME SETUP

CONTINUED ON
 SHEET NO. 34

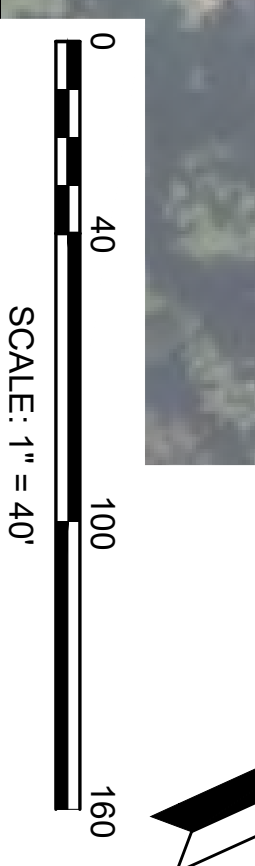
MAJOR ITEMS REQUIRED			
PAY ITEM	QUANTITY	UNITS	ITEM
852	331	SF	SAFETY SIGNING FOR TRAFFIC MANAGEMENT
853.1	2 (PER DAY)	EA	PORTABLE BREAKAWAY BARRICADE TYPE III
853.403	2 (PER DAY)	EA	TRUCK MOUNTED ATTENUATOR
853.8	1 (PER DAY)	EA	TEMPORARY ILLUMINATION FOR WORK ZONE
854.6	1 (PER DAY)	EA	TEMPORARY PORTABLE RUMBLE STRIP
856	1 (PER DAY)	EA	ARROW BOARD
856.12	1 (PER DAY)	EA	PORTABLE CHANGEABLE MESSAGE SIGN
859	26 (PER DAY)	EA	REFLECTORIZED DRUM
859.1	1 (PER DAY)	EA	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS

BRIDGE	ROADWAY	CASE	TIMING	DETAIL
A-10-012	ROUTE 2 EB CONCORD TPKE ON RAMP	RIGHT LANE CLOSURE ON RAMP DETOUR SHEETS 36-37	NIGHT 8PM - 5AM	852.7.3 SEE SHEET 55
A-10-012	ROUTE 2 WB EXIT 133	RIGHT LANE CLOSURE OFF RAMP DETOUR SHEETS 39-42	NIGHT 8PM - 5AM	852.7.3 SEE SHEET 55
A-10-012	ROUTE 2 EB AND WB	LEFT LANE CLOSURES SHEETS 44-47	ALL DAY	852.7.6 SEE SHEET 56
A-10-012	ROUTE 2 EB AND WB	LEFT LANE CLOSURES SHEETS 48-54	NIGHT 8PM - 5AM	852.7.9 SEE SHEET 56

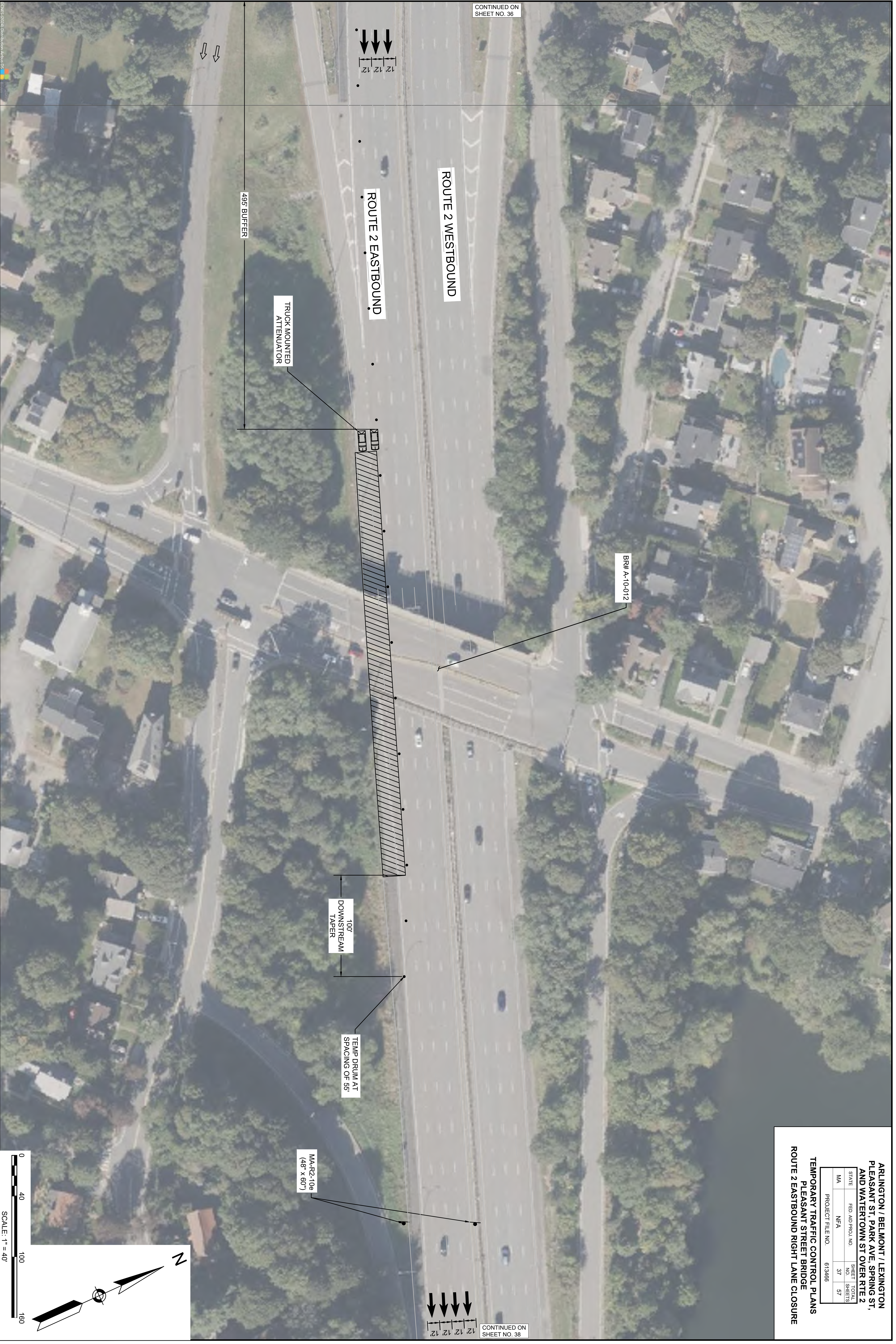
NOTES:
 1. THIS PLAN DEPICTS THE TRAFFIC MANAGEMENT NECESSARY TO COMPLETE BRIDGE AND ABUTMENT REPAIRS ALONG THE SOUTHERN END OF THE PLEASANT STREET BRIDGE.
 2. ADVANCE WARNING SIGNS ARE NOT SHOWN IN THEIR EXACT LOCATIONS. CONTRACTOR SHALL INSTALL SIGNS AT THE DISTANCES SHOWN.

ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST., PARK AVE., SPRING ST.,
 AND WATER TOWN ST OVER RTE 2
 STATE FED. AID PROJ. NO. SHEET TOTAL
 MA NFA 38 57
 PROJECT FILE NO. 613466

TEMPORARY TRAFFIC CONTROL PLANS
 PLEASANT STREET BRIDGE
 ROUTE 2 EASTBOUND RIGHT LANE CLOSURE



CONTINUED ON SHEET NO. 37

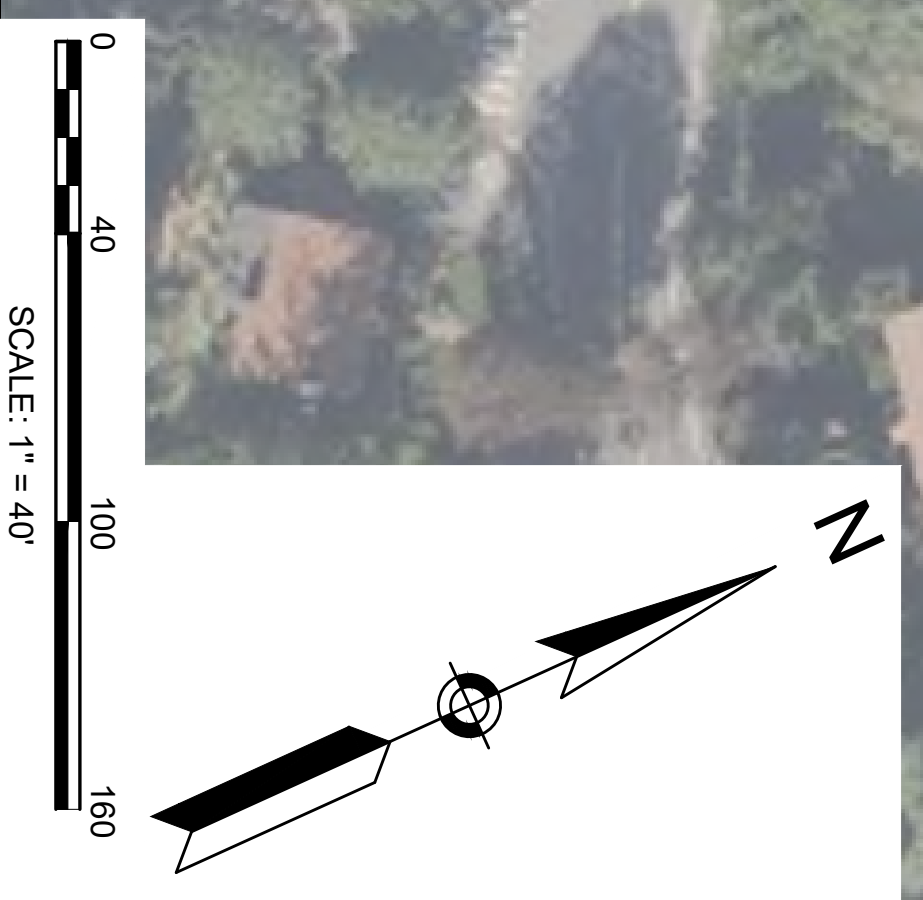


CONTINUED ON SHEET NO. 36

CONTINUED ON SHEET NO. 36

ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST., PARK AVE., SPRING ST.,
 AND WATERTOWN ST OVER RTE 2
 TEMPORARY TRAFFIC CONTROL PLANS
 PLEASANT STREET BRIDGE
 ROUTE 2 EASTBOUND RIGHT LANE CLOSURE

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	37
		57
PROJECT FILE NO.		613466



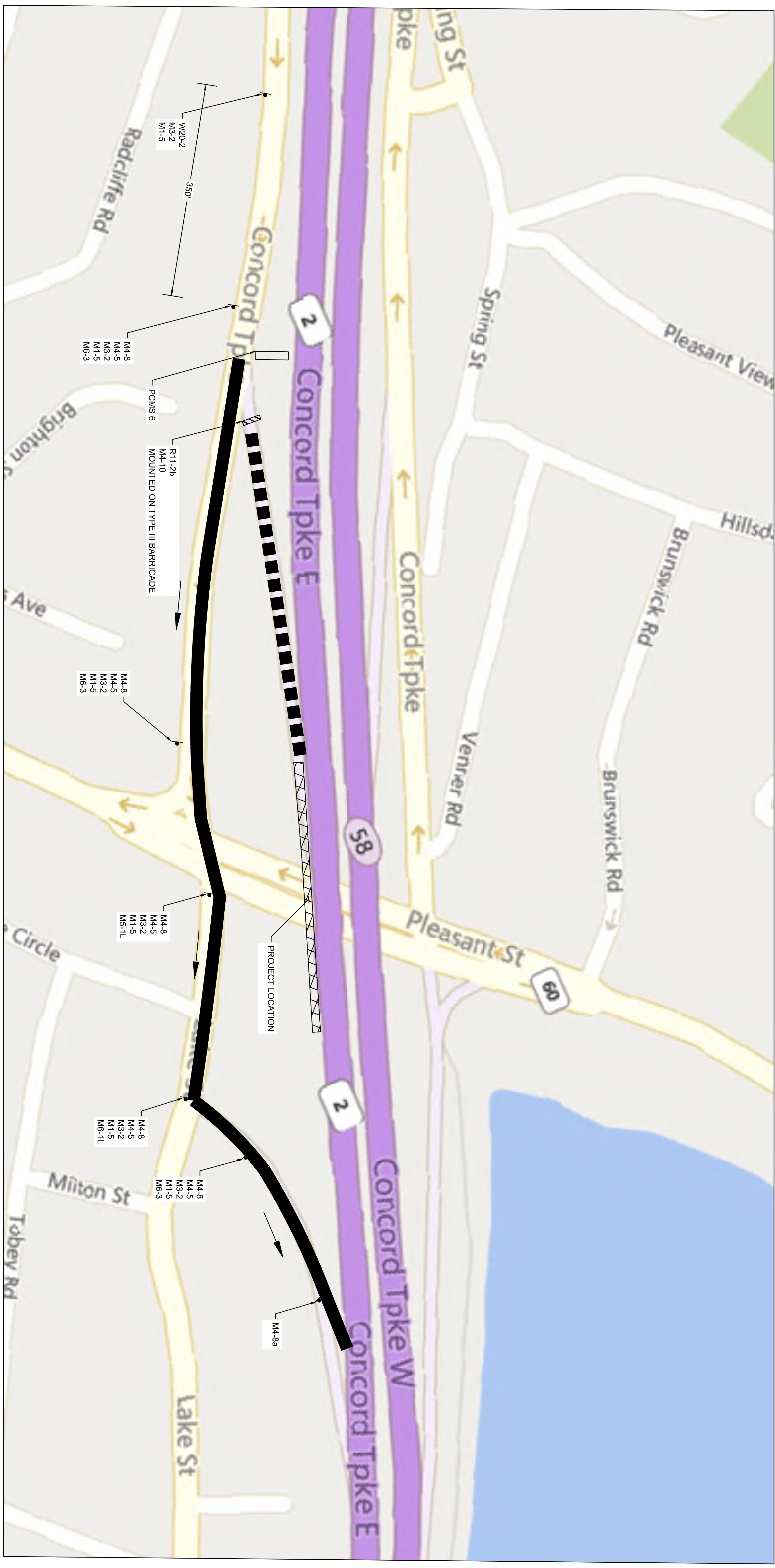
- NOTES:**
1. THE DETOUR ON THIS SHEET SHOWS THE CLOSURE OF THE ROUTE 2 EASTBOUND ON RAMP FROM THE CONCORD TURNPIKE FRONTAGE ROAD. THE DETOUR SHALL ONLY BE USED DURING THE BRIDGE WORK ON THE SOUTHERN ABUTMENT.
 2. ALL DETOUR SIGNS SHALL BE COVERED WHEN NOT IN USE.
 3. FOR 2 WEEKS IN ADVANCE OF CLOSURES, THE PCMS BOARDS SHALL BE PLACED AS SHOWN ON THIS PLAN. THE BOARDS SHALL SHOW THE FOLLOWING 2-PHASE MESSAGE:

RAMP TO FOLLOW	RT 2 EB	DETOUR	CLOSED
----------------	---------	--------	--------
 4. DURING THE CLOSURES, THE PCMS BOARDS SHALL BE PLACED AS SHOWN ON THIS PLAN AND SHOW THE FOLLOWING MESSAGE:

PCMS 6	RAMP TO FOLLOW	RT 2 EB	DETOUR	CLOSED
--------	----------------	---------	--------	--------

DETOUR SIGNS

M1-5 (24" x 24")	M3-2 (24" x 12")	M3-4 (24" x 12")	M4-5 (24" x 12")	M4-8 (24" x 12")
M4-8A (24" x 18")	M5-1L (21" x 15")	M5-1R (21" x 15")	M5-2L (21" x 15")	M5-2R (21" x 15")
M6-1L (21" x 15")	M6-1R (21" x 15")	M6-2L (21" x 15")	M6-2R (21" x 15")	M6-3 (21" x 15")
R11-2b (48" x 30")	RAMP CLOSED (48" x 30")			



ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST, PARK AVE, SPRING ST,
 AND WATERTOWN ST OVER RTE 2
 TEMPORARY TRAFFIC CONTROL PLANS
 PLEASANT STREET BRIDGE
 ROUTE 2 EASTBOUND RIGHT LANE CLOSURE

STATE	FED AID PROJ NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	38	57
PROJECT FILE NO.		613466	

0 80 200 300
 SCALE: 1" = 80'

MAJOR ITEMS REQUIRED			
PAY ITEM	QUANTITY	UNITS	ITEM
852	257	SF	SAFETY SIGNING FOR TRAFFIC MANAGEMENT
853.1	2 (PER DAY)	EA	PORTABLE BREAKAWAY BARRICADE TYPE III
853.403	2 (PER DAY)	EA	TRUCK MOUNTED ATTENUATOR
853.8	1 (PER DAY)	EA	TEMPORARY ILLUMINATION FOR WORK ZONE
854.6	1 (PER DAY)	EA	TEMPORARY PORTABLE RUMBLE STRIP
856	1 (PER DAY)	EA	ARROW BOARD
856.12	1 (PER DAY)	EA	PORTABLE CHANGEABLE MESSAGE SIGN
859	53 (PER DAY)	EA	REFLECTORIZED DRUM
859.1	2 (PER DAY)	EA	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS

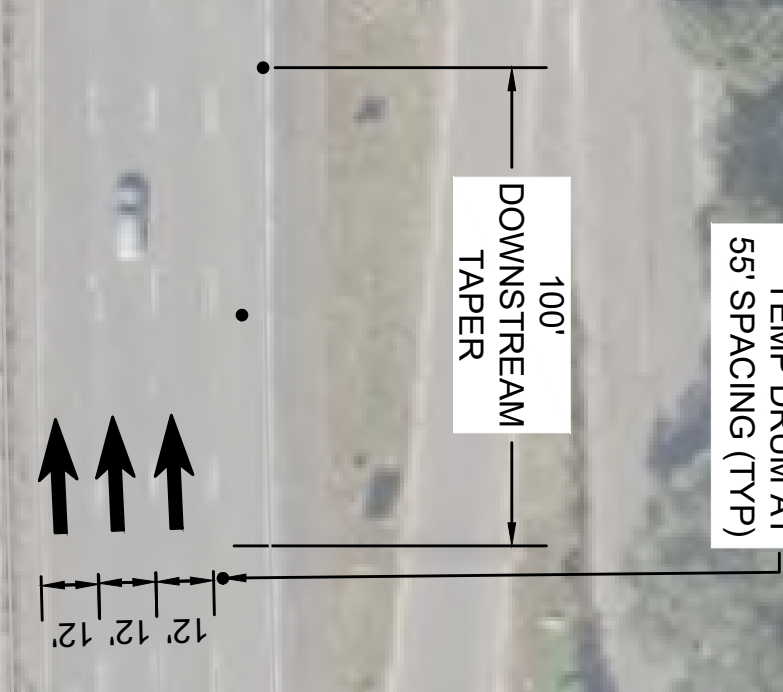
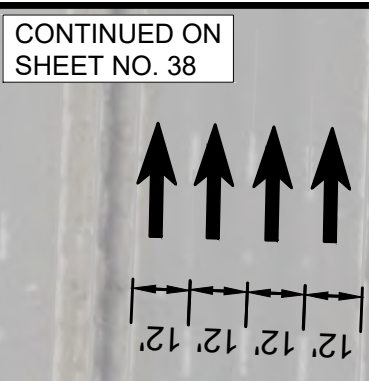
- NOTES:
- THIS PLAN DEPICTS THE TRAFFIC MANAGEMENT NECESSARY TO COMPLETE BRIDGE AND ABUTMENT REPAIRS ALONG THE NORTHERN END OF THE PLEASANT STREET BRIDGE.
 - ADVANCE WARNING SIGNS ARE NOT SHOWN IN THEIR EXACT LOCATIONS. CONTRACTOR SHALL INSTALL SIGNS AT THE DISTANCES SHOWN.

ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST. PARK AVE. SPRING ST.
 AND WATERTOWN ST OVER RTE 2

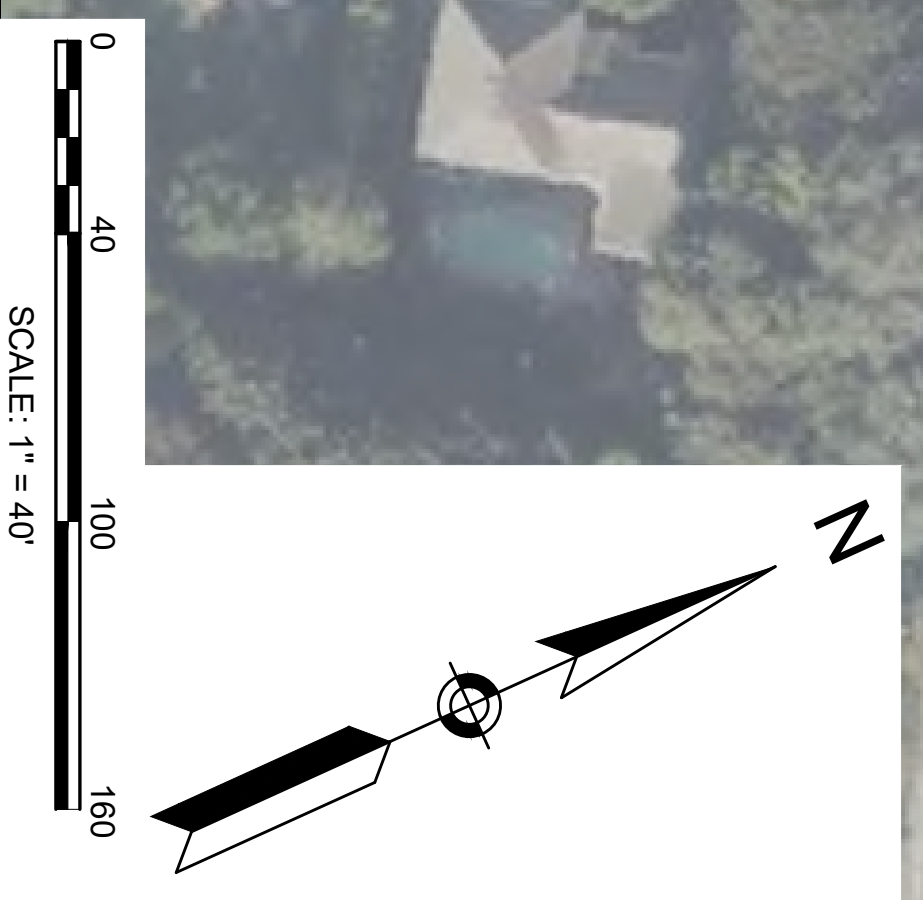
STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	39 OF 57

PROJECT FILE NO. 613466

TEMPORARY TRAFFIC CONTROL PLANS
 PLEASANT STREET BRIDGE
 ROUTE 2 WESTBOUND RIGHT LANE CLOSURE

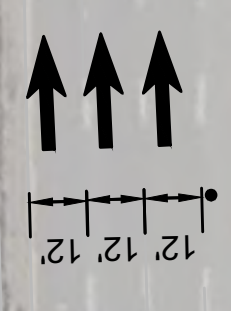


CONTINUED ON SHEET NO. 40





CONTINUED ON SHEET NO. 39



ROUTE 2 EASTBOUND

ROUTE 2 WESTBOUND

TYPE III BARRICADE
R11-2b
(48" X 30")

BR# A-10-012

TRUCK MOUNTED
ATTENUATOR (TYP)

TEMP DRUM AT
55' SPACING (TYP)

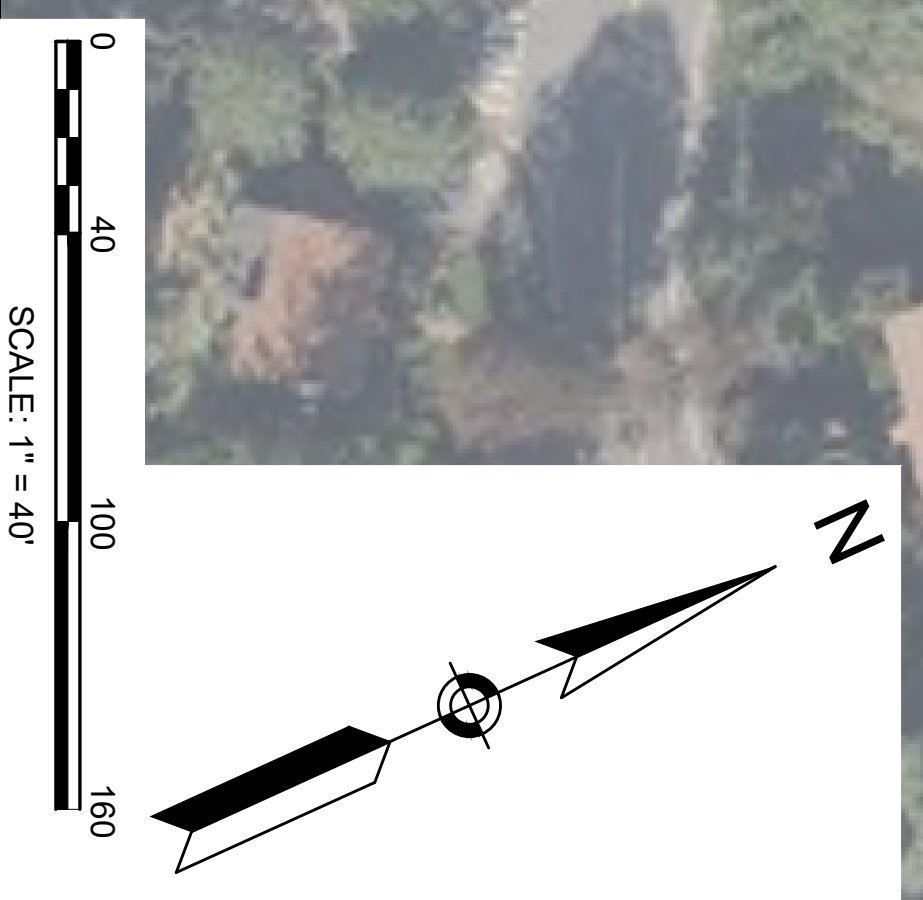
CONTINUED ON SHEET NO. 41



ARLINGTON / BELMONT / LEXINGTON
PLEASANT ST., PARK AVE., SPRING ST.,
AND WATERTOWN ST OVER RTE 2
PROJECT FILE NO. 613466

STATE	FED AID PROJ NO.	SHEET TOTAL
MA	NFA	40 / 57

TEMPORARY TRAFFIC CONTROL PLANS
PLEASANT STREET BRIDGE
ROUTE 2 WESTBOUND RIGHT LANE CLOSURE



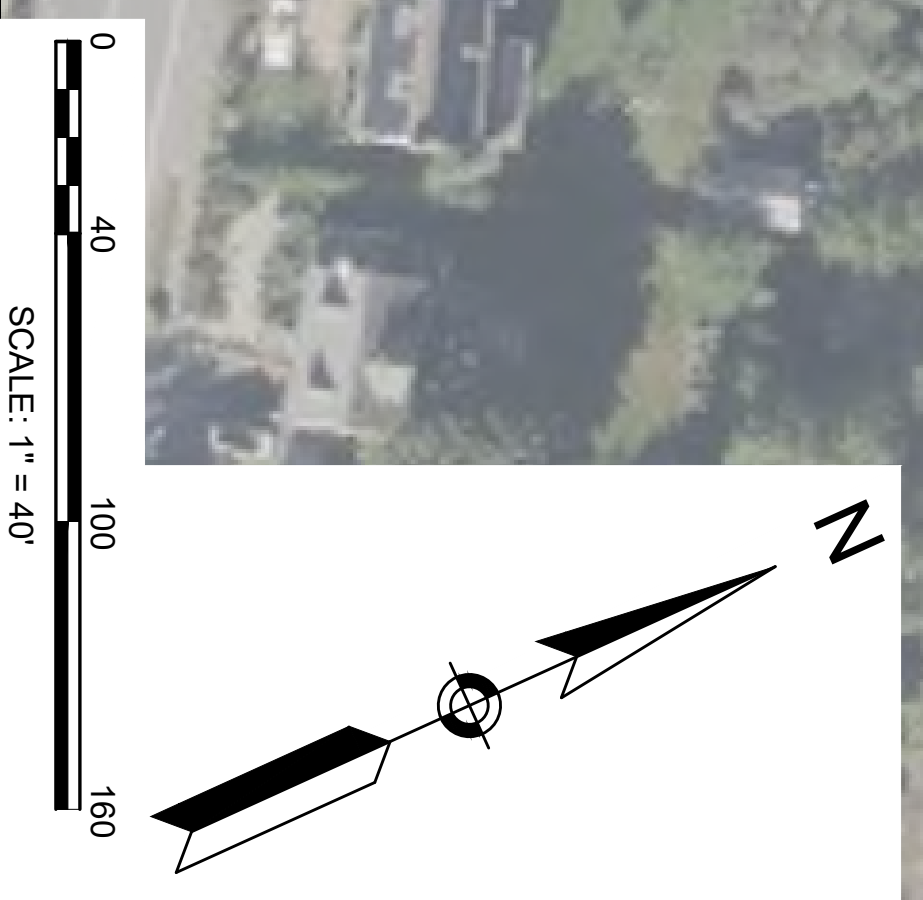


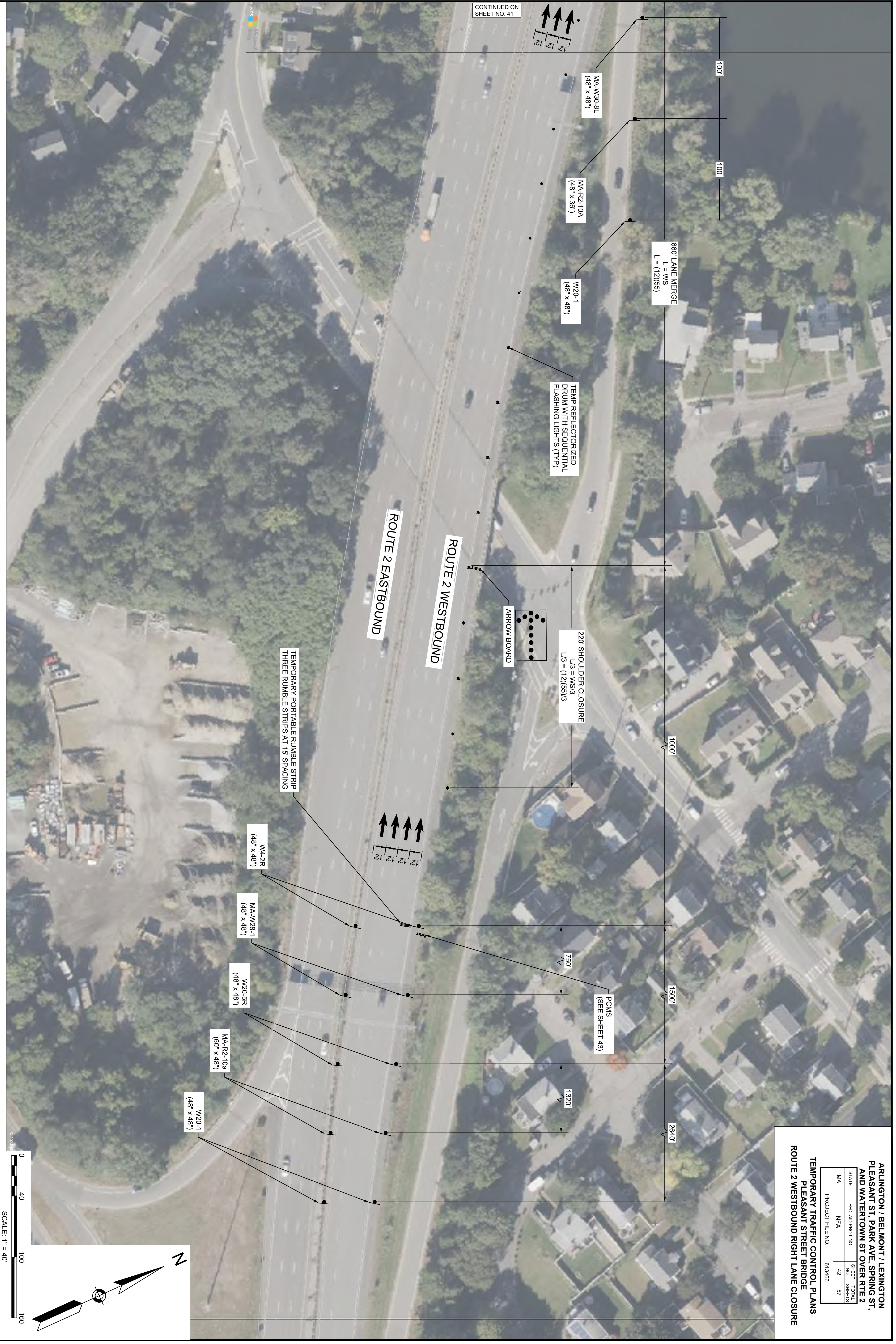
ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST., PARK AVE., SPRING ST.,
 AND WATERTOWN ST OVER RTE 2

STATE	FED AID PROJ NO.	SHEET TOTAL
MA	NFA	41
		57

PROJECT FILE NO. 613466

TEMPORARY TRAFFIC CONTROL PLANS
 PLEASANT STREET BRIDGE
 ROUTE 2 WESTBOUND RIGHT LANE CLOSURE

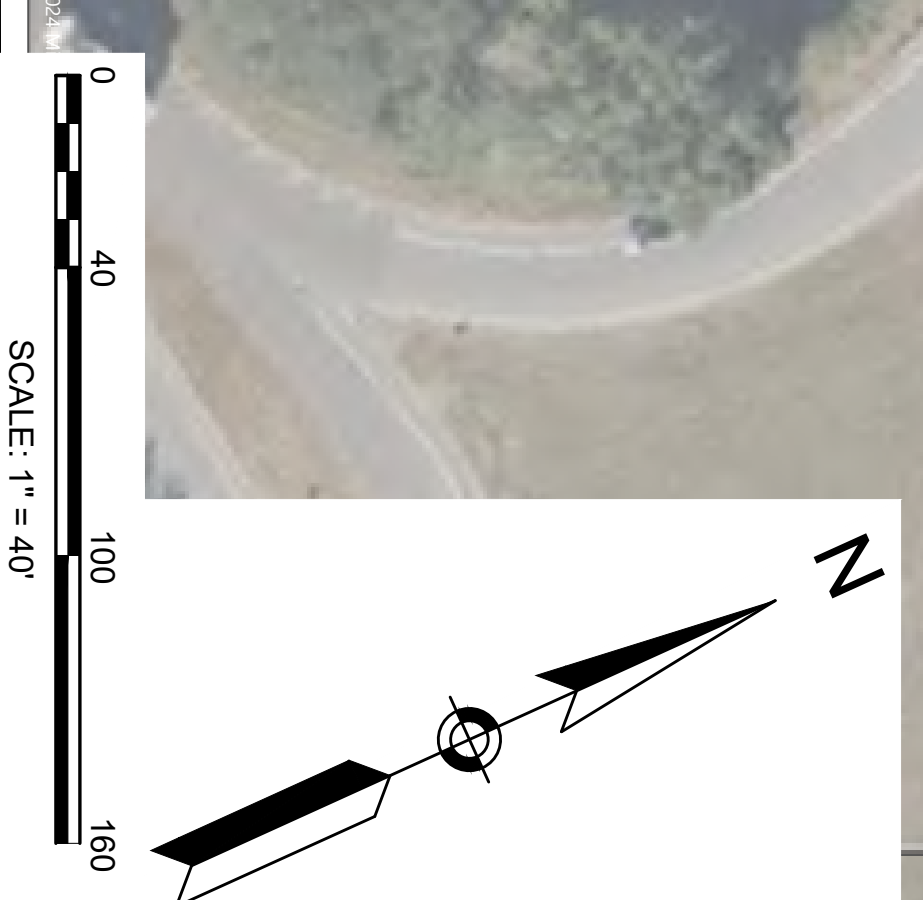




ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST., PARK AVE., SPRING ST.,
 AND WATEROWN ST OVER RTE 2

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	42 OF 57
PROJECT FILE NO. 613466		SHEET NO. 42

TEMPORARY TRAFFIC CONTROL PLANS
 PLEASANT STREET BRIDGE
 ROUTE 2 WESTBOUND RIGHT LANE CLOSURE



- NOTES:**
1. THE DETOUR ON THIS SHEET SHOWS THE CLOSURE OF EXIT 133. THE ROUTE 2 WESTBOUND OFF RAMP TO PARK AVE. THE DETOUR SHALL ONLY BE USED DURING THE BRIDGE WORK ON THE NORTHERN ABUTMENT
 2. ALL DETOUR SIGNS SHALL BE COVERED WHEN NOT IN USE.
 3. FOR 2 WEEKS IN ADVANCE OF CLOSURES, THE PCMS BOARDS SHALL BE PLACED AS SHOWN ON THIS PLAN. THE BOARDS SHALL SHOW THE FOLLOWING 2-PHASE MESSAGE:

EXIT 133	BEGINS
CLOSING	XIX
OVERNITE	8PM-5AM
 4. DURING THE CLOSURES, THE PCMS BOARDS SHALL BE PLACED AS SHOWN ON THIS PLAN AND SHOW THE FOLLOWING MESSAGE:

EXIT 133	FOLLOW
CLOSED	DETOUR
EXIT 134	EXIT 134

DETOUR SIGNS

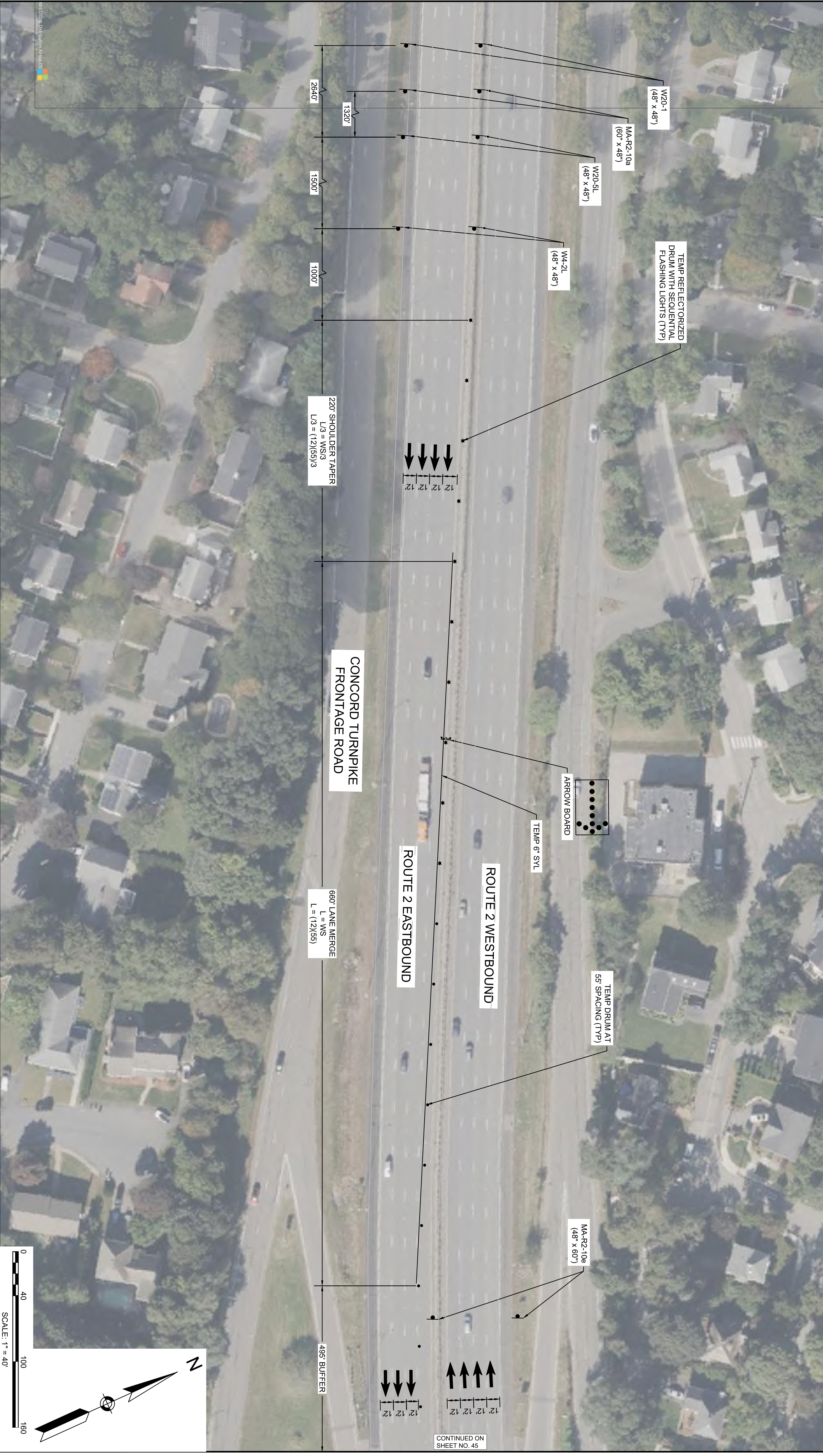
MAJOR ITEMS REQUIRED			
PAY ITEM	QUANTITY	UNITS	ITEM
628.315	2	EA	TEMPORARY IMPACT ATTENUATOR, REDIRECTIVE, TL-3
882.	352	SF	SAFETY SIGNING FOR TRAFFIC MANAGEMENT
853.33	800	LF	TEMPORARY BARRIER - LIMITED DEFLECTION (TL-3)
854.016	1320	LF	TEMPORARY PAVING MARKING - 6 INCH (PAINT)
856	2 (PER DAY)	EA	ARROW BOARD
859	49 (PER DAY)	EA	REFLECTORIZED DRUM
859.1	2 (PER DAY)	EA	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS

- NOTES:
- THIS PLAN DEPICTS THE TRAFFIC MANAGEMENT NECESSARY TO COMPLETE BRIDGE AND PIER REPAIRS OF THE PLEASANT STREET BRIDGE.
 - ADVANCE WARNING SIGNS ARE NOT SHOWN IN THEIR EXACT LOCATIONS. CONTRACTOR SHALL INSTALL SIGNS AT THE DISTANCES SHOWN.

