JPB

COMMONWEALTH OF MASSACHUSETTS



CONTRACT DOCUMENTS AND SPECIAL PROVISIONS

PROPOSAL NO.	607420-136650
P.V. =	$12,898,000.00
PLANS	YES

FOR

Federal Aid Project No. HIP(NGB)-003S(965)X
Bridge Replacement, N-03-012, Boden Lane over CSX/MBTA

in the Town of

NATICK

In accordance with the STANDARD SPECIFICATIONS
for HIGHWAYS and BRIDGES dated 2026

This Proposal to be opened and read: **TUESDAY, OCTOBER 27, 2026 at 2:00 P.M.**

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NOTICE TO CONTRACTORS

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

TUESDAY, OCTOBER 27, 2026 at 2:00 P.M. **
NATICK
Federal Aid Project No. HIP(NGB)-003S(965)X
Bridge Replacement, N-03-012, Boden Lane over CSX/MBTA
****Date Subject to Change**

PROJECT VALUE = $12,898,000.00

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

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

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

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

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

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

NOTICE TO CONTRACTORS (Continued)

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

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

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

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

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

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

NOTICE TO CONTRACTORS (Continued)

PRICE ADJUSTMENTS

This Contract contains price adjustments for hot mix asphalt and Portland cement mixtures, diesel fuel, and gasoline. For reference the base prices are as follows: liquid asphalt $712.50 per ton, Portland cement $452.13 per ton, diesel fuel $4.693 per gallon, and gasoline $3.341 per gallon, and Steel Base Price Index 384.0. 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: Phillip Eng, Interim MassDOT Secretary
Jonathan L. Gulliver, Undersecretary and Highway Administrator
SATURDAY, SEPTEMBER 5, 2026

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DOCUMENT 00210

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

July 1, 1981, updated October 2016

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(2) transactions are recorded as necessary

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

ii. to maintain accountability for assets;

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

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

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

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

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

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

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

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

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

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

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

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

<<<<<<<<<<>>>>>>>>>>

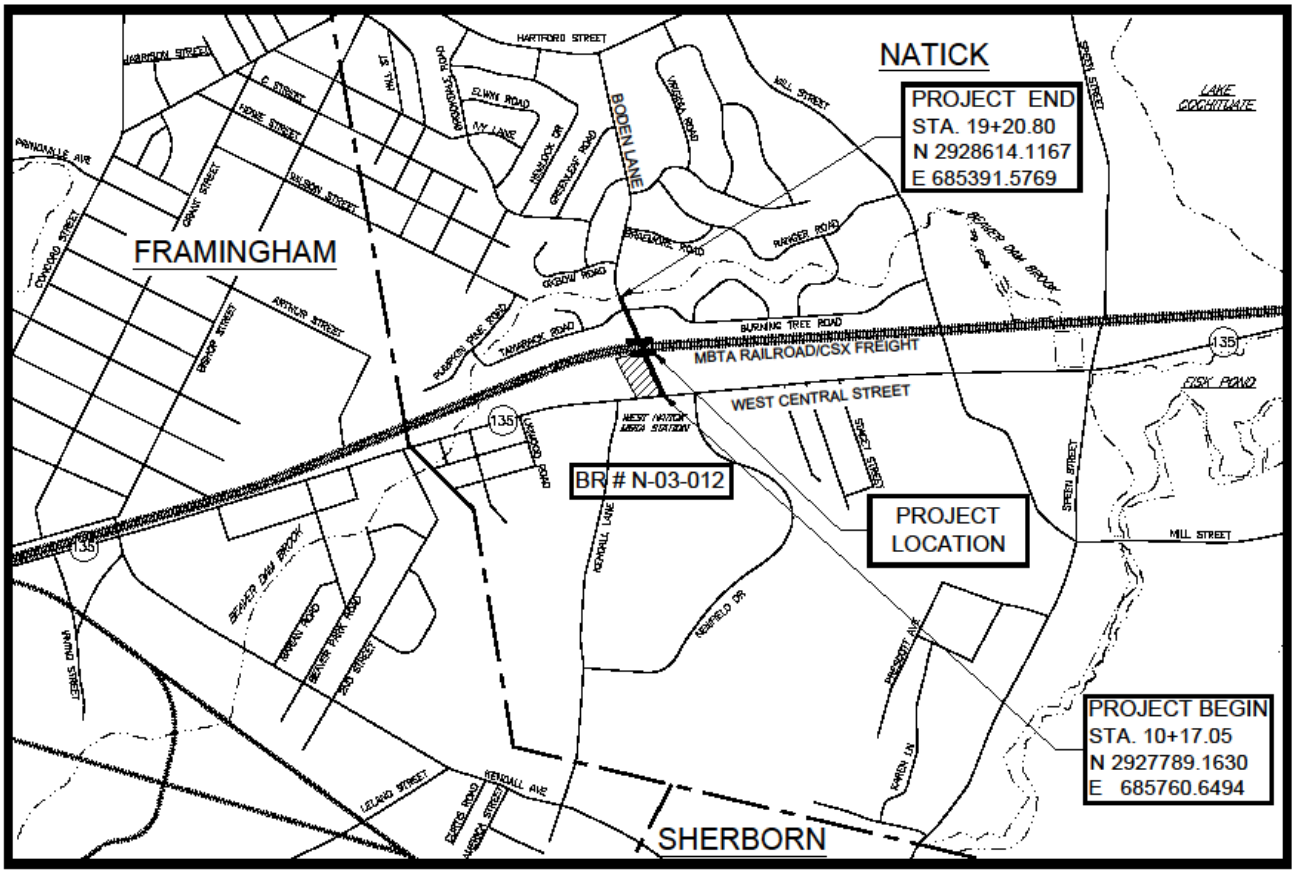
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DOCUMENT 00331

LOCUS MAP

NATICK
Federal Aid Project No. HIP(NGB)-003S(965)X
Bridge Replacement, N-03-012, Boden Lane over CSX/MBTA



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DOCUMENT 00439

Final Report ☐

Interim Report ☐

CONTRACTOR PROJECT EVALUATION FORM

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

Date: _____

City/Town: _____ Contractor: _____

Project: _____ Address: _____

F.A. No. _____ Contract Number: _____

Bid Price: _____ Notice to Proceed: _____

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

Date Work Started: _____ Date Work Completed*: _____

Contractor's Superintendent: _____

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

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

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

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

_____ _____

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

_____

Contractor's Signature Acknowledging Report/Date

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

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

_____

_____

CONTRACTOR PROJECT EVALUATION FORM (Continued)

Date: _____ Contract Number: _____

INFORMATION FOR DISTRICT HIGHWAY DIRECTORS RELATING TO PREQUALIFICATION

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

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

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

I recommend a deduction for project completed late: _____

Signed: _____
District Highway Director

EXPLANATION OF RATINGS 1 – 9: _____

WORK NOT COMPLETED WITHIN SPECIFIED TIME: _____

Revised: 04/28/17

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DOCUMENT 00440

Final Report ☐

Interim Report ☐

SUBCONTRACTOR PROJECT EVALUATION FORM

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

Date: _____

City/Town: _____ Subcontractor: _____

Project: _____ Address: _____

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

Prime Contractor _____ Current Contract Completion Date: _____

Date Work Started: _____ Date Work Completed*: _____

Subcontractor's Superintendent: _____

Type of Work Performed by Subcontractor: _____

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

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

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

_____ _____

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

_____ _____

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

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

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

_____

_____

Contractor's Comments: _____

_____

SUBCONTRACTOR PROJECT EVALUATION FORM (Continued)

Date: _____ Contract Number:_____

INFORMATION FOR DISTRICT HIGHWAY DIRECTORS RELATING TO PREQUALIFICATION

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

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

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

I recommend a deduction for project completed late:_____

Signed: _____
District Highway Director

EXPLANATION OF RATINGS 1 – 8: _____

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WORK NOT COMPLETED WITHIN SPECIFIED TIME: _____

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Revised: 04/28/17

*** END OF DOCUMENT ***

DOCUMENT 00710
GENERAL CONTRACT PROVISIONS
Revised: 03-31-26

NOTICE OF AVAILABILITY

The STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES dated 2026, the SUPPLEMENTAL SPECIFICATIONS , the 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS; the 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING and the CONSTRUCTION STANDARD DETAILS are available online at https://www.mass.gov/massdot-highway-division-manuals-and-publications

SPECIAL PROVISIONS FOR RIGHT-TO-KNOW ACT REQUIREMENTS

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

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

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

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

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

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

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

ALTERNATIVE DISPUTE RESOLUTION
Forum, Choice of Law and Mediations:

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

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DOCUMENT 00715

SUPPLEMENTAL SPECIFICATIONS

JUNE 30, 2026

The 2026 *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 5.00: CONTROL OF WORK

Subsection 5.03: Conformity with Plans and Specifications
Change the MGL reference in the first sentence to Chapter 30, Section 39I (from Section 39L).

DIVISION II

CONSTRUCTION DETAILS

SECTION 200: DRAINAGE

SUBSECTION 227: DRAINAGE SYSTEM SEDIMENT

Subsection 227.30, Method of Measurement
Change the subsection number to 227.80

Subsection 227.31, Basis of Payment
Change the subsection number to 227.81

Subsection 227.31, Payment Items
Change the subsection number to 227.82

SECTION 400: SUB-BASE, BASE COURSE, SHOULDERS, PAVEMENT AND BERMS

SUBSECTION 430: CEMENT CONCRETE BASE COURSE

Subsection 430.40: General
Change Applied Crack Sealer to Hot Applied Crack Sealer.

SUBSECTION 476: CEMENT CONCRETE PAVEMENT

Subsection 476.20: Materials
Delete Preformed Bituminous Joint Filler for Concrete - M3.05.5 and add the following in M number sequence:

Preformed Expansion Joint Filler	M9.14.0

SUBSECTION 477: MILLED RUMBLE STRIPS

Subsection 477: Milled Rumble Strips
Replace this subsection with the following:

DESCRIPTION

477.20: General

The work consists of constructing rumble strips on roadways by milling grooves into finished surfaces. Milled Rumble Strips are categorized as Type A, Type B, Type C, or Type D. Type A are rectangular milled grooves at regular intervals in the paved surface, Type B rumble strips are rectangular grooves at regular intervals with designed gaps between intervals to accommodate bicyclists, and Type C and Type D rumble strips form continuous grooves in the paved surface in the form of a vertical sinusoidal wave pattern.

CONSTRUCTION METHODS

477.61: Equipment

The equipment shall self-align with the slope of the roadway surface and/or any irregularities in the roadway surface.

The Contractor shall demonstrate to the Engineer the ability to achieve the desired groove without tearing or snagging the roadway surface prior to beginning the work.

477.62: Installation of Rumble Strips

Rumble strips shall be installed in accordance with the locations, dimensions, and Type shown on the plans.

Type A and Type B rumble strips shall be installed after the longitudinal pavement markings they supplement (typically edge lines or channelizing lines) are in place. Installation of any diagonal or chevron pavement markings that cross the Type A or Type B rumble strips shall only occur after the rumble strips are in place.

Type C rumble strips shall be installed after the location of the longitudinal pavement markings they supplement (typically center lines) has been laid out, but before the pavement markings are installed. The pavement markings shall only be installed after the Type C rumble strips are in place.

Type D rumble strips shall be installed after the longitudinal pavement markings they supplement (typically center lines) are in place.

477.63: Control of the Work Area

At the end of each working day, all equipment shall be moved to a location where it does not present a hazard to traffic. The pavement shall be cleaned by sweeping and the work area shall be reopened to traffic.

Pavement millings shall become the property of the Contractor and shall be removed and disposed of off-site.

COMPENSATION

477.80: Method of Measurement

Milled Rumble Strip (Type A), Milled Rumble Strip (Type C), and Milled Rumble Strip (Type D) will be measured by the total length of installed rumble strip. Milled Rumble Strip (Type B) will be measured by the total length of installed rumble strip excluding the designed gaps. Breaks at castings, bridge decks, intersections or other breaks will not be measured for payment for all types.

477.81: Basis of Payment

Payment for Milled Rumble Strip (Type A), Milled Rumble Strip (Type B), Milled Rumble Strip (Type C), and Milled Rumble Strip (Type D) will be made at the contract unit price per foot of rumble strips, complete in place. Such payment will be full compensation for furnishing all equipment and labor for satisfactorily performing the work including cleanup and disposal of excess materials.

477.82: Payment Items

Item number	Description	Unit
477.	Milled Rumble Strip (Type A)	Foot
477.1	Milled Rumble Strip (Type B)	Foot
477.2	Milled Rumble Strip (Type C)	Foot
477.3	Milled Rumble Strip (Type D)	Foot

SUBSECTION 482: SAWCUTTING

Subsection 482.80: Method of Measurement
Replace this subsection with the following:

Sawcutting, when included in the Contract as its own bid item, will be measured for payment by the foot along the cut line, regardless of depth.

SECTION 600: HIGHWAY GUARD, FENCES AND WALLS

SUBSECTION 628: IMPACT ATTENUATORS

Subsection 628.82: Payment Items
Replace this subsection with the following:

Item number	Description	Unit
628.302	Permanent Impact Attenuator, Non-Redirective, TL-2	Each
628.303	Permanent Impact Attenuator, Non-Redirective, TL-3	Each
628.304	Temporary Impact Attenuator, Non-Redirective, TL-2	Each
628.305	Temporary Impact Attenuator, Non-Redirective, TL-3	Each
628.312	Permanent Impact Attenuator, Redirective, TL-2	Each
628.313	Permanent Impact Attenuator, Redirective, TL-3	Each
628.314	Temporary Impact Attenuator, Redirective, TL-2	Each
628.315	Temporary Impact Attenuator, Redirective, TL-3	Each
628.322	Permanent Impact Attenuator, Low-Maintenance, TL-2	Each
628.323	Permanent Impact Attenuator, Low-Maintenance, TL-3	Each

SECTION 800: TRAFFIC CONTROL DEVICES

SUBSECTION 813: WIRING, GROUNDING AND SERVICE CONNECTIONS

Subsection 813.20: General
Replace this subsection with the following:

This work shall consist of furnishing and installing wire and cable of the type and size indicated for traffic signals and other traffic control devices, ITS systems, highway lighting and related electrical systems, equipment grounding systems, new ground electrodes or connections to existing ground electrodes, power pedestals, and all materials and equipment necessary to deliver power to such systems.

Service points shown on the plans are approximate only. The Contractor shall determine exact locations for both overhead and underground service access points. The Contractor shall determine riser elevations or connections/routing to manhole facilities from the serving utility, and arrange to complete the service connections.

All work under this Subsection shall comply with the MEC and the National Electrical Safety Code.

Subsection 813.41: Grounding and Bonding Conductions
Replace this subsection with the following:

Grounding and bonding conductors shall conform to M8.16.10: Type 10 Grounding and Bonding Conductors (Solid or Stranded, Insulated or Bare).

Subsection 813.42: Ground Rods
Replace this subsection with the following:

Ground rods shall consist of driven rod(s) conforming to M8.17.0: Ground Rod or other devices approved for the purpose.

Subsection 813.44: Power Pedestal
Add this subsection in numerical order:

A Power Pedestals shall consist of a side-of-post mounted lockable load center enclosure, a load center with circuit breakers, an exterior-mounted electrical meter, signal post and base, equipment bonding, ground rod(s) conforming to 813.42: Ground Rods, and a cement concrete foundation. The enclosure, lock, circuit breakers, signal post and base, and foundation shall all be included in the Shop Drawing submission.

The enclosure shall be rated to meet or exceed NEMA 3R and be suitable for post-mounting and shall be sized appropriately to house the load center. The enclosure shall be capable of being secured with an integrated locking mechanism or by a Contractor-supplied padlock; regardless of locking mechanism, it shall be operated with a #2 key.

The circuit breakers shall be designed for single-phase, 3-wire, 120/240 VAC. Circuit breakers shall provide a means to manually operate a circuit and/or automatically open a circuit that is in overload or short circuit conditions. All circuit breakers shall be UL listed and have CSA certification.

The enclosure shall be furnished with a meter socket installed. The meter socket shall be approved by the servicing electrical utility.

The signal post and base shall conform to M10.05.1: Signal Posts and Bases and the Plans. The Contractor shall supply a square aluminum base with a natural or anodized finish and a Schedule 80 aluminum post with a brushed or spun finish, unless otherwise indicated in the Plans.

The Contractor shall supply mounting equipment recommended by the enclosure manufacturer to side-mount the cabinet to the post.

Bonding for the Power Pedestal shall utilize a #8 AWG or larger ASTM-B3 wire.