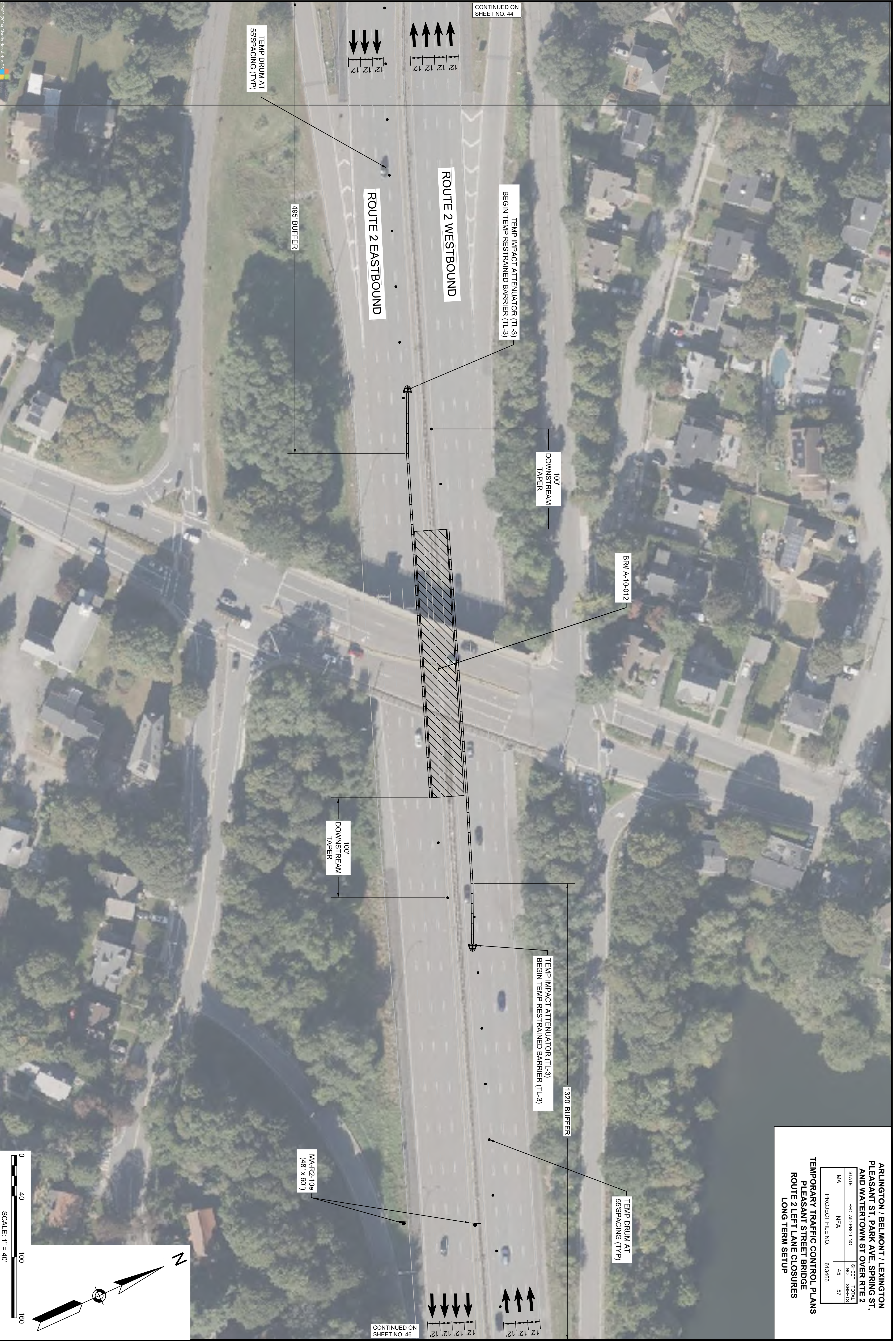
ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST., PARK AVE., SPRING ST.,
 AND WATER TOWN ST OVER RTE 2
 PROJECT FILE NO. 613466

TEMPORARY TRAFFIC CONTROL PLANS
 PLEASANT STREET BRIDGE
 ROUTE 2 LEFT LANE CLOSURES
 LONG TERM SETUP

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	44 OF 57



CONTINUED ON SHEET NO. 45

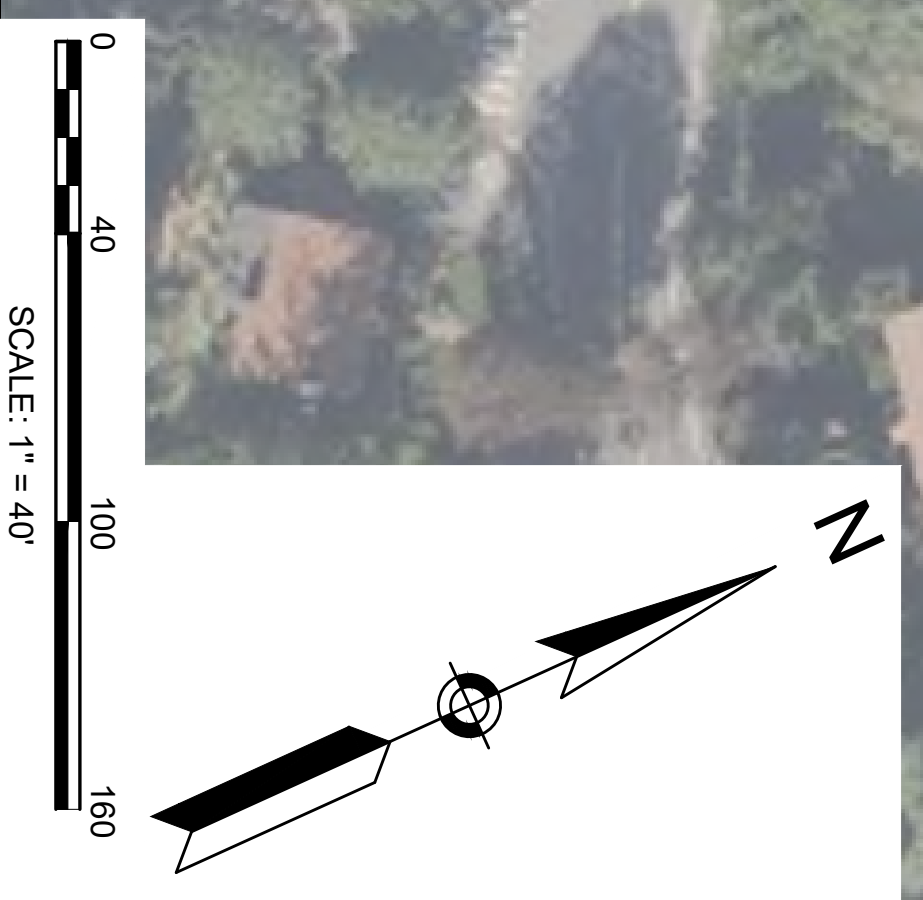


CONTINUED ON SHEET NO. 44

CONTINUED ON SHEET NO. 46

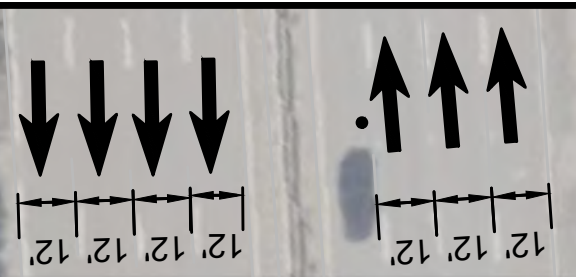
ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST., PARK AVE., SPRING ST.,
 AND WATER TOWN ST OVER RTE 2
 TEMPORARY TRAFFIC CONTROL PLANS
 PLEASANT STREET BRIDGE
 ROUTE 2 LEFT LANE CLOSURES
 LONG TERM SETUP

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	48
		57
PROJECT FILE NO. 613466		





CONTINUED ON SHEET NO. 45



ROUTE 2 EASTBOUND

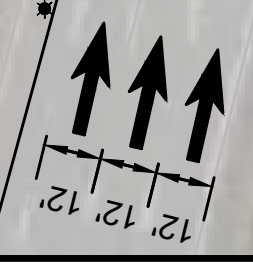
ROUTE 2 WESTBOUND

1320' BUFFER

TEMP DRUM AT 55' SPACING (TYP)

660' LANE MERGE
L = VMS
L = (12)(55)

TEMP 6\"/>

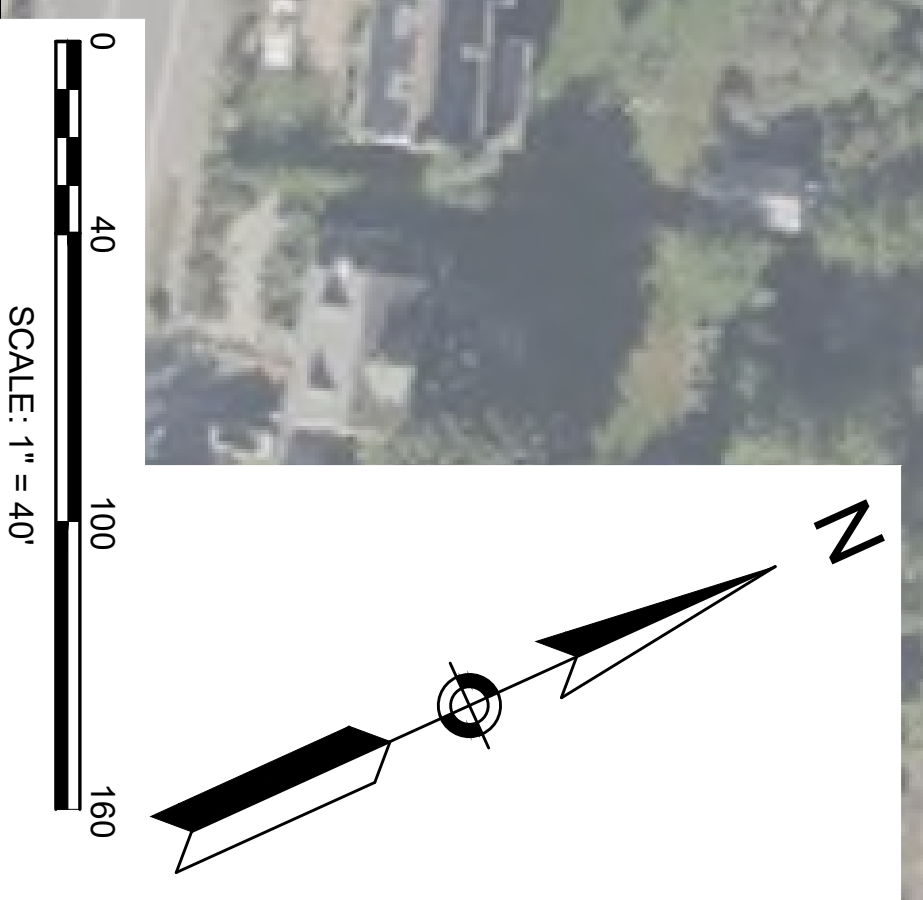


CONTINUED ON SHEET NO. 47

ARLINGTON / BELMONT / LEXINGTON
PLEASANT ST. PARK AVE. SPRING ST.
AND WATERTOWN ST OVER RTE 2

STATE	FED AID PROJ NO.	SHEET TOTAL
MA	NFA	48 / 57
PROJECT FILE NO. 613466		

TEMPORARY TRAFFIC CONTROL PLANS
PLEASANT STREET BRIDGE
ROUTE 2 LEFT LANE CLOSURES
LONG TERM SETUP





CONTINUED ON SHEET NO. 46

CONTINUED ON SHEET NO. 48

660' LANE MERGE
L = WS
L = (12)/(55)

TEMP 6" SYL

ARROW BOARD

TEMP REFLECTORIZED DRUM WITH SEQUENTIAL FLASHING LIGHTS (TYP)

220' SHOULDER CLOSURE
L3 = WS/3
L3 = (12)/(55)/3

ROUTE 2 WESTBOUND
ROUTE 2 EASTBOUND

W4-2L
(48" x 48")

W20-5L
(48" x 48")

MA-R2-10a
(60" x 48")

W20-1
(48" x 48")

1000'

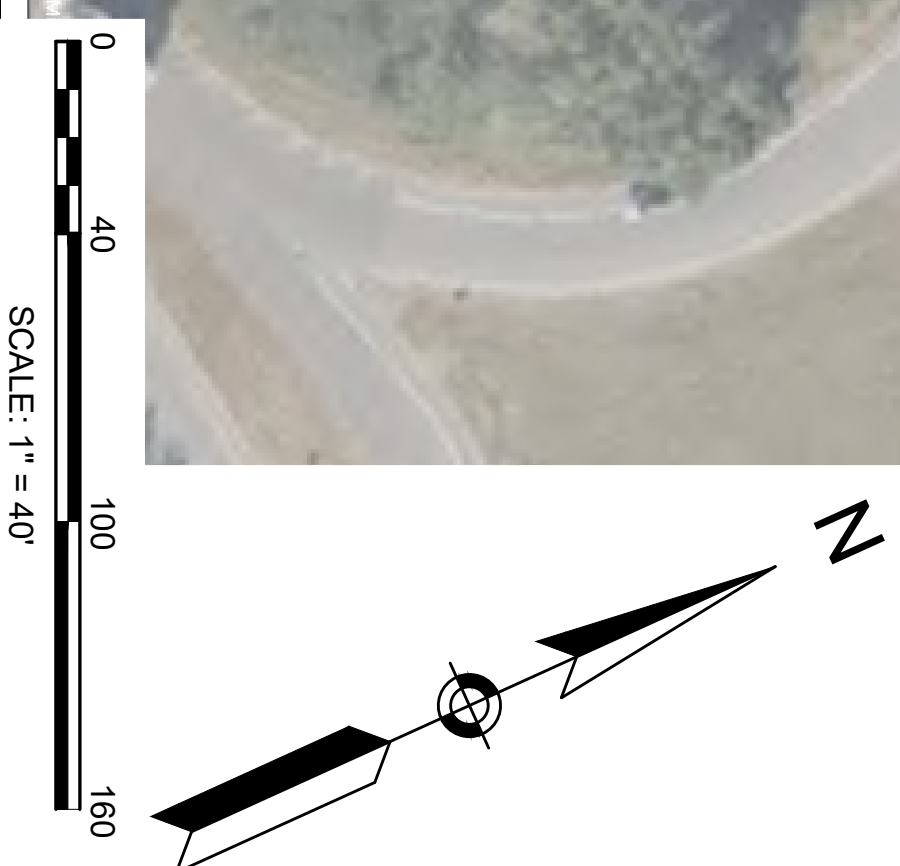
1500'

1500'

2640'

ARLINGTON / BELMONT / LEXINGTON
PLEASANT ST., PARK AVE., SPRING ST.,
AND WATEROWN ST OVER RTE 2
TEMPORARY TRAFFIC CONTROL PLANS
PLEASANT STREET BRIDGE
ROUTE 2 LEFT LANE CLOSURES
LONG TERM SETUP

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	N/A	57
		47
PROJECT FILE NO.		613466



PAY ITEM	QUANTITY	UNITS	ITEM
852.	480	SF	SAFETY SIGNING FOR TRAFFIC MANAGEMENT
853.403	2 (PER DAY)	EA	TRUCK MOUNTED ATTENUATOR
853.8	1 (PER DAY)	EA	TEMPORARY ILLUMINATION FOR WORK ZONE
854.6	6 (PER DAY)	EA	TEMPORARY PORTABLE RUMBLE STRIP
856	4 (PER DAY)	EA	ARROW BOARD
859	100 (PER DAY)	EA	REFLECTORIZED DRUM
859.1	4 (PER DAY)	EA	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS

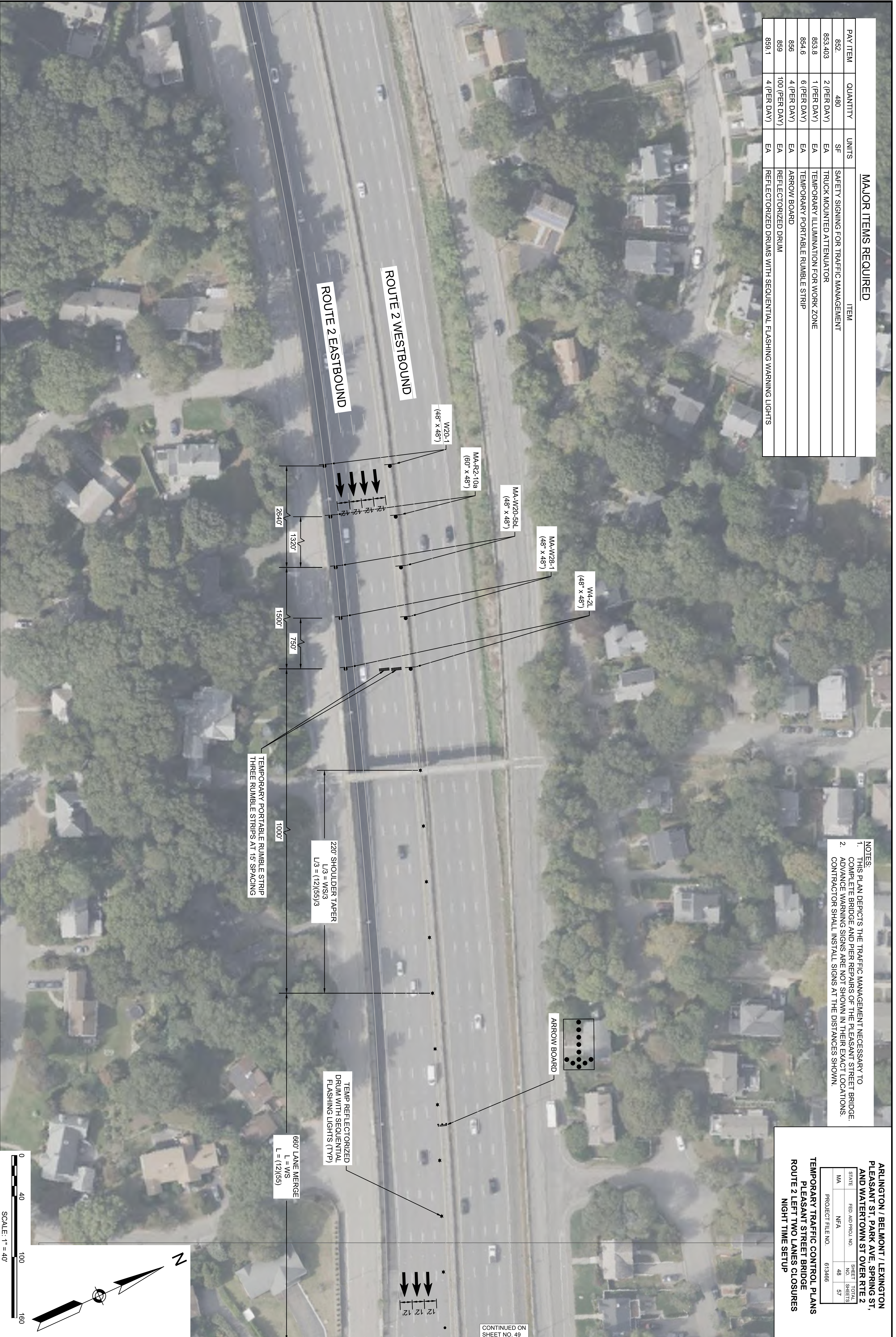
MAJOR ITEMS REQUIRED

- NOTES:
- THIS PLAN DEPICTS THE TRAFFIC MANAGEMENT NECESSARY TO COMPLETE BRIDGE AND PIER REPAIRS OF THE PLEASANT STREET BRIDGE.
 - ADVANCE WARNING SIGNS ARE NOT SHOWN IN THEIR EXACT LOCATIONS. CONTRACTOR SHALL INSTALL SIGNS AT THE DISTANCES SHOWN.

ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST. PARK AVE. SPRING ST.
 AND WATERTOWN ST OVER RTE 2

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	N/A	48 OF 57
PROJECT FILE NO.	613466	

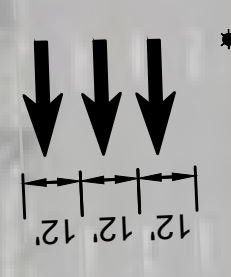
TEMPORARY TRAFFIC CONTROL PLANS
 PLEASANT STREET BRIDGE
 ROUTE 2 LEFT TWO LANES CLOSURES
 NIGHT TIME SETUP



CONTINUED ON SHEET NO. 49



CONTINUED ON SHEET NO. 48



660' LANE MERGE
L = V/S
L = (12)(55)

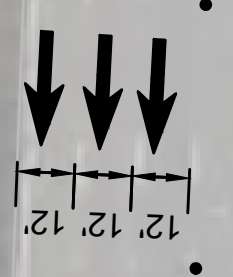
TEMP DRUM AT
55' SPACING (TYP)
660'

1320'
2L = 2V/S
2L = 2(12)(55)

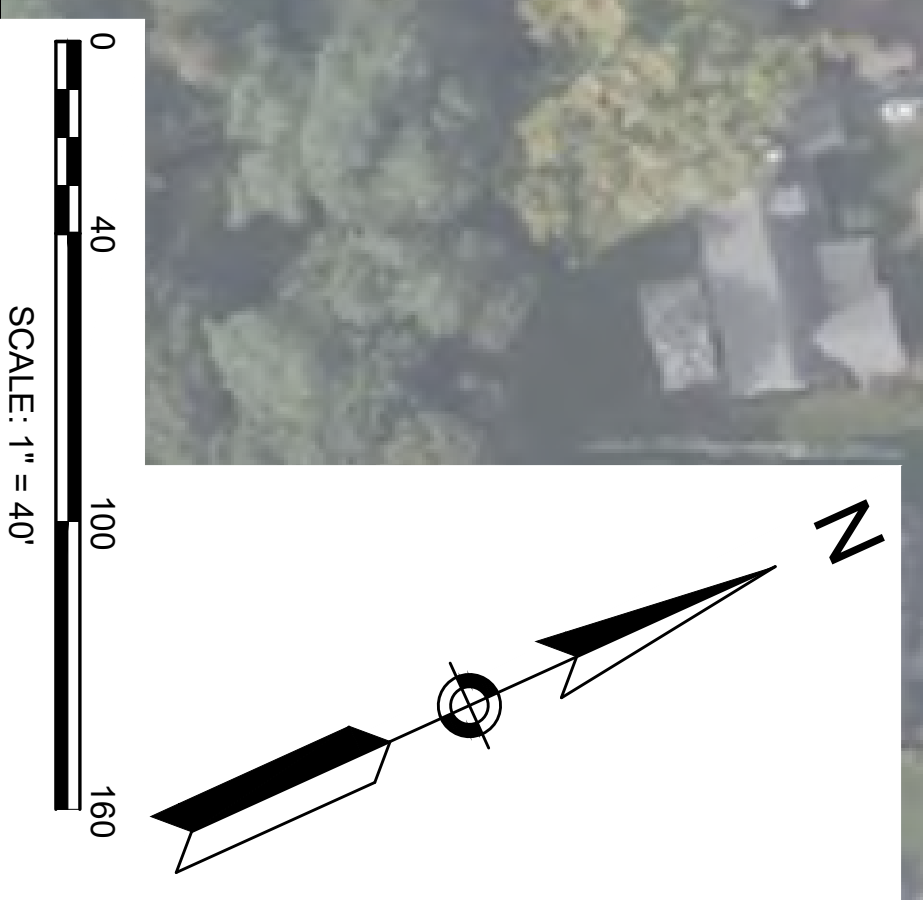
TEMPORARY PORTABLE RUMBLE STRIP
THREE RUMBLE STRIPS AT 15' SPACING
V/A-2L
(48" x 48")

ROUTE 2 EASTBOUND

ROUTE 2 WESTBOUND



CONTINUED ON SHEET NO. 50



ARLINGTON / BELMONT / LEXINGTON
PLEASANT ST., PARK AVE., SPRING ST.,
AND WATEROWN ST OVER RTE 2

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	49 OF 57

PROJECT FILE NO. 613466

TEMPORARY TRAFFIC CONTROL PLANS
PLEASANT STREET BRIDGE
ROUTE 2 LEFT TWO LANES CLOSURES
NIGHT TIME SETUP

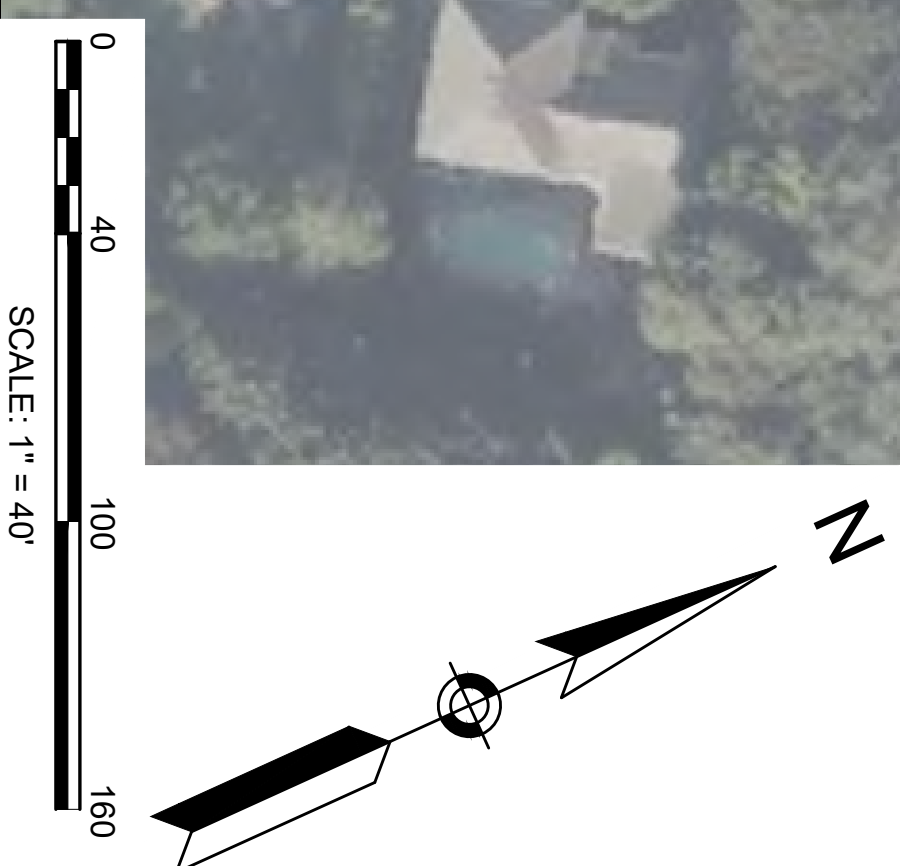


ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST., PARK AVE., SPRING ST.,
 AND WATEROWN ST OVER RTE 2

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	50
		57

PROJECT FILE NO. 613466

TEMPORARY TRAFFIC CONTROL PLANS
 PLEASANT STREET BRIDGE
 ROUTE 2 LEFT TWO LANES CLOSURES
 NIGHT TIME SETUP



CONTINUED ON
 SHEET NO. 49

CONTINUED ON
 SHEET NO. 51

1320'
 2L = 2WS
 2L = 2(12)(55)

650' LANE MERGE
 L = WS
 L = (12)(55)

MA-R2-108
 (48' x 60')

1495' BUFFER

CONCORD TURNPIKE
 FRONTAGE ROAD

ROUTE 2 EASTBOUND

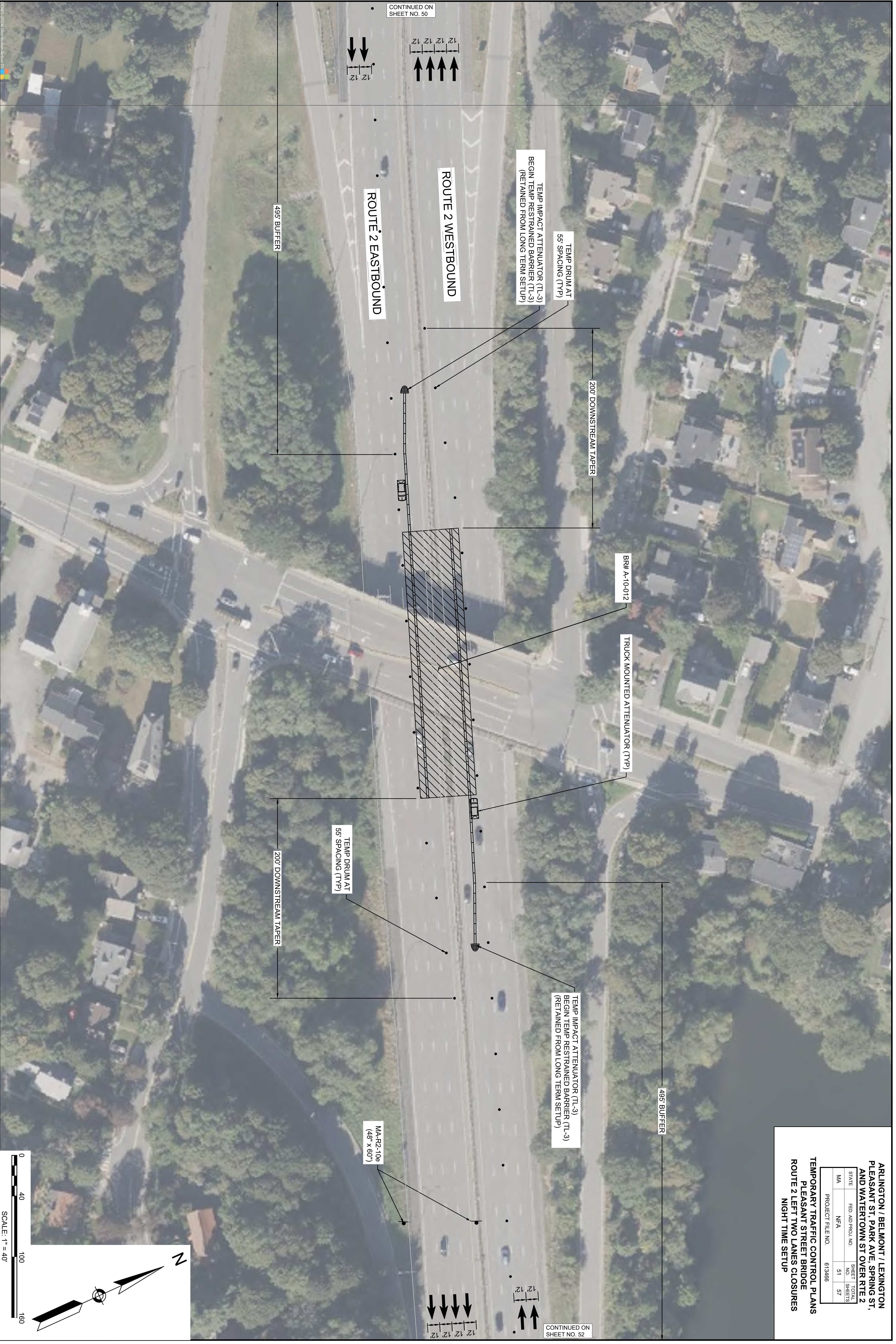
ROUTE 2 WESTBOUND

ARROW BOARD

TEMP REFLECTORIZED
 DRUM WITH SEQUENTIAL
 FLASHING LIGHTS (TYP)

TEMP DRUM AT
 55' SPACING (TYP)

GIS 02/20/2019 10:00 AM



CONTINUED ON SHEET NO. 50

CONTINUED ON SHEET NO. 52

ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST., PARK AVE., SPRING ST.,
 AND WATERLOO ST OVER RTE 2

STATE	FED AID PROJ NO.	SHEET TOTAL
MA	NFA	51
		57

PROJECT FILE NO. 613466

TEMPORARY TRAFFIC CONTROL PLANS
 PLEASANT STREET BRIDGE
 ROUTE 2 LEFT TWO LANES CLOSURES
 NIGHT TIME SETUP





CONTINUED ON SHEET NO. 51

TEMP DRUM AT 55' SPACING (TYP)

660' LANE SHIFT
L = WS
L = (12)(35)

TEMP REFLECTORIZED DRUM WITH SEQUENTIAL FLASHING LIGHTS (TYP)

ARROW BOARD

ROUTE 2 EASTBOUND

ROUTE 2 WESTBOUND

1320'
2L = 2MS
2L = 2(12)(35)

CONTINUED ON SHEET NO. 53

ARLINGTON / BELMONT / LEXINGTON
PLEASANT ST., PARK AVE., SPRING ST.,
AND WATERTOWN ST OVER RTE 2
TEMPORARY TRAFFIC CONTROL PLANS
PLEASANT STREET BRIDGE
ROUTE 2 LEFT TWO LANES CLOSURES
NIGHT TIME SETUP

STATE	FED AID PROJ NO.	SHEET TOTAL
MA	NFA	52
		57
PROJECT FILE NO.		613466



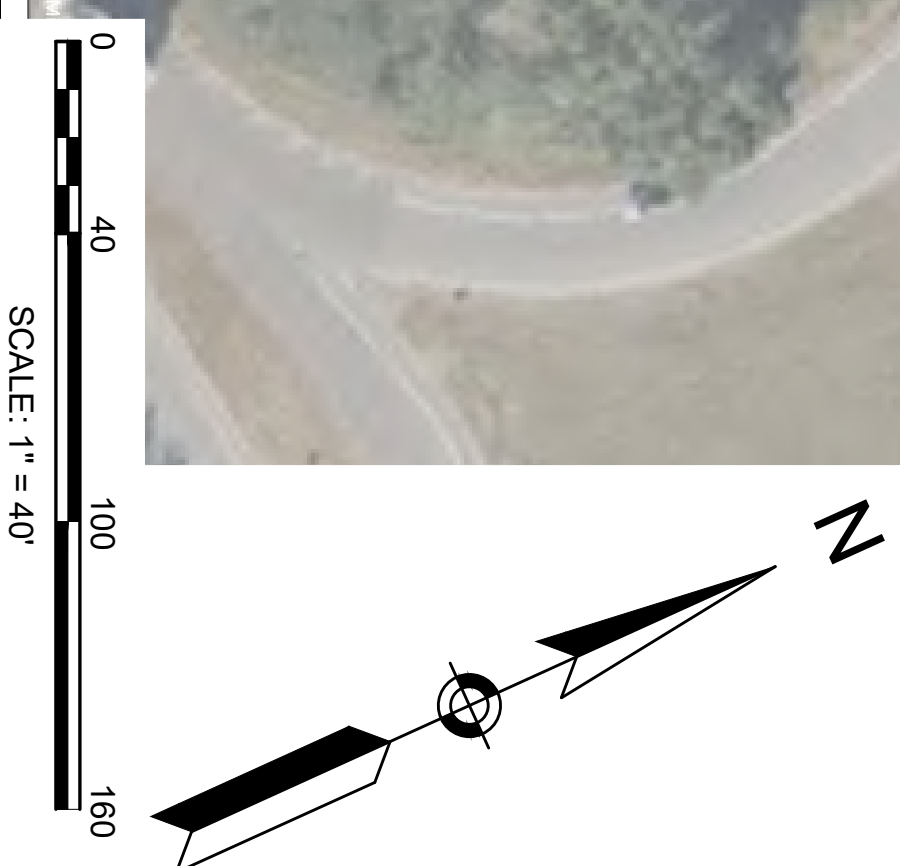


CONTINUED ON SHEET NO. 52

CONTINUED ON SHEET NO. 54

ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST., PARK AVE., SPRING ST.,
 AND WATEROWN ST OVER RTE 2
 TEMPORARY TRAFFIC CONTROL PLANS
 PLEASANT STREET BRIDGE
 ROUTE 2 LEFT TWO LANES CLOSURES
 NIGHT TIME SETUP

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	53 OF 57
PROJECT FILE NO. 613466		



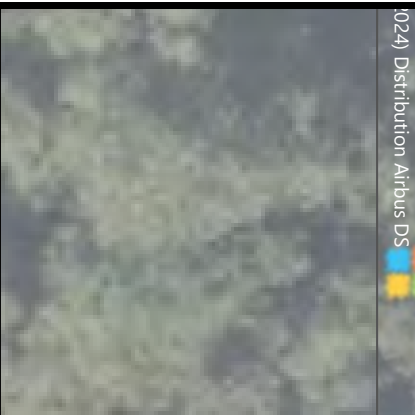
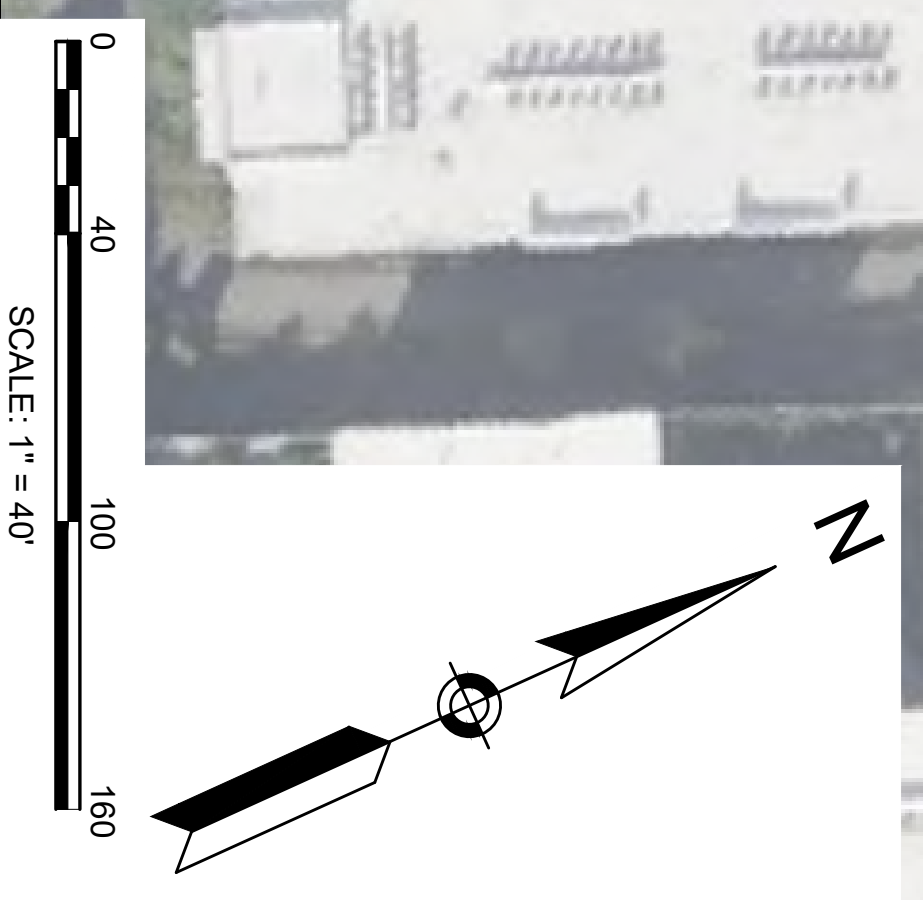


ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST., PARK AVE., SPRING ST.,
 AND WATERTOWN ST OVER RTE 2

STATE	FED AID PROJ NO.	SHEET TOTAL
MA	NFA	54
		57

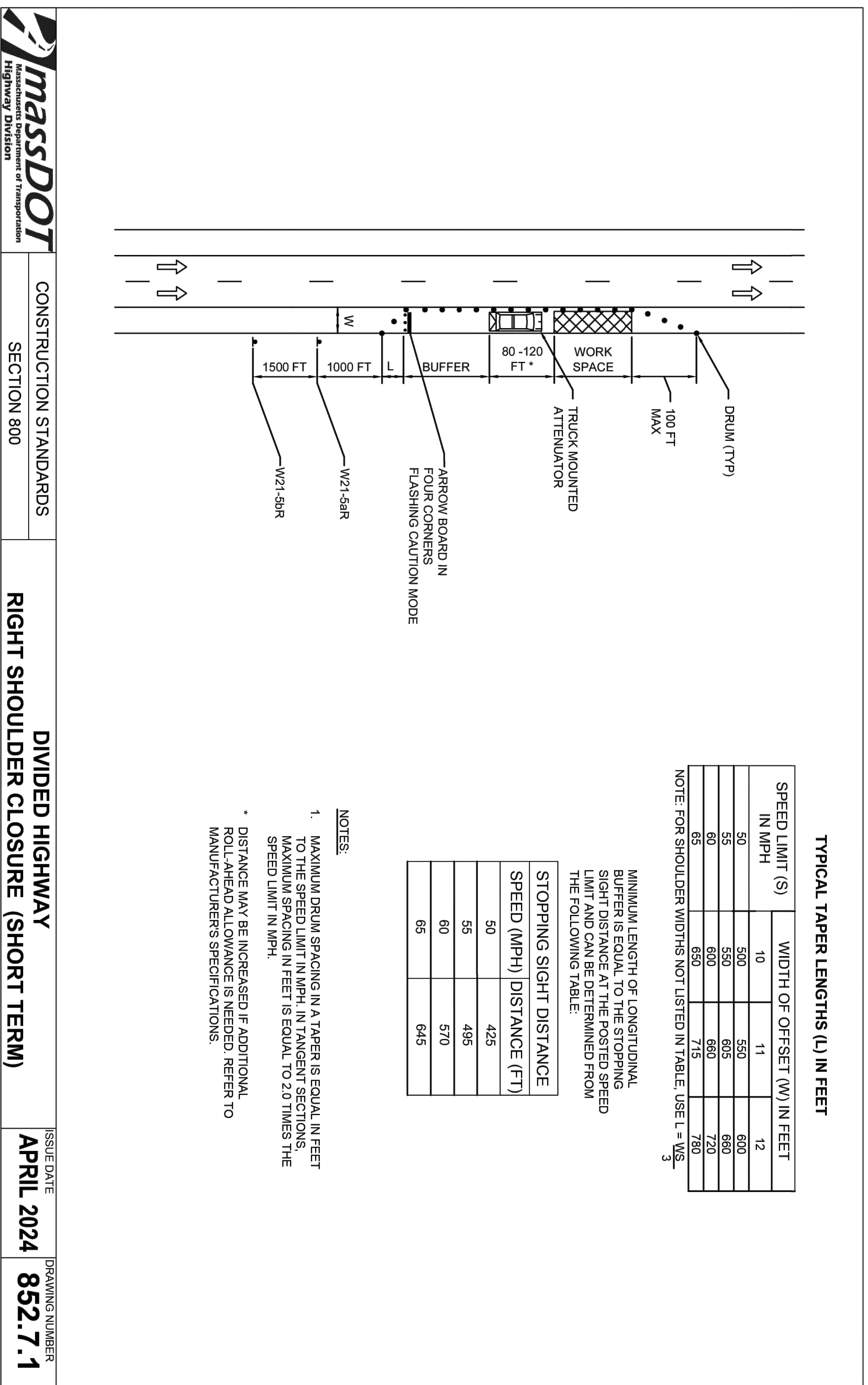
PROJECT FILE NO. 613466

TEMPORARY TRAFFIC CONTROL PLANS
 PLEASANT STREET BRIDGE
 ROUTE 2 LEFT TWO LANES CLOSURES
 NIGHT TIME SETUP



CONTINUED ON
SHEET NO. 53

CONTINUED ON
SHEET NO. 55



TYPICAL TAPER LENGTHS (L) IN FEET

SPEED LIMIT (S) IN MPH	10	11	12
50	500	550	600
55	550	605	660
60	600	660	720
65	650	715	780

NOTE: FOR SHOULDER WIDTHS NOT LISTED IN TABLE, USE $L = WS$.