The cement concrete foundation shall conform to the Plans and M4.02.0: Concrete Produced by Stationary and Truck Mixers, M4.03.0: Concrete Produced by Volumetric Mixers, M4.06.1: Conventional Concrete, M4.09.0: Precast, Prestressed, and Prefabricated Concrete Products, M4.11.0: Evaporation Reducing Materials, and M4.12.0: Curing Materials, as applicable.

Subsection 813.64: Power Pedestal
Add this subsection in numerical order:

No work shall commence until Shop Drawings have been approved.

The Power Pedestal Cabinet shall be mounted side-of-post to the Signal Post, per the manufacturer's recommendations. The Power Pedestal Cabinet should be installed directly below the meter socket, per the Plans. If dissimilar metals are present, they shall be electrically insulated to prevent galvanic corrosion.

The Contractor shall supply the appropriate type (single pole or double pole) and number of circuit breakers included within the Power Pedestal Cabinet to provide the recommended AC power to each device receiving power from the Cabinet. The circuit breakers shall be clearly labeled as to which device they are powering (e.g. RRFB-1, RRFB-2, Warning Beacon, Speed Feedback Sign, etc.).

The Power Pedestal shall be grounded and bonded per 813.61: Equipment Grounding and Bonding and 813.62: Grounding Electrodes.

Subsection 813.80.E: Power Pedestal
Add this subsection in numerical order:

Power Pedestals will be measured by the number of Power Pedestals each furnished and installed.

Subsection 813.81.E: Power Pedestal
Add this subsection in numerical order:

Power Pedestals will be paid for at the contract unit price for each installed in place. This includes all labor and materials required for a working system.

All costs associated with grounding and bonding of Power Pedestals shall be considered incidental to the item.

All costs associated with providing service connections to Power Pedestals shall be paid for under their respective pay items.

Subsection 813.82: Payment Items
Change the unit of measure for items 813.80 and 813.81 to Each and add the following pay item:

Subsection 815.82: Payment Items
Delete payment items 818.90 to 818.94, 819.39, 819.832, 819.52, 819.53, 819.60 to 819.64, 819.70, 819.71, 819.72, 819.800, 819.801, 819.802, 819.803,:819.810, 819.811, 819.820, 819.821, 819.850, 819.851, 819.852.

Add the following payment item:

813.90	Power Pedestal	Each

SUBSECTION 819: TRAFFIC SIGNAL DETECTION

Subsection 819: Traffic Signal Detection
Add this subsection:

DESCRIPTION

819.20: General

Work under this Subsection consists of furnishing and installing detection devices for vehicles, bicycles, pedestrians, and other road users.

MATERIALS

819.40: General

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

Material	Section
Vehicle Detection Systems	M10.08.0
Passive Stop Line Detectors	M10.08.1
Passive Advanced Detectors	M10.08.2
Pedestrian Detectors	M10.09.0
Pedestrian Pushbutton Assembly	M10.09.1
APS Pushbutton Assembly	M10.09.2

The Contractor shall furnish Vehicle Detection Systems (VDS) and Pedestrian Detectors that are listed on the QTCE.

Any software, firmware, cables, or adapters required to program, adjust, fine-tune, or monitor VDS or Pedestrian Detectors shall be provided by the Contractor. VDS and Pedestrian Detectors shall have the latest versions of software and/or firmware installed prior to inspection. Manufacturer updates to software and/or firmware shall be included at no cost for the life of the products.

819.40.A: Vehicle Detection Systems

A VDS shall consist of one or more Internet Protocol (IP) -based detector/sensor assemblies and a cabinet interface device that is installed in a Traffic Signal Controller Cabinet or similar device.

Stop Line VDS shall be capable of providing motor vehicle and bicycle detection at all locations shown on the Plans. The Contractor may furnish a VDS that utilizes a single detector/sensor or multiple, as long as all stop line motor vehicle and bicycle detection zones are encompassed and the traffic signal or other device utilizing the detection can operate per the Plans. All Passive Stop Line Detectors required to provide stop line detection at an intersection shall be included in the cost of a single Stop Line Vehicle Detection System.

If the Contractor furnishes a Stop Line VDS that does not utilize an integrated video monitoring system, a separate video monitoring system per 819.41: Video Monitoring System shall be furnished and installed at no additional cost.

Advanced VDS shall be capable of providing motor vehicle detection on a single approach, at the location shown on the Plans. The Contractor Shall furnish Passive Advanced Detectors that utilize, and are compatible with, the same interface device installed in the Traffic Signal Controller Cabinet, or similar device, as the Stop Line VDS.

All VDSs shall be furnished with manufacturer-supplied mounting hardware.

If multiple VDSs over multiple locations are supplied under a single contract, all components furnished by the Contractor shall be of the same make and model.

819.40.B: Pedestrian Detectors

Pedestrian Pushbutton Assembly and Accessible Pedestrian Signal (APS) Pushbutton Assembly shall both include a pushbutton, sign, housing, manufacturer-specified mounting hardware, and wiring. The Contractor shall review the Contract Documents to determine if one or more in-cabinet control units are required to meet the pedestrian detector type and operational requirements. In-cabinet control units shall be considered incidental to the cost of the item.

The Contractor shall provide a pushbutton housing that conforms to the shape of the pole it is mounted to or shall furnish and install a manufacturer-supplied saddle to provide a flush, secure fit, at no additional cost.

An APS Pushbutton Assembly shall include a pedestrian pushbutton sign that conforms to the Plans. If the sign is not integral to the housing, separate mounting equipment shall be furnished and installed by the Contractor. All costs associated with the sign and mounting equipment shall be considered incidental to the cost of the item.

819.41: Video Monitoring System

When required by 819.40.A: Vehicle Detection Systems, the Contractor shall furnish and install a Video Monitoring System. The Video Monitoring System shall consist of one or more IP-based 4K, 1080p, H.264 dome-type CCTV cameras; mounting hardware, including but not limited to: brackets, bands, straps, posts, plates, and pole mount adapters; power distribution and conditioning equipment including surge suppression; and all necessary cabling and wiring.

All equipment provided for the Video Monitoring System shall be commercial, off-the-shelf products. Custom equipment designed specifically for the Contract will not be accepted. All cabling and wiring shall be recommended by the manufacturer and rated for outdoor use. Any special wiring or connectors required by the manufacturer shall be identified in the Shop Drawings.

The Video Monitoring System shall conform to National Electrical Manufactures Association (NEMA) standards, Underwriters' Laboratory (UL), and Military Standards (MIL), as applicable. All components of the Video Monitoring System shall be new and still under production by the manufacturer. Obsolete, no longer produced, and/or no longer supported components will not be accepted.

The Video Monitoring System shall be capable of operating in temperatures ranging from -29°F to +165°F.

The camera shall meet or exceed the requirements found in Table 819.41-1:

Table 819.41-1: Minimum Camera Requirements

Feature	Requirement
Zoom Ratio	The minimum zoom ratio shall be 30x Optical and 12x Digital
Camera Type	The camera shall be an IP-type CCTV camera.
Auto Focus	The camera shall include auto focus with a selection for manual override of auto focus.
Lens Aperture Ratio	Typical: F/1.6 to F/4.7 (wide to telephoto)
On-Screen Direction	The CCTV camera shall display on-screen azimuth indications.
Privacy Zones	The CCTV camera shall be programmable to blank out up to 8, four-sided areas to electronically block portions of the camera's field of view from being

Feature	Requirement
	displayed. These privacy zones shall move and adjust sizing synchronously with camera movements and degree of lens zooming.
On-Screen Labels, Text and Titles	The CCTV camera shall display a minimum of 20 programmable characters for on-screen camera ID, preset position, sector, and alarm titles.
On-Screen Labels, Text and Title Positioning	The position of the on-screen text shall be adjustable to appear at selectable positions on the CCTV camera screen image.
Number of Pixels	The camera shall provide a minimum of 1280H x 720V effective pixels. The camera shall be capable of being configured to operate at all standard lower resolutions down to 320H x 180V effective pixels.
Image Sensor Size	The camera shall include an image sensor of 1/1.8 in., nominal.
Lens Focal Length	The camera shall include a zoom lens of 4.3 mm to 129 mm, minimum focal length.
Color and Black & White Image Selection	The camera shall have Color and Black & White video image display modes incorporating both automatic and manual override image mode selection. The camera shall transition automatically to a Black & White mode (when in automatic mode) when the luminance level reaches a user predefined threshold. At all times the camera shall provide a full motion video output at 30 frames per second.
Image Stabilization	The CCTV camera shall incorporate electronic image stabilization to reduce the effects of vibration and wind gusts on the displayed video image.
Automatic Iris	The camera shall include both automatic iris control and an override for manual iris adjustments.
Wide Dynamic Range	The CCTV camera's wide dynamic range shall be 120 dB.
CCTV Camera Optical Sensitivity	The camera's sensitivity shall be sufficient to provide a clear, usable color video image display with a scene illumination of ≤ 0.1 lux at an aperture of F1.6, nominal.
Power Input	The power input for the CCTV camera and dome shall be PoE+.
Alarms	No alarm contacts shall be wired.

The Contractor shall mount the camera at a location that optimizes line-of-sight for all approaches. The view of each approach shall have a clear line of sight, free from obstructions from trees, overhead wires, buildings, and/or other obstructions. If the Contractor is unable to provide a clear line of sight for all approaches to the satisfaction of the Engineer, a second camera, including mounting hardware, cabling, and wiring, shall be furnished and installed on a different traffic signal structure at no additional cost.

The Contractor shall be responsible for the following items prior to installation:

- Ensure that all components are assembled and factory-tested prior to delivery to the project site.
- Fully configure the camera settings, including but not limited to: camera resolution, camera address, default settings, and pre-set and home positions, per the direction of the Engineer.
- Coordinate with the Engineer to set the camera address number to provide unique identification that is compatible with the CCTV camera addressing schema utilized by the Department.

The Contractor shall deliver the camera(s) fully assembled to the project site.

The Contractor shall provide up to 3 hard copy sets of operating manuals, service manuals, and maintenance instructions for all components of the system. At the request of the Engineer, the number of copies may be reduced if the manuals are provided in .pdf file format.

819.42: Material Warranties

All components of Vehicle Detection Systems, including Video Monitoring Systems, and Pedestrian Detectors shall include a minimum two-year manufacturer's replacement warranty that will commence upon acceptance by the Engineer. The warranty shall cover any manufacturing defects of the products.

Construction Methods

819.60: General

The Contractor shall use discretion in installing the detectors/sensors at locations that optimize the performance of the VDS and to eliminate false calls. The Contractor shall notify the Engineer if the size or location of the detection zones differs from what is shown in the Plans. At the direction of the Engineer, the Contractor will be required to readjust the location of the detection zones and/or modify the detection channels if false calls are observed or the traffic signal system is not operating per the Plans due to the performance of the VDS; this work shall be considered incidental to the cost of the item.

The Contractor shall use manufacturer-specified mounting hardware for all detectors/sensors. If mounted to mast arms or strain poles, any addition weight or wind loading from the detector/sensor shall be accounted for in the structural calculations.

The Contractor shall install the cabinet interface device in the traffic signal controller cabinet. The cabinet interface device shall be connected to the Field Monitoring Unit (FMU) or an ethernet switch in the traffic signal controller cabinet. All communication between devices shall be IP-based. Use of external communications that are not routed through the FMU is prohibited.

The Contractor shall furnish and install low voltage power cabling surge protection equipment required for all data and power lines associated with VDS, Video Monitoring Systems, and/or Pedestrian Detection Systems entering the traffic signal controller cabinet.

The Contractor shall install the manufacturer-specified cable between the detectors/sensors to the cabinet interface device in the traffic signal controller cabinet via traffic signal structures, conduit, and/or pullboxes. This shall include all connectors, sealing tape, and incidental work to complete the connection(s). All equipment installation and wiring shall be installed in a neat and orderly manner and per the manufacturer's specifications.

The VDS shall be powered through one of the power outlets available on the FMU. The VDS shall be capable of being powered down and remotely restarted through remote control of the power outlet on the FMU.

Under the supervision of the Engineer, the Contractor shall install the VDS software that allows visual confirmation of the detection zones on Department computers.

The Contractor shall install Pedestrian Detectors at the location(s) and mounting height shown on the Plans.

The Contractor shall mount and orient the APS Pushbutton Assembly in a manner so that the vibrotactile arrow is aligned parallel to the crosswalk.

Prior to acceptance, the Contractor shall furnish all passwords for Vehicle Detection Systems and Pedestrian Detectors to the Engineer. The use of default passwords is prohibited.

819.61: Programming APS Pushbuttons

Each APS Pushbutton shall have an audible walk indication during the associated walk interval. The duration of the audible walk indication shall match the duration of the walk interval unless the pedestrian signal is programmed to rest in walk. If programmed to rest in walk, the audible walk indication shall be limited to 7 seconds in length but may be recalled by a subsequent button press during the walk interval.

The APS Pushbutton locator tone and audible walk indication shall be programmed to broadcast at volume 5 dBA louder than ambient sound, except when audible beaconing is provided in response to an extended pushbutton press. The broadcast volume shall be programmed to not exceed 100 dBA at 3 ft. from the emitter, regardless of ambient noise conditions.

The locator tone shall have a duration of 0.15 seconds or less and shall repeat at 1-second intervals.

The locator tone shall be active during all signal intervals, except for the following conditions:

- When the audible walk indication is being broadcast.
- If the signal is programmed to rest in walk, the locator tone shall resume 7 seconds after the start of the walk interval.
- The locator tone shall be disabled if the traffic control signal or pedestrian hybrid beacon is operating in an emergency or fault flashing mode.

The locator tone shall be active during the flashing yellow and alternating flashing red intervals of a pedestrian hybrid beacon phasing sequence.

Upon button press, the locator tone at that pushbutton shall be interrupted and a speech message of “Wait” shall be broadcast.

The normal status of the pilot light shall be dark. The pilot light shall illuminate upon button press and stay illuminated until the start of the walk interval, when it shall return to dark. If the associated pedestrian phase is set to pedestrian recall, the pilot light shall stay illuminated for all intervals except for the walk interval.

The audible walk indication shall an audible tone unless a speech message is called for in the Plans. The audible tone shall repeat at 8 to 10 ticks per second, in multiple frequencies, with the dominant component at 880 Hz.

If a speech message is used, the following shall apply:

- For exclusive pedestrian phases, during the walk interval the speech message shall be: “walk sign is on for all crossings.” This message shall be broadcast a single instance.
- *For concurrent pedestrian phases, during the walk interval the speech message shall be: “[STREET NAME]. Walk sign is on for [STREET NAME].” This message shall be broadcast a single instance.
- If the signal is programmed to rest in walk, the concurrent pedestrian speech message shall be repeated upon each subsequent button press.

*Note: See Plans for Street Name information.

The vibrotactile arrow shall vibrate during the walk interval.

The Contractor shall include a fault relay that will default to placing a constant pedestrian call from any pushbutton assembly that fails to communicate back to the in-cabinet control unit.

The Contractor shall connect the in-cabinet control unit to the Field Monitoring Unit (FMU) via an open ethernet port.

819.62: VDS Testing and Evaluation

After the VDS is installed, but prior to acceptance, the Contractor shall conduct an evaluation of the system in the presence of the Engineer. The purpose of the evaluation is to certify the system is operating per the requirements of M10.08.0: Vehicle Detection Systems, M10.08.1: Passive Stop Line Detectors, and M10.08.2: Passive Advanced Detectors, as applicable. The Contractor shall submit their testing and evaluation plan as a part of the Shop Drawing submittal.

The testing and evaluation shall take place for a minimum of 30 minutes under moderate live traffic conditions. Testing shall not be conducted during inclement weather.

If the Engineer determines that the system does not meet the operational requirements, the Contractor will be required to adjust the location, orientation, and/or number of detector/sensors. The Contractor may also adjust the location of the detection zones at this time. Upon completion of this work, the system shall be reevaluated in the presence of the Engineer. This process shall be repeated until the operational requirements are met.

All costs associated with testing and evaluation of the VDS, including the repositioning or addition of new materials, shall be considered incidental to the item.

Compensation

819.80: Method of Measurement

Stop Line Vehicle Detection Systems will be measured as each system furnished and installed.

Advanced Vehicle Detection Systems will be measured as each system furnished and installed.

Pedestrian Pushbuttons and APS Pushbuttons will be measured as each pushbutton furnished and installed.

819.81: Basis of Payment

Stop Line Vehicle Detection Systems will be paid for each system installed at an intersection. For the purposes of this work, an intersection shall be defined as all roadway, path, and/or trail approaches controlled by a single traffic signal controller. Where a Video Monitoring System is required per 819.40: General, it shall be included in the cost of Item 819.840.

Advanced Vehicle Detection System will be paid for each system installed on an intersection approach.

Pedestrian Pushbutton and APS Pushbutton will be paid for each pushbutton assembly installed. The pedestrian sign mounted directly above the pushbutton shall be considered incidental to the item.

The unit cost of each vehicle detection system or pushbutton item shall include all wiring, cabling, mounting hardware, software, firmware, video monitoring system (if required), testing, calibrating, Department Acceptance, training, and all other labor and materials required for the system(s) to operate per the Plans.

819.82: Payment Items

Item number	Description	Unit
819.840	Stop Line Vehicle Detection System	Each
819.845	Advanced Vehicle Detection System	Each
819.850	Pedestrian Pushbutton	Each
819.855	APS Pushbutton	Each

SUBSECTION 850: TRAFFIC CONTROLS FOR CONSTRUCTION AND MAINTENANCE OPERATIONS

Subsection 850.25: Arrow Board
Subsection 850.45: Arrow Board
Subsection 850.65: Arrow Board
Delete these subsections.

Subsection 850.80: Method of Measurement
Delete the 7th paragraph beginning with "Arrow Board will be measured …"

Subsection 850.81: Basis of Payment
Delete the 7th paragraph beginning with "Arrow Board will be paid for …"

Subsection 850.82: Payment Items
Revise description and unit of item 852. to Safety Signing for Traffic Management / Square Foot.
Delete item number 856.

SUBSECTION 856: CONNECTED WORK ZONE NOTIFICATION SYSTEM AND ASSOCIATED DEVICES

Subsection 856: Connected Work Zone Notification System and Associated Devices
Add this new subsection.

DESCRIPTION

856.20: General

The Connected Work Zone Notification System (CWZNS) is a system of field devices that transmit real-time location-based data about work zones. CWZNS field device data is provided in a Work Zone Data Exchange (WZDx) Device Feed in accordance with the United States Department of Transportation (USDOT) WZDx Specification. The Device Feed is consumed by the MassDOT Work Zone Manager (WZM) application.

The Contractor shall be responsible for furnishing, installing, repositioning, operating, maintaining, and removing these CWZNS devices.

MATERIALS

856.40: General

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

Material	Section
Connected Work Zone Notification System Devices	M10.18.0
Location Marker	M10.18.1
Connected Arrow Board	M10.18.2

End Location Markers shall conform to M10.18.1: Location Marker and include power and communication status lights and an on/off switch.

856.41: Arrow Board

Arrow Boards shall consist of a matrix of yellow elements that may be illuminated in flashing or sequential patterns, on a non-reflective, black background. The light output from the Arrow Board shall meet the minimum legibility distance, per the MUTCD. The elements shall be capable of at least 50% dimming from full brilliance to avoid nighttime glare. Arrow Boards that are continuously operational in both daylight and nighttime conditions shall automatically adjust the light output based upon ambient light conditions.

The mounting height of the Arrow Board, when in operation, shall be per the Plans.

The minimum dimensions and number of elements for Arrow Boards shall be per Table 856.41-1.

Table 856.41-1: Arrow Board Dimensions and Elements

Item Numbers	MUTCD Type	Minimum Dimensions (width by height)	Minimum Number of Elements
856.060, 856.160	B	60 in. by 30 in.	13
856.096, 856.196	C	96 in. by 48 in.	15

Arrow Boards shall be capable of the following operating modes, per the MUTCD:

- Four Corners Flashing Caution
- Alternating Diamond Caution
- Flashing Arrow (left or right)
- Sequential Chevron (left or right)
- Flashing Double Arrow

Arrow Boards that are categorized as "Connected Arrow Boards" (Items 856.160 and 856.196) shall meet the requirements of M10.18.2: Connected Arrow Board in addition to the requirements of an Arrow Board described in this Subsection.

856.42: Shop Drawings

Within 30 days of the Notice to Proceed, the Contractor shall submit to the Engineer for review and approval cut sheets for each model of CWZNS device to be used. The cut sheets shall document device specifications, including details of how the CWZNS device will communicate. Work that requires the use of CWZNS devices shall not commence until the submission has been approved.

CONSTRUCTION METHODS

856.60: General

At least 15 days prior to deploying CWZNS devices, the Contractor shall visit the site to verify cellular coverage. If the devices the Contractor plans to deploy do not have coverage, the Contractor shall swap out the cellular modem, SIM card, or both to a carrier that provides coverage. If no adequate cellular coverage exists from 4G LTE or 5G providers, the Contractor shall immediately notify the Engineer.

The Contractor shall install CWZNS devices at the locations shown on the Plans.

Per the WZDx Specification Device Feed, an End Location Marker shall have a single MarkedLocation with the "type" property as "work-zone-end".

The Contractor shall install and power on the End Location Marker coinciding with the deployment of the temporary traffic control setup that calls for its use. The Contractor shall power down and remove the Location Marker at the conclusion of the removal of the temporary traffic control setup. If the location of the work moves during a work shift, the Contractor shall power down the Location Marker, relocate it, and then power it back on.

The operating mode for the Arrow Board or Connected Arrow Board shall be per the Plans. When activated, the minimum element on-time shall be 50% for the flashing mode, with equal intervals of 25% for each sequential phase. The flashing rate shall be not less than 25 or more than 40 flashes per minute.

If a Connected Arrow Board is being used to transmit its location without utilizing other arrow board functions, such as operating a Flashing Arrow, the arrow board shall remain dark and removed from the roadway or protected from approaching traffic while the data is being transmitted.

The Contractor shall be responsible for remediating any CWZNS device that is not operating as specified, at no additional cost to the Department.

CWZNS devices that are lost, stolen, vandalized, damaged, destroyed, or deemed unacceptable while their use is required on the project shall be replaced by the Contractor at no additional cost to the Department.

COMPENSATION

856.80: Method of Measurement

Arrow Boards and Connected Arrow Boards will be measured by the Day. Each period of up to 24 hours during which an Arrow Board or Connected Arrow Board is in use will be measured as one day, regardless of the number of times that the unit is positioned, repositioned, removed, or returned to service.

End Location Markers will be measured by the Day. Each period of up to 24 hours during which a End Location Marker is in use will be measured as one day, regardless of the number of times that the unit is positioned, repositioned, removed, or returned to service.

856.81: Basis of Payment

Arrow Boards and Connected Arrow Boards will be paid for at the contract unit price per day which shall include full compensation for labor and materials, positioning, repositioning, and removing or returning to service.

End Location Markers will be paid for at the contract unit price per day which shall include full compensation for labor and materials, positioning, repositioning, and removing or returning to service.

If an End Location Marker is attached to another traffic control device that is not otherwise called for in the Plans or Specifications, that ancillary device shall be considered incidental to the cost of the End Location Marker.

Licenses, fees, communication costs, power costs, and access to real-time and recorded data associated with the Device Feed for CWZNS devices shall be considered incidental to the cost of the item.

The Department will not pay for CWZNS devices that fail to operate as specified.

856.82: Payment Items

Item number	Description	Unit
856.060	Arrow Board (Type B)	Day
856.096	Arrow Board (Type C)	Day
856.160	Connected Arrow Board (Type B)	Day
856.196	Connected Arrow Board (Type C)	Day
856.201	End Location Marker	Day

SECTION 900: STRUCTURES

SUBSECTION 901: CEMENT CONCRETE

Subsection 901.20: Materials

Delete Asphaltic Materials – M3, Preformed Bituminous Fiber Joint Filler – M3.05.3 and add the following in M number sequence:

Preformed Expansion Joint Filler	M9.14.0

SUBSECTION 983: REVETMENT

Subsection 983.40: General
Delete Preformed Bituminous Fiber Joint Filler – M3.05.3 and add the following in M number sequence:

Preformed Expansion Joint Filler	M9.14.0

DIVISION III

MATERIALS SPECIFICATIONS

SECTION M3: ASPHALTIC MATERIALS

Subsection M3.05.5: Preformed Bituminous Joint Filler for Concrete
Delete this subsection.

SECTION M9: MISCELLANEOUS MATERIALS

Subsection M9.14.0: Preformed Expansion Joint Filler
Replace this subsection with the following:

Preformed expansion joint filler for concrete applications and structural construction shall meet the requirements specified herein. The Contractor shall provide certified test data which documents compliance with the required physical properties. The certified test data shall be submitted to the Engineer for approval.

Table M9.14.0-1: Types of Preformed Expansion Joint Filler

Specification	Type and Description
AASHTO M 153	Type I – Sponge Rubber Type II – Cork Type III – Self-Expanding Cork Type IV – Polyurethane-Bonded Recycled Rubber
AASHTO M 213	Type I – Asphalt-Saturated Cellulosic Fiber Type II – Asphalt Binder-Cork with Asphalt-Saturated or Glass Fiber Felt Type III – Polyurethane-Bonded Recycled Rubber
ASTM D1752	Type IV – Recycled PVC
ASTM D7174	Type I – Closed-Cell Polyethylene or Blended Polyethylene Foam
ASTM D8139	Type I – Closed-Cell Polypropylene Foam

Subsection M9.14.2: Closed Cell Foam Joint Filler
Delete this subsection:

M10.03.1: Field Monitoring Unit

All Field Monitoring Units (FMU) shall be compatible with the MassDOT Critical Operations Multi-jurisdictional Modular System (MCOMMS), cloud-based management system.

Subsection M9.14.2: Closed Cell Foam Joint Filler
Delete this subsection:

SECTION M10: TRAFFIC CONTROL DEVICES

Subsection M10.03.1: Field Monitoring Unit
Add these new subsections:

M10.03.1: Field Monitoring Unit

All Field Monitoring Units (FMU) shall be compatible with the MassDOT Critical Operations Multi-jurisdictional Modular System (MCOMMS), cloud-based management system.

FMUs shall be capable of operating independently from the brand of traffic signal controller, vehicle and pedestrian detection systems, battery backup system (BBS), and any other Ethernet-based, web accessible device present in the traffic signal controller cabinet.

M10.03.1.A: Hardware

The FMU shall communicate via an Ethernet port with an RJ45 connector and have an integrated Ethernet switch with a minimum of four ports.

The FMU shall be powered via standard 120 VAC input power. The FMU shall include an integrated battery and battery charging/monitoring circuit that will allow the FMU to fully function even if all other electrical service to the cabinet has been interrupted. The battery shall continue to supply the FMU with power for a minimum of 5 hours on a single charge.

The FMU shall have an integrated GPS that will allow for automated telemetry without additional configuration. The GPS shall be capable of providing a time sync pulse to the internal clock of a connected traffic signal controller. The FMU shall utilize the integrated GPS to geolocate itself on a map via the FMU management software.

M10.03.1.B: Software

The configuration of the FMU shall be accomplished by accessing FMU management software via an internet browser. It shall be possible to configure the FMU without any special software.

The FMU shall operate without requiring a static IP address. The only configuration required at the FMU is to enter the URL to the host of the FMU management software.

The FMU shall utilize HTTPS protocols and XML data structure for communications with the FMU management software. The data shall be scalable for future expansion; proprietary protocols shall not be used.

M10.03.1.C: Wireless Connectivity

The FMU shall be supplied with an internal 4G LTE cellular modem.

The modem shall support future upgrades to 5G service, when available, and shall be compatible with SIM cards from multiple cellular carriers.

M10.03.1.D: Remote Access

Remote access to any traffic signal cabinet component that has a web interface via the FMU shall not require the end user to create a separate Virtual Private Network (VPN) connection.

Subsection M10.08.0: Vehicle Detection Systems
Subsection M10.08.0: Vehicle Detection Systems
Subsection M10.08.0: Vehicle Detection Systems
Add theses new subsections:

M10.08.0: Vehicle Detection Systems

Vehicle Detection Systems (VDS) shall be capable of detecting the presence of all motor vehicle types and bicycles in designated areas and sending corresponding detector outputs to a traffic signal controller.

All in-cabinet components of VDS shall be compatible with the following standards:

- ATCC 5301 v02
- ATC 5201 v06
- NEMA TS2 environmental standards

Through an ethernet-based connection to the detection module and/or cabinet interface device in the field or through the internal network of the traffic signal controller cabinet, the VDS shall support remote management of motor vehicle and bicycle detection configurations and access to data including:

- The number, location, and size of detection zones.
- Configuration of the detector channel and assigned phase for each zone.
- Configuration of detection zones for signal performance measurement data collection.
- The ability to add and remove users.
- Signal performance data:
  - Monitoring and recording the status of the phase and detector channels from the traffic signal controller through the SIU bus at a frequency of no less than 10 times per second.
  - Estimation of the speed of vehicles at defined, user-configurable points, such as entering or exiting a detection zone.
  - Retrieval of the signal performance data through an http-based Application Programming Interface (API), or equivalent process, in .xml, .json, or .csv format.
  - The data shall be available in a per vehicle format, be viewable in real time, and store at least 168 hours of data locally on the device.

VDS shall be capable of supporting user-based restrictions to limit functionality, including:

- The ability to make changes to the VDS settings.
- The ability to view imagery or digital video streams.
- The ability to view and download signal performance data.

VDS shall be capable of automatically determining if the system's ability to accurately detect vehicles and shall default to a constant call state if this system error is detected.

VDS shall be capable of classifying vehicles based upon length and/or number of axles.

VDS shall be capable of performing all detection, classification, and data collection functions in the absence of an internet connection.

VDS shall be capable of providing remote access to the latest images or digital video stream of all IP video units through either an HTTP request or through a Real Time Streaming Protocol compatible with RFC2326 standards. VDS that do not utilize video shall be able to display the current state of the vehicle detection zones and approximate vehicle locations in a digital twin model of the intersection.

M10.08.1: Passive Stop Line Detectors

Passive Stop Line Detectors shall demonstrate a reliability of 99% or greater for vehicle detection functions.

Passive Stop Line Detectors shall be able to track and classify turning movements for all motor vehicle types and bicycles and shall demonstrate an accuracy of 95% or greater for turning movement counts.

M10.08.2: Passive Advanced Detectors

Passive Advanced Detectors shall be capable of detecting all motor vehicle types at a minimum distance of 600 ft upstream of the stop line.

Subsection M10.09.0: Pedestrian Detectors
Subsection M10.09.1: Pedestrian Pushbutton Assembly
Subsection M10.09.2: APS Pushbutton Assembly
Add theses new subsections:

M10.09.0: Pedestrian Detectors

Pedestrian Detectors shall be capable of detecting the presence of pedestrians and placing a corresponding call for a phase in a traffic signal controller or similar device.

Pedestrian Detectors may be pushbuttons or passive detection devices.

Components of Pedestrian Detectors shall meet NEMA TS2 compliance for temperature and humidity, mechanical shock and vibration, transient voltage protection, transient suppression, and electrical reliability.

If Pedestrian Detectors include an in-cabinet control unit, it shall meet the following requirements:

- Operate on a cabinet-supplied 120 VAC power source.
- Include labelled LED indicators for each channel operation.
- Include a 10/100BaseT, RJ45 ethernet connector port.
- Capable of communication with the Pedestrian Detectors to allow for remote programming and firmware updates via the ethernet connection.
- Capable of supporting a minimum of 4 pedestrian detectors per NEMA pedestrian phase and up to 16 pushbuttons.
- Will automatically reset upon loss of internal communication.

M10.09.1: Pedestrian Pushbutton Assembly

A Pedestrian Pushbutton Assembly shall consist of a pushbutton, a sign, and a housing to mount those devices to a post.

The pushbutton shall be a minimum of 2 in. in diameter and the force to activate it shall be no greater than 5 lbs. The pushbutton must be weather-tight and tamper-resistant.

The pushbutton shall meet one of the following criteria:

- A normally open, mechanical phenolic enclosed, positive-acting, spring-loaded, audible (i.e., click) snap-action switch with single pole, single throw contacts; or
- A piezo-driven solid state switch rated for a minimum of 50 V, a minimum of 20 million cycles, and capable of providing an audible indication of actuation.

The pushbutton shall have an operating voltage range of 12 to 36 VDC.

The housing shall be yellow.

Housings that include an integral sign mount for the pedestrian pushbutton sign shall be capable of mounting a 9 in. by 12 in. or 9 in. by 15 in. sign (width by height).

M10.09.2: APS Pushbutton Assembly

An APS Pushbutton Assembly shall meet all of the requirements of M10.09.1: Pedestrian Pushbutton Assembly, and the following.

The pushbutton shall have a vibrotactile arrow. The arrow shall have high visual contrast (light on dark or dark on light).