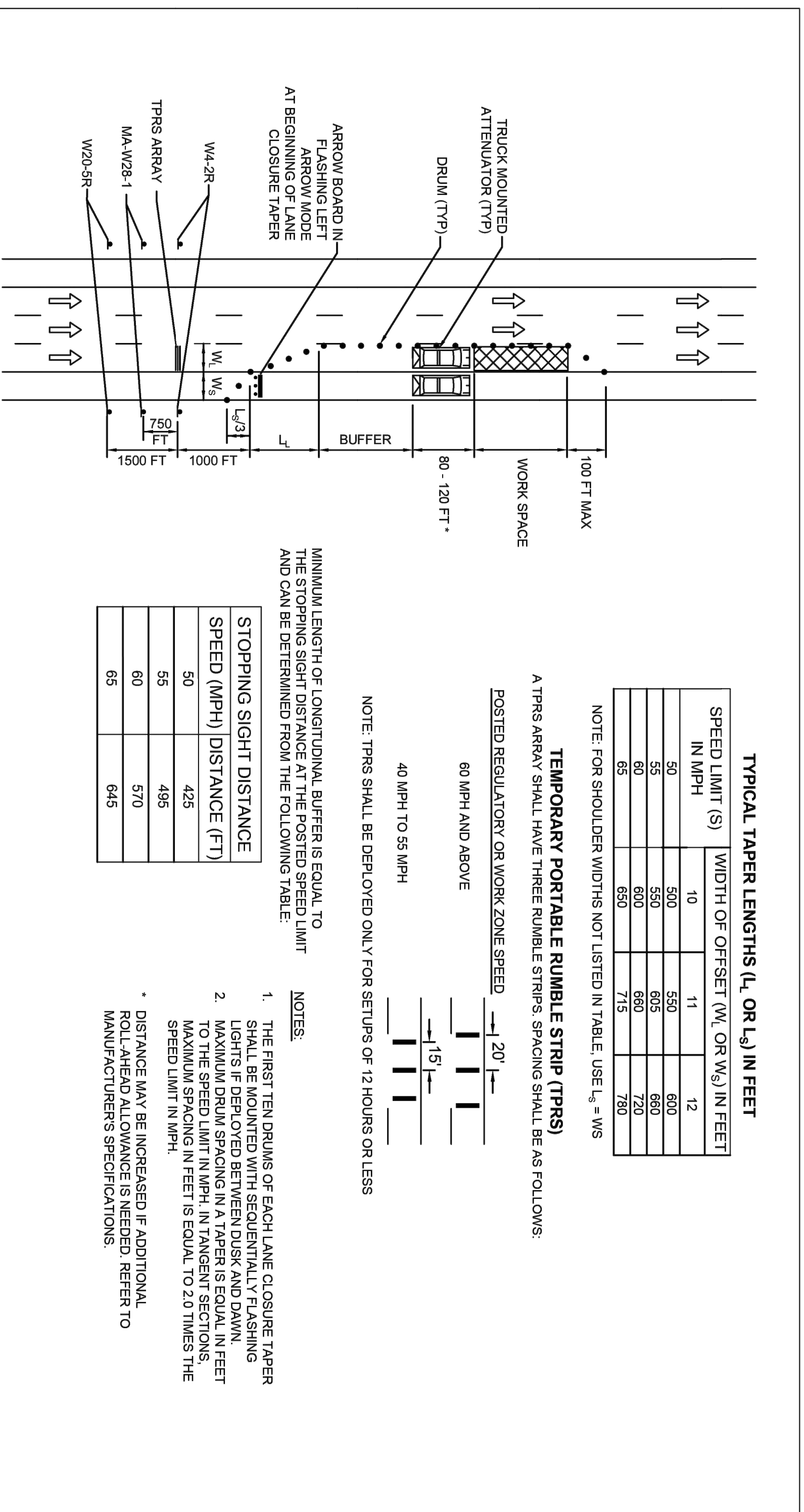
MINIMUM LENGTH OF LONGITUDINAL BUFFER IS EQUAL TO THE STOPPING SIGHT DISTANCE AT THE POSTED SPEED LIMIT AND CAN BE DETERMINED FROM THE FOLLOWING TABLE:

STOPPING SIGHT DISTANCE

SPEED (MPH)	DISTANCE (FT)
50	425
55	495
60	570
65	645

- NOTES:
- MAXIMUM DRUM SPACING IN A TAPER IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH. IN TANGENT SECTIONS, MAXIMUM SPACING IN FEET IS EQUAL TO 2.0 TIMES THE SPEED LIMIT IN MPH.
 - DISTANCE MAY BE INCREASED IF ADDITIONAL ROLL-AHEAD ALLOWANCE IS NEEDED. REFER TO MANUFACTURER'S SPECIFICATIONS.

MassDOT CONSTRUCTION STANDARDS SECTION 800 **DIVIDED HIGHWAY RIGHT SHOULDER CLOSURE (SHORT TERM)** ISSUE DATE **APRIL 2024** DRAWING NUMBER **852.7.1**



TYPICAL TAPER LENGTHS (L OR L₂) IN FEET

SPEED LIMIT (S) IN MPH	10	11	12
50	500	550	600
55	550	605	660
60	600	660	720
65	650	715	780

NOTE: FOR SHOULDER WIDTHS NOT LISTED IN TABLE, USE $L_2 = WS$

TEMPORARY PORTABLE RUMBLE STRIP (TPRS)
A TPRS ARRAY SHALL HAVE THREE RUMBLE STRIPS. SPACING SHALL BE AS FOLLOWS:



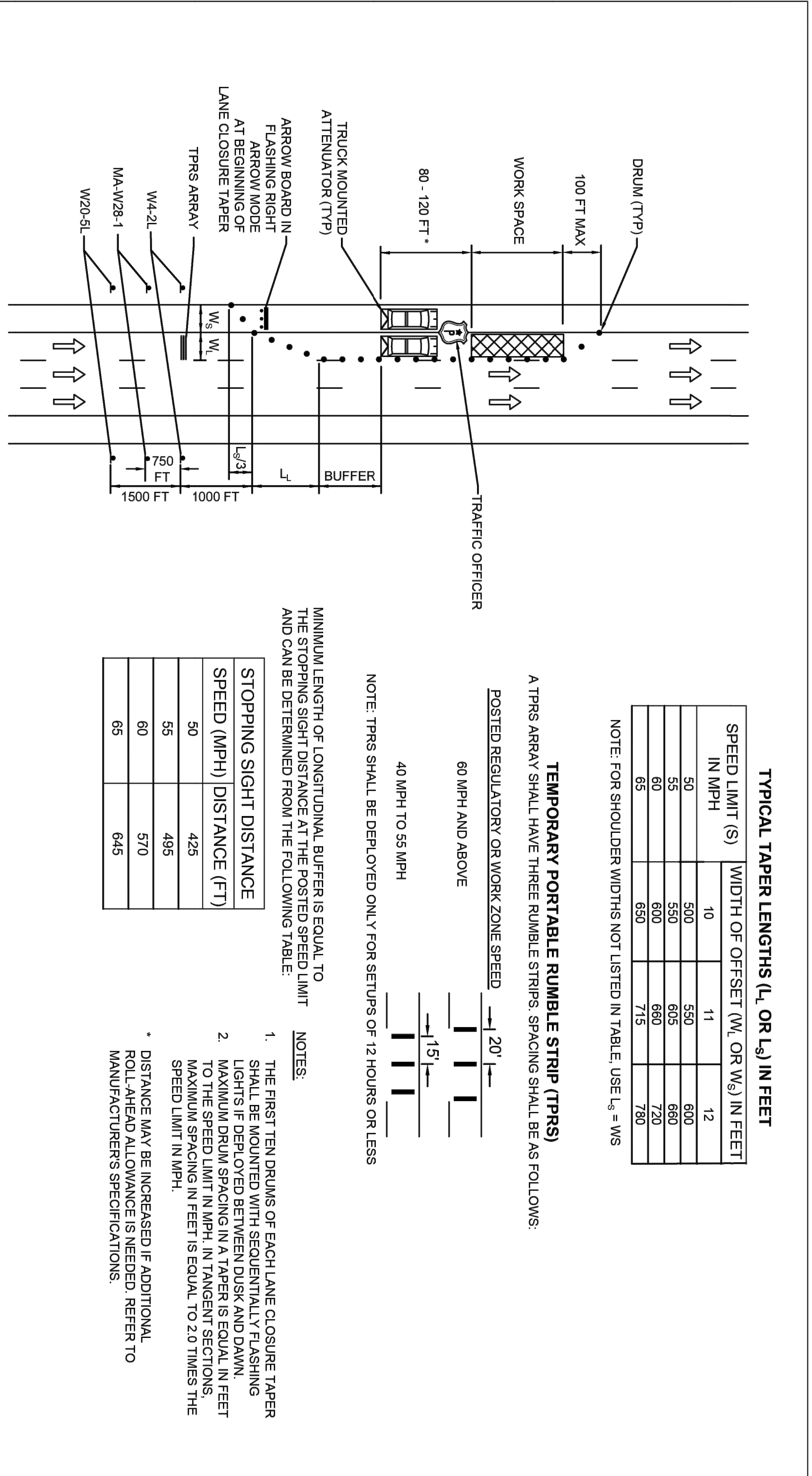
MINIMUM LENGTH OF LONGITUDINAL BUFFER IS EQUAL TO THE STOPPING SIGHT DISTANCE AT THE POSTED SPEED LIMIT AND CAN BE DETERMINED FROM THE FOLLOWING TABLE:

STOPPING SIGHT DISTANCE

SPEED (MPH)	DISTANCE (FT)
50	425
55	495
60	570
65	645

- NOTES:
- THE FIRST TEN DRUMS OF EACH LANE CLOSURE TAPER SHALL BE MOUNTED WITH SEQUENTIALLY FLASHING LIGHTS IN DETACHED BETWEEN DRUMS AND DRUMS IN TANGENT SECTIONS. IN TANGENT SECTIONS, MAXIMUM SPACING IN FEET IS EQUAL TO 2.0 TIMES THE SPEED LIMIT IN MPH.
 - DISTANCE MAY BE INCREASED IF ADDITIONAL ROLL-AHEAD ALLOWANCE IS NEEDED. REFER TO MANUFACTURER'S SPECIFICATIONS.

MassDOT CONSTRUCTION STANDARDS SECTION 800 **DIVIDED HIGHWAY RIGHT LANE CLOSURE (SHORT TERM)** ISSUE DATE **APRIL 2024** DRAWING NUMBER **852.7.3**

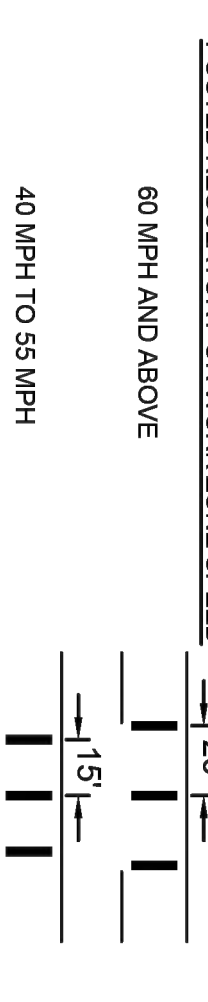


TYPICAL TAPER LENGTHS (L OR L₂) IN FEET

SPEED LIMIT (S) IN MPH	10	11	12
50	500	550	600
55	550	605	660
60	600	660	720
65	650	715	780

NOTE: FOR SHOULDER WIDTHS NOT LISTED IN TABLE, USE $L_2 = WS$

TEMPORARY PORTABLE RUMBLE STRIP (TPRS)
A TPRS ARRAY SHALL HAVE THREE RUMBLE STRIPS. SPACING SHALL BE AS FOLLOWS:



MINIMUM LENGTH OF LONGITUDINAL BUFFER IS EQUAL TO THE STOPPING SIGHT DISTANCE AT THE POSTED SPEED LIMIT AND CAN BE DETERMINED FROM THE FOLLOWING TABLE:

STOPPING SIGHT DISTANCE

SPEED (MPH)	DISTANCE (FT)
50	425
55	495
60	570
65	645

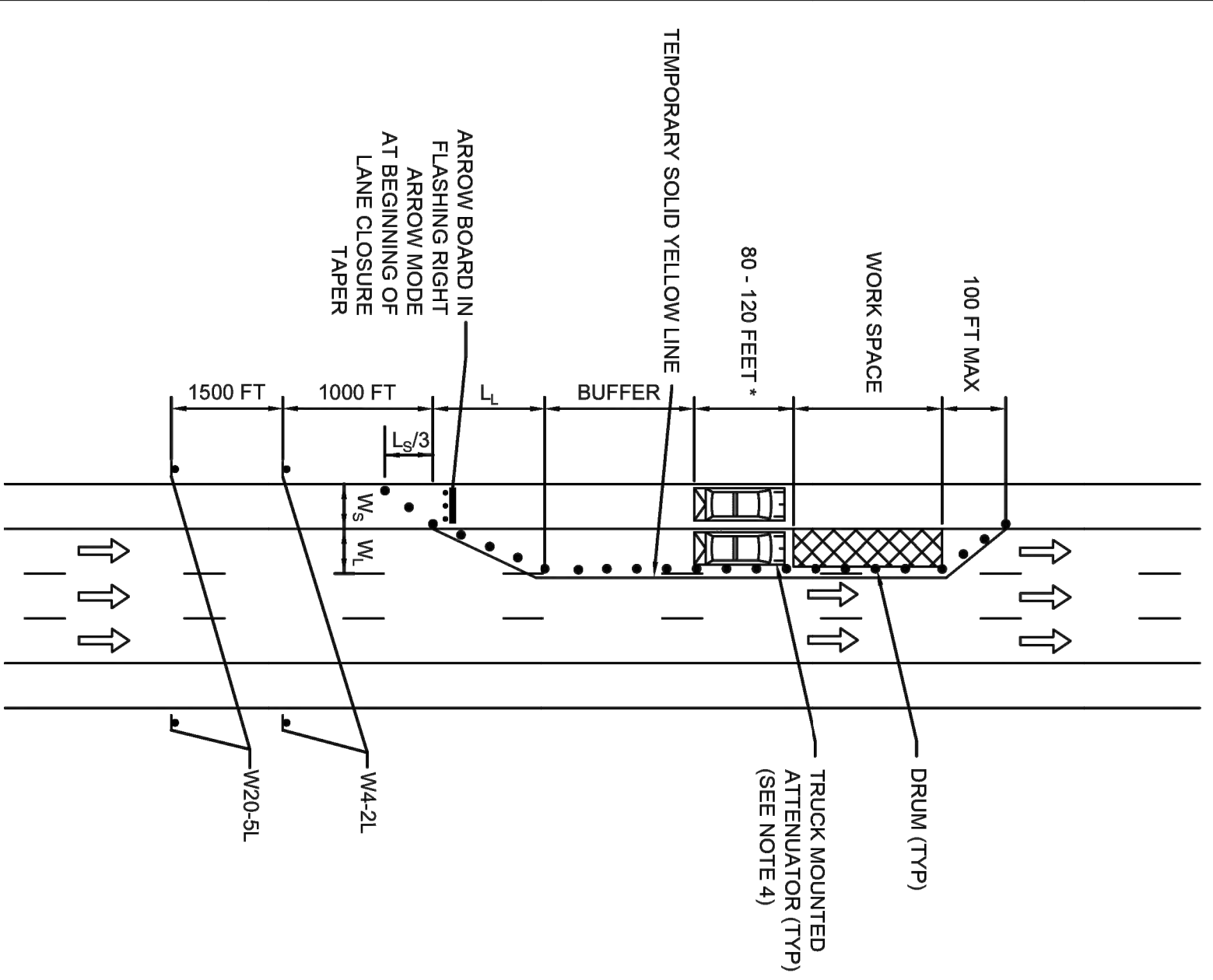
- NOTES:
- THE FIRST TEN DRUMS OF EACH LANE CLOSURE TAPER SHALL BE MOUNTED WITH SEQUENTIALLY FLASHING LIGHTS IN DETACHED BETWEEN DRUMS AND DRUMS IN TANGENT SECTIONS. IN TANGENT SECTIONS, MAXIMUM SPACING IN FEET IS EQUAL TO 2.0 TIMES THE SPEED LIMIT IN MPH.
 - DISTANCE MAY BE INCREASED IF ADDITIONAL ROLL-AHEAD ALLOWANCE IS NEEDED. REFER TO MANUFACTURER'S SPECIFICATIONS.

MassDOT CONSTRUCTION STANDARDS SECTION 800 **DIVIDED HIGHWAY LEFT LANE CLOSURE (SHORT TERM)** ISSUE DATE **APRIL 2024** DRAWING NUMBER **852.7.4**

ARLINGTON / BELMONT / LEXINGTON PLEASANT ST. PARK AVE. SPRING ST. AND WATERTOWN ST OVER RTE 2

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	53
	PROJECT FILE NO.	613466

TRAFFIC CONTROL DETAILS



TYPICAL TAPER LENGTHS (L_s OR L_{s2}) IN FEET

SPEED LIMIT (S) IN MPH	10	11	12
50	500	550	600
55	550	605	660
60	600	660	720
65	650	715	780

NOTE: FOR SHOULDER WIDTHS NOT LISTED IN TABLE, USE L_s = WS

MINIMUM LENGTH OF LONGITUDINAL BUFFER IS EQUAL TO THE STOPPING SIGHT DISTANCE AT THE POSTED SPEED LIMIT AND CAN BE DETERMINED FROM THE FOLLOWING TABLE:

STOPPING SIGHT DISTANCE SPEED (MPH) DISTANCE (FT)	50	55	60	65
	425	495	570	645

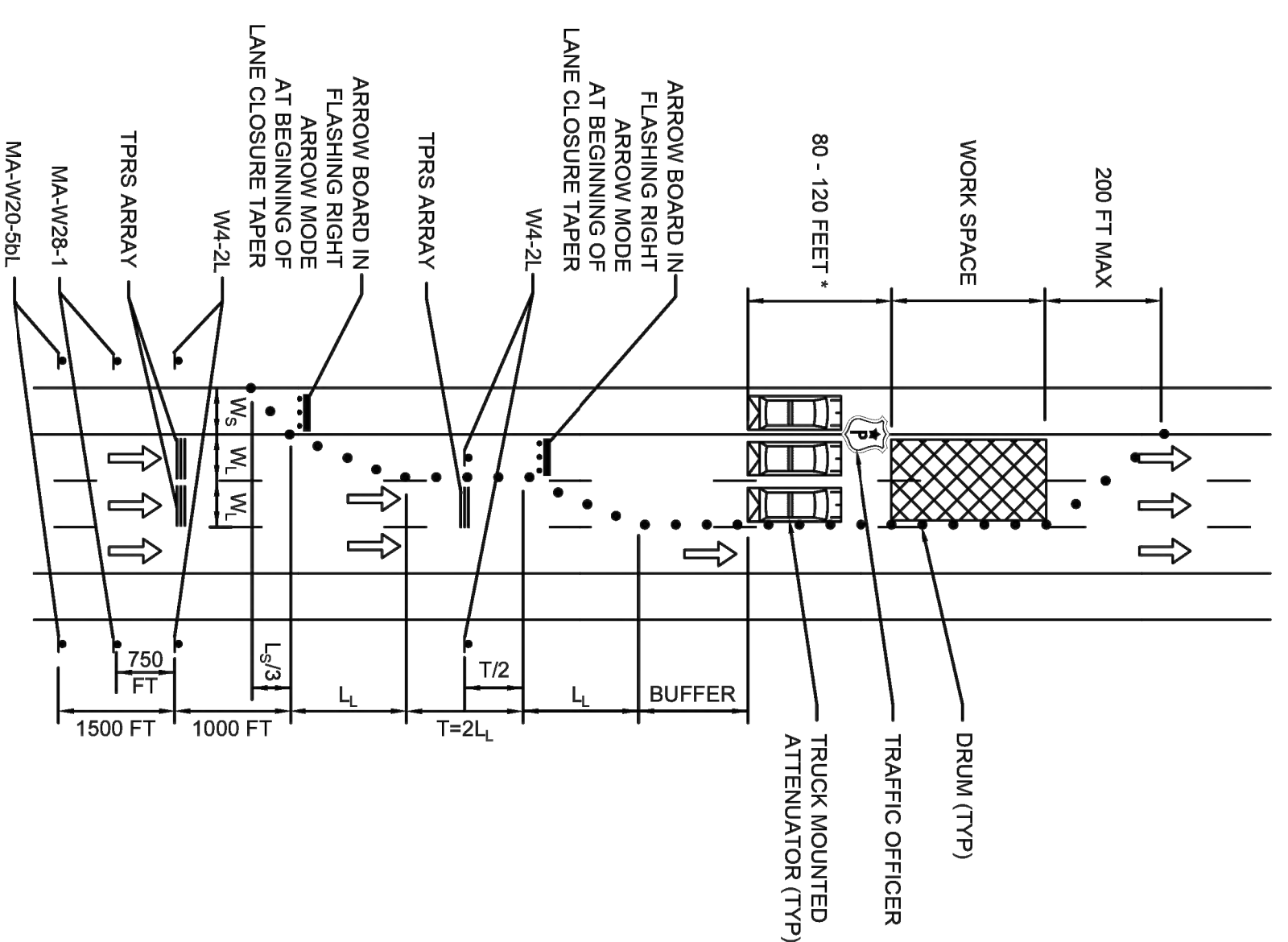
- NOTES:
- THE FIRST TEN DRUMS OF EACH LANE CLOSURE TAPER SHALL BE MOUNTED WITH SEQUENTIALLY FLASHING LIGHTS IF DEPLOYED BETWEEN DUSK AND DAWN.
 - MAXIMUM DRUM SPACING IN A TAPER IS EQUAL IN FEET TO THE SPEED LIMIT IN TANGENT SECTIONS. MAXIMUM SPACING IN FEET IS EQUAL TO 2.0 TIMES THE SPEED LIMIT IN MPH. MINIMUM LANE WIDTH IS TO BE 11 FEET MEASURED FROM CENTER OF TEMPORARY PAVEMENT MARKING.
 - TRUCK MOUNTED ATTENUATORS MAY BE OMITTED IF TAPER, BUFFER, AND WORK SPACE IS PROTECTED BY TEMPORARY BARRIER.
 - SHALL BE USED FOR LONG TERM AND INTERMEDIATE SETUP ONLY.
 - PROPER PROTECTIONS SHALL BE IN PLACE AT ALL TIMES, NOT ONLY DURING ACTIVE WORK.
 - DISTANCE MAY BE INCREASED IF ADDITIONAL ROLL-AHEAD ALLOWANCE IS NEEDED. REFER TO MANUFACTURER'S SPECIFICATIONS.



CONSTRUCTION STANDARDS
SECTION 800

**DIVIDED HIGHWAY
LEFT LANE CLOSURE (INTERMEDIATE & LONG TERM)**

ISSUE DATE
APRIL 2024
DRAWING NUMBER
852.7.6



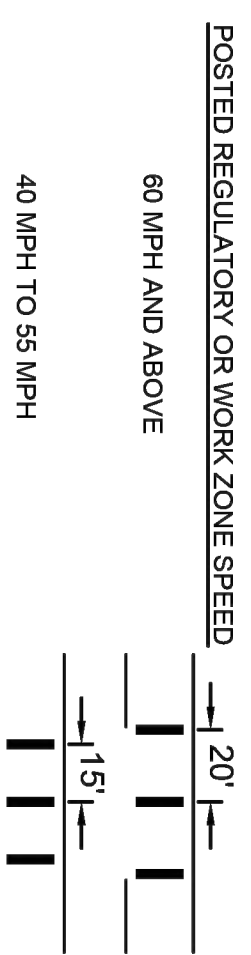
TYPICAL TAPER LENGTHS (L_s OR L_{s2}) IN FEET

SPEED LIMIT (S) IN MPH	10	11	12
50	500	550	600
55	550	605	660
60	600	660	720
65	650	715	780

NOTE: FOR SHOULDER WIDTHS NOT LISTED IN TABLE, USE L_s = WS

TEMPORARY PORTABLE RUMBLE STRIP (TPRS)

A TPRS ARRAY SHALL HAVE THREE RUMBLE STRIPS. SPACING SHALL BE AS FOLLOWS:



MINIMUM LENGTH OF LONGITUDINAL BUFFER IS EQUAL TO THE STOPPING SIGHT DISTANCE AT THE POSTED SPEED LIMIT AND CAN BE DETERMINED FROM THE FOLLOWING TABLE:

STOPPING SIGHT DISTANCE SPEED (MPH) DISTANCE (FT)	50	55	60	65
	425	495	570	645

- NOTES:
- THE FIRST TEN DRUMS OF EACH LANE CLOSURE TAPER SHALL BE MOUNTED WITH SEQUENTIALLY FLASHING LIGHTS IF DEPLOYED BETWEEN DUSK AND DAWN.
 - MAXIMUM DRUM SPACING IN A TAPER IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH. IN TANGENT SECTIONS, MAXIMUM SPACING IN FEET IS EQUAL TO 2.0 TIMES THE SPEED LIMIT IN MPH. THIS SETUP ALSO APPLIES TO 4 OR 5 LANE SECTIONS.
 - DISTANCE MAY BE INCREASED IF ADDITIONAL ROLL-AHEAD ALLOWANCE IS NEEDED. REFER TO MANUFACTURER'S SPECIFICATIONS.



CONSTRUCTION STANDARDS
SECTION 800

**DIVIDED HIGHWAY
LEFT TWO LANES CLOSURE (SHORT TERM)**

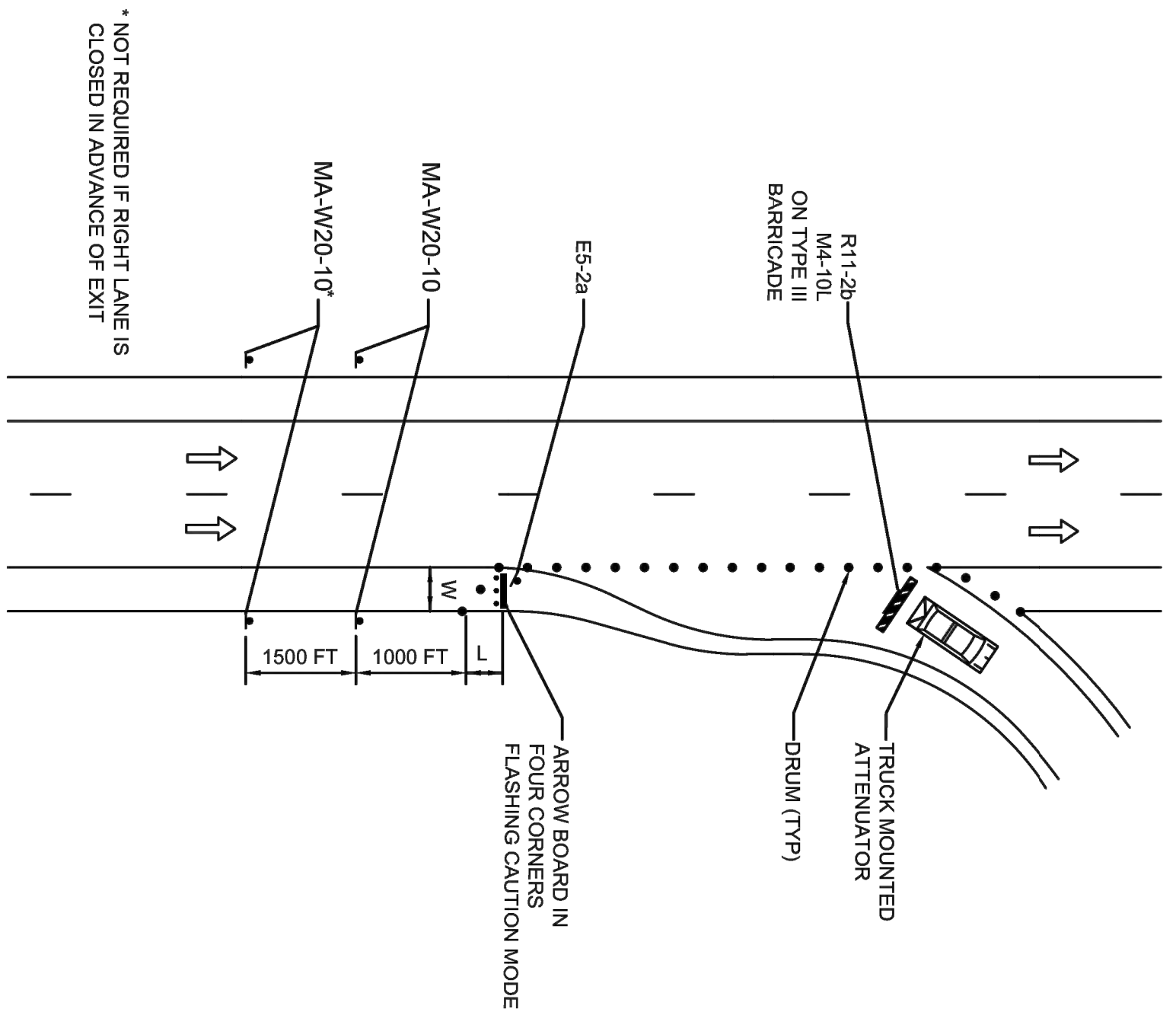
ISSUE DATE
APRIL 2024
DRAWING NUMBER
852.7.9

ARLINGTON / BELMONT / LEXINGTON
PLEASANT ST, PARK AVE, SPRING ST,
AND WATERTOWN ST OVER RTE 2

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	NFA	96
		57

PROJECT FILE NO. 613466

TRAFFIC CONTROL DETAILS



DRUM PLACEMENT NOTES

1. MAXIMUM DRUM SPACING IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.

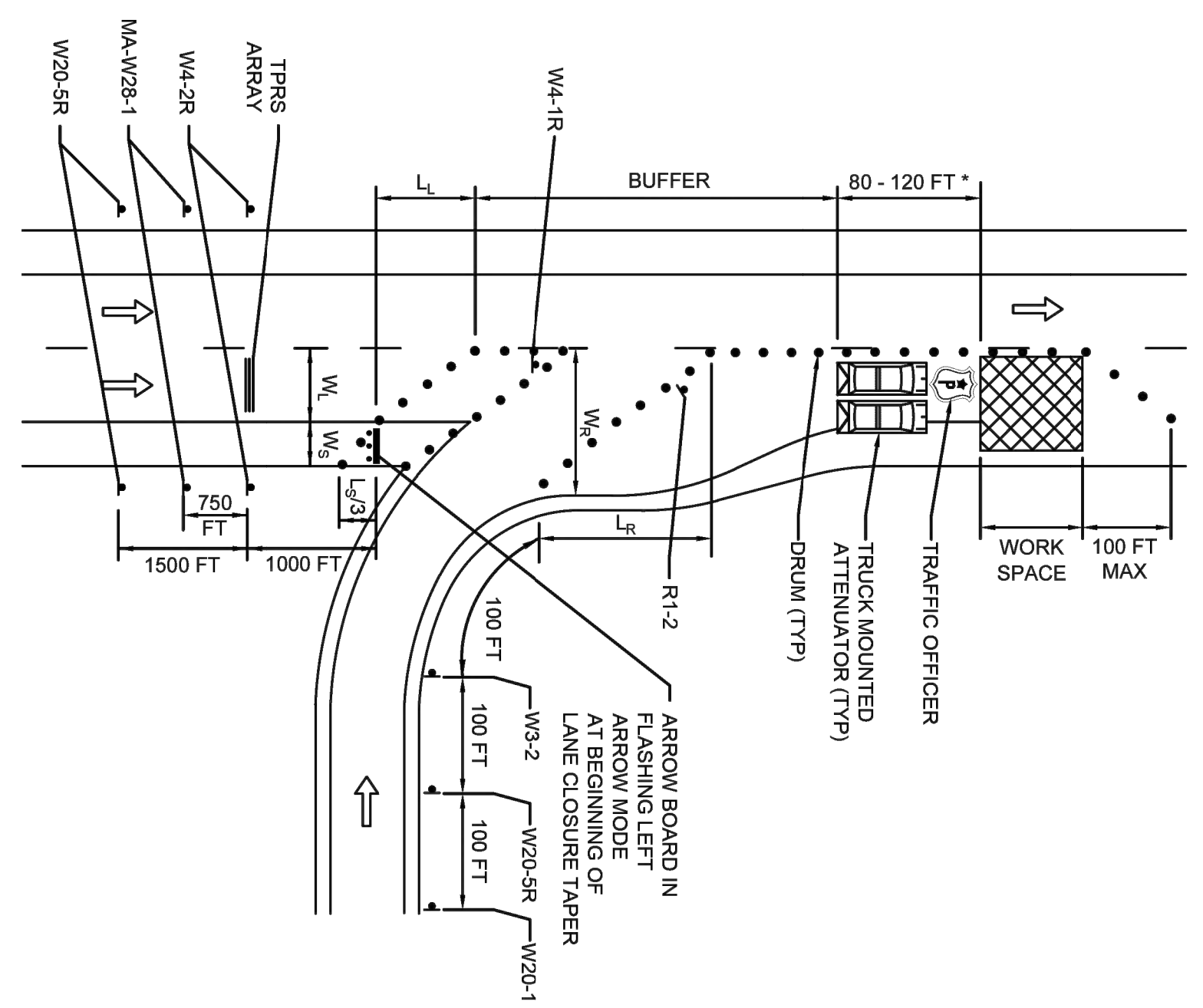
TYPICAL TAPER LENGTHS (L) IN FEET

SPEED LIMIT (S) IN MPH	10	11	12
50	167	183	200
55	183	202	220
60	200	220	240
65	217	238	260

NOTE: FOR SHOULDER WIDTHS NOT LISTED IN TABLE, USE L = WS

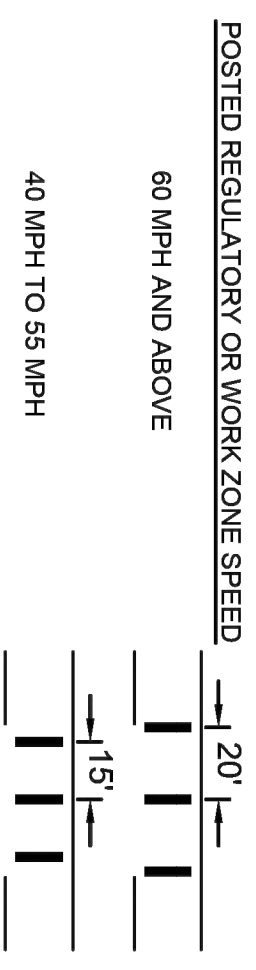
massDOT Highway Division
 CONSTRUCTION STANDARDS SECTION 800
EXIT RAMP TYPICAL CLOSURE

ISSUE DATE: **APRIL 2024**
 DRAWING NUMBER: **852.8.3**



TEMPORARY PORTABLE RUMBLE STRIP (TPRS)

A TPRS ARRAY SHALL HAVE THREE RUMBLE STRIPS. SPACING SHALL BE AS FOLLOWS:



NOTE: TPRS SHALL BE DEPLOYED ONLY FOR SETUPS OF 12 HOURS OR LESS

MINIMUM LENGTH OF LONGITUDINAL RUMBLE STRIP AT POSTED SPEED LIMIT AND CAN BE DETERMINED FROM THE FOLLOWING TABLE:

STOPPING SIGHT DISTANCE (FT)	50	55	60	65
425	485	570	645	

TYPICAL TAPER LENGTHS (L₁, L₂ OR L₃) IN FEET

SPEED LIMIT (S) IN MPH	10	11	12
50	600	650	680
55	650	695	720
60	690	730	760
65	730	775	800

NOTE: FOR WIDTHS NOT LISTED IN TABLE, USE L = WS

- NOTES:**
- THE FIRST TEN DRUMS OF EACH LANE SHIFT OR CLOSURE TAPER SHALL BE MOUNTED WITH SEQUENTIALLY FLASHING LIGHTS IF DEPLOYED BETWEEN DUSK AND DAWN.
 - MAXIMUM DRUM SPACING IN A TAPER IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH. IN TANGENT SECTIONS, MAXIMUM SPACING IN FEET IS EQUAL TO 2.0 TIMES THE SPEED LIMIT IN MPH.
- * DISTANCE MAY BE INCREASED IF ADDITIONAL ROLL-AHEAD ALLOWANCE IS NEEDED. REFER TO MANUFACTURER'S SPECIFICATIONS.

massDOT Massachusetts Department of Transportation Highway Division
 CONSTRUCTION STANDARDS SECTION 800
ENTRANCE RAMP WORK DOWNSTREAM

ISSUE DATE: **APRIL 2024**
 DRAWING NUMBER: **852.9.3**

ARLINGTON / BELMONT / LEXINGTON
 PLEASANT ST, PARK AVE, SPRING ST,
 AND WATERTOWN ST OVER RTE 2

STATE	FED AID PROJ. NO.	SHEET TOTAL
MA	N/A	57
PROJECT FILE NO.	613466	57

TRAFFIC CONTROL DETAILS

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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.