APS Pushbutton Assembly shall be capable of the following:

- Emitting a locator tone.
- Providing two types of audible walk indications: an audible tone in multiple frequencies and a speech message. The type of audible walk indication will be programmed by Contractor per the Plans.
- Emitting sound via one or more speakers that automatically adjust to ambient noise and shall also be capable of being capped at a preprogrammed level.
- Providing three functions as a result of an extended pushbutton press: increased crossing time, audible beaconing, and speech pushbutton information. The function of the extended pushbutton press will be programmed by the Contractor per the Plans.

APS Pushbutton Assembly shall include a latching red LED pilot light.

Subsection M10.18.: Connected Work Zone Notification System Devices
Add this new subsection.

M10.18.0: Connected Work Zone Notification System Devices

Connected Work Zone Notification System (CWZNS) devices shall include the following:

- An internal 4G LTE or 5G cellular modem. The modem shall be compatible with SIM cards from multiple cellular carriers, or the device shall be capable of using a cellular modem from more than one cellular carrier.
- An integrated GPS that will allow for automated telemetry without additional configuration.
- A self-contained power source that can be recharged without manual intervention. The power source shall enable uninterrupted operation of the CWZNS field device.
- Mounting and supporting hardware and wiring necessary to complete a working system.

CWZNS devices shall be capable of operating in temperatures ranging from -40°F to +122°F with no degradation in operation due to rain, fog, snow, ice, darkness, dust, or road debris.

CWZNS devices shall be physically and digitally secured to prevent unauthorized access.

When powered on, real-time data from CWZNS devices shall be provided in a USDOT Work Zone Data Exchange (WZDx) Specification Device Feed version 4.2. The Device Feed shall then be able to be consumed by the MassDOT Work Zone Manager (WZM) application. The Device Feed shall meet the following requirements:

- Each manufacturer of CWZNS field devices and Smart Work Zone (SWZ) field devices shall provide a single statewide Device Feed (a single URL) that consists of that manufacturer's field devices that are used by or under the direction of the Department.
- The Device Feed shall be made available via an HTTP GET request. The response shall be the WZDx Device Feed JSON object without a wrapper or paging.
- The Device Feed shall be public or use "Basic" HTTP Authentication.
- The Device Feed shall be provided over HTTPS.
- The Device Feed shall reflect changes in CWZNS field device status (e.g., display changed or device moved) no later than 60 seconds after they occur.
- For each CWZNS field device, the "update date" property shall be no older than 60 minutes, except when it has stopped communicating or is otherwise in error.
- The "id" property of each CWZNS field device feature in the Device Feed shall stay the same for the duration of the Contract and shall be a Universally Unique IDentifier (UUID) to guarantee uniqueness between feeds and over time.

M10.18.1: Location Marker

Location Markers shall meet the requirements of M10.18.0: Connected Work Zone Notification System Devices.

Location Markers may be standalone devices or an attachment to a channelizing device. Either type shall be certified to comply with the relevant minimum TL-3 testing requirements of the *Manual on Assessing Safety Hardware*.

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END OF SUPPLEMENTAL SPECIFICATIONS

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CONTRACT PROVISIONS FOR
FEDERAL-AID CONSTRUCTION CONTRACTS

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

ATTACHMENTS

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

I. GENERAL

1. Historically, contracting agencies using Federal-aid highway funds were required to ensure Form FHWA-1273 was physically incorporated into all contracts and subcontracts. Effective June 10, 2026, this requirement was eliminated [91 FR 25492]. Future use of Form FHWA-1273 is now optional on the part of the contracting agency using Federal-aid highway funds. FHWA continues to make Form FHWA-1273 available as a convenience to contracting agencies. Contracting agencies must continue to ensure compliance with the provisions cited in Form FHWA-1273 in accordance with the provisions regardless of the use of Form FHWA-1273. Accordingly, the contracting agency retains the authority to determine whether the contractor must use Form FHWA-1273 to physically incorporate required contract provisions in each subcontract and in lower tier contracts. Where permitted by the contracting agency, the contractor may choose other ways to include required contract provisions in each subcontract, besides incorporating Form FHWA-1273. Contract provisions in Form FHWA-1273 are not required to be physically included in subcontracts for design services on Federal-aid design-build contracts, or in purchase orders, rental agreements and other agreements for supplies or services.

The applicable provisions of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor or design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents.

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

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

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

II. NONDISCRIMINATION

The contractor and all subcontractors must comply with the following policies: 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27, including any amendments thereto.

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

The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract.

1.Assurances Required:

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

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

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

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

III. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

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

1. Minimum wages (29 CFR 5.5)

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

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

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

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

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

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

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

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

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

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

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

(3) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the

classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to DBAconformance@dol.gov. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30–day period that additional time is necessary.

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

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

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

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

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

2. Withholding (29 CFR 5.5)

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

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

(1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(2) A contracting agency for its reprocurement costs;

(3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(4) A contractor's assignee(s);

(5) A contractor's successor(s); or

(6) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901–3907.

3. Records and certified payrolls (29 CFR 5.5)

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

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

of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

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

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

b. *Certified payroll requirements* (1) *Frequency and method of submission.* The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the contracting agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

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

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

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

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

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

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

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

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

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

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

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

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

(3) *Required information disclosures.* Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

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

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

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

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

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

b. *Equal employment opportunity.* The use of apprentices and journeyworkers under this part must be in conformity with 29 CFR part 30, including any amendments thereto.

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

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

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

6. Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs (1) through (11) of this section, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the

contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

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

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

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

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

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

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

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

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

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

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

IV. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

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

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

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1. of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1. of this section.

* $33 as of January 15, 2025 (See 90 FR 1859) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

3. Withholding for unpaid wages and liquidated damages

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

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

(1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(2) A contracting agency for its reprocurement costs;

(3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(4) A contractor's assignee(s);

(5) A contractor's successor(s); or

(6) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901–3907.

4. Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

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

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or

d. Informing any other person about their rights under CWHSSA or this part.

V. SUBLETTING OR ASSIGNING THE CONTRACT

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

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

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

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

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

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

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

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

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however,

contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VI. SAFETY: ACCIDENT PREVENTION

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

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

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

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

VII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

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

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

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

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

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

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

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

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

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

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

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

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

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

1**. Instructions for Certification – First Tier Participants:**

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

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this

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

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

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

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

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

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

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

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

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

* * * * *

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

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

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

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

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

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

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

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

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

* * * * *

3. **Instructions for Certification - Lower Tier Participants:**

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

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

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

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

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

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

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

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

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

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

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

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

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

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

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

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

* * * * *

X. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

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

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

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

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

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

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

XI. USE OF UNITED STATES-FLAG VESSELS:

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

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

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

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

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

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS (40 U.S.C. sections 14501(d) and 14701 and the Appalachian Regional Commission Code as authorized under 40 U.S.C. section 14302)
This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

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

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

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

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

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

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

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

5. The provisions of 40 U.S.C. 14501 allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

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

DOCUMENT 00811

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

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

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

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

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

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

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

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

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

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

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

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DOCUMENT 00812

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

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

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

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

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

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

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

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

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

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

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DOCUMENT 00813

SPECIAL PROVISIONS

PRICE ADJUSTMENTS FOR STRUCTURAL STEEL AND REINFORCING STEEL

September 10, 2026

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	$0.59
2	ASTM A27 (AASHTO M103) Steel Castings, H-Pile Points & Pipe Pile Shoes (See Note below.)	$0.83
3	ASTM A668 / A668M (AASHTO M102) Steel Forgings	$0.83
4	ASTM A108 (AASHTO M169) Steel Forgings for Shear Studs	$0.85
5	ASTM A709/A709M Grade 36 / AASHTO M270M/M270 Grade 36 or 250 Structural Steel Plate	$0.89
6	ASTM A709/A709M Grade 36 / AASHTO M270M/M270 Grade 36 or 250 Structural Steel Shapes	$0.84
7	ASTM A709/A709M Grade 50 / AASHTO M270M/M270 Grade 50 or 345 Structural Steel Plate	$0.89
8	ASTM A709/A709M Grade 50 / AASHTO M270M/M270 Grade 50 or 345 Structural Steel Shapes	$0.84
9	ASTM A709/A709M Grade 50WT / AASHTO M270M/M270 Grade 50WT or 345WT Structural Steel Plate	$0.92
10	ASTM A709/A709M Grade 50WT / AASHTO M270M/M270 Grade 50WT or 345WT Structural Steel Shapes	$0.85
11	ASTM A709/A709M Grade 50W / AASHTO M270M/M270 Grade 50W 345W Structural Steel Plate	$0.92
12	ASTM A709/A709M Grade 50W / AASHTO M270M/M270 Grade 50W or 345W Structural Steel Shapes	$0.85
13	ASTM A709/A709M Grade HPS 50W / AASHTO M270M/M270 Grade HPS 50W or 345W Structural Steel Plate	$0.97
14	ASTM A709/A709M Grade HPS 70W / AASHTO M270M/M270 Grade HPS 70W or 485W Structural Steel Plate	$1.04
15	ASTM A514/A514M-05 Grade HPS 100W / AASHTO M270M/M270 Grade HPS 100W or 690W Structural Steel Plate	$1.59
16	ASTM A992/A992M Grade 50S / AASHTO M270M/M270 Grade 50S or 345S Structural Steel Plate	$0.92
17	ASTM A992/A992M Grade 50S / AASHTO M270M/M270 Grade 50S or 345S Structural Steel Shapes	$0.85
18	ASTM A276 Type 316 Stainless Steel	$4.78
19	ASTM A240 Type 316 Stainless Steel	$4.78
20	ASTM A148 Grade 80/50 Steel Castings (See Note below.)	$1.64
21	ASTM A53 Grade B Structural Steel Pipe	$1.04
22	ASTM A500 Grades A, B, 36 & 50 Structural Steel Pipe	$1.04
23	ASTM A252, Grades 240 (36 KSI) & 414 (60 KSI) Pipe Pile	$0.83
24	ASTM 252, Grade 2 Permanent Steel Casing	$0.83
25	ASTM A36 (AASHTO M183) for H-piles, steel supports and sign supports	$0.87
26	ASTM A328 / A328M, Grade 50 (AASHTO M202) Steel Sheetpiling	$1.57
27	ASTM A572 / A572M, Grade 50 Sheetpiling	$1.57
28	ASTM A36/36M, Grade 50	$0.89
29	ASTM A570, Grade 50	$0.87
30	ASTM A572 (AASHTO M223), Grade 50 H-Piles	$0.89
31	ASTM A1085 Grade A (50 KSI) Steel Hollow Structural Sections (HSS), heat-treated per ASTM A1085 Supplement S1	$1.04
32	AREA 140 LB Rail and Track Accessories	$0.54

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

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DOCUMENT 00814

SPECIAL PROVISIONS
PRICE ADJUSTMENT FOR PORTLAND CEMENT CONCRETE MIXES

January 12, 2009

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

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

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

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

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

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

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

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

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

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DOCUMENT 00820

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

I. Definitions

For purposes of this contract,

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

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

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

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

II. Equal Opportunity, Non-Discrimination and Affirmative Action

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

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

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

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

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

III. Minority and Women Workforce Participation

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

IV. Liaison Committee

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

V. Reports and Records

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

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

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

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

VI. Access to Work Site

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

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

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

VIII. Sanctions

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

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

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

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

IX. Severability

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

X. Contractor's Certification

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

XI. Subcontractor Requirements

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

Rev'd 03/07/14

*** END OF DOCUMENT ***

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DOCUMENT 00821

ELECTRONIC REPORTING REQUIREMENTS
CIVIL RIGHTS PROGRAMS AND CERTIFIED PAYROLL

Implemented on March 2, 2009 Revised June 04, 2019

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

Contractor and Sub-Contractor EBO User Certification

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

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

Vetting of Firms and Designated Firm Individuals

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

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

Interim Reporting Requirements

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

*** END OF DOCUMENT ***

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DOCUMENT 00859

CONTRACTOR/SUBCONTRACTOR CERTIFICATION FORM ‡

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

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

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

Contract No: 136650 **Project No.** 607420 **Federal Aid No.:** HIP(NGB)-003S(965)X

Location: NATICK

Project Description: Bridge Replacement, N-03-012, Boden Lane over CSX/MBTA

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

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

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

Document #

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

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

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

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

Document #

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

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

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

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

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

PART 2

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

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

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

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

_____
(Print Name and Title)

_____
(Authorized Signature)

_____
(Date)

Rev'd 09/02/22

*** END OF DOCUMENT ***

DOCUMENT 00860

COMMONWEALTH OF MASSACHUSETTS PUBLIC EMPLOYMENT LAWS

Revised February 20, 2019

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

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

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

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

The Prevailing Wage Rate generally includes the following:

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

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

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

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

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

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

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

STATEMENT OF COMPLIANCE

Date: _____

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

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

_____
(Contractor or Subcontractor)

on the _____
(MassDOT Project Location and Contract Number)

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

Signature _____

Title _____

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

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

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

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

*** END OF DOCUMENT ***

DOCUMENT 00861

STATE PREVAILING WAGE RATES

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

MAURA HEALEY
Governor
KIM DRISCOLL
Lt. Governor

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

LAUREN JONES
Secretary
MICHAEL FLANAGAN
Director

Awarding Authority:	Massachusetts Highway	**City/Town:**	NATICK
Wage Request No:	20260904132958	**Job Location:**	NATICK – Federal Aid Project No. HIP(NGB)-003S(965)X Bridge Replacement, N-03-012, Boden Lane over
Description of Work:	NATICK – Federal Aid Project No. HIP(NGB)-003S(965)X Bridge Replacement, N-03-012, Boden Lane over CSX/MBTA		
Contract Number:	136650		

§§ 26-27D Construction Project

This Prevailing Wage Schedule establishes the minimum wage rates that employees on this public works construction project must be paid. The project's Wage Request Number is listed above and on all pages of this Schedule. This schedule applies **only** to this specific project.

Awarding Authority Responsibilities

- You must include this Prevailing Wage Schedule (PWS) or an appropriate reference to it in all advertisements and calls for bids.
- The PWS must be incorporated in its entirety into all contracts for this project (G.L. c. 149, § 27).
- The wage rates on this PWS will remain in effect for the duration of the project. **Exception:** You must request an updated schedule for any multi-year construction project no later than 2 weeks before the project's yearly anniversary date.
  - For CM AT RISK projects, the anniversary date is the earlier of the signing date of: (a) the GMP Amendment; or (b) the first amendment to permit procurement of construction services.
  - For all other construction projects, the anniversary date is the date the contract was signed by the Awarding Authority and the General Contractor.
- You must also request an updated PWS if you have not opened bids or selected a contractor within 90 days of the date of issuance on this PWS.
  - For CM AT RISK projects, the earlier of (a) the signing date of the GMP Amendment; or (b) the bid for the first construction scope of work must be within 90 days of the date of issuance on this Schedule.
- You must provide any updated PWS to all contractors working on the project, including general and sub-contractors.
- You must keep the contractors' weekly certified payroll records and Statements of Compliance on file for **3 years.**
- Awarding authorities have other prevailing wage responsibilities not listed above. Learn more at: **[Prevailing wage: for awarding authorities | Mass.gov]** and G.L. c. 149, §§ 26-27D.