PAGE 2

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.

PAGE 4

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.

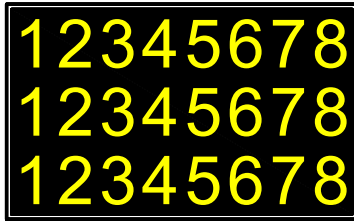
USE OF THIS GUIDE

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:

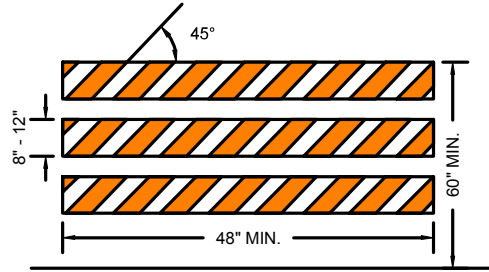
- 1) Turn to the Index. Consider the type of operations and the type of roadway upon which work will occur.
- 2) Select the figure that most closely matches the conditions where you plan to work. Remember that all diagrams represent minimum standards.
- 3) Read the title of the illustration to ensure 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.



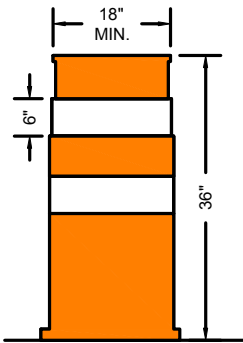
SIGN



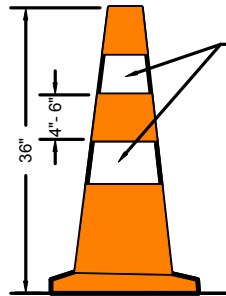
**PORTABLE CHANGEABLE
MESSAGE SIGN (PCMS)**



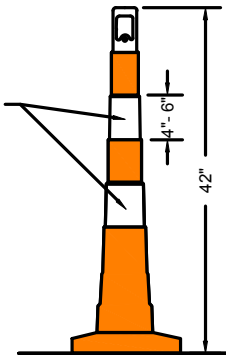
TYPE III BARRICADE



DRUM

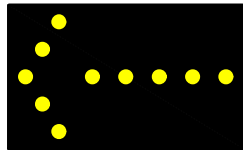


RETROFLECTIVE
BANDS

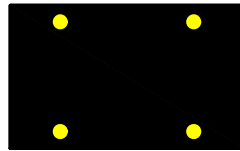


CONES

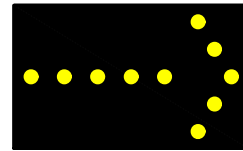
Cones may be used for all daytime operations. For night work, drums should be used to form the taper(s) and cones can be used along the tangent section of the work setup.



LEFT

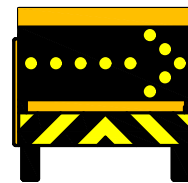


CAUTION



RIGHT

ARROW BOARD (WITH MODE)



TRUCK MOUNTED ATTENUATORS

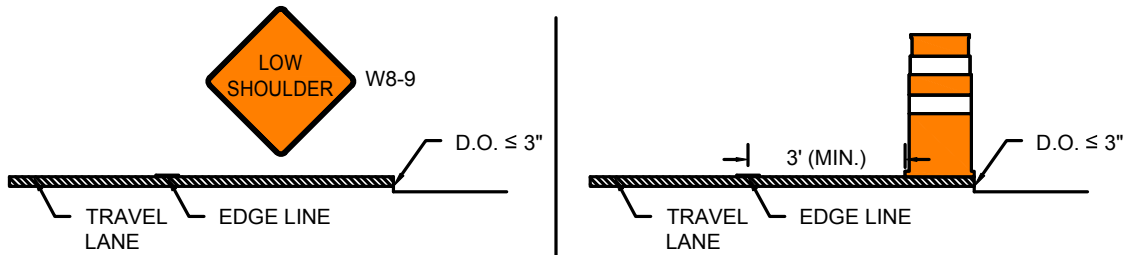
Truck Mounted Attenuators (TMA) shall be positioned between the start of the work area and the end of the designated buffer zone. The TMAs are to be positioned in each temporarily closed lane. This includes shoulders (≥ 8 feet) whether combined with a travel lane closure or being closed alone. These 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

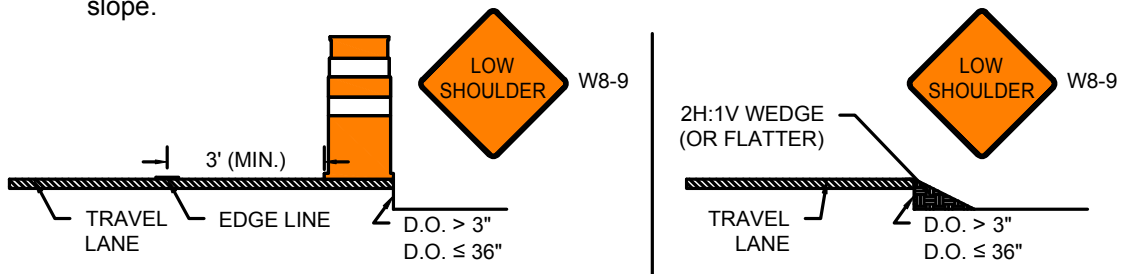
Note that this guidance is adopted from the Roadside Design Guide, 4th Edition.

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.

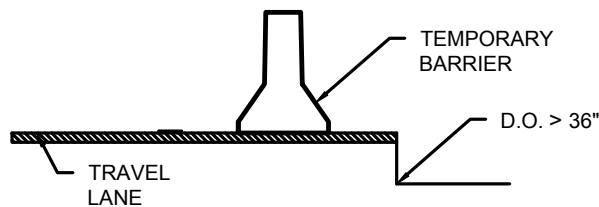
- Shoulder drop-offs 3" or less adjacent to a shoulder or active travel lane should be mitigated by:
 - ✓ A W8-9 (LOW SHOULDER) sign in advance of and at regular intervals throughout the treatment; or
 - ✓ The placement of drums on the traffic side of the drop-off.



- 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 of 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.





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

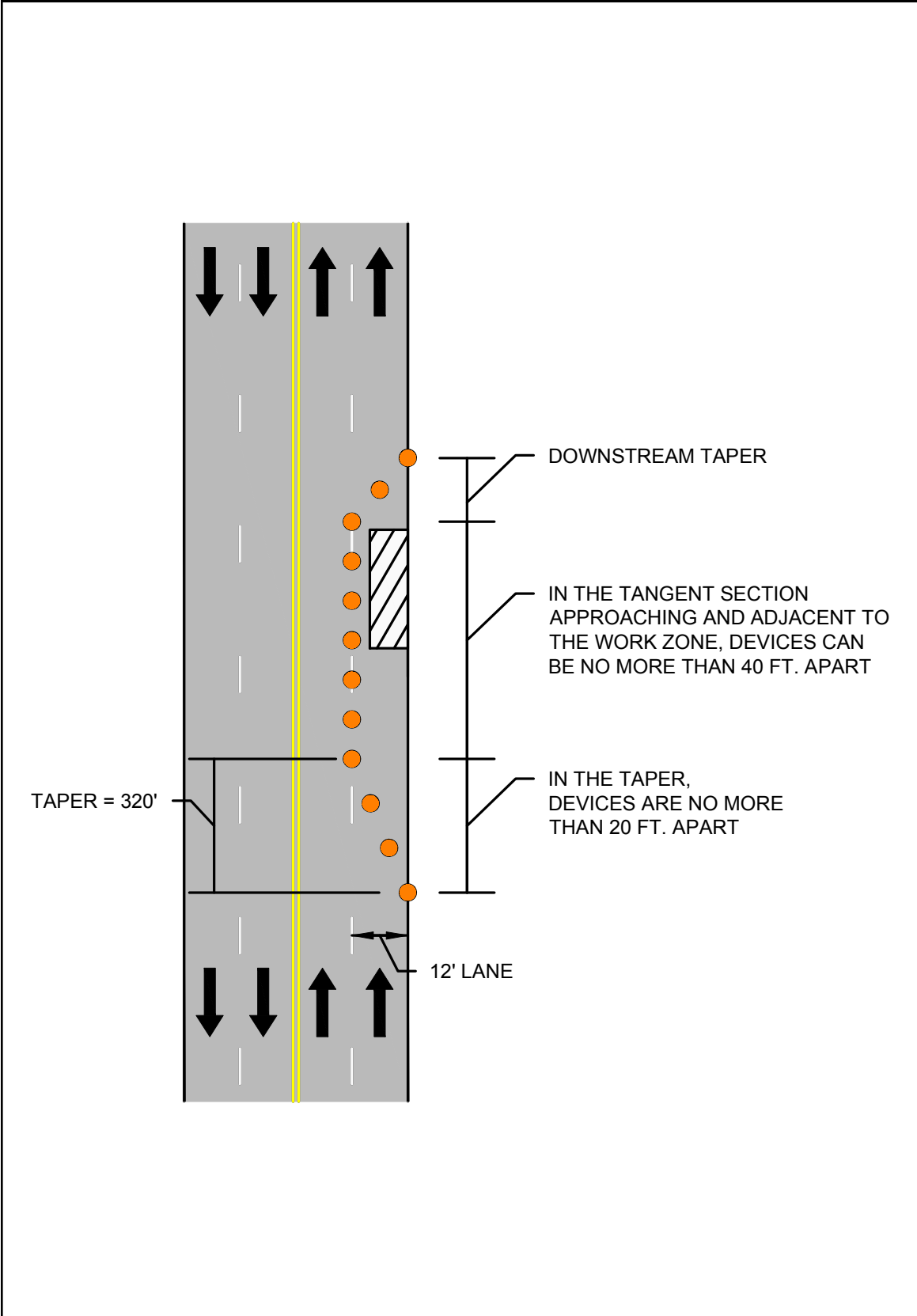
NOTES


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.

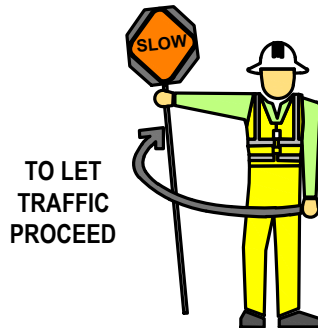


Properly Trained Flaggers

- 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

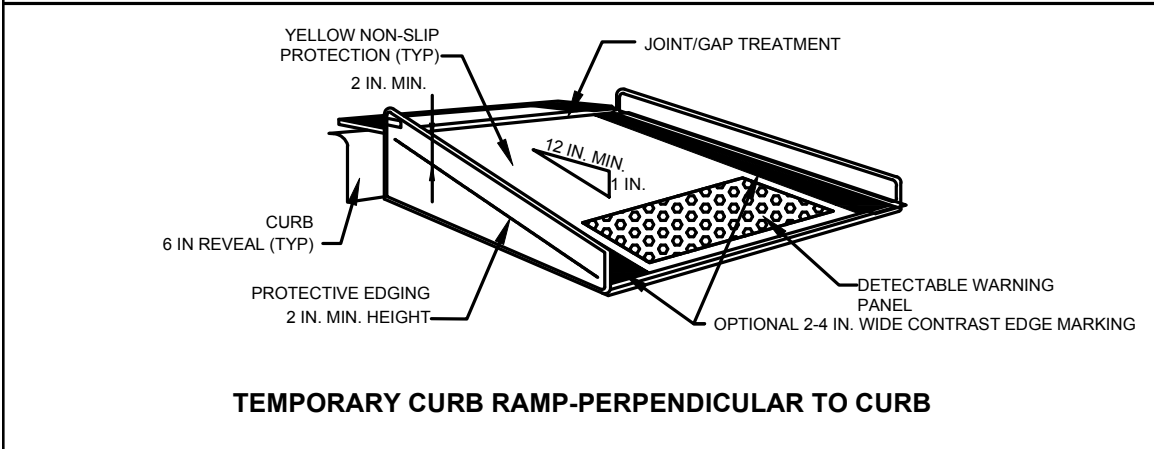
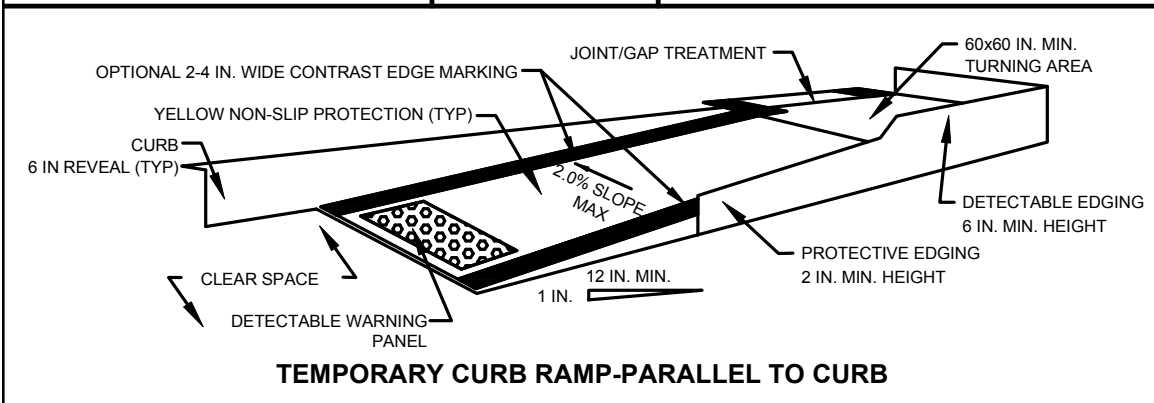
- Good approach sight distance.
- Highly visible to traffic.
- Stand alone away from other machinery and people.
- Stand on right edge of pavement or shoulder- proceed to centerline only when first vehicle has come to stop.
- Have a good escape route.



Proper Advance Warning Signs

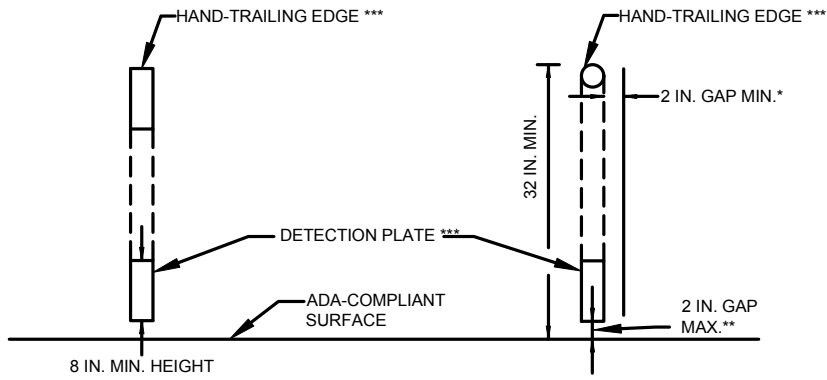
- Always use warning signs.
- Allow for reaction distance from signs.
- Remove signs if no longer necessary or not flagging.
- Use free hand in up-and-down motion to help slow traffic.

 <p>PAGE 16</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>FIGURE 4 TYPICAL PEDESTRIAN DEVICES (1 OF 2) NOT TO SCALE</p>
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NOTES:

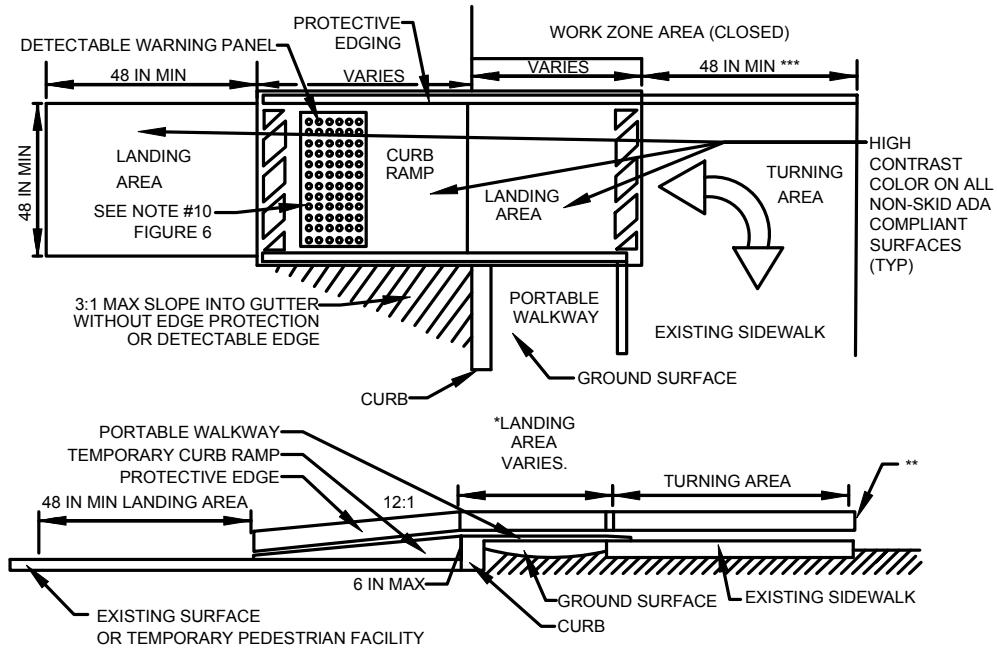
1. CURB RAMPS SHALL BE 60 IN. MINIMUM WIDTH WITH A FIRM, STABLE, AND NON-SLIP SURFACE.
2. PROTECTIVE EDGING WITH A 2 IN. MINIMUM HEIGHT SHALL BE INSTALLED WHEN THE CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6 IN. OR GREATER OR HAS A SIDE APRON SLOP STEEPER THAN 1:3 (33%). PROTECTIVE EDGING 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.

 <p>PAGE 17</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>FIGURE 5 TYPICAL PEDESTRIAN DEVICES (2 OF 2) NOT TO SCALE</p>
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PAGE 18

Work Zone Safety
Standard Details
and Drawings

STATIONARY OPERATIONS
TWO LANE UNDIVIDED ROADWAY
HALF OF ROADWAY CLOSED
WORK NEAR CURVE










POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)	CHANNELIZATION DEVICES (DRUMS OR CONES)			
		TRAVEL LANE CLOSURE LENGTH (L) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	500 / 500 / 500	50	100	20	30
45-55	500 / 1000 / 1000	100	150	40	20

* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

NOTES

1. IF POLICE DETAIL/UNIFORMED FLAGGER SUPPORT IS REQUIRED, PROVIDE TWO UNITS.
2. MA-R2-10a LOCATED AT C/2.
3. ** = EXTEND ENOUGH SO TAPER IS BEFORE CURVE

LEGEND

-  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



Work Zone Safety
Standard Details
and Drawings

STATIONARY OPERATIONS
TWO LANE UNDIVIDED ROADWAY
HALF OF ROADWAY CLOSED

POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)	CHANNELIZATION DEVICES (DRUMS OR CONES)			
		TRAVEL LANE CLOSURE LENGTH (L) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	500 / 500 / 500	50	100	20	30
45-55	500 / 1000 / 1000	100	150	40	20










* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

POSTED REGULATORY OR WORK ZONE SPEED	SEPARATION BETWEEN RUMBLE STRIPS
36-mph to 55-mph	15-feet
35-mph and under	10-feet

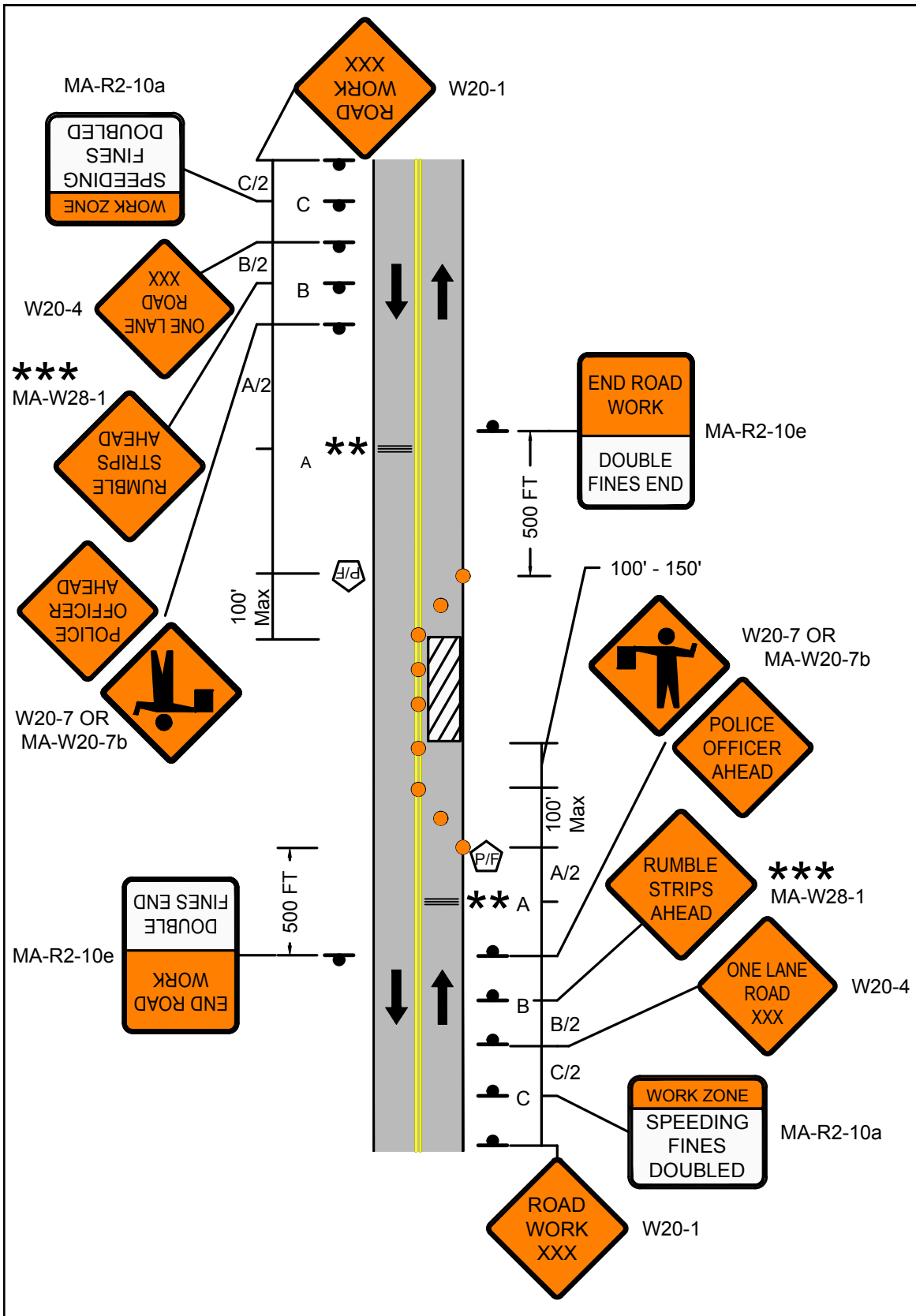
NOTES


1. IF POLICE DETAIL/UNIFORMED FLAGGER SUPPORT IS REQUIRED, PROVIDE TWO UNITS.
2. MA-R2-10a LOCATED AT C/2.
3. ** OPTIONAL AT THE ENGINEER'S DISCRETION.
4. *** SHALL BE DEPLOYED IF RUMBLE STRIPS ARE PRESENT.

LEGEND

-  WORK ZONE
-  CHANNELIZATION DEVICE
-  FLASHING ARROW BOARD
-  PORTABLE CHANGEABLE MESSAGE SIGN
-  TRUCK MOUNTED ATTENUATOR
-  RADAR SPEED FEEDBACK BOARD
-  POLICE DETAIL OR UNIFORMED FLAGGER
-  TEMPORARY PORTABLE RUMBLE STRIP
-  TYPE III BARRICADE

NOT TO SCALE



 <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
Standard Details
and Drawings

STATIONARY OPERATIONS
TWO LANE UNDIVIDED ROADWAY
SHOULDER CLOSED










POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)	CHANNELIZATION DEVICES (DRUMS OR CONES)			
		SHOULDER TAPER LENGTH (L/3) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	500 / 500 / 500	110	305	20	45
45-55	500 / 1000 / 1000	220	495	40	30
60-65	1000 / 1600 / 2600	260	645	40	35

* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

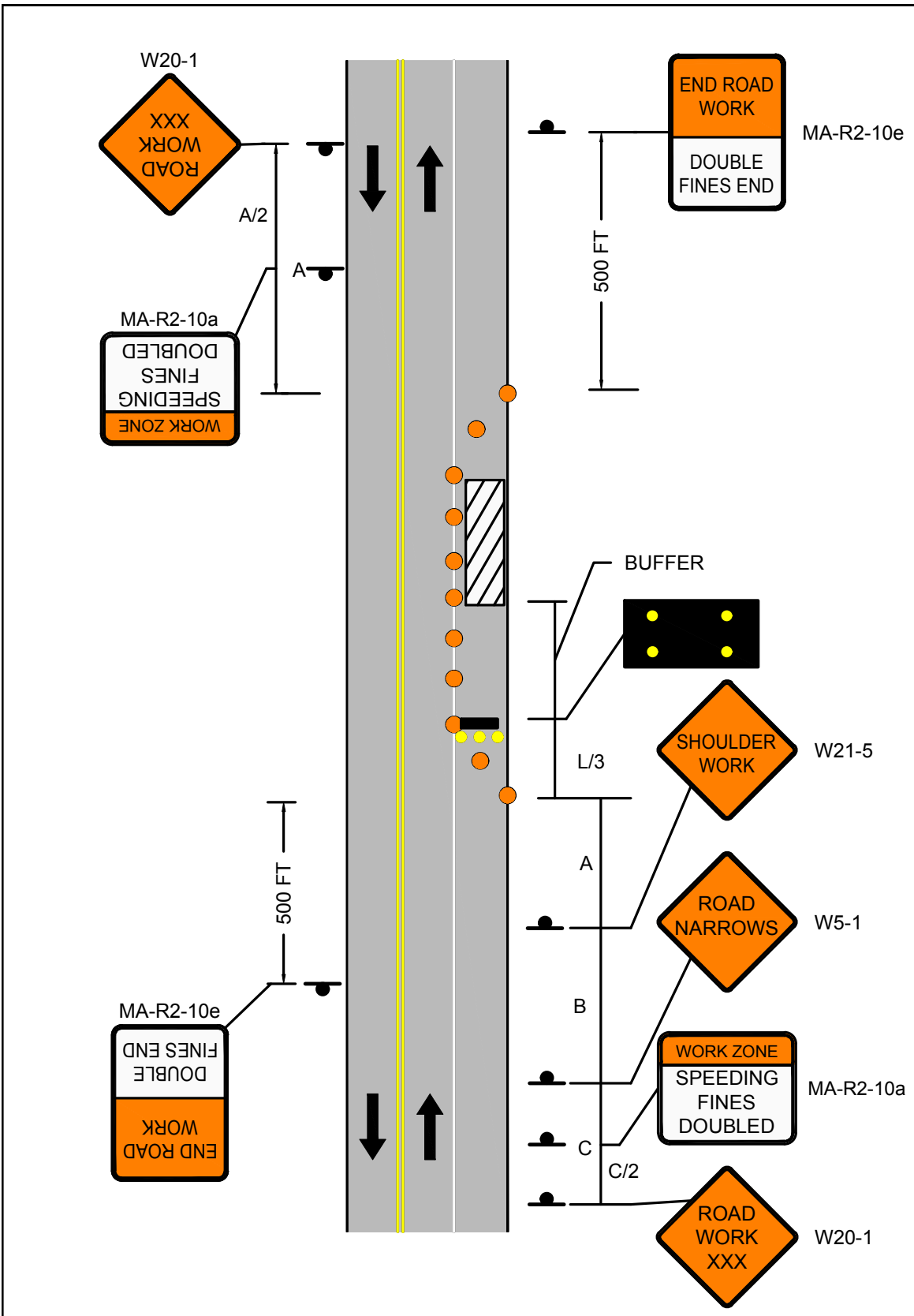
NOTES


1. MA-R2-10a at C/2 and A/2.

LEGEND

-  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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Work Zone Safety
Standard Details
and Drawings

STATIONARY OPERATIONS
TWO LANE UNDIVIDED ROADWAY
WITH TRAVERSABLE SHOULDER
HALF OF ROADWAY CLOSED
MAINTAIN TWO-WAY TRAFFIC

POSTED SPEED LIMIT (MPH)	CHANNELIZATION DEVICES (DRUMS OR CONES)				
	SHOULDER TAPER LENGTH (L/3) (FT)	TRAVEL LANE SHIFT LENGTH (L/2) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	110	160	305	20	125
45-55	220	330	495	40	100
60-65	260	390	645	40	115










* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)
25-40	500 / 500 / 500
45-55	500 / 1000 / 1000
60-65	1000 / 1600 / 2600

NOTES

1. MA-R2-10a LOCATED AT C/2.

LEGEND

-  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

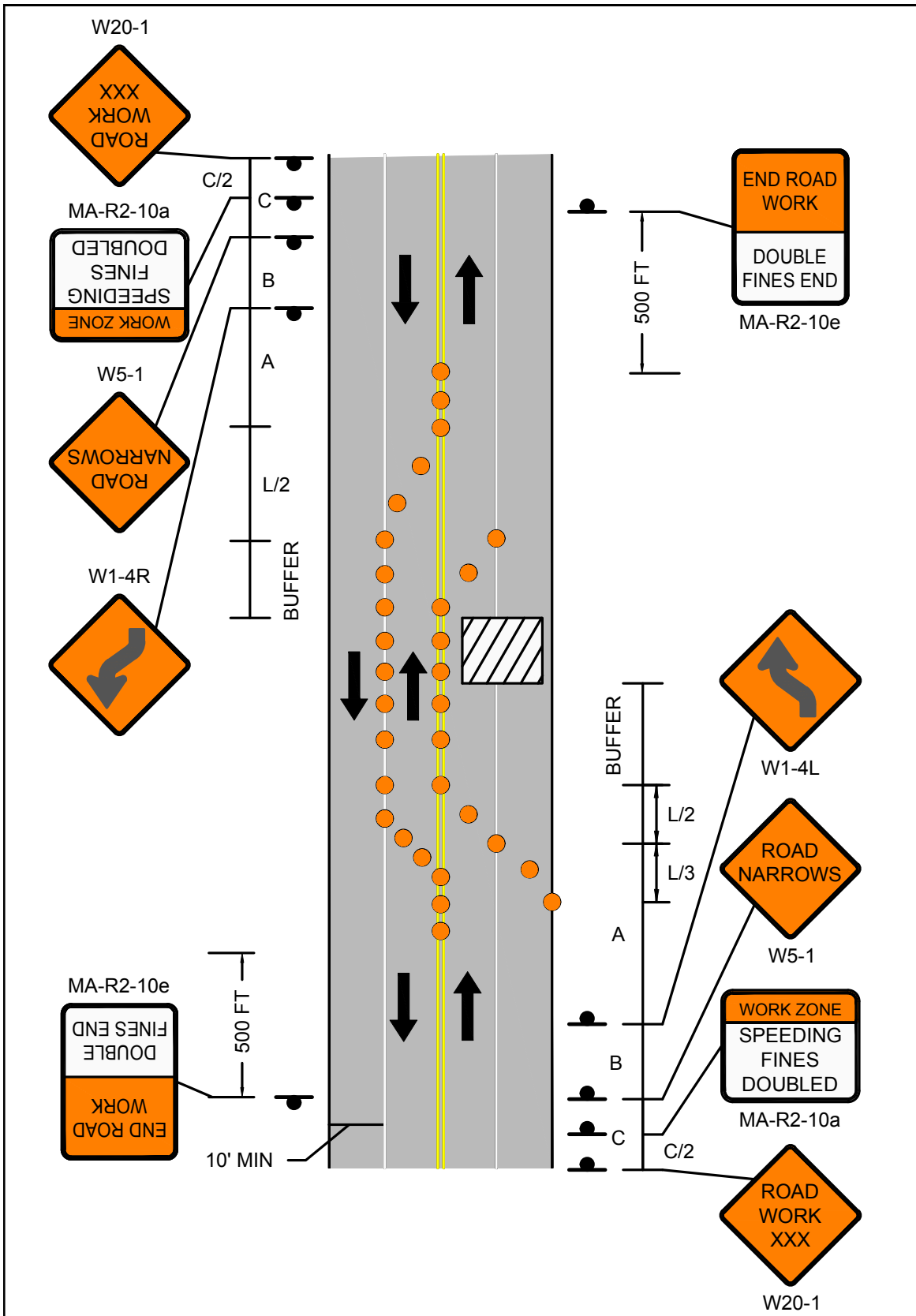


FIGURE 9
 STATIONARY OPERATIONS
 TWO LANE UNDIVIDED ROADWAY
 WITH TRAVERSABLE SHOULDER
 HALF OF ROADWAY CLOSED
 MAINTAIN TWO-WAY TRAFFIC





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Work Zone Safety
Standard Details
and Drawings

STATIONARY OPERATIONS
FOUR LANE UNDIVIDED ROADWAY
RIGHT LANE CLOSED

POSTED SPEED LIMIT (MPH)	CHANNELATION DEVICES (DRUMS OR CONES)				
	SHOULDER TAPER LENGTH (L/3) (FT)	TRAVEL LANE CLOSURE LENGTH (L) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	110	320	305	20	60
45-55	220	660	495	40	50
60-65	260	780	645	40	55










* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)
25-40	500 / 500 / 500
45-55	500 / 1000 / 1000
60-65	1000 / 1600 / 2600

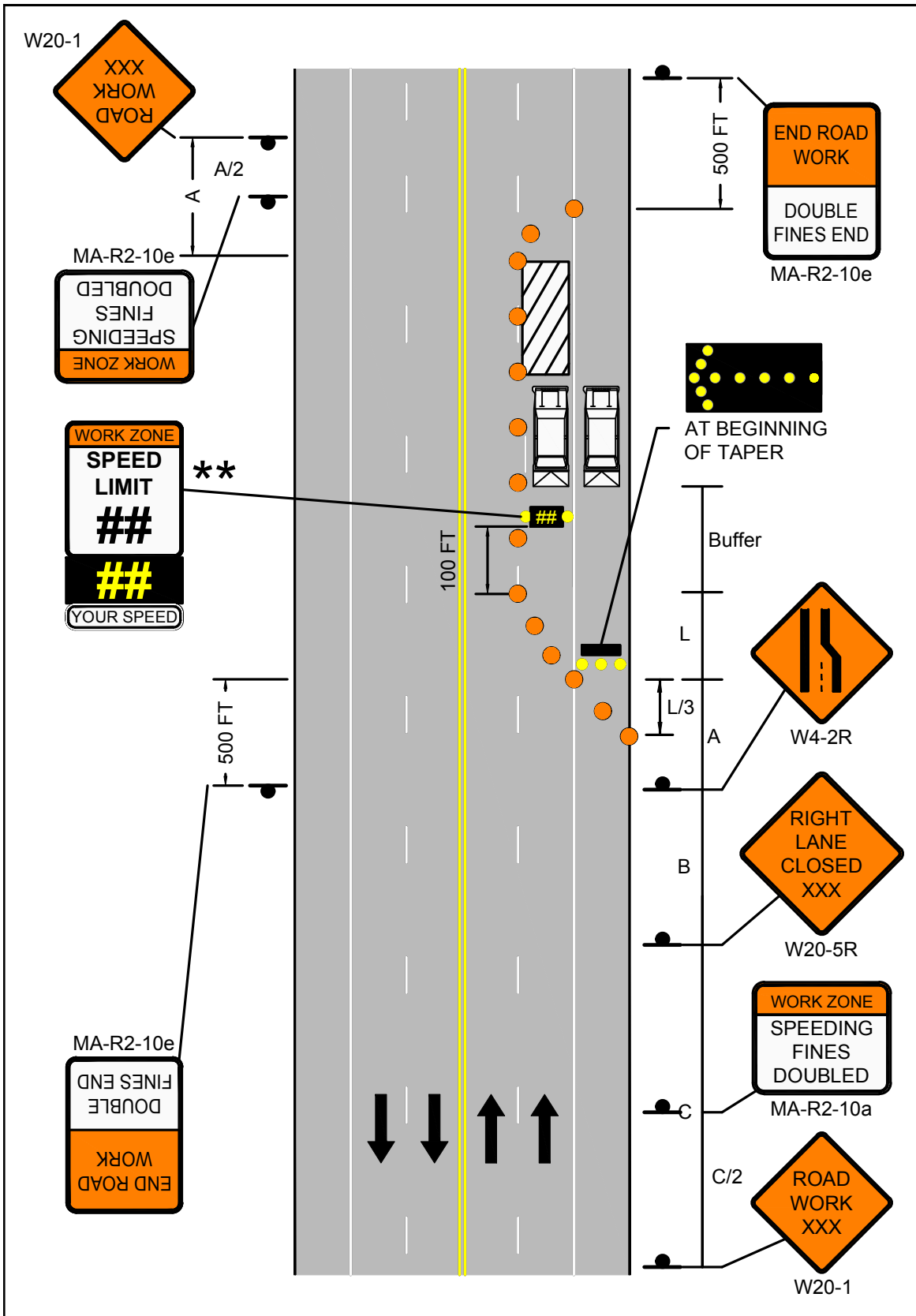
NOTES


1. MA-R2-10a LOCATED AT A/2 AND C/2.
2. **OPTIONAL AT THE ENGINEER'S DISCRETION.


LEGEND

-  WORK ZONE
-  CHANNELIZATION DEVICE
-  FLASHING ARROW BOARD
-  PORTABLE CHANGEABLE MESSAGE SIGN
-  TRUCK MOUNTED ATTENUATOR
-  RADAR SPEED FEEDBACK BOARD
-  POLICE DETAIL OR UNIFORMED FLAGGER
-  TEMPORARY PORTABLE RUMBLE STRIP
-  TYPE III BARRICADE

NOT TO SCALE



 <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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 MASSACHUSETTS DEPARTMENT OF TRANSPORTATION Highway Division PAGE 28	Work Zone Safety Standard Details and Drawings	STATIONARY OPERATIONS FOUR LANE UNDIVIDED ROADWAY LEFT LANE CLOSED
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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.

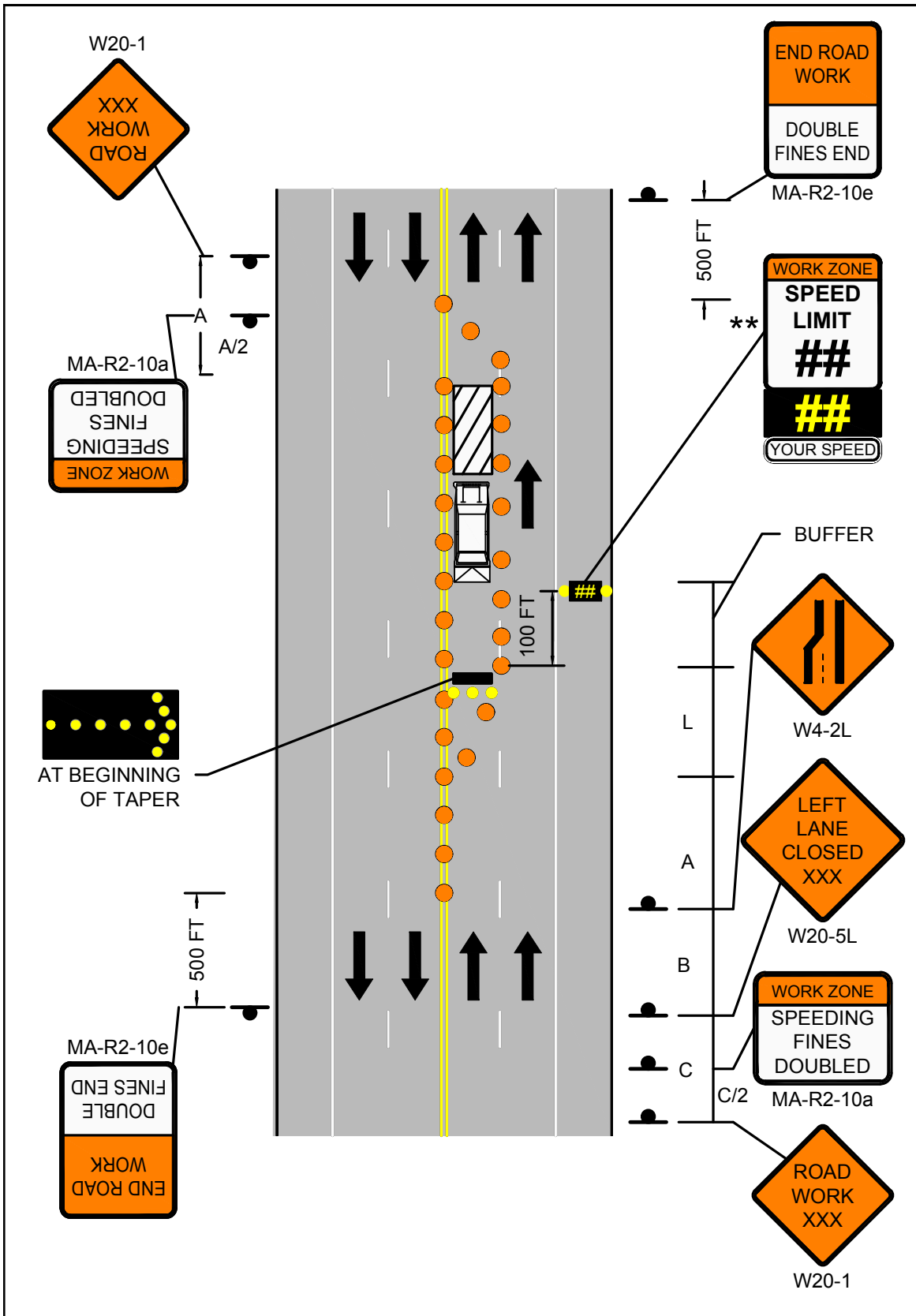
NOTES


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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 <p>Massachusetts Department of Transportation Highway Division</p> <p>PAGE 30</p>	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

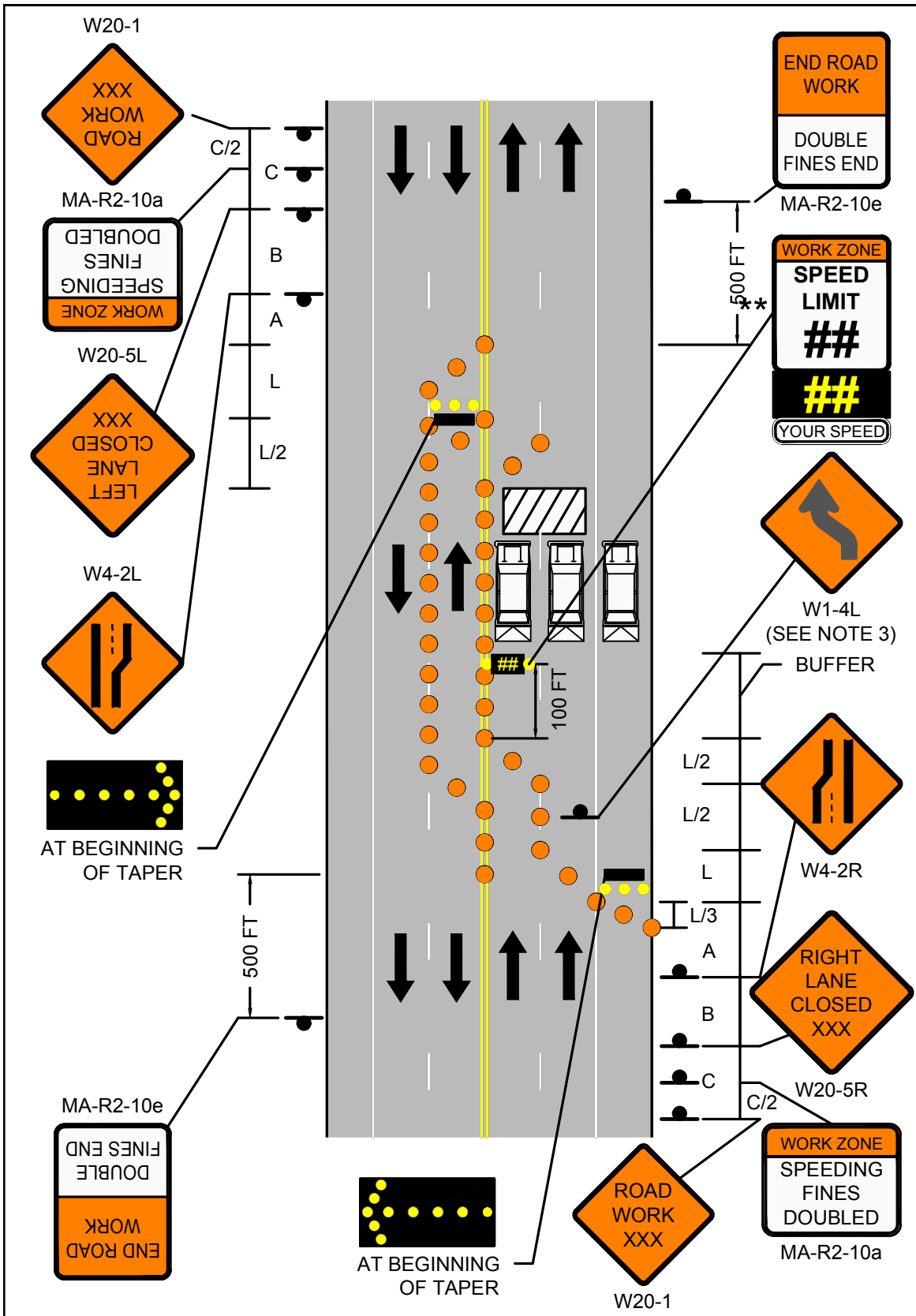


FIGURE 12
STATIONARY OPERATIONS
FOUR LANE UNDIVIDED ROADWAY
HALF OF ROADWAY CLOSED





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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

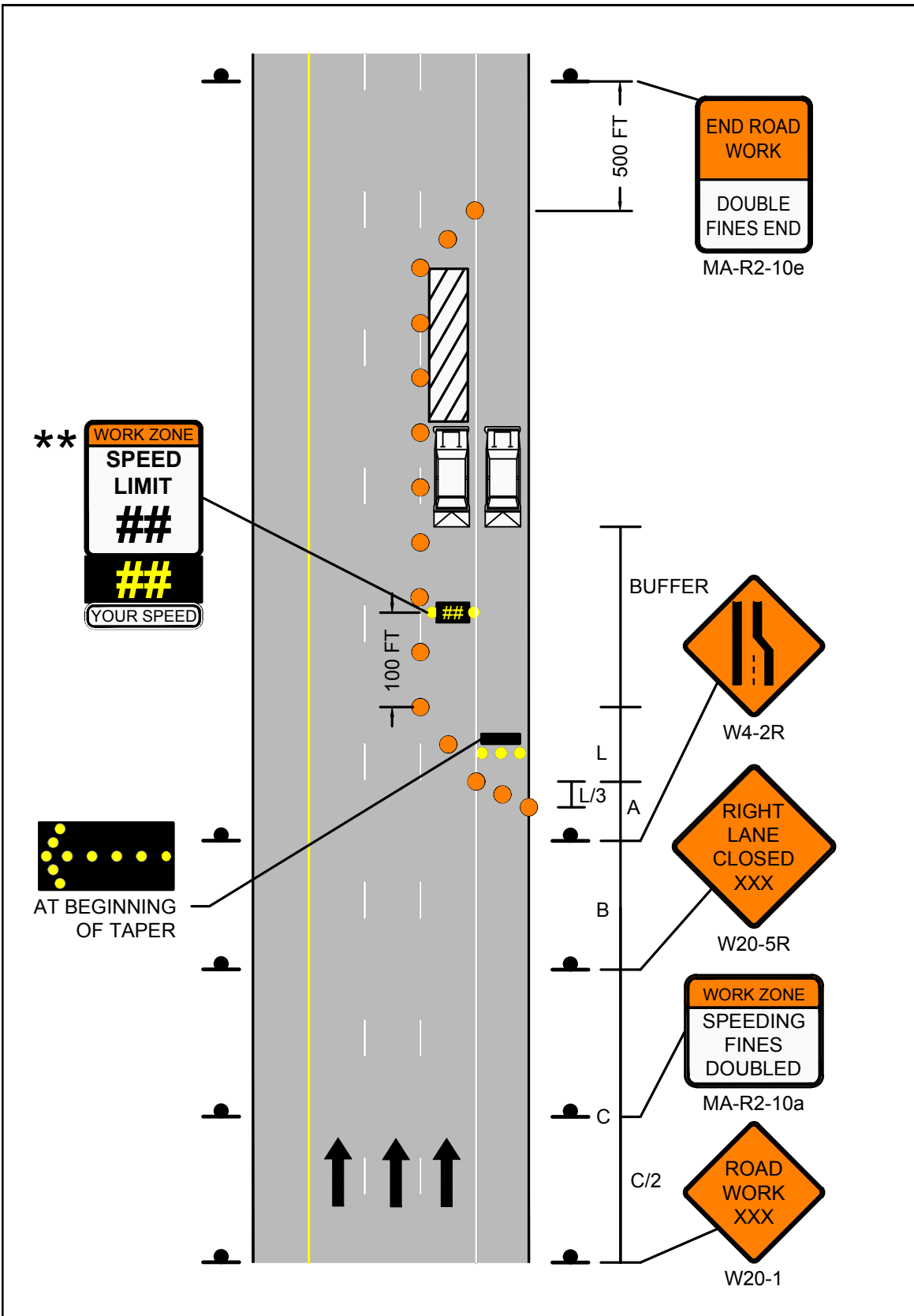
NOTES

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





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Work Zone Safety
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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

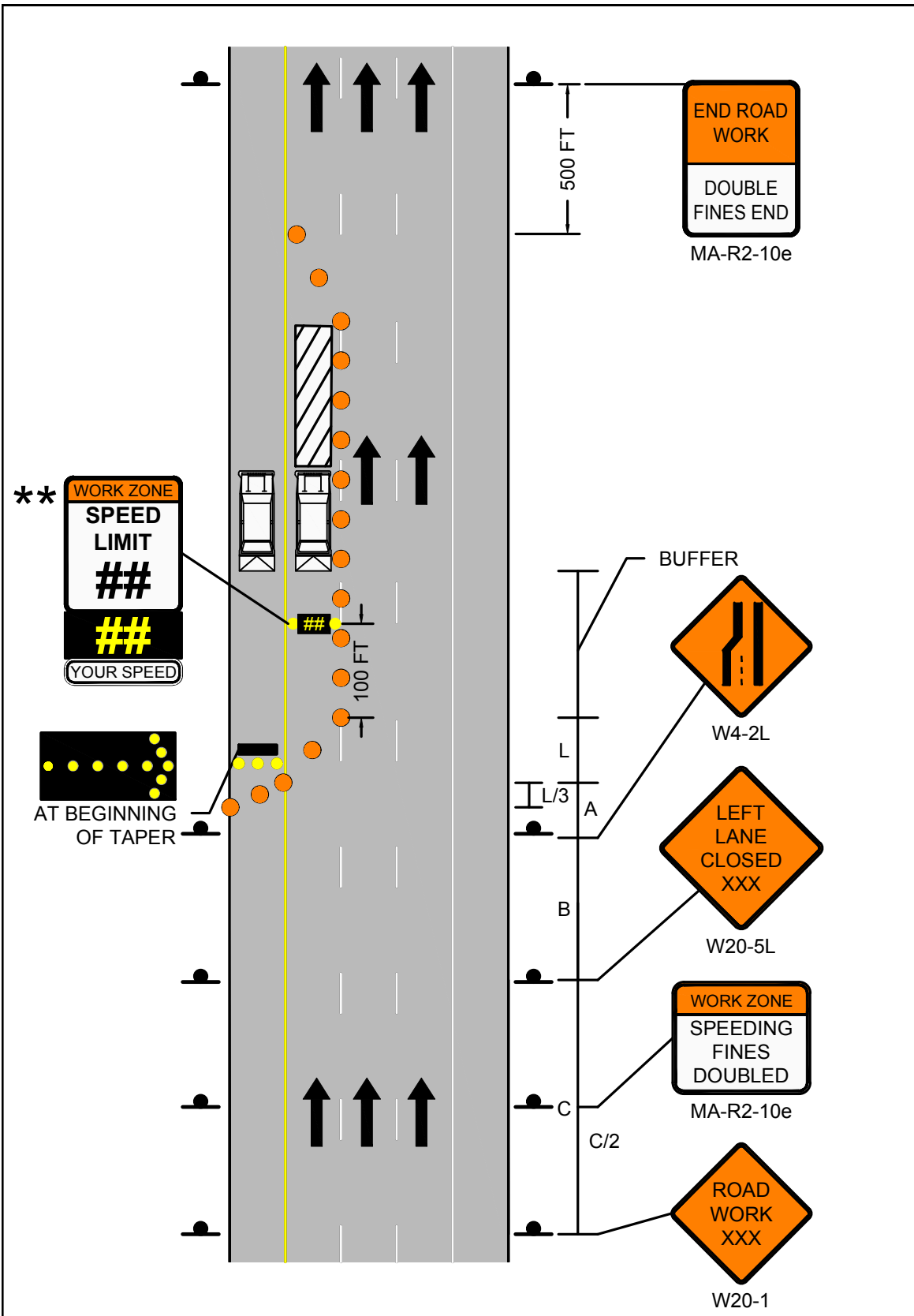
NOTES


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



 <p>Massachusetts Department of Transportation Highway Division</p> <p>PAGE 36</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY CENTER LANE OR RIGHT/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

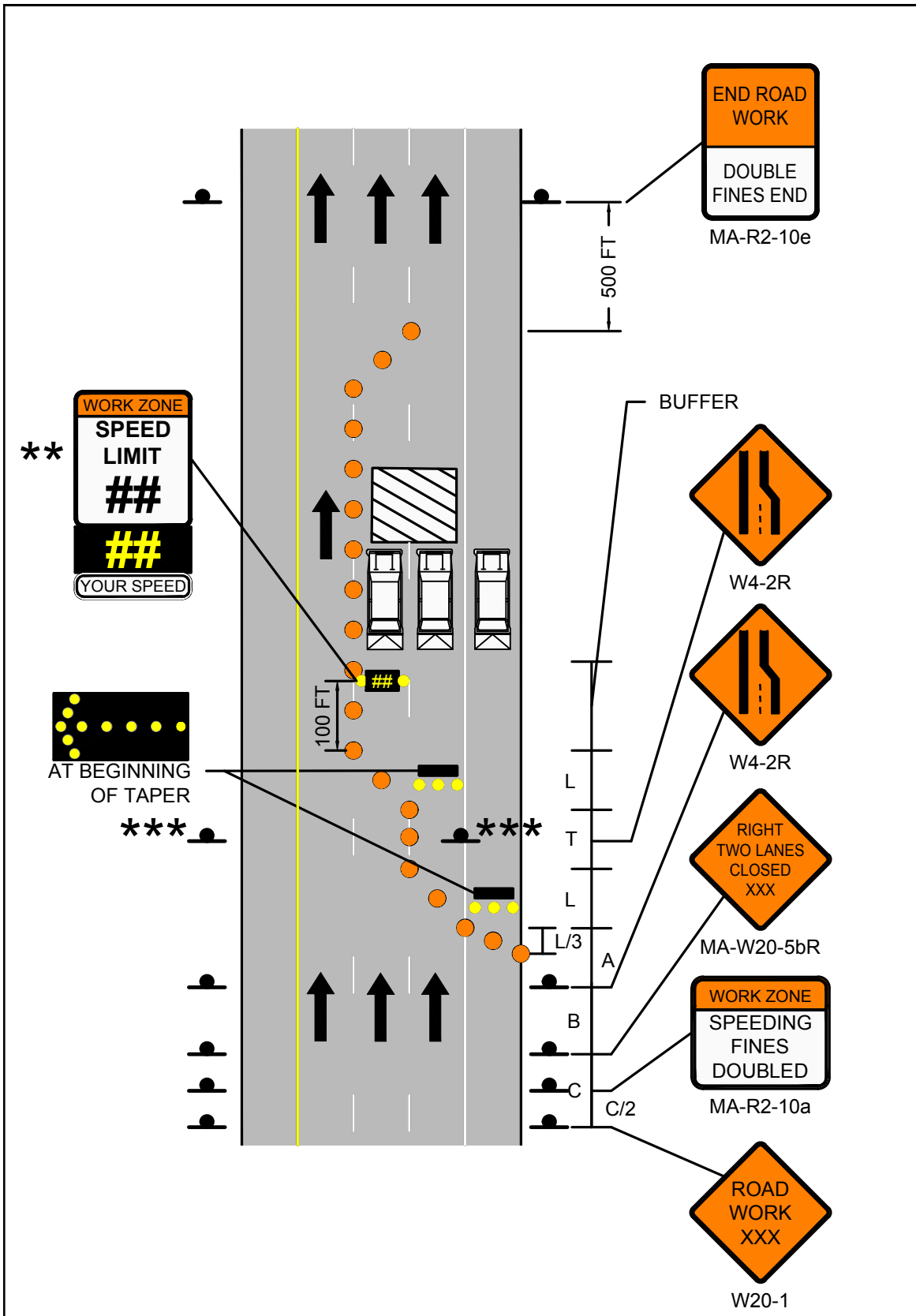



FIGURE 15
STATIONARY OPERATIONS
MULTILANE DIVIDED ROADWAY
CENTER LANE OR RIGHT/CENTER
LANES CLOSED



 PAGE 38	Work Zone Safety Standard Details and Drawings	STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY CENTER LANE OR LEFT/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

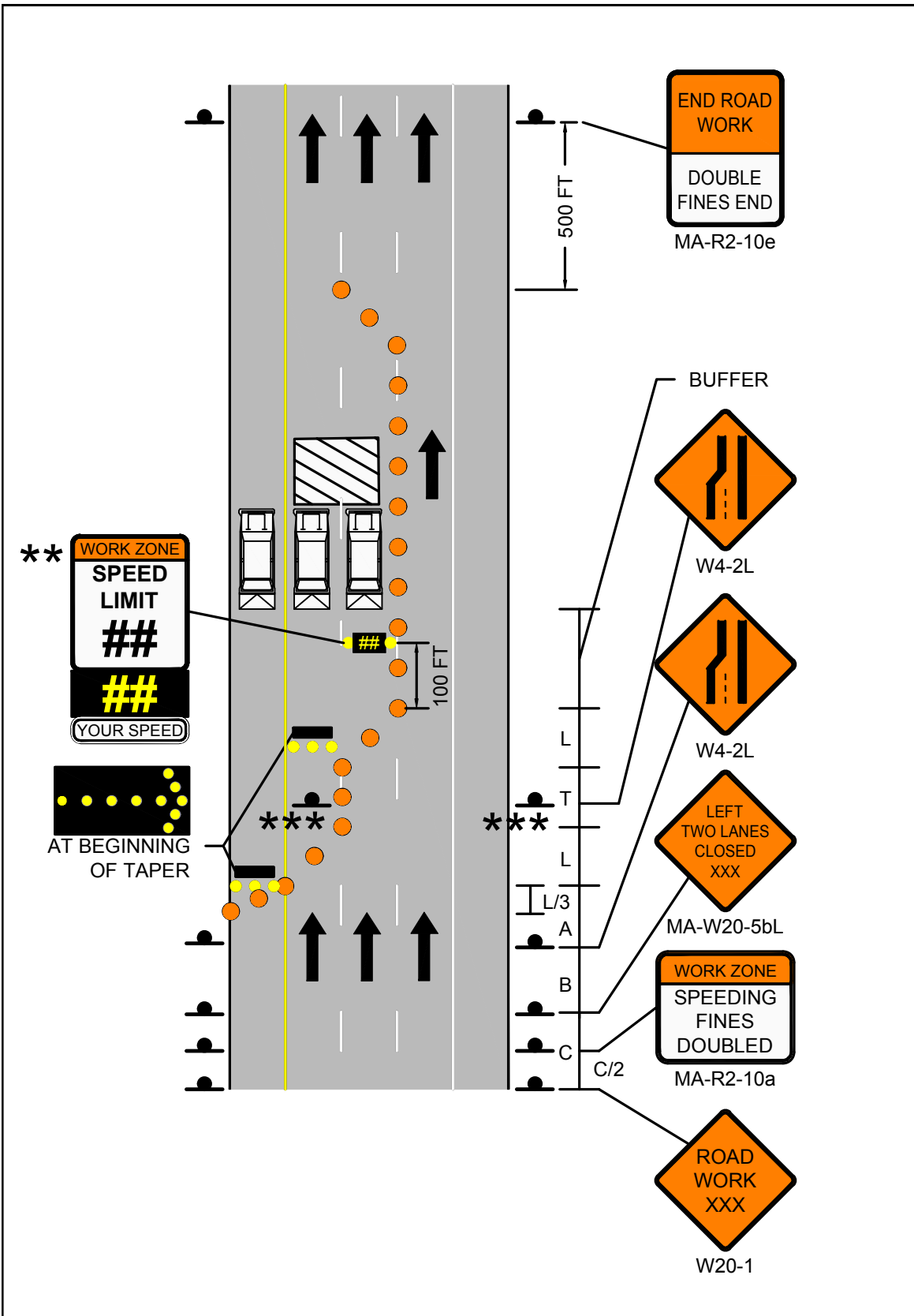
NOTES


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>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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Work Zone Safety
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and Drawings

STATIONARY OPERATIONS
MULTILANE DIVIDED ROADWAY
RIGHT SIDE OF OFF RAMP CLOSED










POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)	CHANNELIZATION DEVICES (DRUMS OR CONES)			
		TRAVEL LANE SHIFT LENGTH (L/2) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	500 / 500 / 500	160	305	20	45
45-55	500 / 1000 / 1000	330	495	40	35

* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

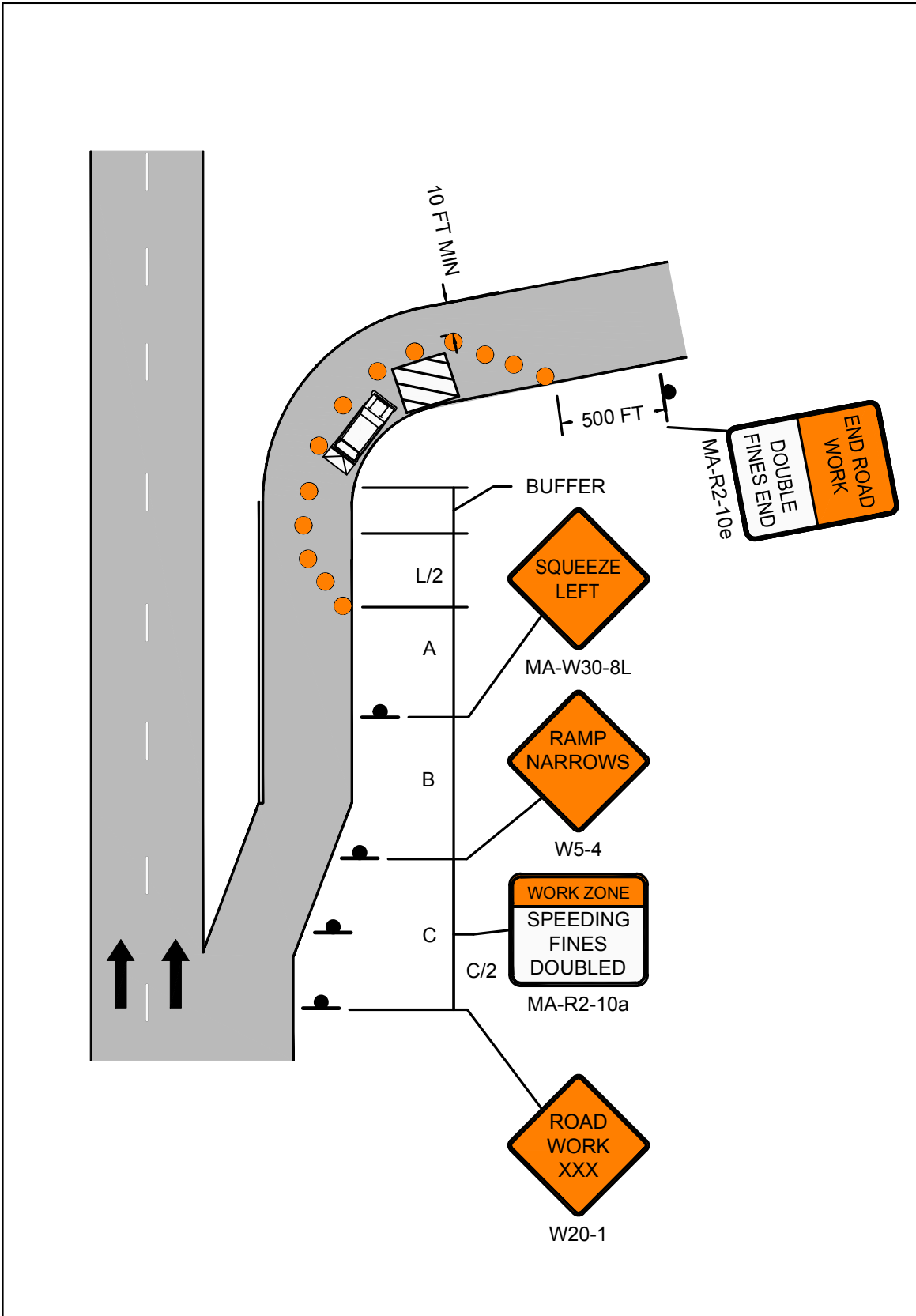
NOTES


1. MA-R2-10a LOCATED AT C/2.

LEGEND

-  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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Standard Details
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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.

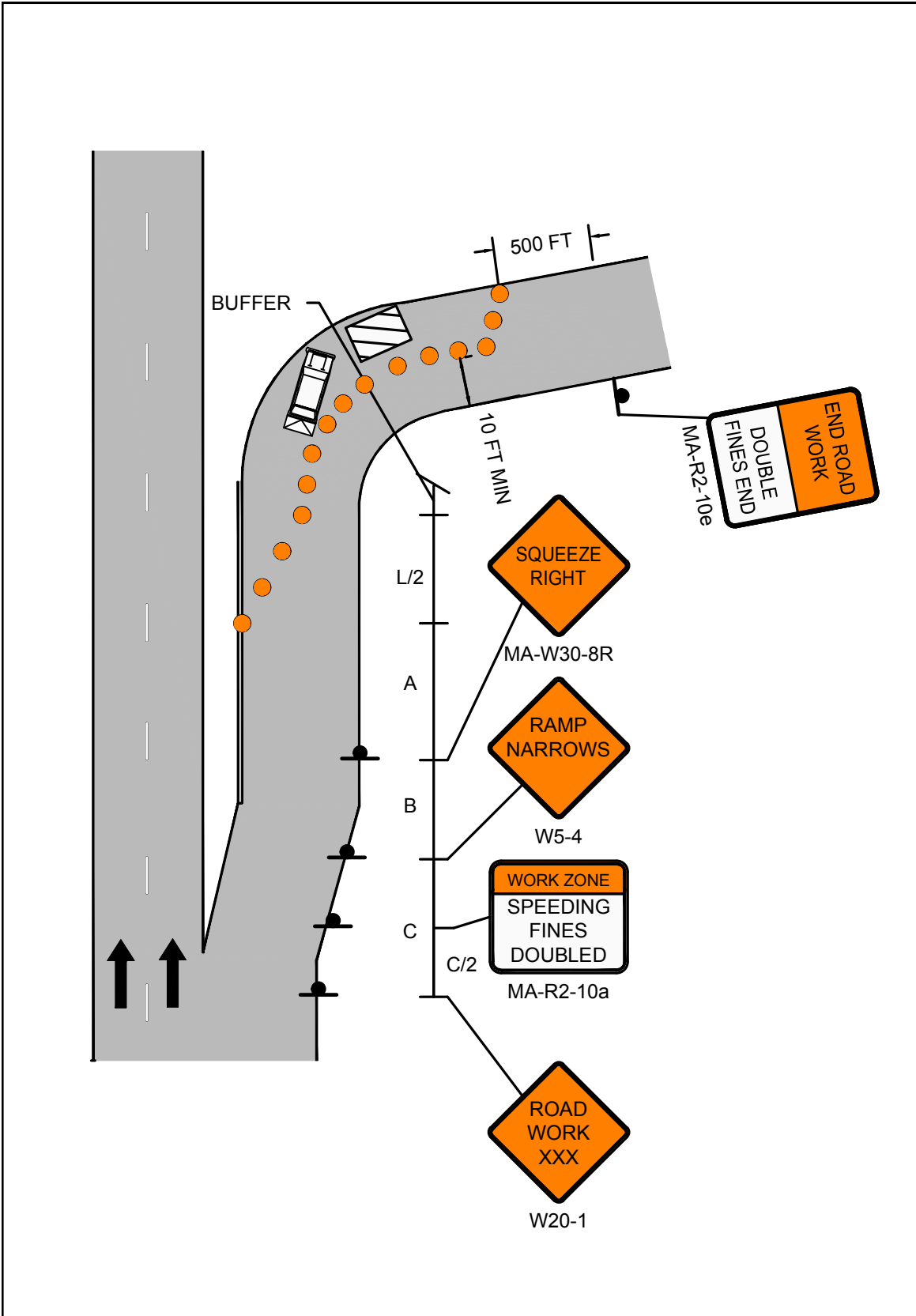
NOTES

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



	Work Zone Safety Standard Details and Drawings	FIGURE 18 STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY LEFT SIDE OF OFF RAMP CLOSED PAGE 43
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Work Zone Safety
Standard Details
and Drawings

STATIONARY OPERATIONS
MULTILANE DIVIDED ROADWAY
ROADWORK BEYOND ON RAMP

POSTED SPEED LIMIT (MPH)	CHANNELIZATION DEVICES (DRUMS OR CONES)				
	SHOULDER TAPER LENGTH (L/3) (FT)	TRAVEL LANE CLOSURE LENGTH (L) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	110	320	305	20	175
45-55	220	660	495	40	135
60-65	260	780	645	40	155










* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)
25-40	500 / 500 / 500
45-55	500 / 1000 / 1000
60-65	1000 / 1600 / 2600

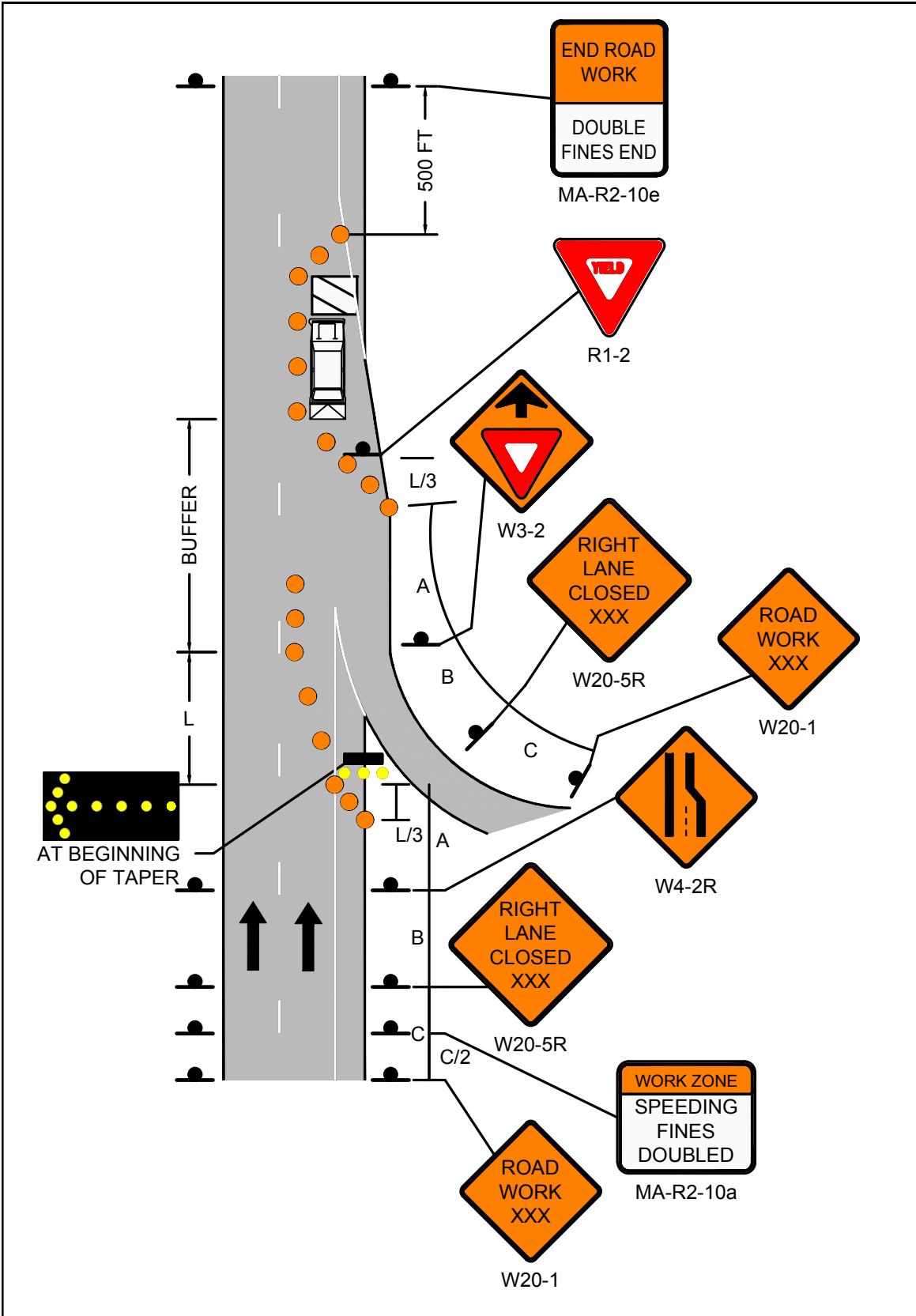
NOTES


1. MA-R2-10a LOCATED AT C/2.


LEGEND

-  WORK ZONE
-  CHANNELIZATION DEVICE
-  FLASHING ARROW BOARD
-  PORTABLE CHANGEABLE MESSAGE SIGN
-  TRUCK MOUNTED ATTENUATOR
-  RADAR SPEED FEEDBACK BOARD
-  POLICE DETAIL OR UNIFORMED FLAGGER
-  TEMPORARY PORTABLE RUMBLE STRIP
-  TYPE III BARRICADE

NOT TO SCALE



 <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>	Work Zone Safety Standard Details and Drawings	STATIONARY OPERATIONS MULTILANE DIVIDED ROADWAY ROADWORK BEYOND OFF RAMP
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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

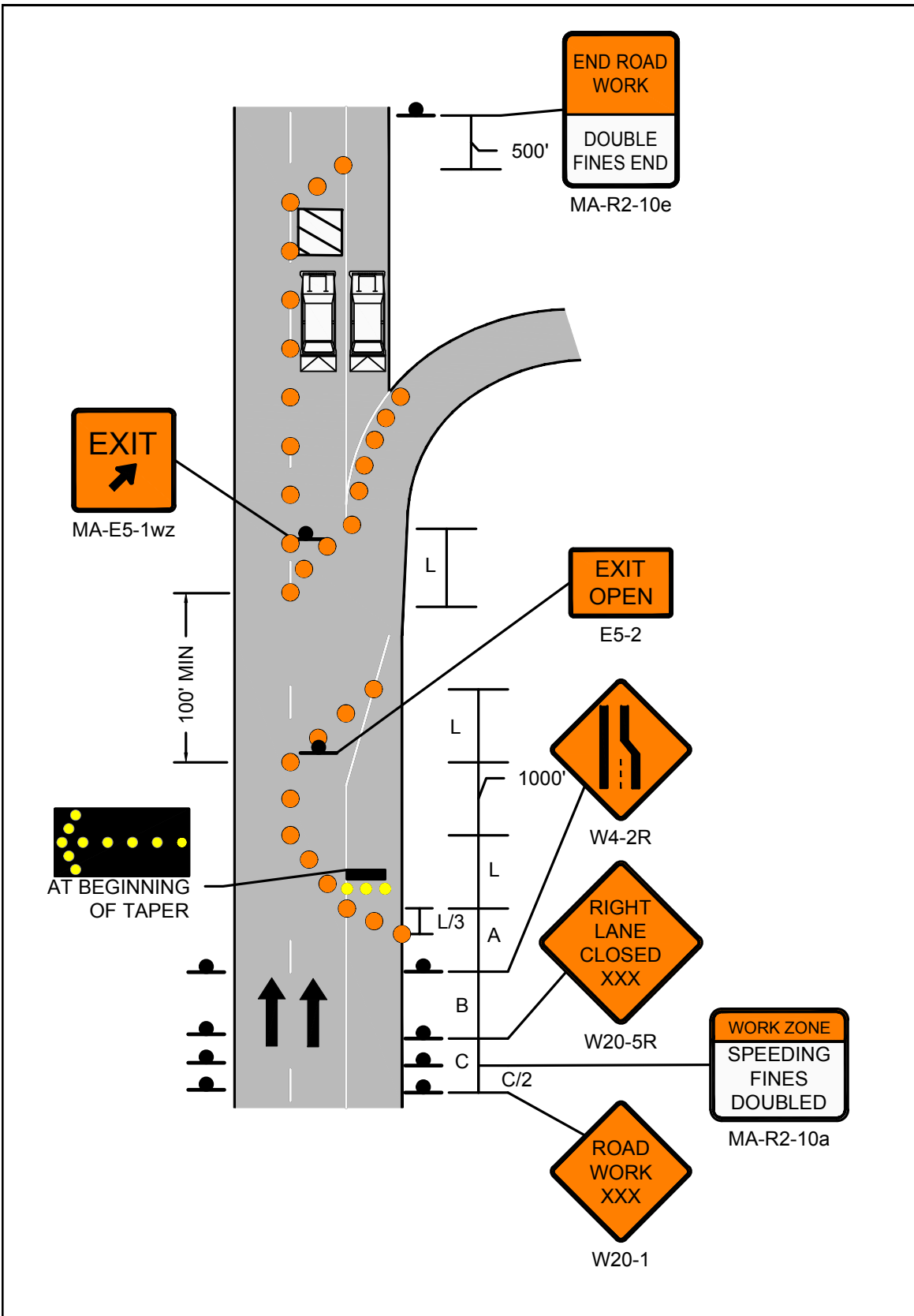
NOTES


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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Work Zone Safety
Standard Details
and Drawings










MULTILANE DIVIDED ROADWAY
TYPICAL RAMP CLOSURE

POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)	CHANNELIZATION DEVICES (DRUMS OR CONES)			
		SHOULDER TAPER LENGTH (L/3) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES
25-40	500 / 500 / 500	110	305	20	45
45-55	500 / 1000 / 1000	220	495	40	30
60-65	1000 / 1600 / 2600	260	645	40	35

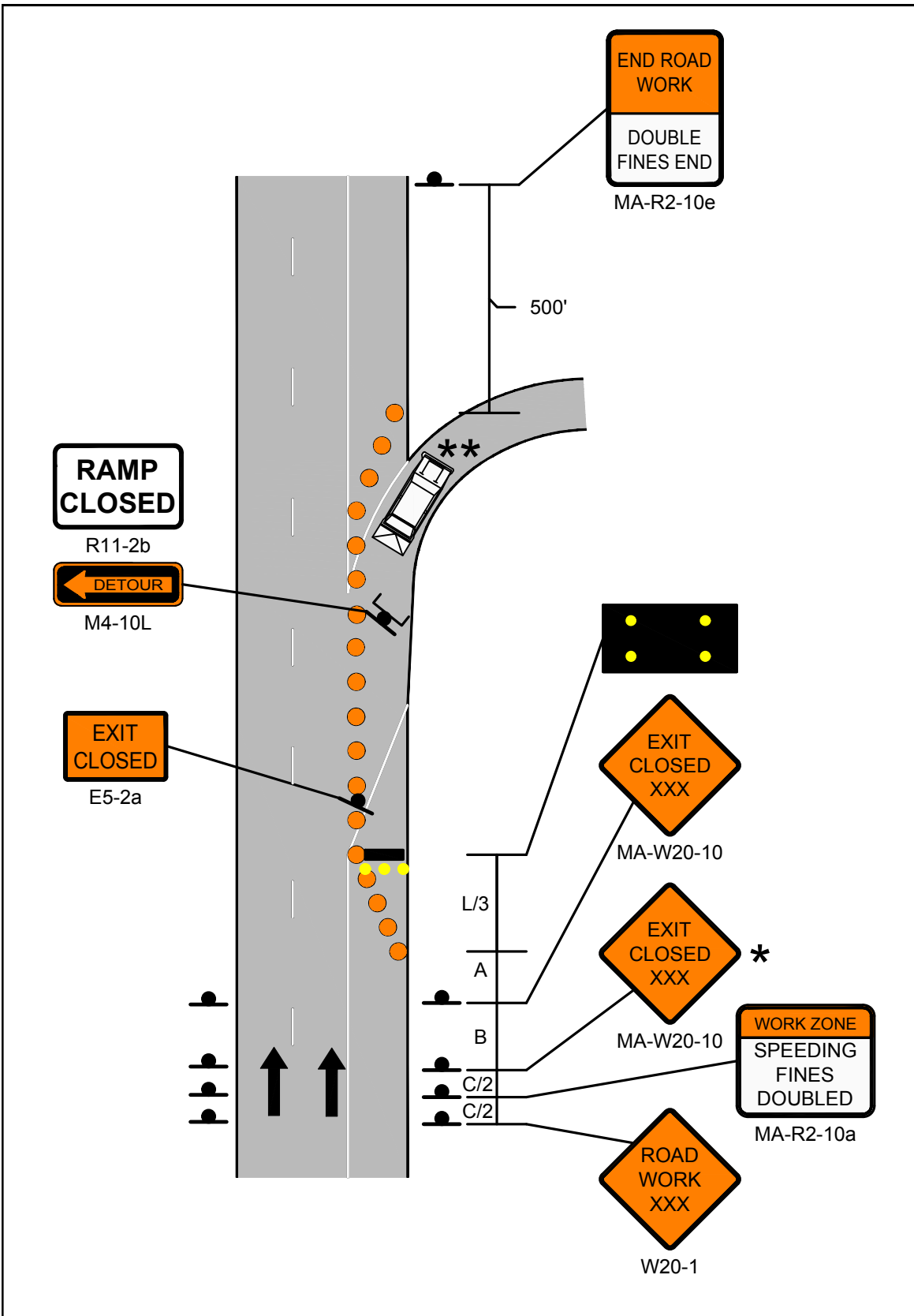
NOTES

1. MA-R2-10a LOCATED AT C/2.
2. * NOT REQUIRED IF RIGHT LANE IS CLOSED IN ADVANCE OF EXIT.
3. ** OPTIONAL AT ENGINEER'S DISCRETION.