Contractor Responsibilities

- You must pay all employees who perform construction work on this project at least the wage rate listed on this PWS. **Warning!** If you do not follow this requirement, you can face civil fines, criminal charges, or private lawsuits.
- You must post this PWS at the worksite where it can be easily seen. (G.L. c. 149, § 27)
- You must file weekly payroll reports and a Statement of Compliance with the awarding authority (**not** DLS). You can file payroll reports by mail or email and must keep them on file for 3 years. Each weekly payroll report must include each employees' name, address, occupational classification(s), hours worked, and wages paid. Find a sample report at: mass.gov/dols/pw.
- You cannot pay any employees at the apprentice rates listed on this PWS unless they are registered with the Massachusetts Division of Apprentice Standards (DAS). Qualifying apprentices must be paid at the applicable step rate and must carry their apprentice ID card during all work hours on the project. Apprentices **not** registered with DAS must be paid at the listed journeyworker's rate, even if they are registered with a different federal/state public agency or private entity. For every week in which apprentice rates are paid, a copy of each apprentice's apprentice ID card issued by DAS shall be attached to the certified payroll records.
- If you don't know what classification or rate applies to the work being performed, you must ask DLS; paying the wrong rate subjects you to enforcement.
- Please contact DLS if you have any questions about the Prevailing Wage Schedule: (617) 626-6953 or **DLS.Feedback@mass.gov**

Employees who are **not** paid the wage listed on the Prevailing Wage Schedule (PWS) may file a complaint with the Attorney General's Fair Labor Division: **www.mass.gov/ago/fld**; **(617) 727-3465.**

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
(2 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	6/1/2026	$41.95	$16.17	$21.78	$0.00	$0.00	$79.90
	12/1/2026	$41.95	$16.17	$23.52	$0.00	$0.00	$81.64
	1/1/2027	$41.95	$16.77	$23.52	$0.00	$0.00	$82.24
(3 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	6/1/2026	$42.02	$16.17	$21.78	$0.00	$0.00	$79.97
	12/1/2026	$42.02	$16.17	$23.52	$0.00	$0.00	$81.71
	1/1/2027	$42.02	$16.77	$23.52	$0.00	$0.00	$82.31
(4 & 5 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	6/1/2026	$42.14	$16.17	$21.78	$0.00	$0.00	$80.09
	12/1/2026	$42.14	$16.17	$23.52	$0.00	$0.00	$81.83
	1/1/2027	$42.14	$16.77	$23.52	$0.00	$0.00	$82.43
ADS/SUBMERSIBLE PILOT PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 1) For apprentice rates see "Apprentice- PILE DRIVER"	1/1/2024	$117.16	$10.08	$11.62	$12.67	$0.00	$151.53
AIR TRACK OPERATOR LABORERS LABORERS - ZONE 2	6/1/2026	$42.41	$10.90	$9.75	$9.11	$0.00	$72.17
	12/1/2026	$43.85	$10.90	$9.75	$9.11	$0.00	$73.61
	6/1/2027	$45.30	$10.90	$9.75	$9.11	$0.00	$75.06
	12/1/2027	$46.75	$10.90	$9.75	$9.11	$0.00	$76.51
	6/1/2028	$48.25	$10.90	$9.75	$9.11	$0.00	$78.01
	12/1/2028	$49.75	$10.90	$9.75	$9.11	$0.00	$79.51
For apprentice rates see "Apprentice- LABORER"							
AIR TRACK OPERATOR (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY) For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"	6/1/2026	$42.41	$10.90	$9.75	$9.21	$0.00	$72.27
	12/1/2026	$43.85	$10.90	$9.75	$9.21	$0.00	$73.71
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. HEAT & FROST INSULATORS LOCAL 6 HEAT & FROST INSULATORS LOCAL 6 (BOSTON)	12/1/2025	$44.80	$14.50	$4.30	$6.75	$0.00	$70.35
ASPHALT RAKER LABORERS LABORERS - ZONE 2	6/1/2026	$41.91	$10.90	$9.75	$9.11	$0.00	$71.67
	12/1/2026	$43.35	$10.90	$9.75	$9.11	$0.00	$73.11
	6/1/2027	$44.80	$10.90	$9.75	$9.11	$0.00	$74.56
	12/1/2027	$46.25	$10.90	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$47.75	$10.90	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.25	$10.90	$9.75	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
ASPHALT RAKER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY) For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"	6/1/2026	$41.91	$10.90	$9.75	$9.21	$0.00	$71.77
	12/1/2026	$43.35	$10.90	$9.75	$9.21	$0.00	$73.21
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4 For apprentice rates see "Apprentice- OPERATING ENGINEERS"	6/1/2026	$59.38	$17.05	$13.35	$3.25	$0.00	$93.03
	12/1/2026	$60.83	$17.05	$13.35	$3.25	$0.00	$94.48

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
BACKHOE/FRONT-END LOADER	6/1/2026	$59.38	$17.05	$13.35	$3.25	$0.00	$93.03
OPERATING ENGINEERS LOCAL 4	12/1/2026	$60.83	$17.05	$13.35	$3.25	$0.00	$94.48
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
BARCO-TYPE JUMPING TAMPER	6/1/2026	$41.91	$10.90	$9.75	$9.11	$0.00	$71.67
LABORERS	12/1/2026	$43.35	$10.90	$9.75	$9.11	$0.00	$73.11
LABORERS - ZONE 2	6/1/2027	$44.80	$10.90	$9.75	$9.11	$0.00	$74.56
	12/1/2027	$46.25	$10.90	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$47.75	$10.90	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.25	$10.90	$9.75	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
BLOCK PAVER, RAMMER / CURB SETTER	6/1/2026	$42.41	$10.90	$9.75	$9.11	$0.00	$72.17
LABORERS	12/1/2026	$43.85	$10.90	$9.75	$9.11	$0.00	$73.61
LABORERS - ZONE 2	6/1/2027	$45.30	$10.90	$9.75	$9.11	$0.00	$75.06
	12/1/2027	$46.75	$10.90	$9.75	$9.11	$0.00	$76.51
	6/1/2028	$48.25	$10.90	$9.75	$9.11	$0.00	$78.01
	12/1/2028	$49.75	$10.90	$9.75	$9.11	$0.00	$79.51
For apprentice rates see "Apprentice- LABORER"							
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY)	6/1/2026	$42.41	$10.90	$9.75	$9.21	$0.00	$72.27
LABORERS	12/1/2026	$43.85	$10.90	$9.75	$9.21	$0.00	$73.71
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
BOILER MAKER	1/1/2024	$48.12	$7.07	$14.60	$6.00	$0.00	$75.79
BOILERMAKERS LOCAL 29							
BOILERMAKERS LOCAL 29							

Apprentice: BOILER MAKER

Effective Date: 1/1/2024

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

Apprentice to Journeyworker Ratio: 1:4

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	8/1/2026	$68.01	$12.84	$15.57	$7.33	$0.00	$103.75
BRICKLAYERS LOCAL 3	2/1/2027	$69.41	$12.84	$15.57	$7.33	$0.00	$105.15
BRICKLAYERS LOCAL 3 (LOWELL)							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)

Effective Date: 8/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$34.01	$12.84	$15.57	$7.33	$0.00	$69.75
2	60.00	$40.81	$12.84	$15.57	$7.33	$0.00	$76.55
3	70.00	$47.61	$12.84	$15.57	$7.33	$0.00	$83.35
4	80.00	$54.41	$12.84	$15.57	$7.33	$0.00	$90.15
5	90.00	$61.21	$12.84	$15.57	$7.33	$0.00	$96.95

Apprentice: BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)

Effective Date: 2/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$34.71	$12.84	$15.57	$7.33	$0.00	$70.45
2	60.00	$41.65	$12.84	$15.57	$7.33	$0.00	$77.39
3	70.00	$48.59	$12.84	$15.57	$7.33	$0.00	$84.33
4	80.00	$55.53	$12.84	$15.57	$7.33	$0.00	$91.27
5	90.00	$62.47	$12.84	$15.57	$7.33	$0.00	$98.21

Apprentice to Journeyworker Ratio: 1:5

BULLDOZER/GRADER/SCRAPER	6/1/2026	$58.70	$17.05	$13.35	$3.25	$0.00	$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	$60.14	$17.05	$13.35	$3.25	$0.00	$93.79
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
CAISSON & UNDERPINNING BOTTOM MAN	6/1/2026	$50.40	$10.90	$9.75	$9.80	$0.00	$80.85
LABORERS	12/1/2026	$51.90	$10.90	$9.75	$9.80	$0.00	$82.35
LABORERS - FOUNDATION AND MARINE							
For apprentice rates see "Apprentice- LABORER"							
CAISSON & UNDERPINNING LABORER	6/1/2026	$49.25	$10.90	$9.75	$9.80	$0.00	$79.70
LABORERS	12/1/2026	$50.75	$10.90	$9.75	$9.80	$0.00	$81.20
LABORERS - FOUNDATION AND MARINE							
For apprentice rates see "Apprentice- LABORER"							
CAISSON & UNDERPINNING TOP MAN	6/1/2026	$49.58	$10.90	$9.75	$9.80	$0.00	$80.03
LABORERS	12/1/2026	$51.08	$10.90	$9.75	$9.80	$0.00	$81.53
LABORERS - FOUNDATION AND MARINE							
For apprentice rates see "Apprentice- LABORER"							
CARBIDE CORE DRILL OPERATOR	6/1/2026	$41.91	$10.90	$9.75	$9.11	$0.00	$71.67
LABORERS	12/1/2026	$43.35	$10.90	$9.75	$9.11	$0.00	$73.11
LABORERS - ZONE 2	6/1/2027	$44.80	$10.90	$9.75	$9.11	$0.00	$74.56
	12/1/2027	$46.25	$10.90	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$47.75	$10.90	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.25	$10.90	$9.75	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
CARPENTER	9/1/2026	$52.10	$11.08	$11.47	$8.50	$0.00	$83.15
CARPENTERS	3/1/2027	$53.35	$11.08	$11.47	$8.50	$0.00	$84.40
CARPENTERS -ZONE 2 (Eastern Massachusetts)							

Apprentice: CARPENTER

Effective Date: 9/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$23.45	$11.08	$0.00	$1.73	$0.00	$36.26
2	45.00	$23.45	$11.08	$0.00	$1.73	$0.00	$36.26
3	55.00	$28.66	$11.08	$0.00	$3.40	$0.00	$43.14
4	55.00	$28.66	$11.08	$0.00	$3.40	$0.00	$43.14
5	70.00	$36.47	$11.08	$11.41	$5.10	$0.00	$64.06
6	70.00	$36.47	$11.08	$11.41	$5.10	$0.00	$64.06
7	80.00	$41.68	$11.08	$11.44	$6.80	$0.00	$71.00
8	80.00	$41.68	$11.08	$11.44	$6.80	$0.00	$71.00

Apprentice: CARPENTER

Effective Date: 3/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$24.01	$11.08	$0.00	$1.73	$0.00	$36.82
2	45.00	$24.01	$11.08	$0.00	$1.73	$0.00	$36.82
3	55.00	$29.34	$11.08	$0.00	$3.40	$0.00	$43.82
4	55.00	$29.34	$11.08	$0.00	$3.40	$0.00	$43.82
5	70.00	$37.35	$11.08	$11.41	$5.10	$0.00	$64.94
6	70.00	$37.35	$11.08	$11.41	$5.10	$0.00	$64.94
7	80.00	$42.68	$11.08	$11.44	$6.80	$0.00	$72.00
8	80.00	$42.68	$11.08	$11.44	$6.80	$0.00	$72.00

Apprentice to Journeyworker Ratio: 1:5

CARPENTER WOOD FRAME	10/1/2025	$27.37	$7.38	$4.47	$1.00	$0.00	$40.22
CARPENTERS	10/1/2026	$28.47	$7.38	$4.47	$1.00	$0.00	$41.32
CARPENTERS-ZONE 3 (Wood Frame)							

All Aspects of New Wood Frame Work

Apprentice: CARPENTER WOOD FRAME

Effective Date: 10/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$16.42	$7.38	$0.00	$0.00	$0.00	$23.80
2	60.00	$16.42	$7.38	$0.00	$0.00	$0.00	$23.80
3	65.00	$17.79	$7.38	$0.00	$1.00	$0.00	$26.17
4	70.00	$19.16	$7.38	$0.00	$1.00	$0.00	$27.54
5	75.00	$20.53	$7.38	$3.80	$1.00	$0.00	$32.71
6	80.00	$21.90	$7.38	$3.80	$1.00	$0.00	$34.08

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: CARPENTER WOOD FRAME

Effective Date: 10/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
7	85.00	$23.26	$7.38	$3.80	$1.00	$0.00	$35.44
8	90.00	$24.63	$7.38	$3.80	$1.00	$0.00	$36.81

Apprentice: CARPENTER WOOD FRAME

Effective Date: 10/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$17.08	$7.38	$0.00	$0.00	$0.00	$24.46
2	60.00	$17.08	$7.38	$0.00	$0.00	$0.00	$24.46
3	65.00	$18.51	$7.38	$0.00	$1.00	$0.00	$26.89
4	70.00	$19.93	$7.38	$0.00	$1.00	$0.00	$28.31
5	75.00	$21.35	$7.38	$3.80	$1.00	$0.00	$33.53
6	80.00	$22.78	$7.38	$3.80	$1.00	$0.00	$34.96
7	85.00	$24.20	$7.38	$3.80	$1.00	$0.00	$36.38
8	90.00	$25.62	$7.38	$3.80	$1.00	$0.00	$37.80

Apprentice to Journeyworker Ratio: 1:5

CEMENT MASONRY/PLASTERING PLASTERERS AND CEMENT MASONS LOCAL 534 Plasterers and Cement Masons - Zone 1	7/1/2026	$54.49	$13.35	$16.43	$7.78	$1.80	$93.85
	1/1/2027	$55.94	$13.35	$16.43	$7.78	$1.80	$95.30
	7/1/2027	$57.29	$13.35	$16.43	$7.78	$1.80	$96.65
	1/1/2028	$58.64	$13.35	$16.43	$7.78	$1.80	$98.00

Apprentice: CEMENT MASONRY/PLASTERING

Effective Date: 7/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$27.25	$13.35	$16.43	$0.00	$0.00	$57.03
2	60.00	$32.69	$13.35	$16.43	$7.78	$1.80	$72.05
3	65.00	$35.42	$13.35	$16.43	$7.78	$1.80	$74.78
4	70.00	$38.14	$13.35	$16.43	$7.78	$1.80	$77.50
5	75.00	$40.87	$13.35	$16.43	$7.78	$1.80	$80.23
6	80.00	$43.59	$13.35	$16.43	$7.78	$1.80	$82.95
7	90.00	$49.04	$13.35	$16.43	$7.78	$0.00	$86.60

Apprentice: CEMENT MASONRY/PLASTERING

Effective Date: 1/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$27.97	$13.35	$16.43	$0.00	$0.00	$57.75
2	60.00	$33.56	$13.35	$16.43	$7.78	$1.80	$72.92

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: CEMENT MASONRY/PLASTERING

Effective Date: 1/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
3	65.00	$36.36	$13.35	$16.43	$7.78	$1.80	$75.72
4	70.00	$39.16	$13.35	$16.43	$7.78	$1.80	$78.52
5	75.00	$41.96	$13.35	$16.43	$7.78	$1.80	$81.32
6	80.00	$44.75	$13.35	$16.43	$7.78	$1.80	$84.11
7	90.00	$50.35	$13.35	$16.43	$0.00	$0.00	$80.13

Apprentice to Journeyworker Ratio: 1:5

CHAIN SAW OPERATOR LABORERS LABORERS - ZONE 2	6/1/2026	$41.91	$10.90	$9.75	$9.11	$0.00	$71.67
	12/1/2026	$43.35	$10.90	$9.75	$9.11	$0.00	$73.11
	6/1/2027	$44.80	$10.90	$9.75	$9.11	$0.00	$74.56
	12/1/2027	$46.25	$10.90	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$47.75	$10.90	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.25	$10.90	$9.75	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	6/1/2026	$60.61	$17.05	$13.35	$3.25	$0.00	$94.26
	12/1/2026	$62.09	$17.05	$13.35	$3.25	$0.00	$95.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
COMPRESSOR OPERATOR OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	6/1/2026	$37.63	$17.05	$13.35	$3.25	$0.00	$71.28
	12/1/2026	$38.58	$17.05	$13.35	$3.25	$0.00	$72.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
DELEADER (BRIDGE) PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 2	1/1/2026	$59.56	$10.35	$12.00	$12.60	$0.00	$94.51

Apprentice: DELEADER (BRIDGE)

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$29.78	$10.35	$0.00	$0.00	$0.00	$40.13
2	55.00	$32.76	$10.35	$0.00	$6.93	$0.00	$50.04
3	60.00	$35.74	$10.35	$0.00	$7.56	$0.00	$53.65
4	65.00	$38.71	$10.35	$0.00	$8.19	$0.00	$57.25
5	70.00	$41.69	$10.35	$12.00	$8.82	$0.00	$72.86
6	75.00	$44.67	$10.35	$12.00	$9.45	$0.00	$76.47
7	80.00	$47.65	$10.35	$12.00	$10.08	$0.00	$80.08
8	90.00	$53.60	$10.35	$12.00	$11.34	$0.00	$87.29