LEGEND

-  WORK ZONE
-  CHANNELIZATION DEVICE
-  FLASHING ARROW BOARD
-  PORTABLE CHANGEABLE MESSAGE SIGN
-  TRUCK MOUNTED ATTENUATOR
-  RADAR SPEED FEEDBACK BOARD
-  POLICE DETAIL OR UNIFORMED FLAGGER
-  TEMPORARY PORTABLE RUMBLE STRIP
-  TYPE III BARRICADE

NOT TO SCALE





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Work Zone Safety
Standard Details
and Drawings










MULTILANE DIVIDED ROADWAY
TYPICAL CLOVERLEAF RAMP CLOSURE

POSTED SPEED LIMIT (MPH)	SPACING FOR ADVANCE WARNING SIGNS (FT) (A,B,C)	CHANNELIZATION DEVICES (DRUMS OR CONES)			
		SHOULDER TAPER LENGTH (L/3) (FT)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES
25-40	500 / 500 / 500	110	305	20	45
45-55	500 / 1000 / 1000	220	495	40	30
60-65	1000 / 1600 / 2600	260	645	40	35

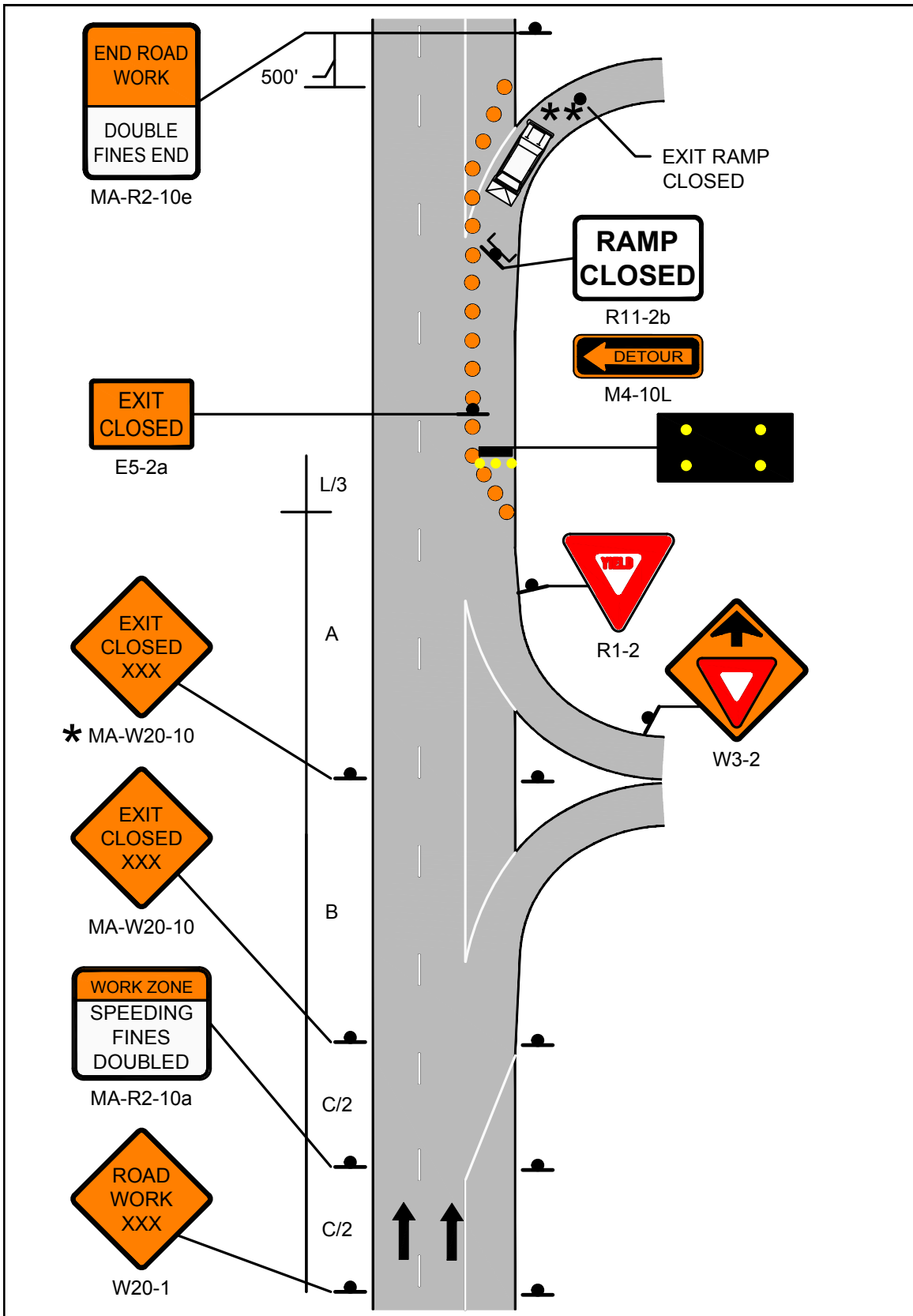
NOTES


1. MA-R2-10a LOCATED AT C/2.
2. * NOT REQUIRED IF RIGHT LANE IS CLOSED IN ADVANCE OF EXIT.
3. ** OPTIONAL AT ENGINEER'S DISCRETION.


LEGEND

-  WORK ZONE
-  CHANNELIZATION DEVICE
-  FLASHING ARROW BOARD
-  PORTABLE CHANGEABLE MESSAGE SIGN
-  TRUCK MOUNTED ATTENUATOR
-  RADAR SPEED FEEDBACK BOARD
-  POLICE DETAIL OR UNIFORMED FLAGGER
-  TEMPORARY PORTABLE RUMBLE STRIP
-  TYPE III BARRICADE

NOT TO SCALE



 <p>Massachusetts Department of Transportation Highway Division</p> <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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 <p>Massachusetts Department of Transportation Highway Division</p> <p>PAGE 52</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>MULTILANE DIVIDED ROADWAY TYPICAL RAMP CLOSURE ADVANCE SIGNING</p>
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
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

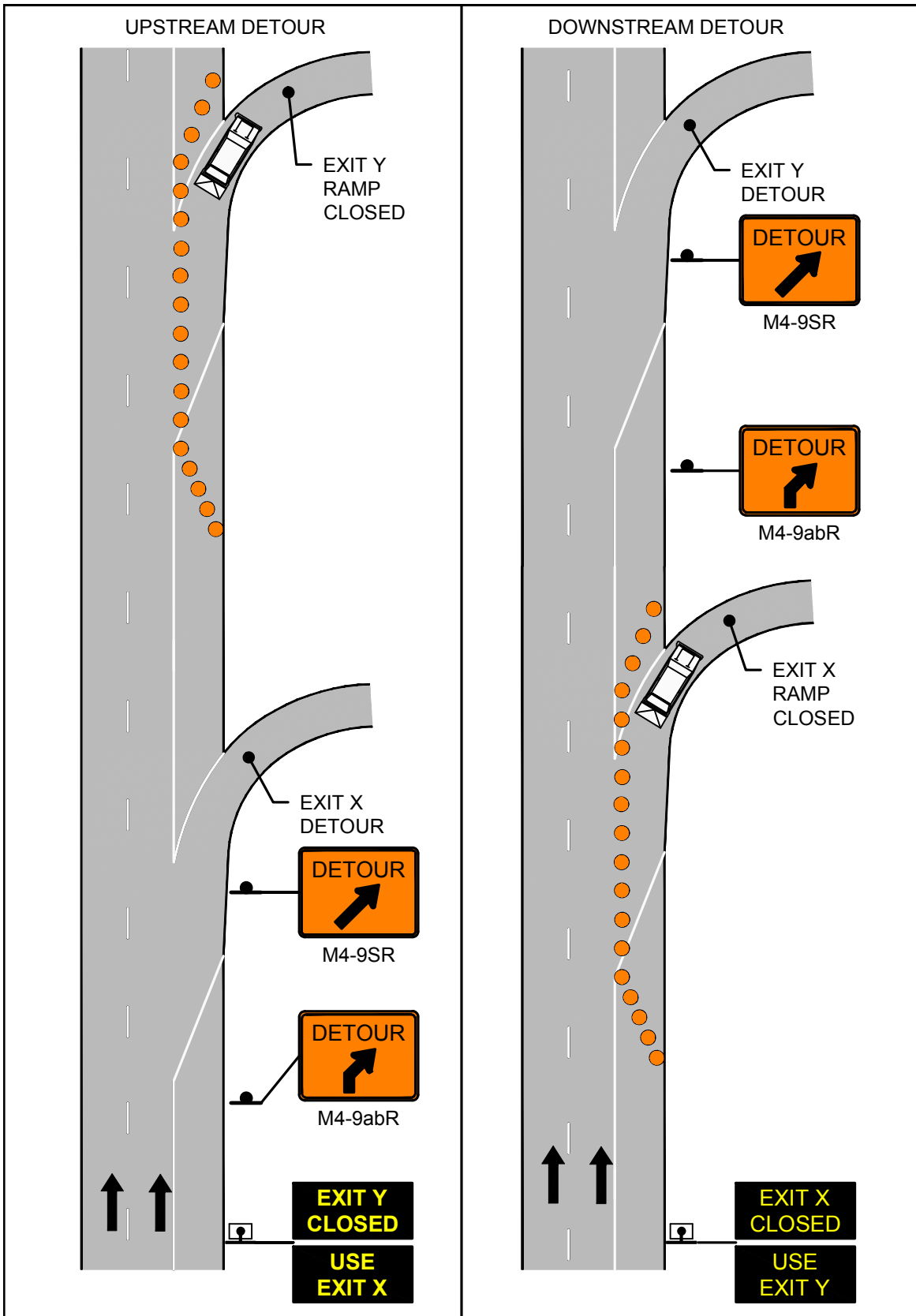


FIGURE 23
MULTILANE DIVIDED ROADWAY
TYPICAL RAMP CLOSURE
ADVANCE SIGNING



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

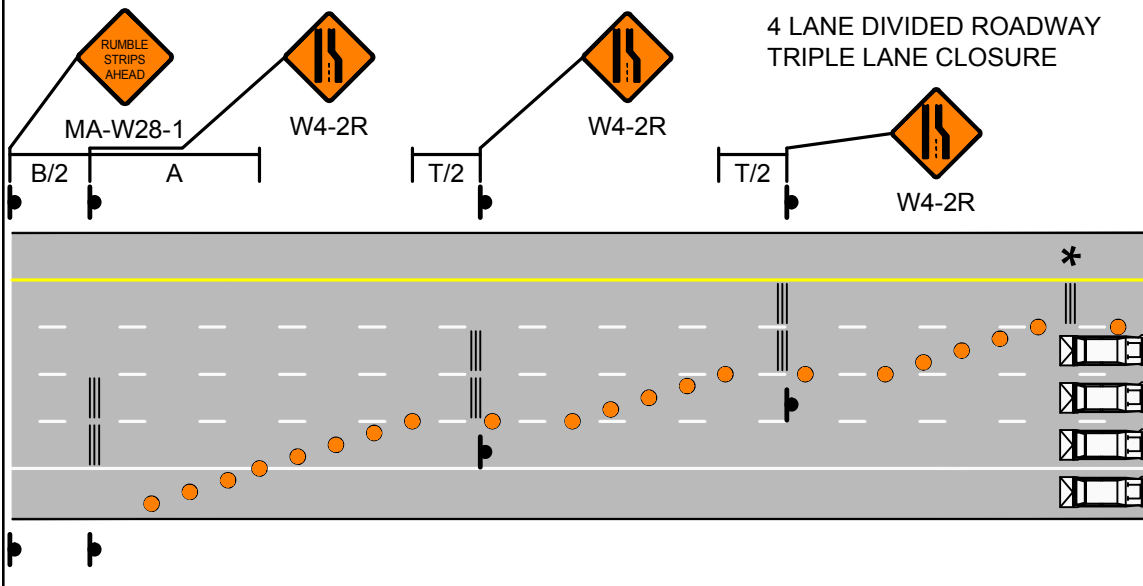
NOTES

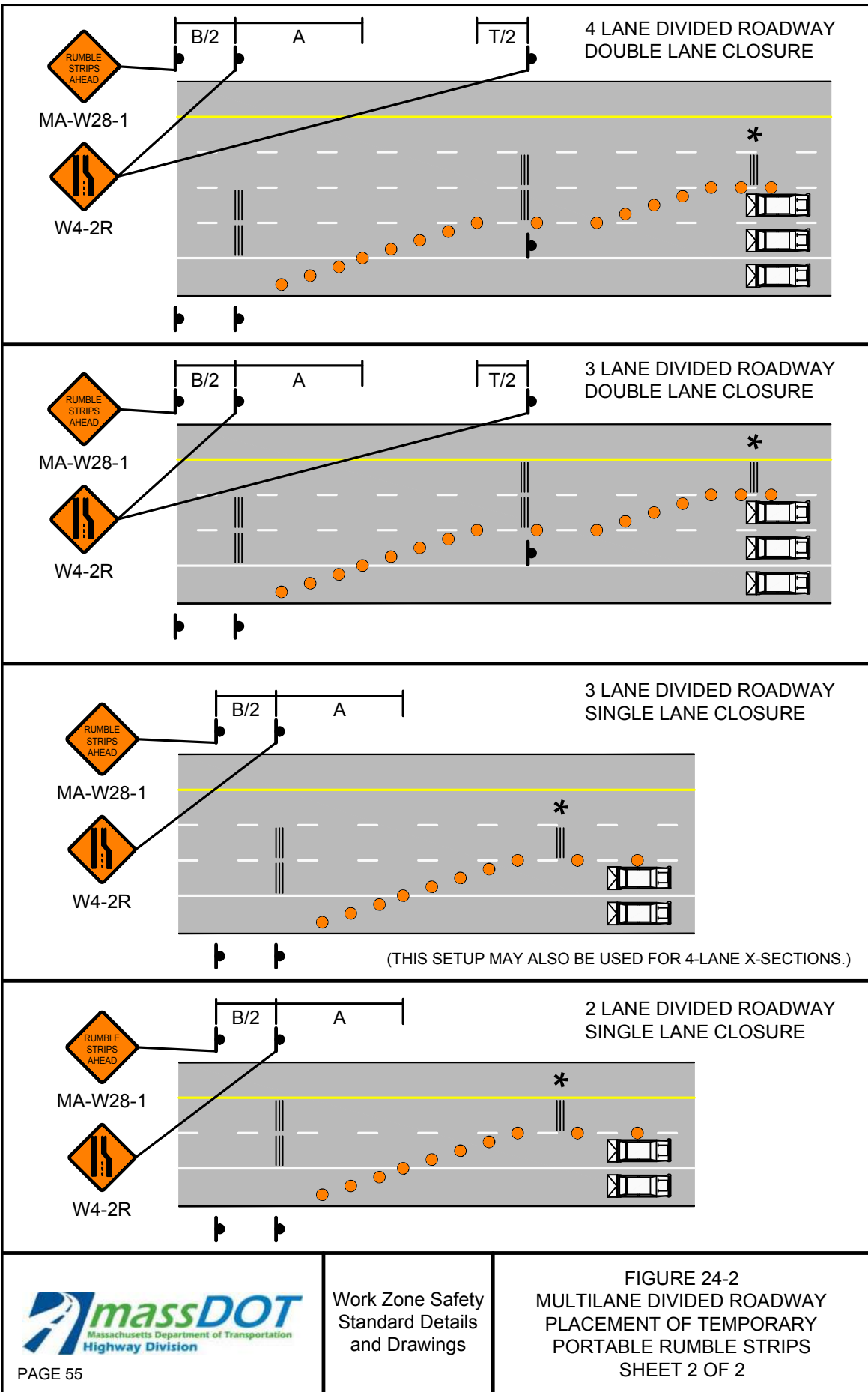
1. THE INTENTION OF THESE DETAILS IS ONLY TO DEPICT THE PLACEMENT OF TEMPORARY PORTABLE RUMBLE STRIPS (TPRS) IN RELATIONSHIP TO THE TAPER AND THE BUFFER OF A SINGLE- OR MULTI-LANE CLOSURE. THE DEPICTION OF THE NUMBER AND SPACING OF ALL OTHER TRAFFIC CONTROL DEVICES IS NOT TO SCALE. REFER TO OTHER DETAILS 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

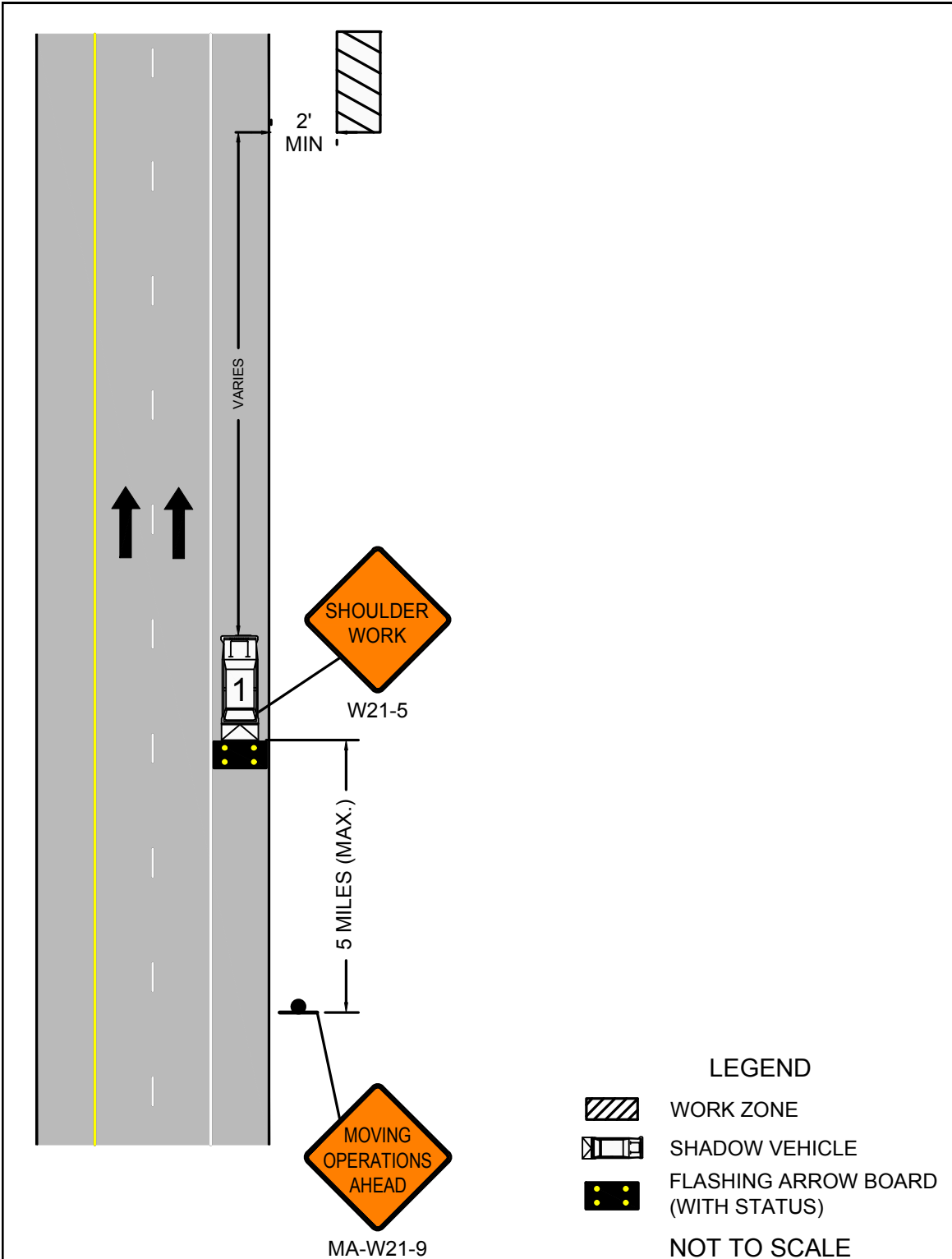




 <p>PAGE 56</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>NOTES FOR MOBILE OPERATIONS</p>
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Notes for Mobile Operations

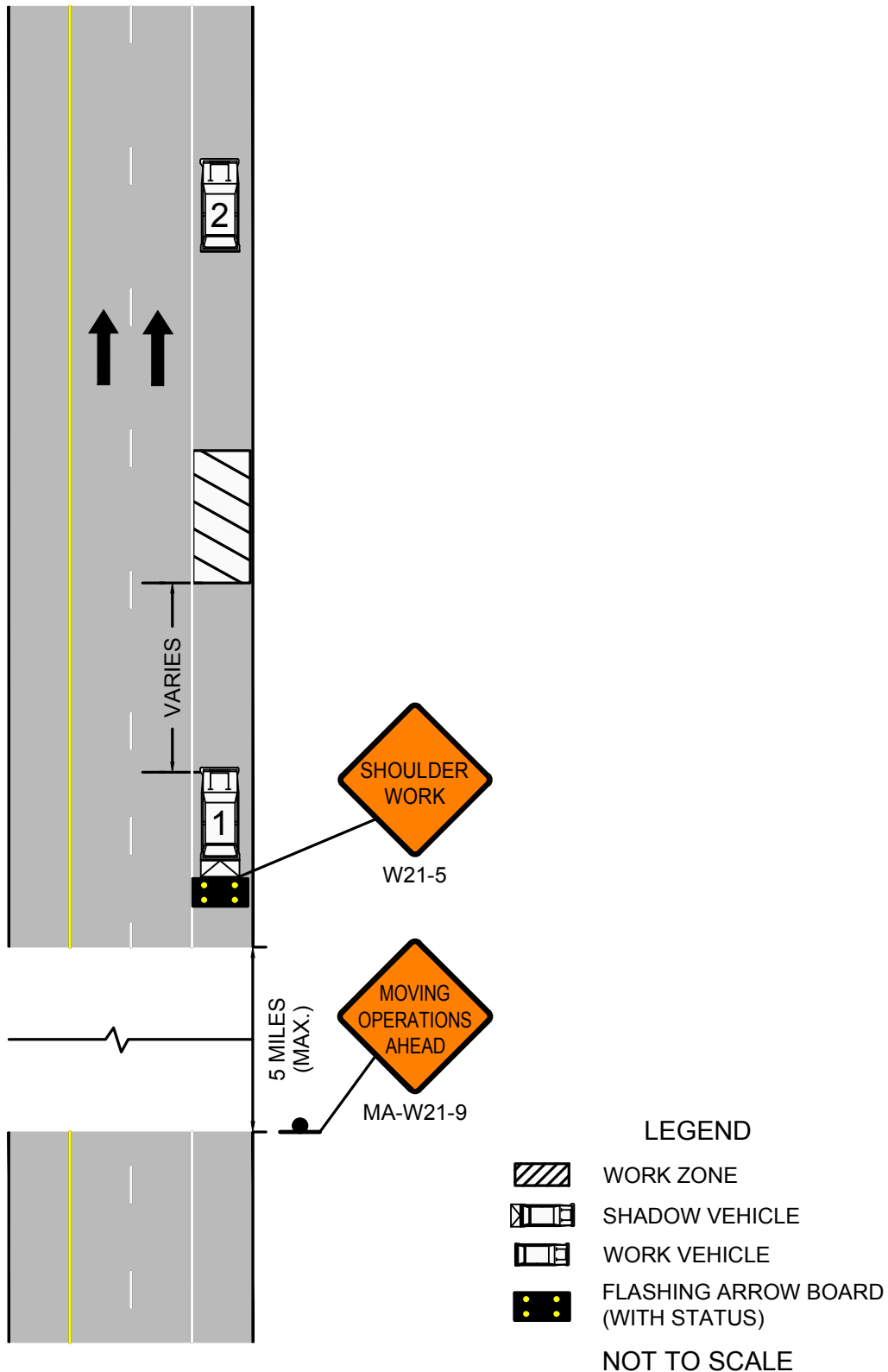
- Unless otherwise stated, these notes shall apply to all Mobile Operation setups.
 - Additional, setup-specific notes may be found on individual sheets.
1. The Supervisor shall travel the designated roadway prior to scheduling the work to ensure that sufficient and appropriate traffic control devices 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.

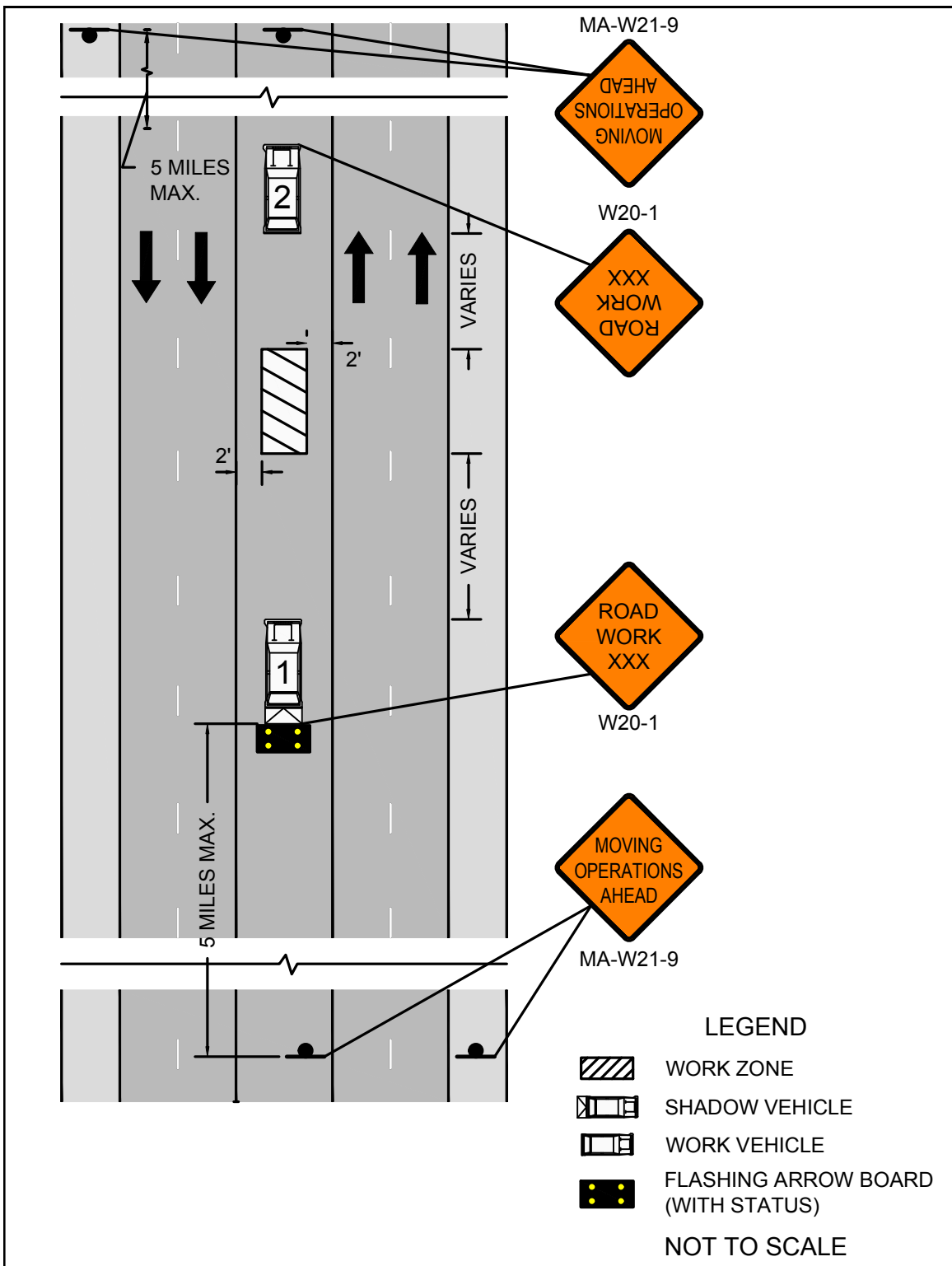


NOTES

1. IF THE WORK AREA IS SUFFICIENTLY AWAY FROM THE EDGE OF ROADWAY (20' MINIMUM) THEN SIGNS AND VEHICLES MAY NOT BE REQUIRED.





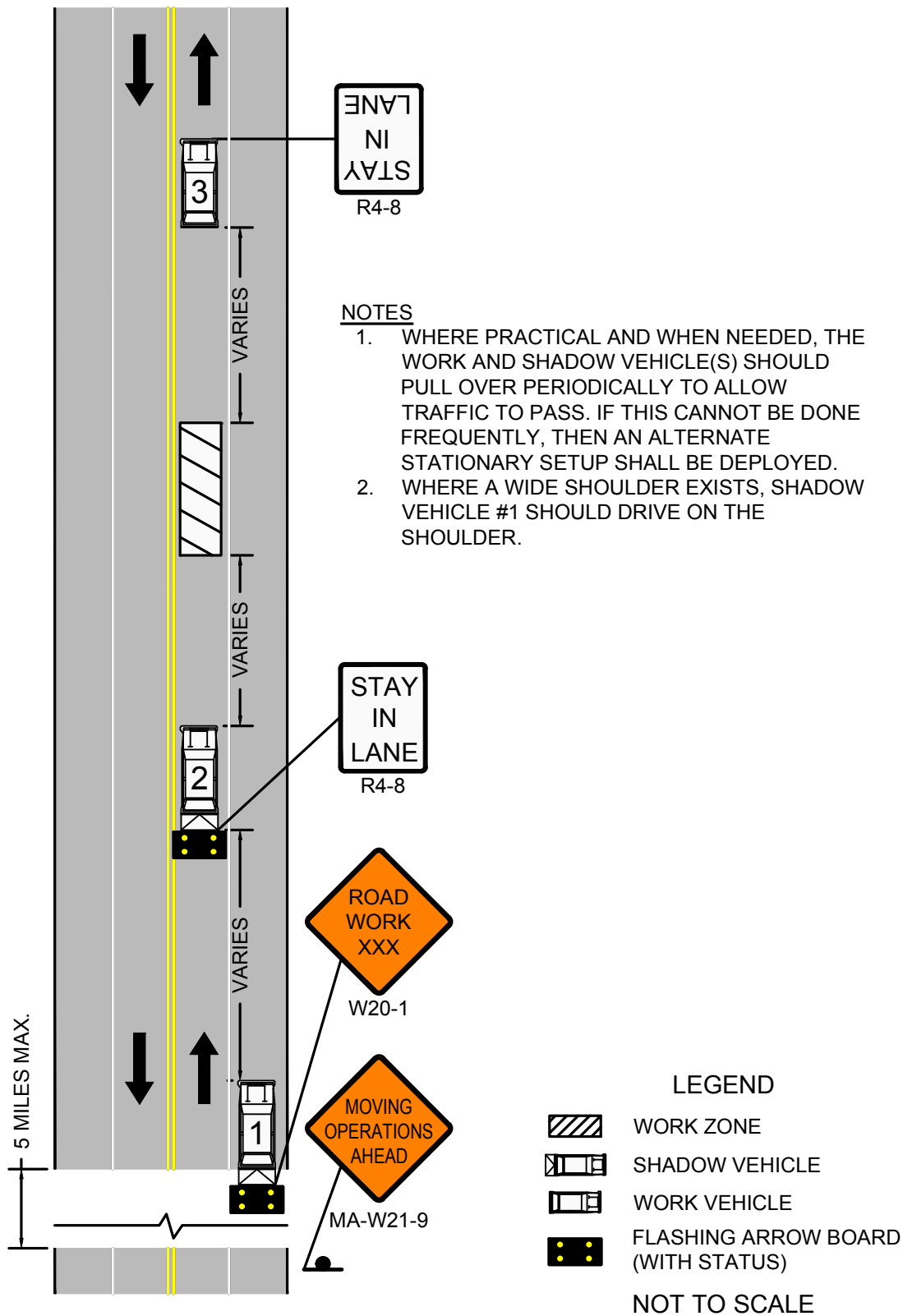


NOTES

1. IF THE 2' OFFSET CANNOT BE MAINTAINED, A SHORT-TERM STATIONARY SETUP SHOULD BE USED.



FIGURE 28
MOBILE OPERATIONS
UNDIVIDED TWO LANE ROADWAY
HALF OF ROADWAY CLOSED



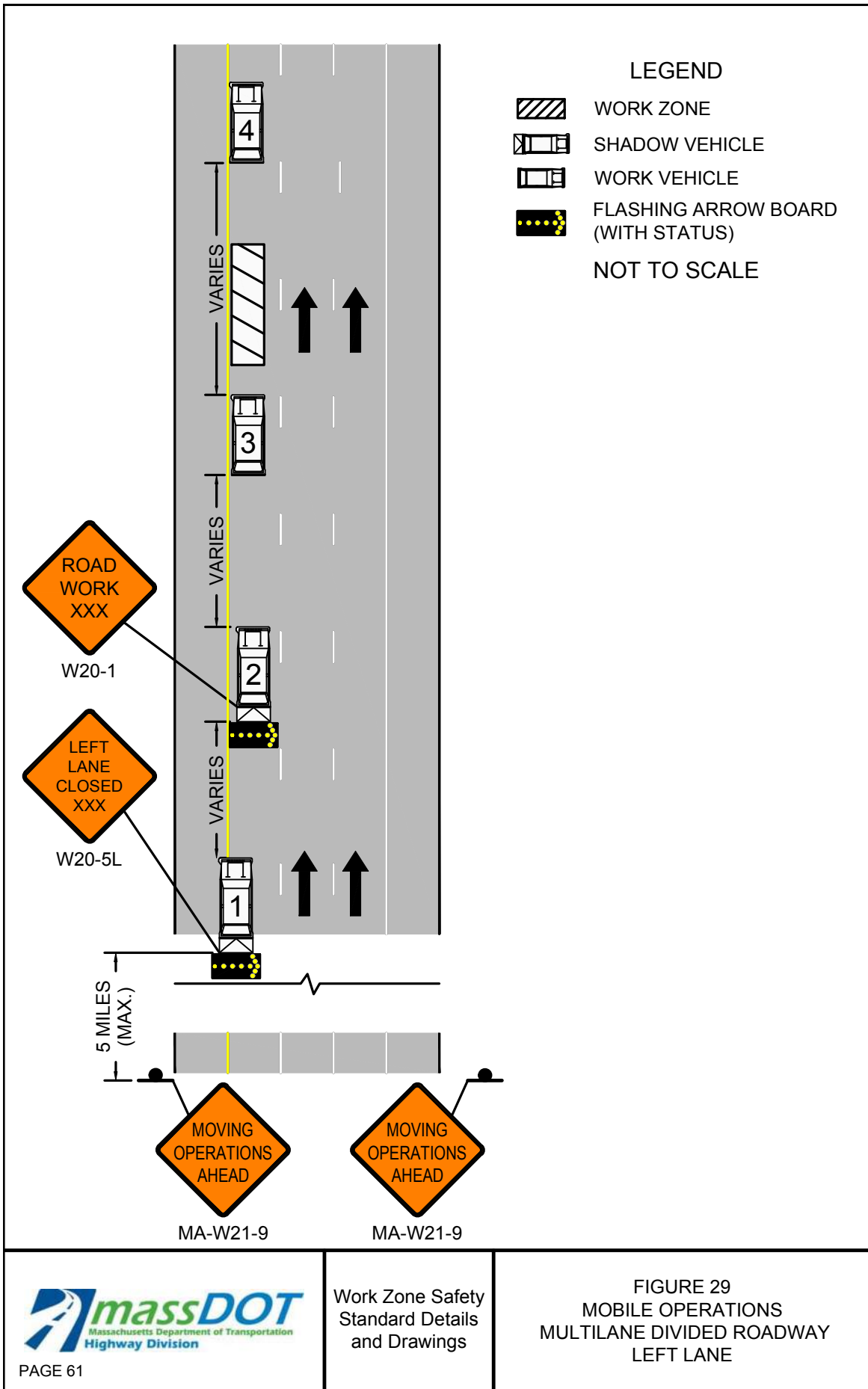
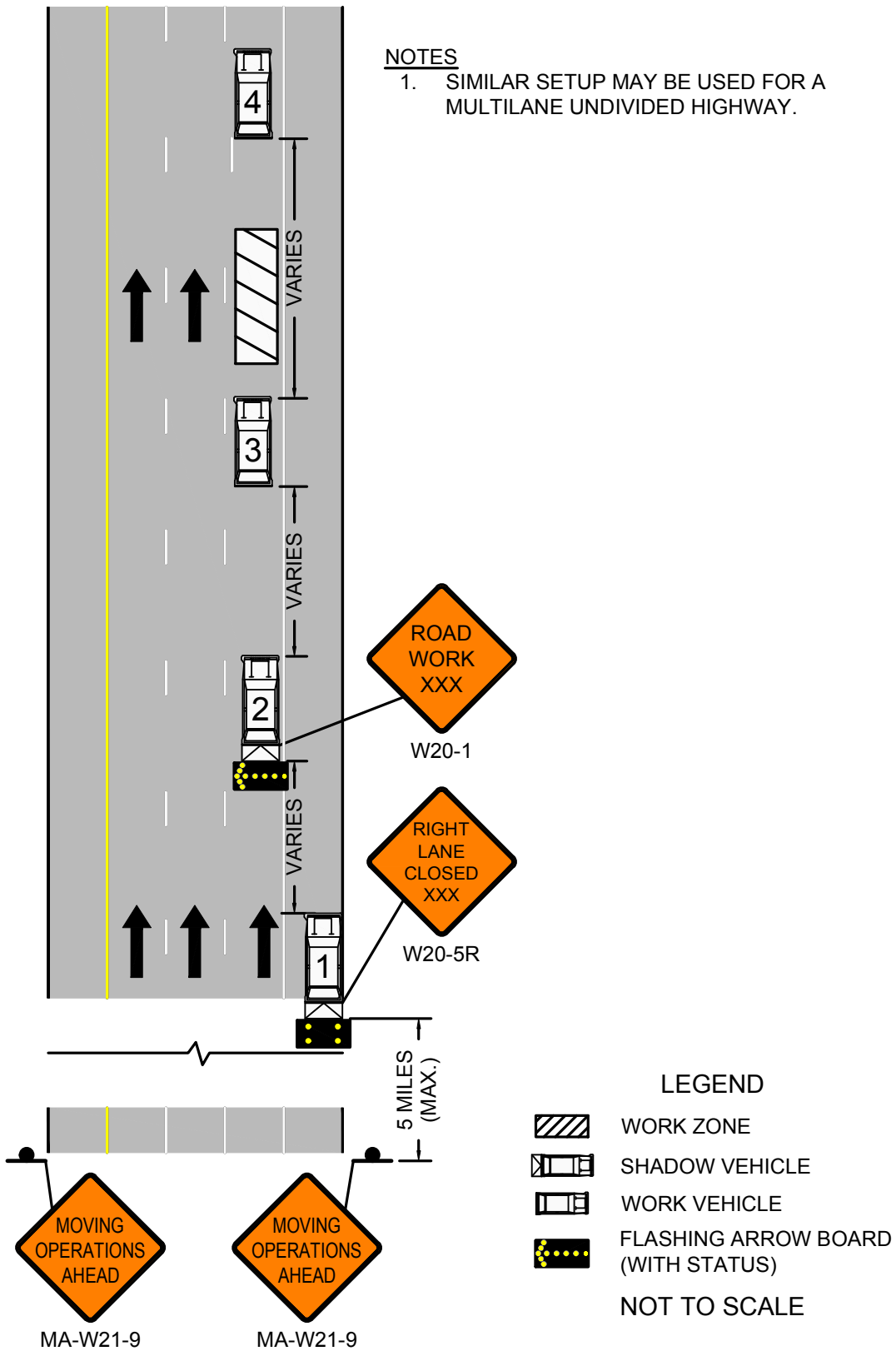
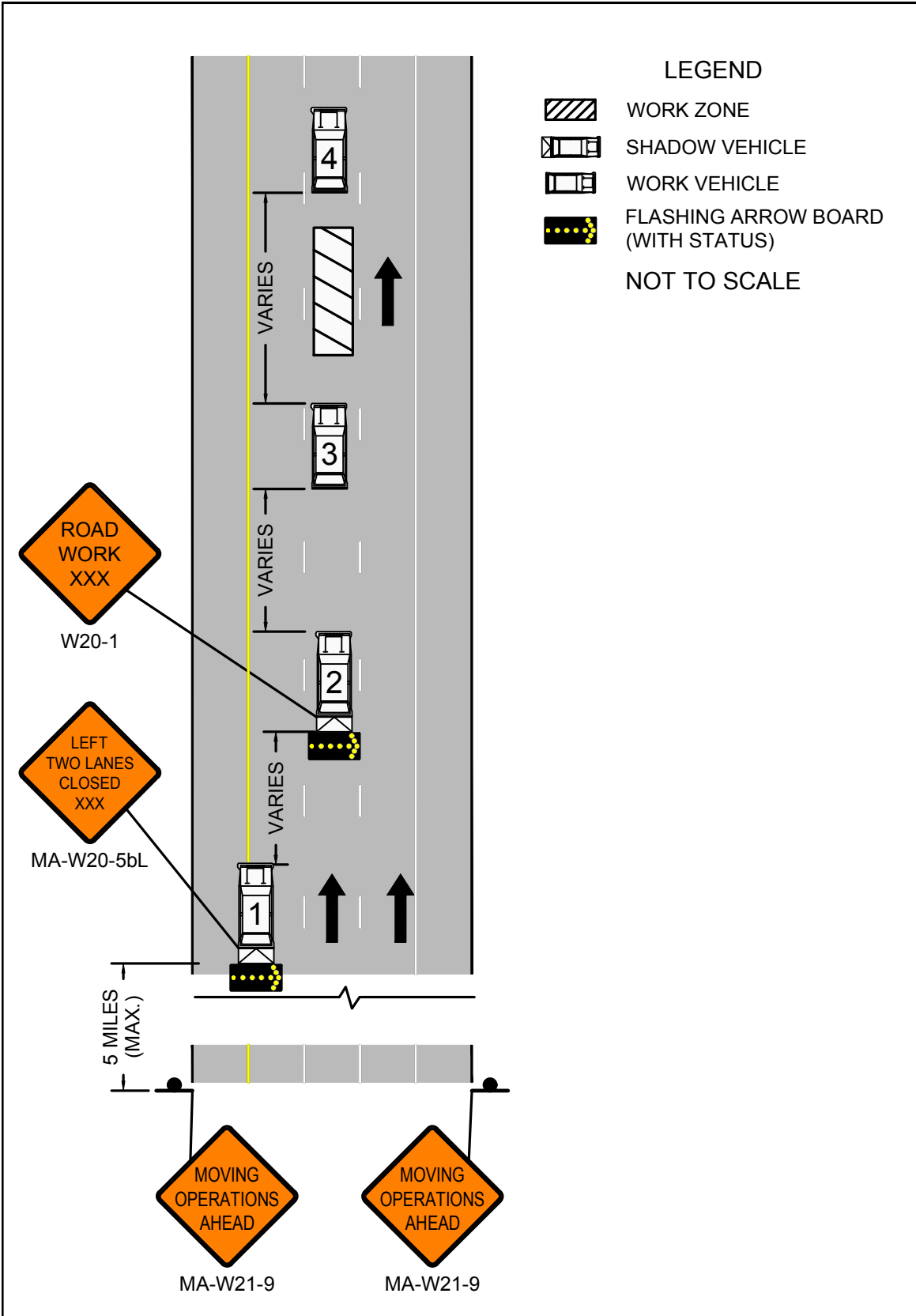
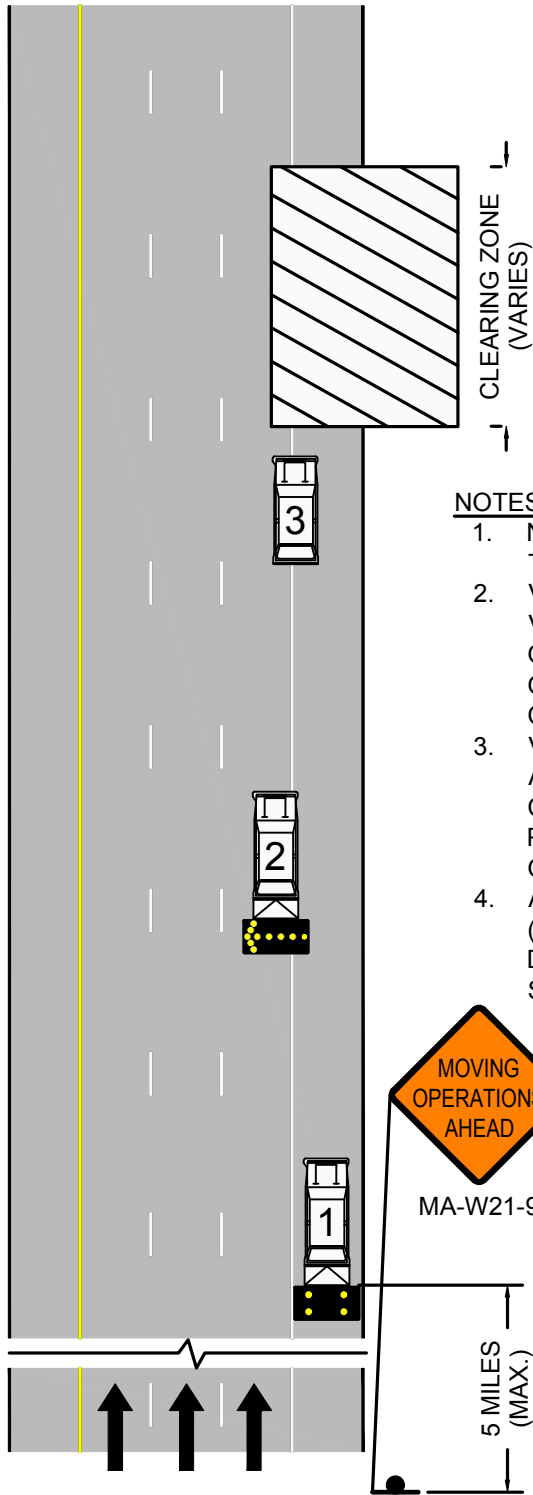




FIGURE 30
MOBILE OPERATIONS
MULTILANE DIVIDED ROADWAY
RIGHT LANE







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

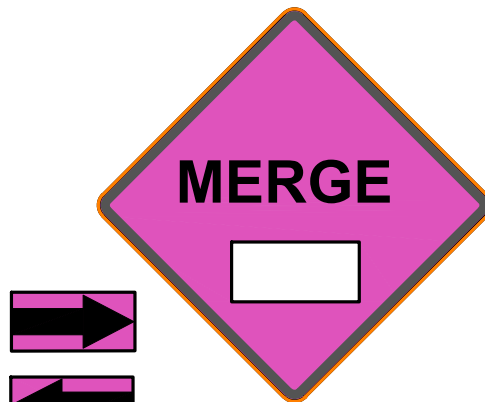
Notes for Traffic Emergency or Incident Operations

- 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")



MA-W20-9



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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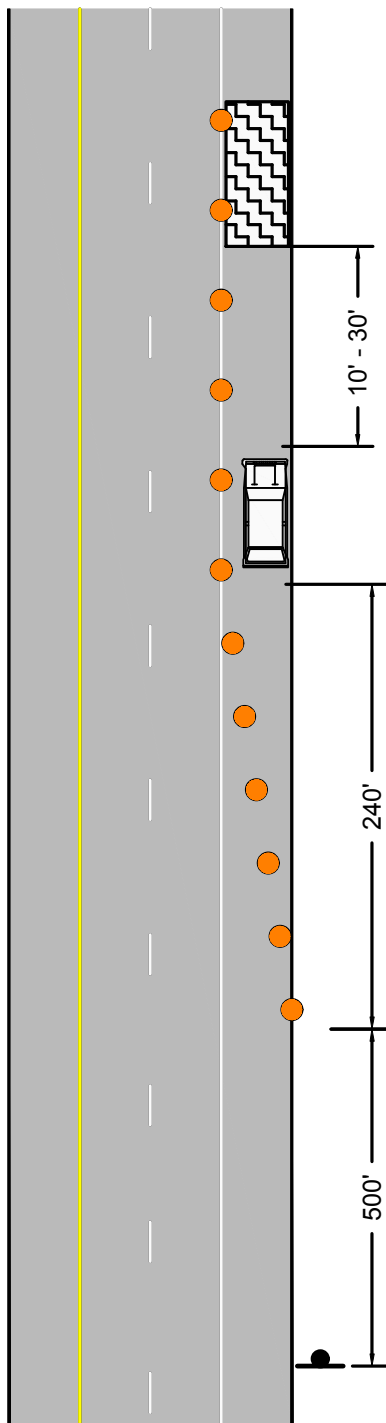


FIGURE 33
EMERGENCY RESPONSE
ANY ROADWAY
SHOULDER ENCROACHMENT

LEGEND

-  EMERGENCY AREA
-  CHANNELIZATION DEVICE
-  EMERGENCY RESPONSE VEHICLE

NOT TO SCALE

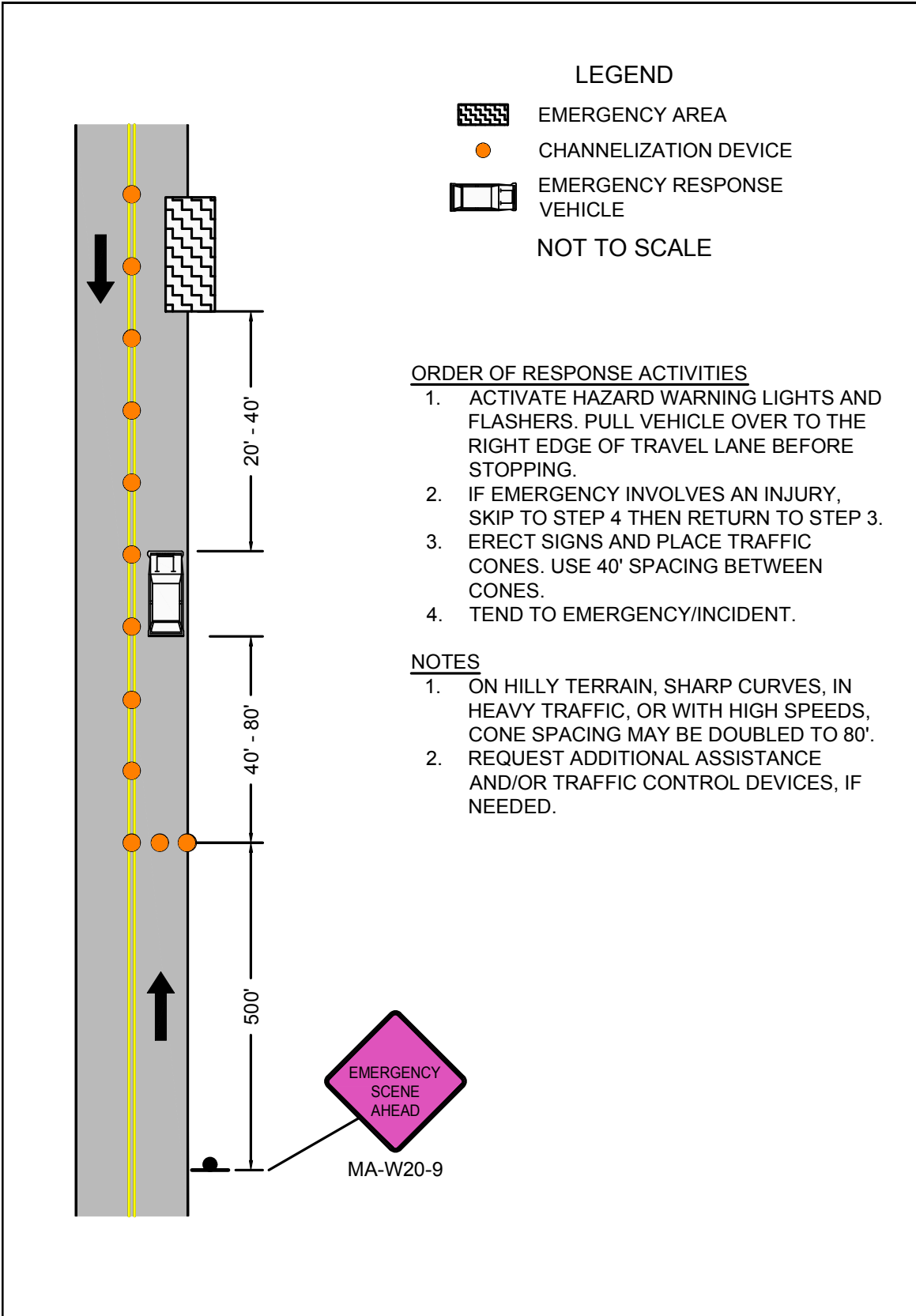


ORDER OF RESPONSE ACTIVITIES

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.







 <p>Massachusetts Department of Transportation Highway Division</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>FIGURE 34 EMERGENCY RESPONSE TWO LANE ROADWAY NO SHOULDER TRAVEL LANE ENCROACHMENT</p>
<p>PAGE 67</p>		

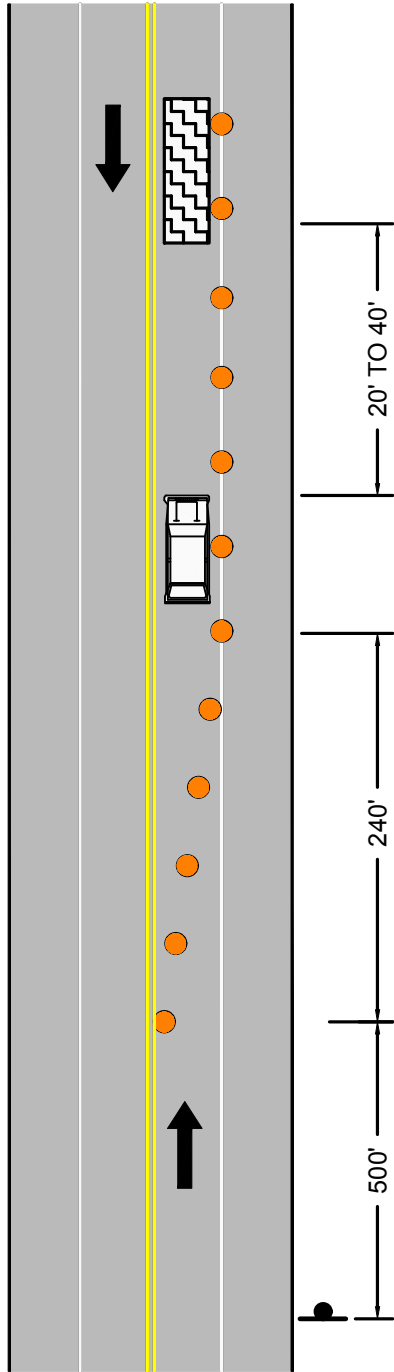


FIGURE 35
EMERGENCY RESPONSE
TWO LANE ROADWAY
TRAVERSABLE SHOULDER
SINGLE LANE ENCROACHMENT

LEGEND

-  EMERGENCY AREA
-  CHANNELIZATION DEVICE
-  EMERGENCY RESPONSE VEHICLE

NOT TO SCALE

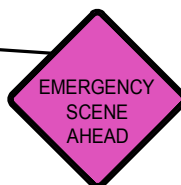


ORDER OF RESPONSE ACTIVITIES

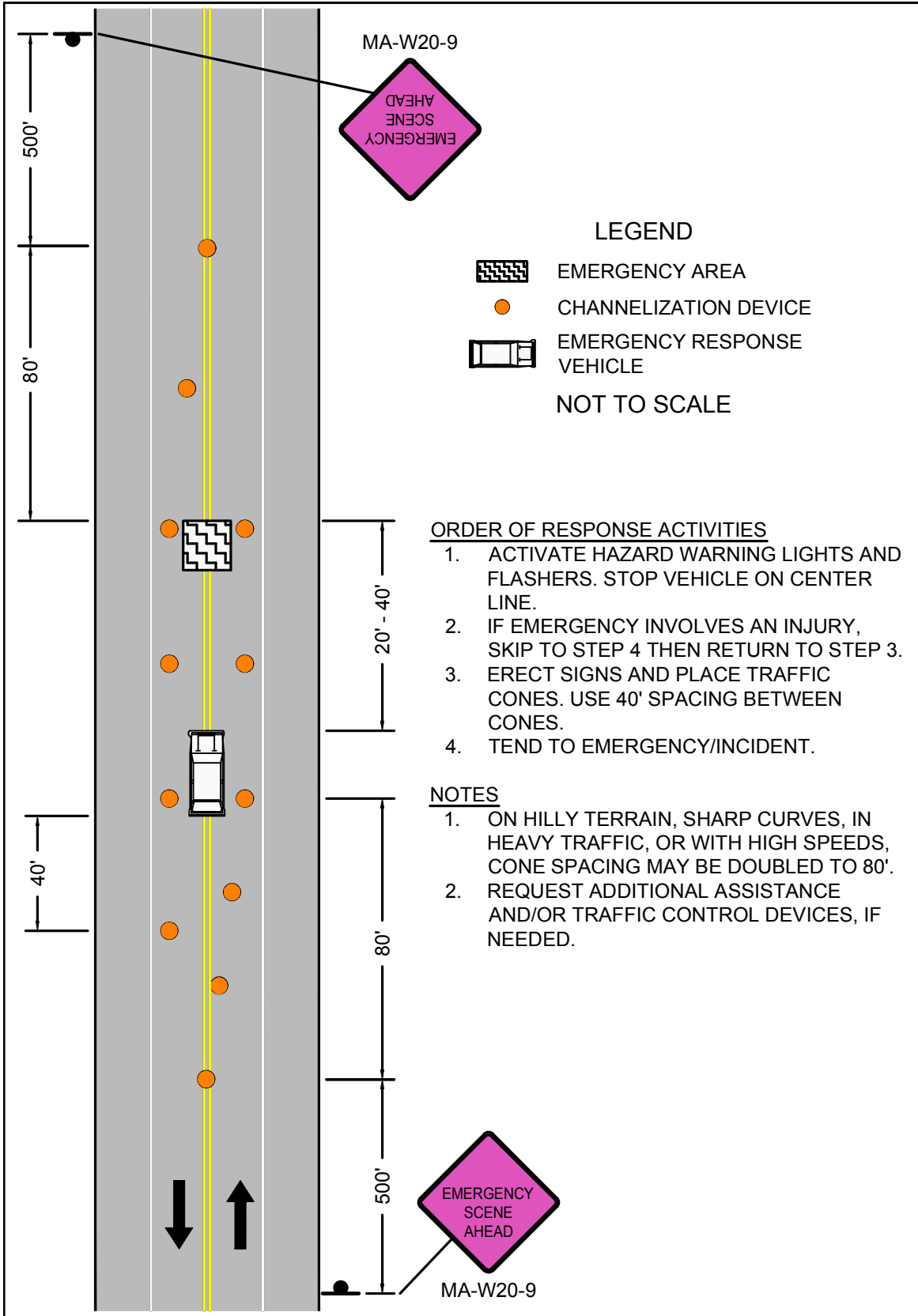
1. ACTIVATE HAZARD WARNING LIGHTS AND FLASHERS. PULL VEHICLE OVER TO THE LEFT EDGE OF TRAVEL LANE BEFORE STOPPING.
2. IF EMERGENCY INVOLVES AN INJURY, SKIP TO STEP 4 THEN RETURN TO STEP 3.
3. ERECT SIGNS AND PLACE TRAFFIC CONES. USE 40' SPACING BETWEEN CONES.
4. TEND TO EMERGENCY/INCIDENT.

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.



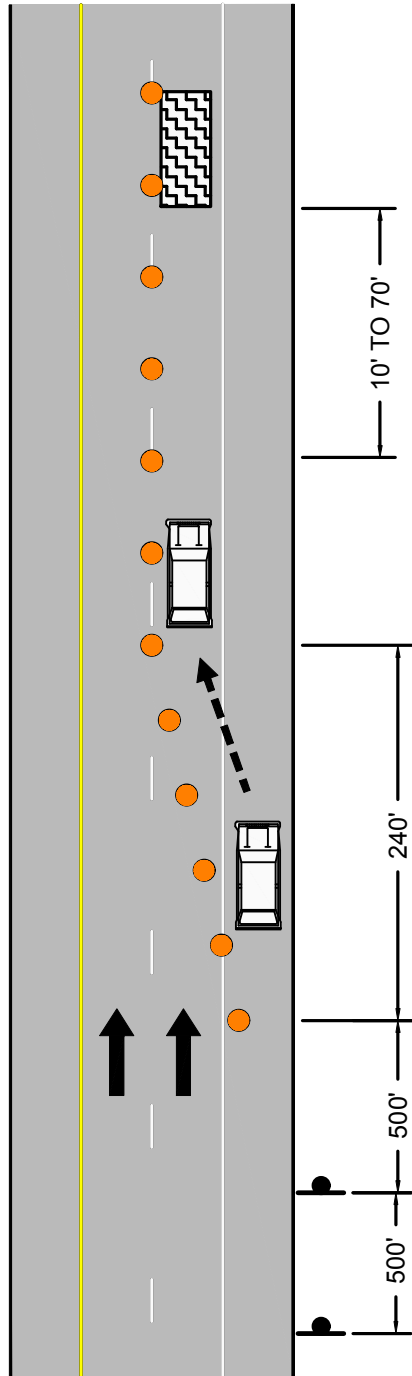
MA-W20-9







<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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FIGURE 37
EMERGENCY RESPONSE
MULTILANE DIVIDED ROADWAY
RIGHT LANE



LEGEND

-  EMERGENCY AREA
-  CHANNELIZATION DEVICE
-  EMERGENCY RESPONSE VEHICLE
-  RESPONSE VEHICLE MOVEMENT

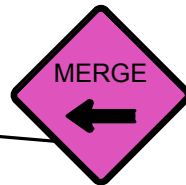
NOT TO SCALE

ORDER OF RESPONSE ACTIVITIES

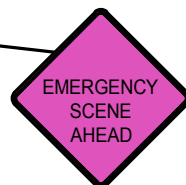
1. ACTIVATE HAZARD WARNING LIGHTS AND FLASHERS. STOP VEHICLE IN BREAKDOWN LANE.
2. IF EMERGENCY INVOLVES AN INJURY, SKIP TO STEP 6 THEN RETURN TO STEP 3.
3. ERECT SIGNS AND PLACE TRAFFIC CONES. USE 40' SPACING BETWEEN CONES.
4. MOVE RESPONSE VEHICLE BEHIND EMERGENCY.
5. PLACE ADDITIONAL CONES.
6. TEND TO EMERGENCY.

NOTES

1. ON HILLY TERRAIN, SHARP CURVES, IN HEAVY TRAFFIC, OR WITH HIGH SPEEDS, CONE SPACING MAY BE DOUBLED TO 80'.
2. REQUEST ADDITIONAL ASSISTANCE AND/OR TRAFFIC CONTROL DEVICES, IF NEEDED.



MA-W4-2aL



MA-W20-9

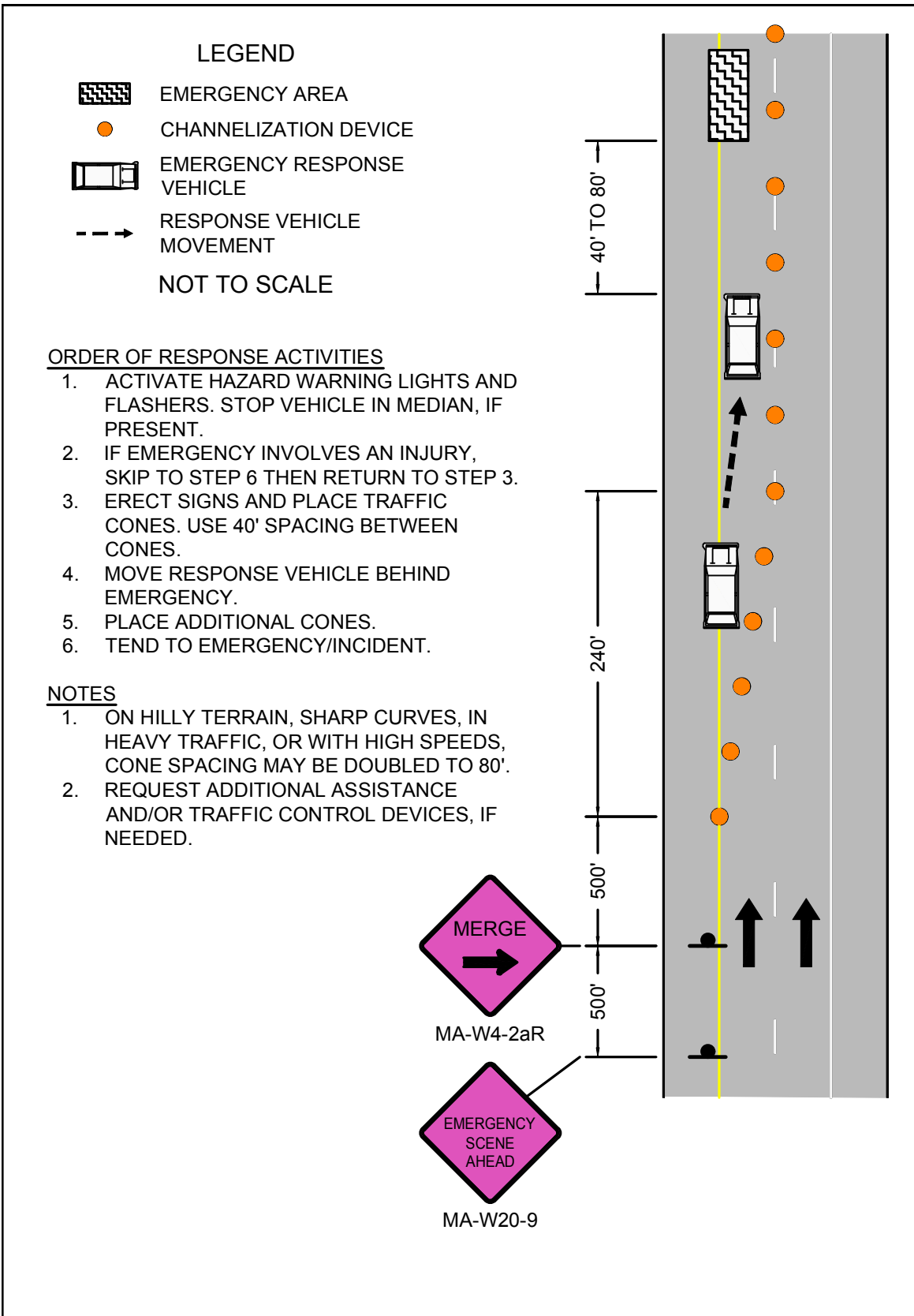
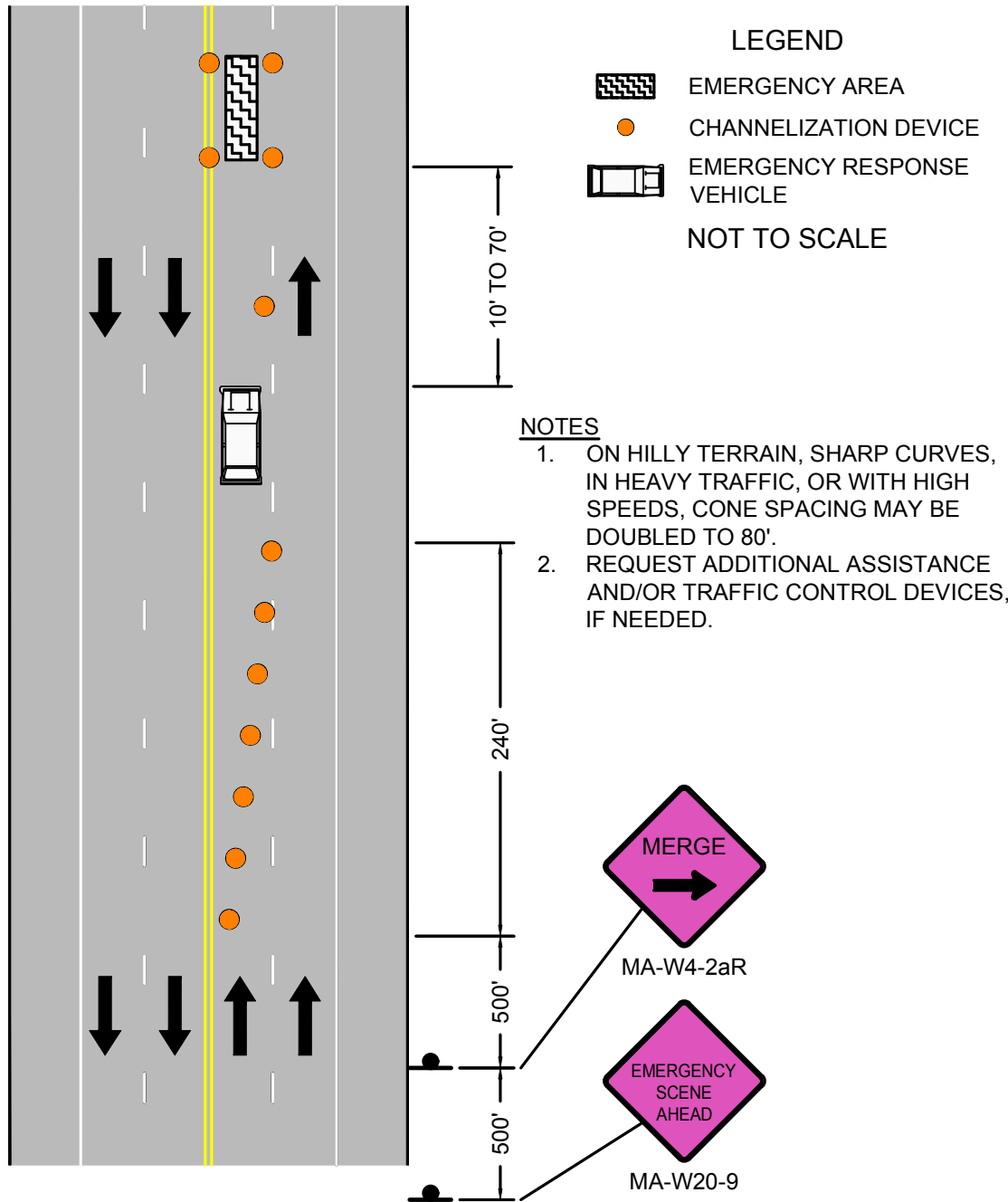


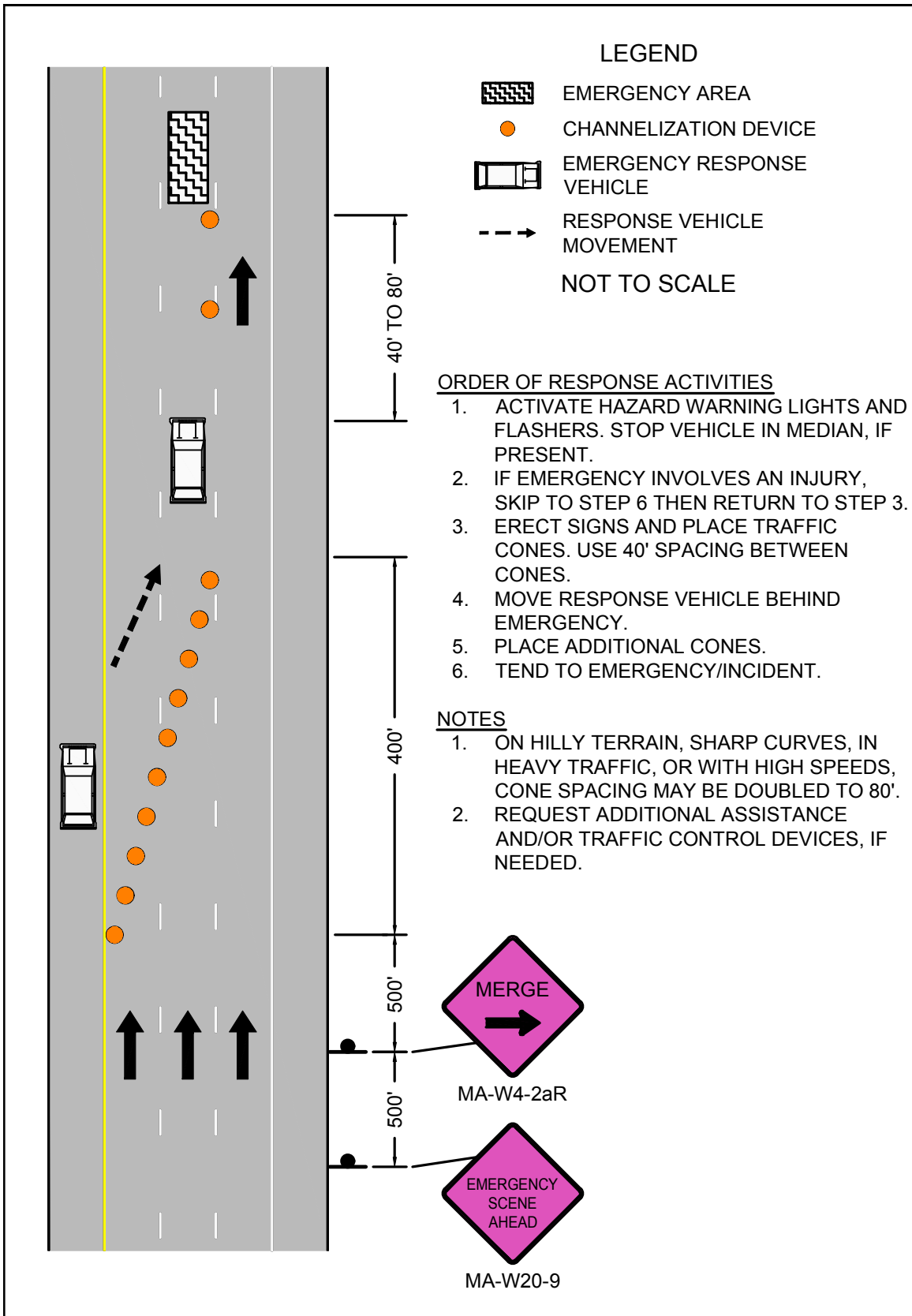


FIGURE 39
EMERGENCY RESPONSE
MULTILANE UNDIVIDED
ROADWAY
LEFT LANE



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.