Apprentice to Journeyworker Ratio: 1:1

DEMO: ADZEMAN	6/1/2026	$49.30	$10.90	$9.75	$9.65	$0.00	$79.60

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
LABORERS LABORERS - ZONE 2	12/7/2026	$50.80	$10.90	$9.75	$9.65	$0.00	$81.10
	6/7/2027	$52.40	$10.90	$9.75	$9.65	$0.00	$82.70
	12/6/2027	$54.00	$10.90	$9.75	$9.65	$0.00	$84.30
	6/5/2028	$55.68	$10.90	$9.75	$9.65	$0.00	$85.98
	12/4/2028	$57.35	$10.90	$9.75	$9.65	$0.00	$87.65
For apprentice rates see "Apprentice- LABORER"							
DEMO: BACKHOE/LOADER/HAMMER OPERATOR LABORERS LABORERS - ZONE 2	6/1/2026	$50.30	$10.90	$9.75	$9.65	$0.00	$80.60
	12/7/2026	$51.80	$10.90	$9.75	$9.65	$0.00	$82.10
	6/7/2027	$53.40	$10.90	$9.75	$9.65	$0.00	$83.70
	12/6/2027	$55.00	$10.90	$9.75	$9.65	$0.00	$85.30
	6/5/2028	$56.68	$10.90	$9.75	$9.65	$0.00	$86.98
	12/4/2028	$58.35	$10.90	$9.75	$9.65	$0.00	$88.65
For apprentice rates see "Apprentice- LABORER"							
DEMO: BURNERS LABORERS LABORERS - ZONE 2	6/1/2026	$50.05	$10.90	$9.75	$9.65	$0.00	$80.35
	12/7/2026	$51.55	$10.90	$9.75	$9.65	$0.00	$81.85
	6/7/2027	$53.15	$10.90	$9.75	$9.65	$0.00	$83.45
	12/6/2027	$54.75	$10.90	$9.75	$9.65	$0.00	$85.05
	6/5/2028	$56.43	$10.90	$9.75	$9.65	$0.00	$86.73
	12/4/2028	$58.10	$10.90	$9.75	$9.65	$0.00	$88.40
For apprentice rates see "Apprentice- LABORER"							
DEMO: CONCRETE CUTTER/SAWYER LABORERS LABORERS - ZONE 2	6/1/2026	$50.30	$10.90	$9.75	$9.65	$0.00	$80.60
	12/7/2026	$51.80	$10.90	$9.75	$9.65	$0.00	$82.10
	6/7/2027	$53.40	$10.90	$9.75	$9.65	$0.00	$83.70
	12/6/2027	$55.00	$10.90	$9.75	$9.65	$0.00	$85.30
	6/5/2028	$56.68	$10.90	$9.75	$9.65	$0.00	$86.98
	12/4/2028	$58.35	$10.90	$9.75	$9.65	$0.00	$88.65
For apprentice rates see "Apprentice- LABORER"							
DEMO: JACKHAMMER OPERATOR LABORERS LABORERS - ZONE 2	6/1/2026	$50.05	$10.90	$9.75	$9.65	$0.00	$80.35
	12/7/2026	$51.55	$10.90	$9.75	$9.65	$0.00	$81.85
	6/7/2027	$53.15	$10.90	$9.75	$9.65	$0.00	$83.45
	12/6/2027	$54.75	$10.90	$9.75	$9.65	$0.00	$85.05
	6/5/2028	$56.43	$10.90	$9.75	$9.65	$0.00	$86.73
	12/4/2028	$58.10	$10.90	$9.75	$9.65	$0.00	$88.40
For apprentice rates see "Apprentice- LABORER"							
DEMO: WRECKING LABORER LABORERS LABORERS - ZONE 2	6/1/2026	$49.30	$10.90	$9.75	$9.65	$0.00	$79.60
	12/7/2026	$50.80	$10.90	$9.75	$9.65	$0.00	$81.10
	6/7/2027	$52.40	$10.90	$9.75	$9.65	$0.00	$82.70
	12/6/2027	$54.00	$10.90	$9.75	$9.65	$0.00	$84.30
	6/5/2028	$55.68	$10.90	$9.75	$9.65	$0.00	$85.98
	12/4/2028	$57.35	$10.90	$9.75	$9.65	$0.00	$87.65
For apprentice rates see "Apprentice- LABORER"							
DIRECTIONAL DRILL MACHINE OPERATOR OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	6/1/2026	$58.70	$17.05	$13.35	$3.25	$0.00	$92.35
	12/1/2026	$60.14	$17.05	$13.35	$3.25	$0.00	$93.79
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
DIVER PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 1)	8/1/2024	$78.11	$10.08	$11.62	$10.04	$0.00	$109.85
as of 8-1-24, Apprentices with diving licenses begin at second year. % of Diver wage 70/80/90 2A $69.83, 3A $91.79,4A $102.14 Total Rate							
DIVER TENDER PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 1)	8/1/2024	$55.79	$10.08	$11.62	$12.67	$0.00	$90.16
as of 8-1-24, Apprentices with diving licenses begin at second year. % of Piledriver wage 70/80/90 2A $54.20, 3A $73.93,4A $82.05 Total Rate							
DIVER TENDER (EFFLUENT) PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 1)	8/1/2024	$83.69	$10.08	$11.62	$12.67	$0.00	$118.06
For apprentice rates see "Apprentice- PILE DRIVER"							
DIVER/SLURRY (EFFLUENT) PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 1)	8/1/2024	$117.16	$10.08	$11.62	$12.67	$0.00	$151.53
For apprentice rates see "Apprentice- PILE DRIVER"							
DRAWBRIDGE OPERATOR (Construction) DRAWBRIDGE - SEIU LOCAL 888 DRAWBRIDGE - SEIU LOCAL 888	7/1/2020	$26.77	$6.67	$3.93	$0.00	$0.16	$37.53
ELECTRICIAN ELECTRICIANS LOCAL 103 ELECTRICIANS LOCAL 103	9/1/2026	$68.78	$13.00	$14.69	$9.00	$0.00	$105.47
	3/1/2027	$69.97	$13.00	$14.73	$9.00	$0.00	$106.70
	9/1/2027	$71.88	$13.00	$14.79	$9.00	$0.00	$108.67
	3/1/2028	$73.08	$13.00	$14.82	$9.00	$0.00	$109.90

Apprentice: ELECTRICIAN

Effective Date: 9/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	$27.51	$13.00	$0.83	$0.00	$0.00	$41.34
2	40.00	$27.51	$13.00	$0.83	$0.00	$0.00	$41.34
3	45.00	$30.95	$13.00	$13.56	$4.05	$0.00	$61.56
4	45.00	$30.95	$13.00	$13.56	$4.05	$0.00	$61.56
5	50.00	$34.39	$13.00	$13.66	$4.50	$0.00	$65.55
6	55.00	$37.83	$13.00	$13.76	$4.95	$0.00	$69.54
7	60.00	$41.27	$13.00	$13.87	$5.40	$0.00	$73.54
8	65.00	$44.71	$13.00	$13.97	$5.85	$0.00	$77.53
9	70.00	$48.15	$13.00	$14.07	$6.30	$0.00	$81.52
10	75.00	$51.59	$13.00	$14.18	$6.75	$0.00	$85.52

Apprentice: ELECTRICIAN

Effective Date: 3/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	$27.99	$13.00	$0.84	$0.00	$0.00	$41.83

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
ELEVATOR CONSTRUCTOR ELEVATOR CONSTRUCTORS LOCAL 4	1/1/2026	$77.26	$16.38	$11.06	$10.70	$0.00	$115.40
ELEVATOR CONSTRUCTORS LOCAL 4	1/1/2027	$80.55	$16.48	$11.16	$11.00	$0.00	$119.19

Apprentice: ELECTRICIAN

Effective Date: 3/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
2	40.00	$27.99	$13.00	$0.84	$0.00	$0.00	$41.83
3	45.00	$31.49	$13.00	$13.57	$4.05	$0.00	$62.11
4	45.00	$31.49	$13.00	$13.57	$4.05	$0.00	$62.11
5	50.00	$34.99	$13.00	$13.68	$4.50	$0.00	$66.17
6	55.00	$38.48	$13.00	$13.78	$4.95	$0.00	$70.21
7	60.00	$41.98	$13.00	$13.89	$5.40	$0.00	$74.27
8	65.00	$45.48	$13.00	$13.99	$5.85	$0.00	$78.32
9	70.00	$48.98	$13.00	$14.10	$6.30	$0.00	$82.38
10	75.00	$52.48	$13.00	$14.20	$6.75	$0.00	$86.43

Apprentice Notes

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Apprentice to Journeyworker Ratio: 2:3

Apprentice: ELEVATOR CONSTRUCTOR

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$38.63	$0.00	$0.00	$0.00	$0.00	$38.63
2	55.00	$42.49	$16.38	$11.06	$10.70	$0.00	$80.63
3	65.00	$50.22	$16.38	$11.06	$10.70	$0.00	$88.36
4	70.00	$54.08	$16.38	$11.06	$10.70	$0.00	$92.22
5	80.00	$61.81	$16.38	$11.06	$10.70	$0.00	$99.95

Apprentice: ELEVATOR CONSTRUCTOR

Effective Date: 1/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$40.28	$0.00	$0.00	$0.00	$0.00	$40.28
2	55.00	$44.30	$16.48	$11.16	$11.00	$0.00	$82.94
3	65.00	$52.36	$16.48	$11.16	$11.00	$0.00	$91.00
4	70.00	$56.39	$16.48	$11.16	$11.00	$0.00	$95.03
5	80.00	$64.44	$16.48	$11.16	$11.00	$0.00	$103.08

Apprentice to Journeyworker Ratio: 1:1

ELEVATOR CONSTRUCTOR HELPER ELEVATOR CONSTRUCTORS LOCAL 4	1/1/2026	$54.08	$16.38	$11.06	$10.07	$0.00	$91.59
	1/1/2027	$56.39	$16.48	$11.16	$11.00	$0.00	$95.03

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
ELEVATOR CONSTRUCTORS LOCAL 4							
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"							
FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY)	6/1/2026	$41.91	$10.90	$9.75	$9.21	$0.00	$71.77
LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2026	$43.35	$10.90	$9.75	$9.21	$0.00	$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY	5/1/2026	$54.40	$16.55	$13.35	$3.25	$0.00	$87.55
OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	11/1/2026	$55.69	$16.55	$13.35	$3.25	$0.00	$88.84
	5/1/2027	$57.12	$16.55	$13.35	$3.25	$0.00	$90.27
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY	5/1/2026	$56.02	$16.55	$13.35	$3.25	$0.00	$89.17
OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	11/1/2026	$57.32	$16.55	$13.35	$3.25	$0.00	$90.47
	5/1/2027	$58.77	$16.55	$13.35	$3.25	$0.00	$91.92
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY	5/1/2026	$26.28	$16.55	$13.35	$3.25	$0.00	$59.43
OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	11/1/2026	$27.04	$16.55	$13.35	$3.25	$0.00	$60.19
	5/1/2027	$27.89	$16.55	$13.35	$3.25	$0.00	$61.04
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
FIRE ALARM INSTALLER	9/1/2026	$68.78	$13.00	$14.69	$9.00	$0.00	$105.47
ELECTRICIANS LOCAL 103 ELECTRICIANS LOCAL 103	3/1/2027	$69.97	$13.00	$14.73	$9.00	$0.00	$106.70
	9/1/2027	$71.88	$13.00	$14.79	$9.00	$0.00	$108.67
	3/1/2028	$73.08	$13.00	$14.82	$9.00	$0.00	$109.90
For apprentice rates see "Apprentice- ELECTRICIAN"							
FIRE ALARM REPAIR / MAINTENANCE	9/1/2026	$55.02	$13.00	$14.28	$7.20	$0.00	$89.50
/ COMMISSIONING ELECTRICIANS LOCAL 103 ELECTRICIANS LOCAL 103	3/1/2027	$55.98	$13.00	$14.31	$7.20	$0.00	$90.49
	9/1/2027	$57.50	$13.00	$14.36	$7.20	$0.00	$92.06
	3/1/2028	$58.46	$13.00	$14.38	$7.20	$0.00	$93.04
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"							
FIREMAN (ASST. ENGINEER)	6/1/2026	$47.55	$17.05	$13.35	$3.25	$0.00	$81.20
OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2026	$48.73	$17.05	$13.35	$3.25	$0.00	$82.38
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
FLAGGER & SIGNALER (HEAVY & HIGHWAY)	6/1/2026	$29.21	$10.90	$9.75	$9.21	$0.00	$59.07
LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2026	$29.21	$10.90	$9.75	$9.21	$0.00	$59.07
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
FLOORCOVERER	9/1/2026	$60.74	$10.33	$11.47	$8.80	$0.00	$91.34
FLOORCOVERERS LOCAL 2168 FLOORCOVERERS LOCAL 2168 ZONE I	3/1/2027	$62.24	$10.33	$11.47	$8.80	$0.00	$92.84

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: FLOORCOVERER

Effective Date: 9/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$27.33	$10.33	$0.00	$1.76	$0.00	$39.42
2	45.00	$27.33	$10.33	$0.00	$1.76	$0.00	$39.42
3	55.00	$33.41	$10.33	$0.00	$3.52	$0.00	$47.26
4	55.00	$33.41	$10.33	$0.00	$3.52	$0.00	$47.26
5	70.00	$42.52	$10.33	$11.47	$5.28	$0.00	$69.60
6	70.00	$42.52	$10.33	$11.47	$5.28	$0.00	$69.60
7	80.00	$48.59	$10.33	$11.47	$7.04	$0.00	$77.43
8	80.00	$48.59	$10.33	$11.47	$7.04	$0.00	$77.43

Apprentice: FLOORCOVERER

Effective Date: 3/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$28.01	$10.33	$0.00	$1.76	$0.00	$40.10
2	45.00	$28.01	$10.33	$0.00	$1.76	$0.00	$40.10
3	55.00	$34.23	$10.33	$0.00	$3.52	$0.00	$48.08
4	55.00	$34.23	$10.33	$0.00	$3.52	$0.00	$48.08
5	70.00	$43.57	$10.33	$11.47	$5.28	$0.00	$70.65
6	70.00	$43.57	$10.33	$11.47	$5.28	$0.00	$70.65
7	80.00	$49.79	$10.33	$11.47	$7.04	$0.00	$78.63
8	80.00	$49.79	$10.33	$11.47	$7.04	$0.00	$78.63

Apprentice Notes

Steps are 750 hrs.

Apprentice to Journeyworker Ratio: 1:1

FORK LIFT/CHERRY PICKER	6/1/2026	$59.38	$17.05	$13.35	$3.25	$0.00	$93.03
OPERATING ENGINEERS LOCAL 4	12/1/2026	$60.83	$17.05	$13.35	$3.25	$0.00	$94.48
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
GENERATOR/LIGHTING PLANT/HEATERS	6/1/2026	$37.63	$17.05	$13.35	$3.25	$0.00	$71.28
OPERATING ENGINEERS LOCAL 4	12/1/2026	$38.58	$17.05	$13.35	$3.25	$0.00	$72.23
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)	1/1/2026	$49.06	$10.35	$12.00	$12.60	$0.00	$84.01
GLAZIERS LOCAL 35							
GLAZIERS LOCAL 35 (ZONE 2)							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)	1/1/2026	$24.53	$10.35	$0.00	$0.00	$0.00	$34.88
HOISTING ENGINEER/CRANES/GRADALLS	6/1/2026	$59.38	$17.05	$13.35	$3.25	$0.00	$93.03
OPERATING ENGINEERS LOCAL 4	12/1/2026	$60.83	$17.05	$13.35	$3.25	$0.00	$94.48
OPERATING ENGINEERS LOCAL 4							

Apprentice: GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$24.53	$10.35	$0.00	$0.00	$0.00	$34.88
2	55.00	$26.98	$10.35	$0.00	$6.88	$0.00	$44.21
3	60.00	$29.44	$10.35	$0.00	$7.50	$0.00	$47.29
4	65.00	$31.89	$10.35	$0.00	$8.13	$0.00	$50.37
5	70.00	$34.34	$10.35	$12.00	$8.75	$0.00	$65.44
6	75.00	$36.80	$10.35	$12.00	$9.38	$0.00	$68.53
7	80.00	$39.25	$10.35	$12.00	$10.00	$0.00	$71.60
8	90.00	$44.15	$10.35	$12.00	$11.25	$0.00	$77.75

Apprentice to Journeyworker Ratio: 1:1

Apprentice: HOISTING ENGINEER/CRANES/GRADALLS

Effective Date: 6/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	$32.66	$0.00	$0.00	$0.00	$0.00	$32.66
2	60.00	$35.63	$17.05	$13.35	$3.25	$0.00	$69.28
3	65.00	$38.60	$17.05	$13.35	$3.25	$0.00	$72.25
4	70.00	$41.57	$17.05	$13.35	$3.25	$0.00	$75.22
5	75.00	$44.54	$17.05	$13.35	$3.25	$0.00	$78.19
6	80.00	$47.50	$17.05	$13.35	$3.25	$0.00	$81.15
7	85.00	$50.47	$17.05	$13.35	$3.25	$0.00	$84.12
8	90.00	$53.44	$17.05	$13.35	$3.25	$0.00	$87.09

Apprentice: HOISTING ENGINEER/CRANES/GRADALLS

Effective Date: 12/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	$33.46	$0.00	$0.00	$0.00	$0.00	$33.46
2	60.00	$36.50	$17.05	$13.35	$3.25	$0.00	$70.15
3	65.00	$39.54	$17.05	$13.35	$3.25	$0.00	$73.19
4	70.00	$42.58	$17.05	$13.35	$3.25	$0.00	$76.23
5	75.00	$45.62	$17.05	$13.35	$3.25	$0.00	$79.27
6	80.00	$48.66	$17.05	$13.35	$3.25	$0.00	$82.31
7	85.00	$51.71	$17.05	$13.35	$3.25	$0.00	$85.36
8	90.00	$54.75	$17.05	$13.35	$3.25	$0.00	$88.40

Apprentice to Journeyworker Ratio: 1:6

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
HVAC (DUCTWORK) SHEETMETAL WORKERS LOCAL 17 SHEETMETAL WORKERS LOCAL 17 - A	2/1/2026	$62.93	$14.91	$18.74	$9.53	$2.98	$109.09
For apprentice rates see "Apprentice- SHEET METAL WORKER"							
HVAC (ELECTRICAL CONTROLS) ELECTRICIANS LOCAL 103 ELECTRICIANS LOCAL 103	9/1/2026	$68.78	$13.00	$14.69	$9.00	$0.00	$105.47
	3/1/2027	$69.97	$13.00	$14.73	$9.00	$0.00	$106.70
	9/1/2027	$71.88	$13.00	$14.79	$9.00	$0.00	$108.67
	3/1/2028	$73.08	$13.00	$14.82	$9.00	$0.00	$109.90
For apprentice rates see "Apprentice- ELECTRICIAN"							
HVAC (TESTING AND BALANCING - AIR) SHEETMETAL WORKERS LOCAL 17 SHEETMETAL WORKERS LOCAL 17 - A	2/1/2026	$62.93	$14.91	$18.74	$9.53	$2.98	$109.09
For apprentice rates see "Apprentice- SHEET METAL WORKER"							
HVAC (TESTING AND BALANCING -WATER) PIPEFITTERS LOCAL 537 PIPEFITTERS LOCAL 537	9/1/2026	$71.71	$14.20	$14.25	$10.00	$0.00	$110.16
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
HVAC MECHANIC PIPEFITTERS LOCAL 537 PIPEFITTERS LOCAL 537	9/1/2026	$71.71	$14.20	$14.25	$10.00	$0.00	$110.16
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
HYDRAULIC DRILLS LABORERS LABORERS - ZONE 2	6/1/2026	$42.41	$10.90	$9.75	$9.11	$0.00	$72.17
	12/1/2026	$43.85	$10.90	$9.75	$9.11	$0.00	$73.61
	6/1/2027	$45.30	$10.90	$9.75	$9.11	$0.00	$75.06
	12/1/2027	$46.75	$10.90	$9.75	$9.11	$0.00	$76.51
	6/1/2028	$48.25	$10.90	$9.75	$9.11	$0.00	$78.01
	12/1/2028	$49.75	$10.90	$9.75	$9.11	$0.00	$79.51
For apprentice rates see "Apprentice- LABORER"							
HYDRAULIC DRILLS (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	6/1/2026	$42.41	$10.90	$9.75	$9.21	$0.00	$72.27
	12/1/2026	$43.85	$10.90	$9.75	$9.21	$0.00	$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
INSULATOR (PIPES & TANKS) HEAT & FROST INSULATORS LOCAL 6 HEAT & FROST INSULATORS LOCAL 6 (BOSTON)	9/1/2026	$59.02	$16.15	$11.46	$11.49	$0.00	$98.12

Apprentice: INSULATOR (PIPES & TANKS)

Effective Date: 9/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$29.51	$16.15	$11.21	$5.75	$0.00	$62.62
2	60.00	$35.41	$16.15	$11.26	$6.89	$0.00	$69.71
3	70.00	$41.31	$16.15	$11.31	$8.04	$0.00	$76.81
4	80.00	$47.22	$16.15	$11.36	$9.19	$0.00	$83.92

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice to Journeyworker Ratio: 1:4							
IRONWORKER/WELDER IRONWORKERS LOCAL 7 IRONWORKERS LOCAL 7 (BOSTON AREA)	3/16/2026	$58.65	$9.25	$12.75	$15.00	$0.00	$95.65

Apprentice: IRONWORKER/WELDER

Effective Date: 3/16/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	70.00	$41.06	$9.25	$12.75	$5.00	$0.00	$68.06
2	80.00	$46.92	$9.25	$12.75	$5.00	$0.00	$73.92
3	90.00	$52.79	$9.25	$12.75	$5.00	$0.00	$79.79
4	0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
5	0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
6	0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice to Journeyworker Ratio: 1:4							
JACKHAMMER & PAVING BREAKER OPERATOR LABORERS LABORERS - ZONE 2	6/1/2026	$41.91	$10.90	$9.75	$9.11	$0.00	$71.67
	12/1/2026	$43.35	$10.90	$9.75	$9.11	$0.00	$73.11
	6/1/2027	$44.80	$10.90	$9.75	$9.11	$0.00	$74.56
	12/1/2027	$46.25	$10.90	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$47.75	$10.90	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.25	$10.90	$9.75	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
LABORER LABORERS LABORERS - ZONE 2	6/1/2026	$41.66	$10.90	$9.75	$9.11	$0.00	$71.42
	12/1/2026	$43.10	$10.90	$9.75	$9.11	$0.00	$72.86
	6/1/2027	$44.55	$10.90	$9.75	$9.11	$0.00	$74.31
	12/1/2027	$46.00	$10.90	$9.75	$9.11	$0.00	$75.76
	6/1/2028	$47.50	$10.90	$9.75	$9.11	$0.00	$77.26
	12/1/2028	$49.00	$10.90	$9.75	$9.11	$0.00	$78.76

Apprentice: LABORER

Effective Date: 6/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$25.00	$10.90	$9.75	$9.11	$0.00	$54.76
2	70.00	$29.16	$10.90	$9.75	$9.11	$0.00	$58.92
3	80.00	$33.33	$10.90	$9.75	$9.11	$0.00	$63.09
4	90.00	$37.49	$10.90	$9.75	$9.11	$0.00	$67.25

Apprentice: LABORER

Effective Date: 12/1/2026

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

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: LABORER							
Effective Date: 12/1/2026							
Step / Percent		**Apprentice Base Wage**	**Health**	**Pension**	**Annuity**	**Supplemental Unemployment**	**Total Rate**
1 / 60.00		$25.86	$10.90	$9.75	$9.11	$0.00	$55.62
2 / 70.00		$30.17	$10.90	$9.75	$9.11	$0.00	$59.93
3 / 80.00		$34.48	$10.90	$9.75	$9.11	$0.00	$64.24
4 / 90.00		$38.79	$10.90	$9.75	$9.11	$0.00	$68.55
Apprentice to Journeyworker Ratio: 1:5							
LABORER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	6/1/2026	$41.66	$10.90	$9.75	$9.21	$0.00	$71.52
	12/1/2026	$43.10	$10.90	$9.75	$9.21	$0.00	$72.96
Apprentice: LABORER (HEAVY & HIGHWAY)							
Effective Date: 6/1/2026							
Step / Percent		**Apprentice Base Wage**	**Health**	**Pension**	**Annuity**	**Supplemental Unemployment**	**Total Rate**
1 / 60.00		$25.00	$10.90	$9.75	$9.21	$0.00	$54.86
2 / 70.00		$29.16	$10.90	$9.75	$9.21	$0.00	$59.02
3 / 80.00		$33.33	$10.90	$9.75	$9.21	$0.00	$63.19
4 / 90.00		$37.49	$10.90	$9.75	$9.10	$0.00	$67.24
Apprentice: LABORER (HEAVY & HIGHWAY)							
Effective Date: 12/1/2026							
Step / Percent		**Apprentice Base Wage**	**Health**	**Pension**	**Annuity**	**Supplemental Unemployment**	**Total Rate**
1 / 60.00		$25.86	$10.90	$9.75	$9.21	$0.00	$55.72
2 / 70.00		$30.17	$10.90	$9.75	$9.21	$0.00	$60.03
3 / 80.00		$34.48	$10.90	$9.75	$9.21	$0.00	$64.34
4 / 90.00		$38.79	$10.90	$9.75	$9.21	$0.00	$68.65
Apprentice to Journeyworker Ratio: 1:5							
LABORER: CARPENTER TENDER LABORERS LABORERS - ZONE 2	6/1/2026	$41.66	$10.90	$9.75	$9.11	$0.00	$71.42
	12/1/2026	$43.10	$10.90	$9.75	$9.11	$0.00	$72.86
	6/1/2027	$44.55	$10.90	$9.75	$9.11	$0.00	$74.31
	12/1/2027	$46.00	$10.90	$9.75	$9.11	$0.00	$75.76
	6/1/2028	$47.50	$10.90	$9.75	$9.11	$0.00	$77.26
	12/1/2028	$49.00	$10.90	$9.75	$9.11	$0.00	$78.76
For apprentice rates see "Apprentice- LABORER"							
LABORER: CEMENT FINISHER TENDER LABORERS LABORERS - ZONE 2	6/1/2026	$41.66	$10.90	$9.75	$9.11	$0.00	$71.42
	12/1/2026	$43.10	$10.90	$9.75	$9.11	$0.00	$72.86
	6/1/2027	$44.55	$10.90	$9.75	$9.11	$0.00	$74.31
	12/1/2027	$46.00	$10.90	$9.75	$9.11	$0.00	$75.76
	6/1/2028	$47.50	$10.90	$9.75	$9.11	$0.00	$77.26

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	12/1/2028	$49.00	$10.90	$9.75	$9.11	$0.00	$78.76
For apprentice rates see "Apprentice- LABORER"							
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER	6/1/2026	$41.75	$10.90	$9.75	$9.65	$0.00	$72.05
LABORERS	12/7/2026	$43.19	$10.90	$9.75	$9.65	$0.00	$73.49
LABORERS - ZONE 2	6/7/2027	$44.64	$10.90	$9.75	$9.65	$0.00	$74.94
	12/6/2027	$46.09	$10.90	$9.75	$9.65	$0.00	$76.39
	6/5/2028	$47.59	$10.90	$9.75	$9.65	$0.00	$77.89
	12/4/2028	$49.09	$10.90	$9.75	$9.65	$0.00	$79.39
For apprentice rates see "Apprentice- LABORER"							
LABORER: MASON TENDER	6/1/2026	$41.91	$10.90	$9.75	$9.11	$0.00	$71.67
LABORERS	12/1/2026	$43.35	$10.90	$9.75	$9.11	$0.00	$73.11
LABORERS - ZONE 2	6/1/2027	$44.80	$10.90	$9.75	$9.11	$0.00	$74.56
	12/1/2027	$46.25	$10.90	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$47.75	$10.90	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.25	$10.90	$9.75	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
LABORER: MASON TENDER (HEAVY & HIGHWAY)	6/1/2026	$41.91	$10.90	$9.75	$9.21	$0.00	$71.77
LABORERS	12/1/2026	$43.35	$10.90	$9.75	$9.21	$0.00	$73.21
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
LABORER: MULTI-TRADE TENDER	6/1/2026	$41.66	$10.90	$9.75	$9.11	$0.00	$71.42
LABORERS	12/1/2026	$43.10	$10.90	$9.75	$9.11	$0.00	$72.86
LABORERS - ZONE 2	6/1/2027	$44.55	$10.90	$9.75	$9.11	$0.00	$74.31
	12/1/2027	$46.00	$10.90	$9.75	$9.11	$0.00	$75.76
	6/1/2028	$47.50	$10.90	$9.75	$9.11	$0.00	$77.26
	12/1/2028	$49.00	$10.90	$9.75	$9.11	$0.00	$78.76
For apprentice rates see "Apprentice- LABORER"							
LABORER: TREE REMOVER	6/1/2026	$41.66	$10.90	$9.75	$9.11	$0.00	$71.42
LABORERS	12/1/2026	$43.10	$10.90	$9.75	$9.11	$0.00	$72.86
LABORERS - ZONE 2	6/1/2027	$44.55	$10.90	$9.75	$9.11	$0.00	$74.31
	12/1/2027	$46.00	$10.90	$9.75	$9.11	$0.00	$75.76
	6/1/2028	$47.50	$10.90	$9.75	$9.11	$0.00	$77.26
	12/1/2028	$49.00	$10.90	$9.75	$9.11	$0.00	$78.76
This classification applies to the removal of standing trees, and the trimming and removal of branches and limbs when related to public works construction or site clearance incidental to construction . For apprentice rates see "Apprentice- LABORER"							
LASER BEAM OPERATOR	6/1/2026	$41.91	$10.90	$9.75	$9.11	$0.00	$71.67
LABORERS	12/1/2026	$43.35	$10.90	$9.75	$9.11	$0.00	$73.11
LABORERS - ZONE 2	6/1/2027	$44.80	$10.90	$9.75	$9.11	$0.00	$74.56
	12/1/2027	$46.25	$10.90	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$47.75	$10.90	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.25	$10.90	$9.75	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
LASER BEAM OPERATOR (HEAVY & HIGHWAY)	6/1/2026	$41.91	$10.90	$9.75	$9.21	$0.00	$71.77
LABORERS	12/1/2026	$43.35	$10.90	$9.75	$9.21	$0.00	$73.21
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
MARBLE & TILE FINISHERS	8/1/2026	$53.84	$12.84	$15.57	$5.78	$0.00	$88.03
BRICKLAYERS LOCAL 3 BRICKLAYERS LOCAL 3 - MARBLE & TILE	2/1/2027	$54.96	$12.84	$15.57	$5.78	$0.00	$89.15

Apprentice: MARBLE & TILE FINISHERS

Effective Date: 8/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$26.92	$12.84	$15.57	$5.78	$0.00	$61.11
2	60.00	$32.30	$12.84	$15.57	$5.78	$0.00	$66.49
3	70.00	$37.69	$12.84	$15.57	$5.78	$0.00	$71.88
4	80.00	$43.07	$12.84	$15.57	$5.78	$0.00	$77.26
5	90.00	$48.46	$12.84	$15.57	$5.78	$0.00	$82.65

Apprentice: MARBLE & TILE FINISHERS

Effective Date: 2/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$27.48	$12.84	$15.57	$5.78	$0.00	$61.67
2	60.00	$32.98	$12.84	$15.57	$5.78	$0.00	$67.17
3	70.00	$38.47	$12.84	$15.57	$5.78	$0.00	$72.66
4	80.00	$43.97	$12.84	$15.57	$5.78	$0.00	$78.16
5	90.00	$49.46	$12.84	$15.57	$5.78	$0.00	$83.65

Apprentice to Journeyworker Ratio: 1:5

MARBLE MASONS,TILELAYERS & TERRAZZO MECH	8/1/2026	$70.17	$12.84	$15.57	$7.99	$0.00	$106.57
BRICKLAYERS LOCAL 3 BRICKLAYERS LOCAL 3 - MARBLE & TILE	2/1/2027	$71.57	$12.84	$15.57	$7.99	$0.00	$107.97

Apprentice: MARBLE MASONS,TILELAYERS & TERRAZZO MECH

Effective Date: 8/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$35.09	$12.84	$15.57	$7.99	$0.00	$71.49
2	60.00	$42.10	$12.84	$15.57	$7.99	$0.00	$78.50
3	70.00	$49.12	$12.84	$15.57	$7.99	$0.00	$85.52
4	80.00	$56.14	$12.84	$15.57	$7.99	$0.00	$92.54
5	90.00	$63.15	$12.84	$15.57	$7.99	$0.00	$99.55