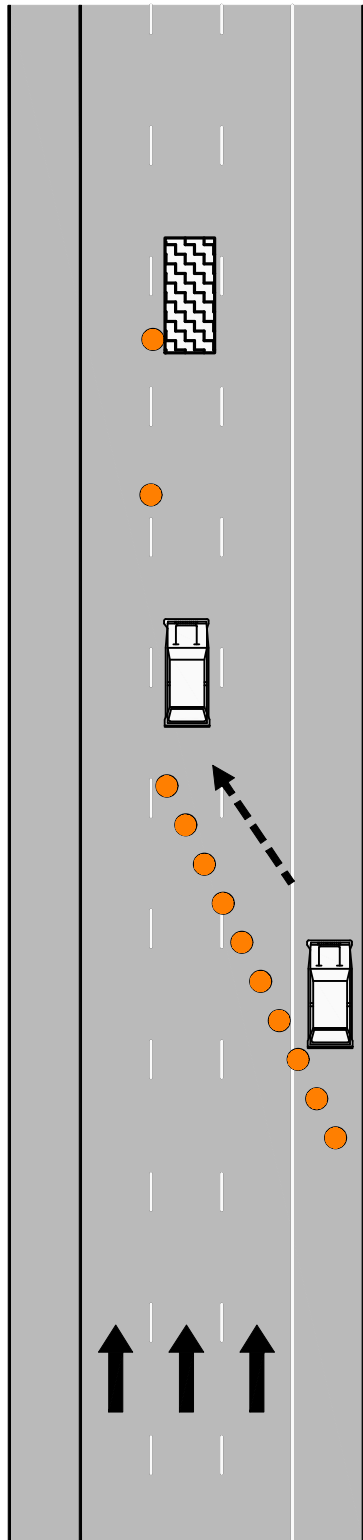




 <p>Massachusetts Department of Transportation Highway Division</p>	<p>Work Zone Safety Standard Details and Drawings</p>	<p>FIGURE 40 EMERGENCY RESPONSE MULTILANE DIVIDED ROADWAY MIDDLE LANE APPROACH FROM LEFT</p>
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FIGURE 41
EMERGENCY RESPONSE
MULTILANE DIVIDED ROADWAY
MIDDLE LANE
APPROACH FROM RIGHT



LEGEND

-  EMERGENCY AREA
-  CHANNELIZATION DEVICE
-  EMERGENCY RESPONSE VEHICLE
-  RESPONSE VEHICLE MOVEMENT

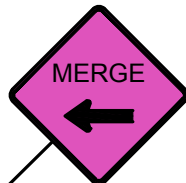
NOT TO SCALE

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

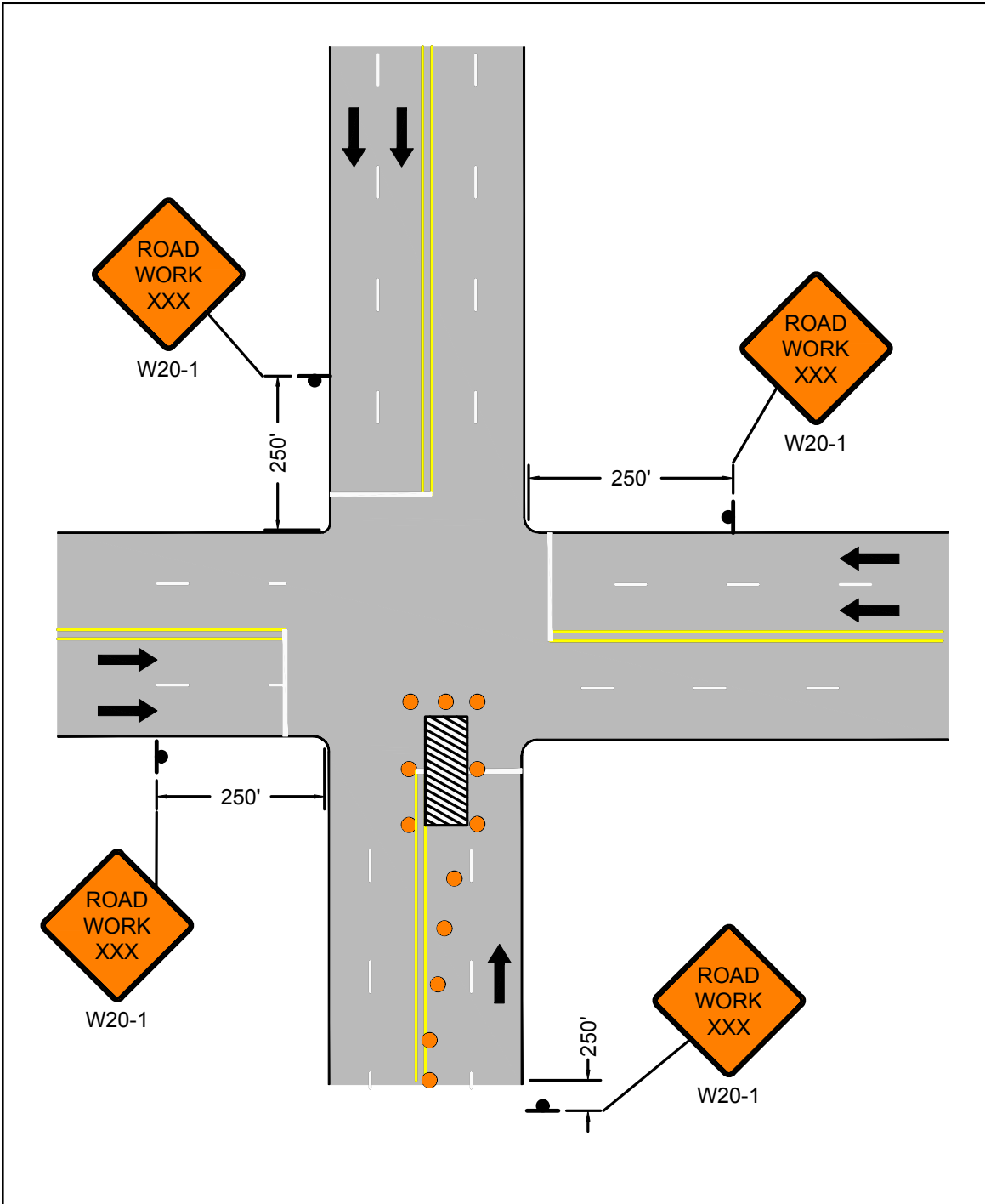
1. ON HILLY TERRAIN, SHARP CURVES, IN HEAVY TRAFFIC, OR WITH HIGH SPEEDS, CONE SPACING MAY BE DOUBLED TO 80'.
2. REQUEST ADDITIONAL ASSISTANCE AND/OR TRAFFIC CONTROL DEVICES, IF NEEDED.





MA-W4-2aL



MA-W20-9



LEGEND

-  WORK ZONE
-  CHANNELIZATION DEVICE

NOT TO SCALE

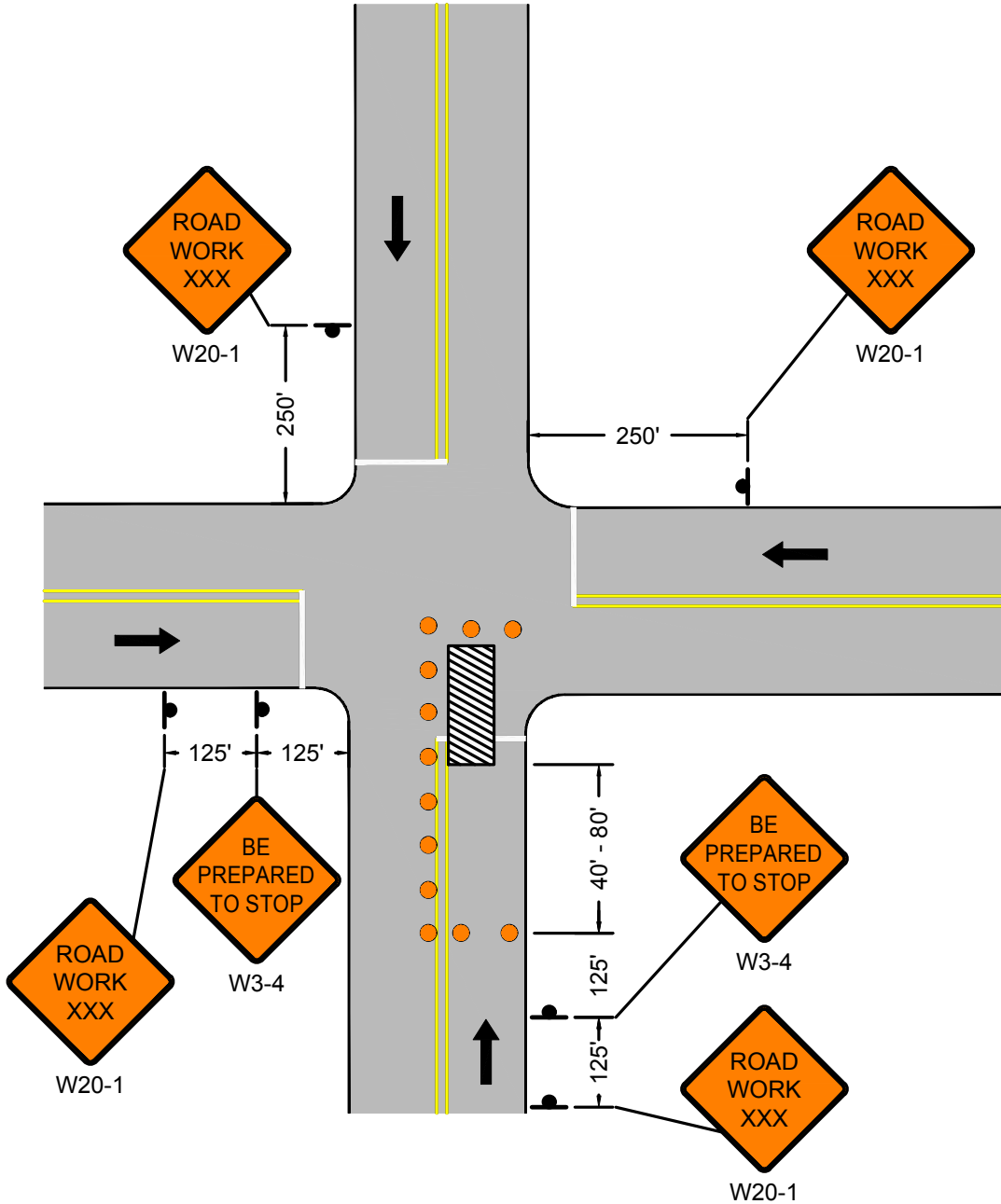
NOTES

1. DURATION OF WORK = 20 MINUTES OR LESS.
2. EQUIPMENT: 12 CONES + 4 PORTABLE SIGNS.
3. CONE SPACING IS 20 FEET.
4. SINGLE WORK VEHICLE PARKED/STOPPED.
5. POLICE DETAIL REQUIRED.







FIGURE 43
TRAFFIC SIGNAL REPAIR WORK
TWO LANE UNDIVIDED ROADWAY
ONE LEG OF INTERSECTION

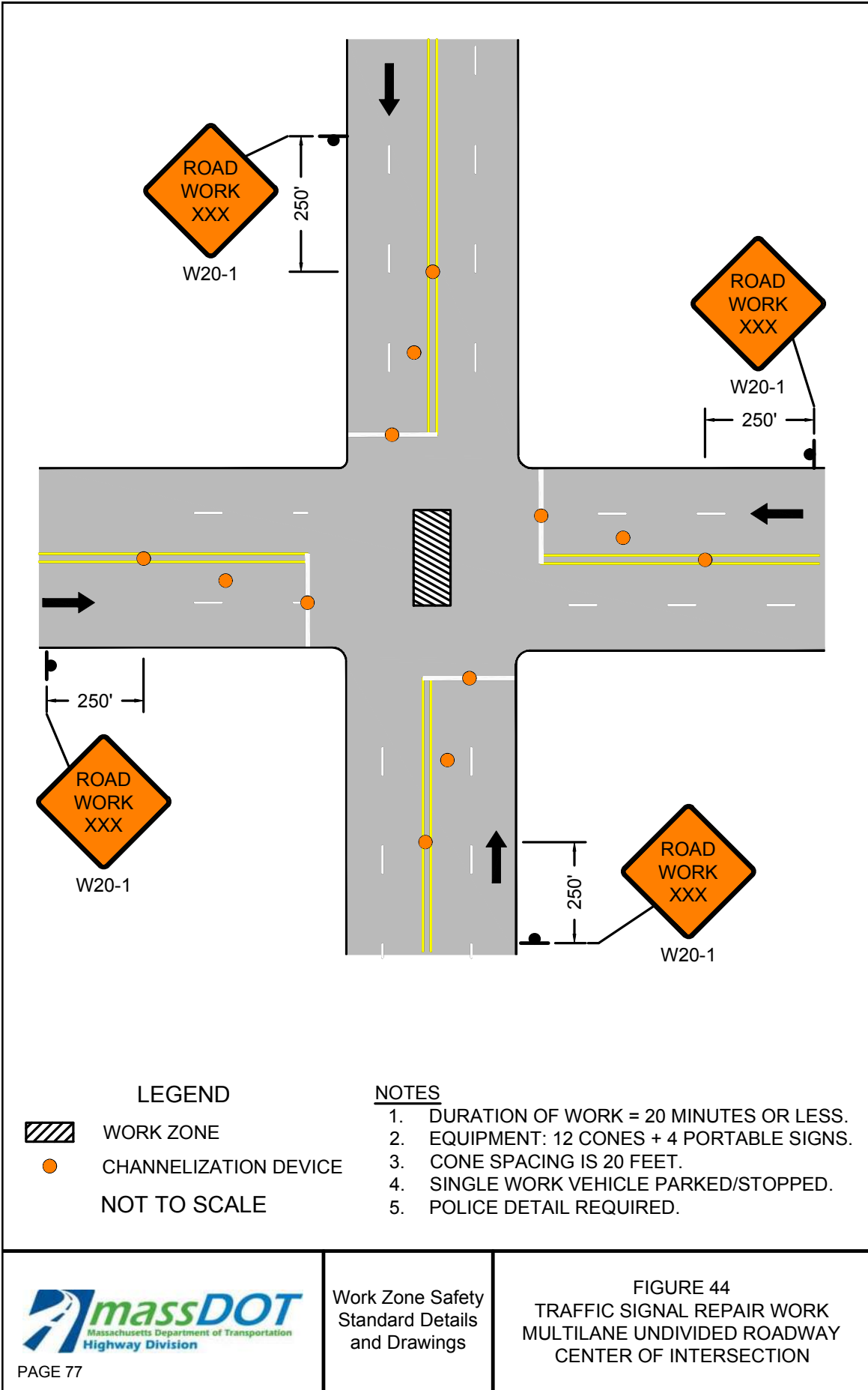


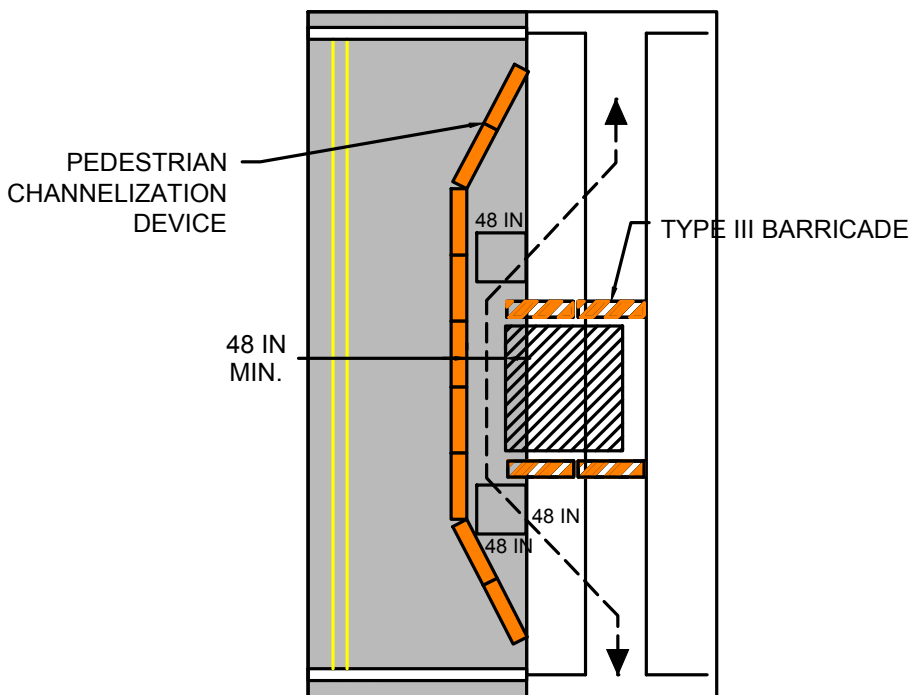
LEGEND

-  WORK ZONE
-  CHANNELIZATION DEVICE
- NOT TO SCALE

NOTES

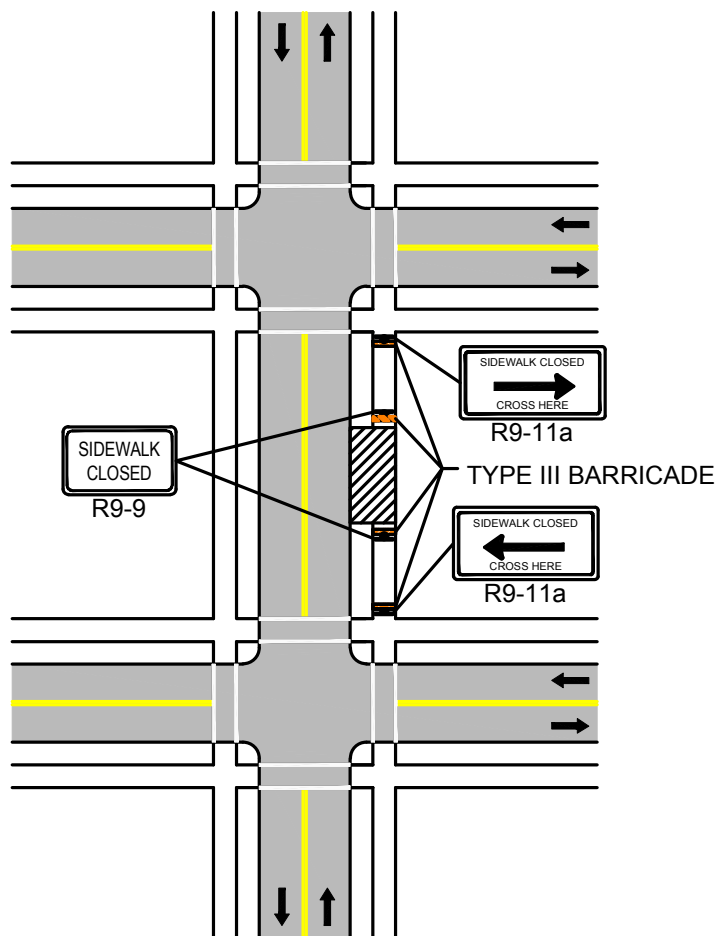
1. DURATION OF WORK = 20 MINUTES OR LESS.
2. EQUIPMENT: 12 CONES + 6 PORTABLE SIGNS.
3. CONE SPACING IS 20 FEET.
4. SINGLE WORK VEHICLE PARKED/STOPPED.
5. POLICE DETAIL REQUIRED.





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.





PAGE 80

Work Zone Safety
Standard Details
and Drawings

STATIONARY OPERATIONS
BIKE LANE CLOSURE










POSTED SPEED LIMIT (MPH)	SPACING FOR BIKE ADVANCE WARNING SIGNS (FT) (A,B))	CHANNELIZATION DEVICES (DRUMS OR CONES)			
		TRANSITION LENGTH (L/3)	BUFFER ZONE LENGTH (FT)	DEVICE SPACING (FT)	MIN # OF DEVICES*
25-40	150 / 150	100	305	20	45
45-55	150 / 150	220	495	40	35
60-65	150 / 150	260	645	40	40

* NUMBER OF DEVICES BASED ON 400 FT WORK ZONE.

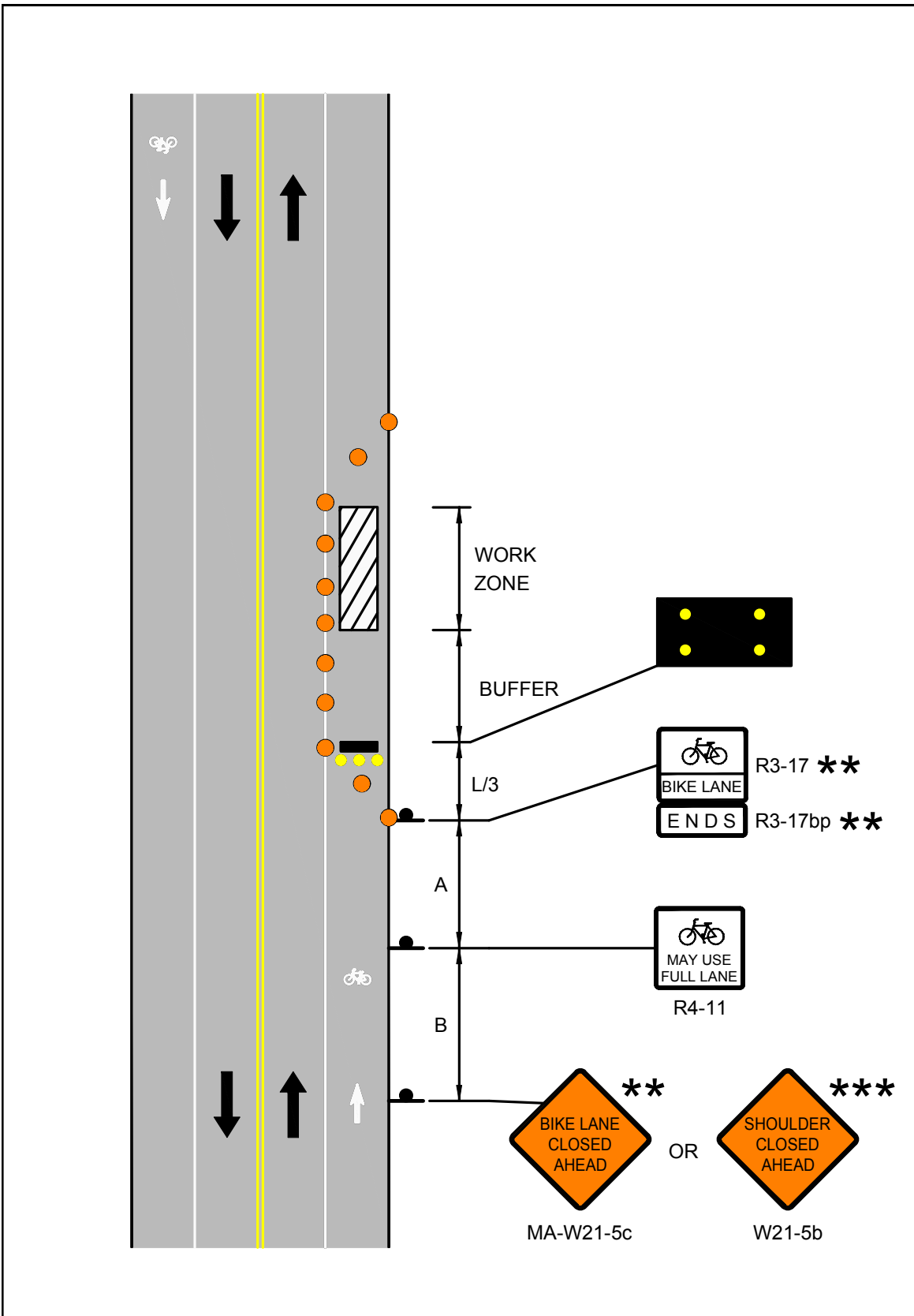
NOTES


1. DETAIL SHALL BE USED IN CONJUNCTION WITH THE PROPOSED LANE CLOSURE DETAILS. SIGNING SHOWN ONLY FOR BIKE TRAFFIC. FOLLOW ALL OTHER RELEVANT DETAILS FOR TTC DEVICES FOR VEHICULAR TRAFFIC.
2. ****** SIGN SHALL BE USED ONLY IF THERE IS A MARKED BIKE LANE.
3. ******* SIGN SHALL BE USED ONLY IF THERE IS NO MARKED BIKE LANE.

LEGEND

-  WORK ZONE
-  CHANNELIZATION DEVICE
-  FLASHING ARROW BOARD
-  PORTABLE CHANGEABLE MESSAGE SIGN
-  TRUCK MOUNTED ATTENUATOR
-  RADAR SPEED FEEDBACK BOARD
-  POLICE DETAIL OR UNIFORMED FLAGGER
-  TEMPORARY PORTABLE RUMBLE STRIP
-  TYPE III BARRICADE

NOT TO SCALE



 <p>Massachusetts Department of Transportation Highway Division</p> <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: ARLINGTON - LEXINGTON

Project File Number: 613466

Contract Number: 128032

Project Description: Scheduled Substructure Repairs L-10-017, L-10-020, A-10-020, A-10-012

All AutoCAD files are provided solely as a courtesy to facilitate public access to information. MassDOT attempts to provide current and accurate information but cannot guarantee so. MassDOT provides such documents, files or other data "as is" without any warranty of any kind, either expressed or implied, including but not limited to, accuracy, reliability, omissions, completeness and currentness. The Commonwealth of Massachusetts and its Consultants shall not be liable for any claim for damages, including lost profits or other consequential, exemplary, incidental, indirect or special damages, relating in any way to the documents, files or other data accessible from this file, including, but not limited to, claims arising out of or related to electronic access or transmission of data or viruses. Because data stored on electronic media can deteriorate undetected or be modified without our knowledge, MassDOT cannot be held liable for its completeness or correctness. MassDOT makes no representation as to the compatibility of these files beyond the version of the stated CAD software.

By signing this form, I agree that it shall be my responsibility to reconcile this electronic data with the conformed contract documents, and that only the conformed contract documents shall be regarded as legal documents for this Project. I understand that this authorization does not give me the right to distribute the files. I agree to the terms above and wish to receive the AutoCAD files.

This signed form shall be emailed to the Highway Design Engineer at the MassDOT -Highway Division at the following email address:

DOTHighwayDesign@dot.state.ma.us

Attn: AutoCAD Files

Name of person requesting AutoCAD files: _____

Affiliation/Company: _____

Address: _____

Telephone number: _____

Email address: _____

Signature/Date: _____

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DOCUMENT A00875

**POLICY DIRECTIVE P-22-001
AND
POLICY DIRECTIVE P-22-002**

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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

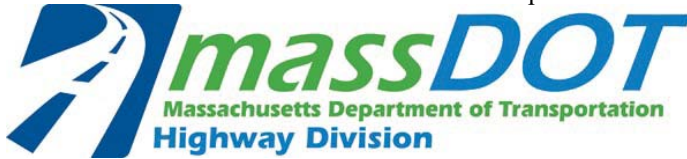
- a. The Contractor shall provide proposed off-site storage locations to the Engineer for approval at least 30 days prior to transporting soil off site. Off-site storage locations should be in the same municipality as the work site.
- b. The Contractor shall keep excavated soil on site until adequately 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

ARLINGTON - LEXINGTON

For: **Scheduled Substructure Repairs L-10-017, L-10-020, A-10-020, A-10-012**

COMMONWEALTH OF MASSACHUSETTS

LOCATION

The work referred to herein is in the Towns of ARLINGTON and LEXINGTON in Middlesex County, in the Commonwealth of Massachusetts, and is shown by the locus map (Document 00331) in the Proposal Pamphlet, the work locations extend as follows:

Lexington

Bridge L-10-017 Spring Street over Route 2

Bridge L-10-020 Watertown Street over Route 2

Arlington

Bridge A-10-020 Park Avenue over Route 2

Bridge A-10-012 Route 60 (Pleasant Street) over Route 2

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 **334 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 # 613466		Contract # 128032		
Location : ARLINGTON - LEXINGTON				
Description : Scheduled Substructure Repairs L-10-017, L-10-020, A-10-020, A-10-012				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
102.21	330	SELECTIVE CLEARING AND GRUBBING AT _____ PER SQUARE YARD		
106.88	8	JACKING AND SHORING AT _____ EACH		
106.881	8	JACKING AND SHORING REMOVED AND RESET AT _____ EACH		
106.894	12	CRIBBING PER BEAM END AT _____ EACH		
120.1	10	UNCLASSIFIED EXCAVATION AT _____ PER CUBIC YARD		
127.12	40	REINFORCED CONCRETE SUBSTRUCTURE EXCAVATION AT _____ PER CUBIC YARD		
151.	10	GRAVEL BORROW AT _____ PER CUBIC YARD		
628.315	2	TEMPORARY IMPACT ATTENUATOR, REDIRECTIVE, TL-3 AT _____ EACH		
628.4	2	TEMPORARY IMPACT ATTENUATOR, REMOVED AND RESET AT _____ EACH		

Project # 613466		Contract # 128032		
Location : ARLINGTON - LEXINGTON				
Description : Scheduled Substructure Repairs L-10-017, L-10-020, A-10-020, A-10-012				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
740.	11	ENGINEER'S FIELD OFFICE AND EQUIPMENT (TYPE A) AT _____ PER MONTH		
748.	1	MOBILIZATION AT _____ LUMP SUM		
851.1	100	TRAFFIC CONES FOR TRAFFIC MANAGEMENT AT _____ PER DAY		
852.	1,250	SAFETY SIGNING FOR TRAFFIC MANAGEMENT AT _____ PER SQUARE FOOT		
853.1	4	PORTABLE BREAKAWAY BARRICADE TYPE III AT _____ EACH		
853.21	500	TEMPORARY BARRIER REMOVED AND RESET AT _____ PER FOOT		
853.33	800	TEMPORARY BARRIER - LIMITED DEFLECTION (TL-3) AT _____ PER FOOT		
853.403	490	TRUCK MOUNTED ATTENUATOR AT _____ PER DAY		
853.8	230	TEMPORARY ILLUMINATION FOR WORK ZONE AT _____ PER DAY		

Project # 613466		Contract # 128032		
Location : ARLINGTON - LEXINGTON				
Description : Scheduled Substructure Repairs L-10-017, L-10-020, A-10-020, A-10-012				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
854.016	2,640	TEMPORARY PAVING MARKINGS - 6 INCH (PAINTED) AT _____ PER FOOT		
854.1	1,320	PAVEMENT MARKING REMOVAL AT _____ PER SQUARE FOOT		
854.6	720	TEMPORARY PORTABLE RUMBLE STRIP AT _____ PER DAY		
856.	570	ARROW BOARD AT _____ PER DAY		
856.12	70	PORTABLE CHANGEABLE MESSAGE SIGN AT _____ PER DAY		
859.	14,500	REFLECTORIZED DRUM AT _____ PER DAY		
859.1	600	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS AT _____ PER DAY		
905.	40	4000 PSI, 3/8 INCH, 660 CEMENT CONCRETE AT _____ PER CUBIC YARD		
909.2	370	CEMENTITIOUS MORTAR FOR PATCHING AT _____ PER SQUARE FOOT		

Project # 613466		Contract # 128032		
Location : ARLINGTON - LEXINGTON				
Description : Scheduled Substructure Repairs L-10-017, L-10-020, A-10-020, A-10-012				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
910.	2,000	STEEL REINFORCEMENT FOR STRUCTURES AT _____ PER POUND		
910.01	2,160	GALVANIC ANODES AT _____ EACH		
912.	10	DRILLING AND GROUTING DOWELS AT _____ EACH		
964.3	21,100	ELASTOMERIC PROTECTIVE COATING AT _____ PER SQUARE FOOT		
987.	30	SPECIAL SLOPE PAVING UNDER BRIDGE - OPTION AT _____ PER SQUARE YARD		
Total Qty:		49,938		

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DOCUMENT B00843

MINORITY OR WOMEN'S BUSINESS ENTERPRISE PARTICIPATION LETTER OF INTENT
PAGE 1 OF 2

MASSDOT PROJECT NUMBER: 613466

PROJECT LOCATION: ARLINGTON - LEXINGTON

DATE OF BID OPENING:

FROM

(Minority or Women's Business Enterprise Company)

TO:

(Name of Prime Contractor)

1. My company is currently certified as an MBE or WBE by the Massachusetts Supplier Diversity Office, formerly known as the State Office of Minority and Women Business Assistance (SOMWBA). There have been no changes affecting the ownership, control or independence of my company since my last certification review.
2. If any such change occurs prior to my company's completion of this proposed work, I will give written notification to your firm and to the Massachusetts Department of Transportation (MassDOT).
3. (For contractor activity only.) My firm will provide to you, upon request, for the purpose of obtaining subcontractor approval from MassDOT; (1) a resume stating the qualifications and experience of the superintendent or foreperson who will supervise on site-work; (2) a list of equipment owned or leased by my firm for use on the project; (3) a list of all projects (public or private) which my firm is currently performing, is committed to perform, or intends to make a commitment to perform. I shall include, for each project, the names and telephone number of a contact person for the contracting organization, the dollar value of the work, a description of the work, and my firm's work schedule for the Project.
4. If you are awarded the Contract, my company intends to enter into an agreement with your firm to perform the items of work or other activity described on the following sheet for the prices indicated.
5. My firm has the ability to manage, supervise and perform the activity described on the following page.

M/WBE Authorized Signature

Date

MINORITY OR WOMEN'S BUSINESS ENTERPRISE PARTICIPATION LETTER OF INTENT
PAGE 2 OF 2

MASSDOT PROJECT NUMBER: 613466

PROJECT LOCATION: ARLINGTON- -LEXINGTON

DATE OF BID OPENING: _____

NAME OF PRIME BIDDER: _____

<u>Item number</u> if applicable	<u>Description of Activity</u> with notations such as Installation Only, Material Only, or Complete	<u>Quantity</u>	<u>Unit Price</u>	<u>Amount</u>
TOTAL AMOUNT:				

M/WBE COMPANY NAME: _____

M/WBE AUTHORIZED SIGNATURE: _____

NAME AND TITLE (PRINT): _____

TELEPHONE NUMBER: _____ FAX NUMBER: _____

*** END OF DOCUMENT ***

Rev'd 9/20/19

DOCUMENT B00846

M/WBE OR SDVOBE JOINT CHECK ARRANGEMENT APPROVAL FORM

(to be submitted by Prime Contractor)

Contract No: 128032 Project No. 613466

Location: ARLINGTON - LEXINGTON Bid Opening Date: _____

Project Description: Scheduled Substructure Repairs L-10-017, L-10-020, A-10-020, A-10-012

We have received the attached request for the use of a joint check arrangement from _____, a M/WBE or SDVOBE on the above- referenced Contract and _____, a Material Supplier/Vendor for the subject Contract. The M/WBE or SDVOBE has complied with the requirements of Special Provision Document 00718. In particular, the M/WBE or SDVOBE has:

- a written agreement with the material supplier/vendor;
- applied for credit with the subject material supplier and has supplied the vendor's response;
- shown that it will place all orders to the subject material supplier/vendor;
- made and retains all decision-making responsibilities concerning the materials; and
- provided a Joint Check Agreement that is acceptable to MassDOT;

As the Contractor for the Project, we agree to issue joint checks (made payable to the Material Supplier/Vendor and the M/WBE or SDVOBE) for payment of sums due pursuant to invoices from the Supplier/Vendor and M/WBE or SDVOBE.

Contractor:

Company Name

Signature
Duly Authorized

Printed Name

Date

Title

SubContractor:

Company Name

Signature –
Duly Authorized

Printed Name

Date

Title

*** END OF DOCUMENT ***

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DOCUMENT B00847

JOINT VENTURE AFFIDAVIT
(All Firms)

- All Information Requested By This Schedule Must Be Answered. Additional Sheets May Be Attached.
- If, there is any change in the information submitted, the Joint Venture parties must inform MassDOT Pre-Qualifications Office (and, if one of the companies is a M/WBE or SDVOBE, the Director of Contract Compliance, Office of Civil Rights) *prior* to such change, in writing, either directly or through the Prime Contractor if the Joint Venture is a subcontractor.
- If the Joint Venture Entity will be the bidder on a prime Contract, it must bid and submit all required documents (insurance, worker’s compensation, bonds, etc.) in the name of the Joint Venture Entity.

I. Name of Joint Venture: _____
 Type of Entity if applicable (Corp., LLC): _____ Filing State _____
 Address of joint venture: _____

 Phone No(s) for JV Entity: _____ E-mail: _____
 Contact Person(s) _____
 Tax ID/EIN of Joint Venture: _____ Vendor Code: _____

II. Identify each firm or party to the Joint Venture:
 Name of Firm: _____
 Address: _____
 Phone : _____ E-mail: _____
 Contact person(s) _____
 Name of Firm: _____
 Address: _____
 Phone: _____ E-mail: _____
 Contact Person(s) _____

III. Describe the role(s) of the each party to the Joint Venture:

IV. Attach a copy of the Joint Venture Agreement. The proposed Joint Venture Agreement should include specific details including, but not limited to: (1) the contributions of capital and equipment; (2) work items to be performed by each company’s forces, (3) work items to be performed under the supervision of any M/WBE or SDVOBE Venturer; (4) the commitment of management, supervisory and operative personnel employed by the M/WBE or SDVOBE to be dedicated to the performance of the Project; and (5) warranty, guaranty, and indemnification clauses.

V. Attach any applicable Corporate or LLC Votes, Authorizations, etc.

VI. Ownership of the Joint Venture:

A. What is the percentage(s) of each company’s ownership in the Joint Venture?

ownership percentage(s): _____

ownership percentage(s): _____

B. Specify percentages for each of the following (provide narrative descriptions and other detail as applicable):

1. Sharing of profit and loss: _____

2. Capital contributions:

(a) Dollar amounts of initial contribution: _____

(b) Dollar amounts of anticipated on-going contributions: _____

(c) Contributions of equipment (specify types, quality and quantities of equipment to be provided by each firm): _____

4. Other applicable ownership interests, including ownership options or other agreements, which restrict or limit ownership and/or control:

5. Provide copies of all other written agreements between firms concerning bidding and operation of this Project or projects or contracts.

6. Identify all current contracts and contracts completed during the past two (2) years by either of the Joint Venture partners to this Joint Venture:

VII. Control of and Participation in the Joint Venture. Identify by name and firm those individuals who are, or will be, responsible for and have the authority to engage in the following management functions and policy decisions. (Indicate any limitations to their authority such as dollar limits and co-signatory requirements.):

A. Joint Venture check signing:

B. Authority to enter Contracts on behalf of the Joint Venture:

C. Signing, co-signing and/or collateralizing loans:

D. Acquisition of lines of credit:

E. Acquisition and indemnification of payment and performance bonds:

F. Negotiating and signing labor agreements:

G. Management of contract performance. (*Identify by name and firm only*):

1. Supervision of field operations: _____
2. Major purchases: _____
3. Estimating: _____
4. Engineering: _____

VIII. Financial Controls of Joint Venture:

A. Which firm and/or individual will be responsible for keeping the books of account?

B. Identify the "Managing Partner," if any, and describe the means and measure of their compensation:

C. What authority does each firm have to commit or obligate the other to insurance and bonding companies, financing institutions, suppliers, subcontractors, and/or other parties participating in the performance of this Contract or the work of this Project?

IX. Personnel of Joint Venture: State the approximate number of personnel (by trade) needed to perform the Joint Venture's work under this Contract. Indicate whether they will be employees of the majority firm, M/WBE or SDVOBE firm, or the Joint Venture.

	Firm 1 (number)	Firm 2 (number)	Joint Venture (number)
Trade			
Professional			
Administrative/Clerical			
Unskilled Labor			

Will any personnel proposed for this Project be employees of the Joint Venture?: _____

If so, who: _____

A. Are any proposed Joint Venture employees currently employed by either firm?

Employed by Firm 1: _____ Employed by firm 2 _____

B. Identify by name and firm the individual who will be responsible for Joint Venture hiring: _____

X. Additional Information. Please state any material facts and additional information pertinent to the control and structure of this Joint Venture.

XI. AFFIDAVIT OF JOINT VENTURE PARTIES. The undersigned affirm that the foregoing statements and attached documents are correct and include all material information necessary to identify and explain the terms and operations of our Joint Venture and the intended participation of each firm in the undertaking. Further, the undersigned covenant and agree to provide to MassDOT current, complete and accurate information regarding actual Joint Venture work, payments, and any proposed changes to any provisions of the Joint Venture, or the nature, character of each party to the Joint Venture. We understand that any material misrepresentation will be grounds for terminating any Contract awarded and for initiating action under Federal or State laws concerning false statements.

Firm 1

Firm 2

Signature
Duly Authorized

Signature
Duly Authorized

Printed Name and Title

Printed Name and Title

Date

Date

*** END OF DOCUMENT ***