Apprentice: MARBLE MASONS,TILELAYERS & TERRAZZO MECH

Effective Date: 2/1/2027

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

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: MARBLE MASONS,TILELAYERS & TERRAZZO MECH							
Effective Date: 2/1/2027							
Step / Percent		**Apprentice Base Wage**					
1 / 50.00		$35.79	$12.84	$15.57	$7.99	$0.00	$72.19
2 / 60.00		$42.94	$12.84	$15.57	$7.99	$0.00	$79.34
3 / 70.00		$50.10	$12.84	$15.57	$7.99	$0.00	$86.50
4 / 80.00		$57.26	$12.84	$15.57	$7.99	$0.00	$93.66
5 / 90.00		$64.41	$12.84	$15.57	$7.99	$0.00	$100.81
Apprentice to Journeyworker Ratio: 1:5							
MECH. SWEEPER OPERATOR (ON CONST. SITES)	6/1/2026	$58.70	$17.05	$13.35	$3.25	$0.00	$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	$60.14	$17.05	$13.35	$3.25	$0.00	$93.79
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
MECHANICS MAINTENANCE	6/1/2026	$58.70	$17.05	$13.35	$3.25	$0.00	$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	$60.14	$17.05	$13.35	$3.25	$0.00	$93.79
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
MILLWRIGHT (Zone 2)	1/5/2026	$46.86	$10.58	$11.47	$10.00	$0.00	$78.91
MILLWRIGHTS LOCAL 1121							
MILLWRIGHTS LOCAL 1121 - Zone 2							
Apprentice: MILLWRIGHT (Zone 2)							
Effective Date: 1/5/2026							
Step / Percent		**Apprentice Base Wage**					
1 / 55.00		$25.77	$10.58	$0.00	$5.50	$0.00	$41.85
2 / 65.00		$30.46	$10.58	$0.00	$6.50	$0.00	$47.54
3 / 75.00		$35.15	$10.58	$11.47	$7.50	$0.00	$64.70
4 / 85.00		$39.83	$10.58	$11.47	$8.50	$0.00	$70.38
Apprentice Notes							
Step 1&2 Appr. indentured after 1/6/2020 receive no pension,							
Apprentice to Journeyworker Ratio: 1:4							
MORTAR MIXER	6/1/2026	$41.91	$10.90	$9.75	$9.11	$0.00	$71.67
LABORERS	12/1/2026	$43.35	$10.90	$9.75	$9.11	$0.00	$73.11
LABORERS - ZONE 2	6/1/2027	$44.80	$10.90	$9.75	$9.11	$0.00	$74.56
	12/1/2027	$46.25	$10.90	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$47.75	$10.90	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.25	$10.90	$9.75	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
OILER (OTHER THAN TRUCK CRANES,GRADALLS)	6/1/2026	$25.07	$17.05	$13.35	$3.25	$0.00	$58.72

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2026	$25.74	$17.05	$13.35	$3.25	$0.00	$59.39
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
OILER (TRUCK CRANES, GRADALLS)	6/1/2026	$31.17	$17.05	$13.35	$3.25	$0.00	$64.82
OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2026	$31.97	$17.05	$13.35	$3.25	$0.00	$65.62
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
OTHER POWER DRIVEN EQUIPMENT - CLASS II	6/1/2026	$58.70	$17.05	$13.35	$3.25	$0.00	$92.35
OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2026	$60.14	$17.05	$13.35	$3.25	$0.00	$93.79
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
PAINTER (BRIDGES/TANKS) PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 2	1/1/2026	$59.56	$10.35	$12.00	$12.50	$0.00	$94.41

Apprentice: PAINTER (BRIDGES/TANKS)

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$29.78	$10.35	$0.00	$0.00	$0.00	$40.13
2	55.00	$32.76	$10.35	$0.00	$6.93	$0.00	$50.04
3	60.00	$35.74	$10.35	$0.00	$7.56	$0.00	$53.65
4	65.00	$38.71	$10.35	$0.00	$8.19	$0.00	$57.25
5	70.00	$41.69	$10.35	$12.00	$8.82	$0.00	$72.86
6	75.00	$44.67	$10.35	$12.00	$9.45	$0.00	$76.47
7	80.00	$47.65	$10.35	$12.00	$10.08	$0.00	$80.08
8	90.00	$53.60	$10.35	$12.00	$11.34	$0.00	$87.29

Apprentice to Journeyworker Ratio: 1:1

PAINTER (SPRAY OR SANDBLAST, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 2	1/1/2026	$50.46	$10.35	$12.00	$12.60	$0.00	$85.41

Apprentice: PAINTER (SPRAY OR SANDBLAST, NEW) *

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$25.23	$10.35	$0.00	$0.00	$0.00	$35.58
2	55.00	$27.75	$10.35	$0.00	$6.93	$0.00	$45.03
3	60.00	$30.28	$10.35	$0.00	$7.56	$0.00	$48.19
4	65.00	$32.80	$10.35	$0.00	$8.19	$0.00	$51.34
5	70.00	$35.32	$10.35	$12.00	$8.82	$0.00	$66.49
6	75.00	$37.85	$10.35	$12.00	$9.45	$0.00	$69.65
7	80.00	$40.37	$10.35	$12.00	$10.08	$0.00	$72.80

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: PAINTER (SPRAY OR SANDBLAST, NEW) *

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
8	90.00	$45.41	$10.35	$12.00	$11.34	$0.00	$79.10

Apprentice to Journeyworker Ratio: 1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT) PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 2	1/1/2026	$48.52	$10.35	$12.00	$12.60	$0.00	$83.47

Apprentice: PAINTER (SPRAY OR SANDBLAST, REPAINT)

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$24.26	$10.35	$0.00	$0.00	$0.00	$34.61
2	55.00	$26.69	$10.35	$0.00	$6.93	$0.00	$43.97
3	60.00	$29.11	$10.35	$0.00	$7.56	$0.00	$47.02
4	65.00	$31.54	$10.35	$0.00	$8.19	$0.00	$50.08
5	70.00	$33.96	$10.35	$12.00	$8.82	$0.00	$65.13
6	75.00	$36.39	$10.35	$12.00	$9.45	$0.00	$68.19
7	80.00	$38.82	$10.35	$12.00	$10.08	$0.00	$71.25
8	90.00	$43.67	$10.35	$12.00	$11.34	$0.00	$77.36

Apprentice to Journeyworker Ratio: 1:1

PAINTER / TAPER (BRUSH, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 2	1/1/2026	$49.06	$10.35	$12.00	$12.60	$0.00	$84.01

Apprentice: PAINTER / TAPER (BRUSH, NEW) *

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$24.53	$10.35	$0.00	$0.00	$0.00	$34.88
2	55.00	$26.98	$10.35	$0.00	$6.93	$0.00	$44.26
3	60.00	$29.44	$10.35	$0.00	$7.56	$0.00	$47.35
4	65.00	$31.89	$10.35	$0.00	$8.19	$0.00	$50.43
5	70.00	$34.34	$10.35	$12.00	$8.82	$0.00	$65.51
6	75.00	$36.80	$10.35	$12.00	$9.45	$0.00	$68.60
7	80.00	$39.25	$10.35	$12.00	$10.08	$0.00	$71.68
8	90.00	$44.15	$10.35	$12.00	$11.34	$0.00	$77.84

Apprentice to Journeyworker Ratio: 1:1

PAINTER / TAPER (BRUSH, REPAINT)	1/1/2026	$47.12	$10.35	$12.00	$12.60	$0.00	$82.07

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 2							

Apprentice: PAINTER / TAPER (BRUSH, REPAINT)

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$23.56	$10.35	$0.00	$0.00	$0.00	$33.91
2	55.00	$25.92	$10.35	$0.00	$6.93	$0.00	$43.20
3	60.00	$28.27	$10.35	$0.00	$7.56	$0.00	$46.18
4	65.00	$30.63	$10.35	$0.00	$8.19	$0.00	$49.17
5	70.00	$32.98	$10.35	$12.00	$8.82	$0.00	$64.15
6	75.00	$35.34	$10.35	$12.00	$9.45	$0.00	$67.14
7	80.00	$37.70	$10.35	$12.00	$10.08	$0.00	$70.13
8	90.00	$42.41	$10.35	$12.00	$11.34	$0.00	$76.10

Apprentice to Journeyworker Ratio: 1:1

PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	6/1/2026	$41.66	$10.90	$9.75	$9.21	$0.00	$71.52
	12/1/2026	$43.10	$10.90	$9.75	$9.21	$0.00	$72.96
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
PANEL & PICKUP TRUCKS DRIVER TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	6/1/2026	$41.78	$16.17	$21.78	$0.00	$0.00	$79.73
	12/1/2026	$41.78	$16.17	$23.52	$0.00	$0.00	$81.47
	1/1/2027	$41.78	$16.77	$23.52	$0.00	$0.00	$82.07
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 1)	8/1/2024	$55.79	$10.08	$11.62	$12.67	$0.00	$90.16
For apprentice rates see "Apprentice- PILE DRIVER"							
PILE DRIVER PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 1)	8/1/2024	$55.79	$10.08	$11.62	$12.67	$0.00	$90.16

Apprentice: PILE DRIVER

Effective Date: 8/1/2024

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

Apprentice to Journeyworker Ratio: 1:5

PIPEFITTER & STEAMFITTER PIPEFITTERS LOCAL 537 PIPEFITTERS LOCAL 537	9/1/2026	$71.71	$14.20	$14.25	$10.00	$0.00	$110.16

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: PIPEFITTER & STEAMFITTER							
Effective Date: 9/1/2026							
Step / Percent		**Apprentice Base Wage**					
1 / 40.00		$28.68	$14.20	$14.25	$10.00	$0.00	$67.13
2 / 45.00		$32.27	$14.20	$14.25	$10.00	$0.00	$70.72
3 / 60.00		$43.03	$14.20	$14.25	$10.00	$0.00	$81.48
4 / 70.00		$50.20	$14.20	$14.25	$10.00	$0.00	$88.65
5 / 80.00		$57.37	$14.20	$14.25	$10.00	$0.00	$95.82
Apprentice to Journeyworker Ratio: 1:3							
PIPELAYER	6/1/2026	$41.91	$10.90	$9.75	$9.11	$0.00	$71.67
LABORERS	12/1/2026	$43.35	$10.90	$9.75	$9.11	$0.00	$73.11
LABORERS - ZONE 2	6/1/2027	$44.80	$10.90	$9.75	$9.11	$0.00	$74.56
	12/1/2027	$46.25	$10.90	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$47.75	$10.90	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.25	$10.90	$9.75	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
PIPELAYER (HEAVY & HIGHWAY)	6/1/2026	$41.91	$10.90	$9.75	$9.21	$0.00	$71.77
LABORERS	12/1/2026	$43.35	$10.90	$9.75	$9.21	$0.00	$73.21
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
PLUMBERS & GASFITTERS	8/31/2026	$74.79	$15.32	$12.61	$8.00	$0.00	$110.72
PLUMBERS & GASFITTERS LOCAL 12	3/1/2027	$76.94	$15.32	$12.61	$8.00	$0.00	$112.87
PLUMBERS & GASFITTERS LOCAL 12	8/30/2027	$79.09	$15.32	$12.61	$8.00	$0.00	$115.02
	2/28/2028	$81.29	$15.32	$12.61	$8.00	$0.00	$117.22
	9/4/2028	$83.49	$15.32	$12.61	$8.00	$0.00	$119.42
	3/5/2029	$85.69	$15.32	$12.61	$8.00	$0.00	$121.62
	9/3/2029	$87.89	$15.32	$12.61	$8.00	$0.00	$123.82
	3/4/2030	$89.84	$15.32	$12.61	$8.00	$0.00	$125.77
Apprentice: PLUMBERS & GASFITTERS							
Effective Date: 8/31/2026							
Step / Percent		**Apprentice Base Wage**					
1 / 35.00		$26.18	$15.32	$4.61	$2.80	$0.00	$48.91
2 / 40.00		$29.92	$15.32	$5.22	$3.20	$0.00	$53.66
3 / 55.00		$41.13	$15.32	$7.07	$5.20	$0.00	$68.72
4 / 65.00		$48.61	$15.32	$8.30	$5.20	$0.00	$77.43
5 / 75.00		$56.09	$15.32	$9.53	$6.00	$0.00	$86.94

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: PLUMBERS & GASFITTERS

Effective Date: 3/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	35.00	$26.93	$15.32	$4.61	$2.80	$0.00	$49.66
2	40.00	$30.78	$15.32	$5.22	$3.20	$0.00	$54.52
3	55.00	$42.32	$15.32	$7.07	$4.40	$0.00	$69.11
4	65.00	$50.01	$15.32	$8.30	$5.20	$0.00	$78.83
5	75.00	$57.71	$15.32	$9.53	$6.00	$0.00	$88.56

Apprentice to Journeyworker Ratio: 1:2

PNEUMATIC CONTROLS (TEMP.) PIPEFITTERS LOCAL 537 PIPEFITTERS LOCAL 537	9/1/2026	$71.71	$14.20	$14.25	$10.00	$0.00	$110.16
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
PNEUMATIC DRILL/TOOL OPERATOR LABORERS LABORERS - ZONE 2	6/1/2026	$41.91	$10.90	$9.75	$9.11	$0.00	$71.67
	12/1/2026	$43.35	$10.90	$9.75	$9.11	$0.00	$73.11
	6/1/2027	$44.80	$10.90	$9.75	$9.11	$0.00	$74.56
	12/1/2027	$46.25	$10.90	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$47.75	$10.90	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.25	$10.90	$9.75	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	6/1/2026	$41.91	$10.90	$9.75	$9.21	$0.00	$71.77
	12/1/2026	$43.35	$10.90	$9.75	$9.21	$0.00	$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
POWDERMAN & BLASTER LABORERS LABORERS - ZONE 2	6/1/2026	$42.66	$10.90	$9.75	$9.11	$0.00	$72.42
	12/1/2026	$44.10	$10.90	$9.75	$9.11	$0.00	$73.86
	6/1/2027	$45.55	$10.90	$9.75	$9.11	$0.00	$75.31
	12/1/2027	$47.00	$10.90	$9.75	$9.11	$0.00	$76.76
	6/1/2028	$48.50	$10.90	$9.75	$9.11	$0.00	$78.26
	12/1/2028	$50.00	$10.90	$9.75	$9.11	$0.00	$79.76
For apprentice rates see "Apprentice- LABORER"							
POWDERMAN & BLASTER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	6/1/2026	$42.66	$10.90	$9.75	$9.21	$0.00	$72.52
	12/1/2026	$44.10	$10.90	$9.75	$9.21	$0.00	$73.96
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
POWER SHOVEL/DERRICK/TRENCHING MACHINE OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	6/1/2026	$59.38	$17.05	$13.35	$3.25	$0.00	$93.03
	12/1/2026	$60.83	$17.05	$13.35	$3.25	$0.00	$94.48
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
PUMP OPERATOR (CONCRETE) OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	6/1/2026	$58.70	$17.05	$13.35	$3.25	$0.00	$92.35
	12/1/2026	$60.14	$17.05	$13.35	$3.25	$0.00	$93.79

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
PUMP OPERATOR (DEWATERING, OTHER) OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	6/1/2026	$37.63	$17.05	$13.35	$3.25	$0.00	$71.28
	12/1/2026	$38.58	$17.05	$13.35	$3.25	$0.00	$72.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
READY-MIX CONCRETE DRIVER TEAMSTERS 170 TEAMSTERS 170 - Dauphinais (Bellingham)	1/1/2025	$27.60	$11.26	$6.15	$0.00	$0.00	$45.01
RECLAIMERS OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	6/1/2026	$58.70	$17.05	$13.35	$3.25	$0.00	$92.35
	12/1/2026	$60.14	$17.05	$13.35	$3.25	$0.00	$93.79
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
RIDE-ON MOTORIZED BUGGY OPERATOR LABORERS LABORERS - ZONE 2	6/1/2026	$41.91	$10.90	$9.75	$9.11	$0.00	$71.67
	12/1/2026	$43.35	$10.90	$9.75	$9.11	$0.00	$73.11
	6/1/2027	$44.80	$10.90	$9.75	$9.11	$0.00	$74.56
	12/1/2027	$46.25	$10.90	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$47.75	$10.90	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.25	$10.90	$9.75	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
ROLLER/SPREADER/MULCHING MACHINE OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	6/1/2026	$58.70	$17.05	$13.35	$3.25	$0.00	$92.35
	12/1/2026	$60.14	$17.05	$13.35	$3.25	$0.00	$93.79
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg) ROOFERS LOCAL 33 ROOFERS LOCAL 33	2/1/2026	$53.53	$14.53	$12.67	$9.03	$0.00	$89.76

Apprentice: ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg)

Effective Date: 2/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$26.77	$14.53	$6.52	$9.03	$0.00	$56.85
2	60.00	$32.12	$14.53	$12.67	$9.03	$0.00	$68.35
3	65.00	$34.79	$14.53	$12.67	$9.03	$0.00	$71.02
4	75.00	$40.15	$14.53	$12.67	$9.03	$0.00	$76.38
5	85.00	$45.50	$14.53	$12.67	$9.03	$0.00	$81.73

Apprentice Notes

** 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1

Apprentice to Journeyworker Ratio: 1:5

ROOFER SLATE / TILE / PRECAST CONCRETE ROOFERS LOCAL 33 ROOFERS LOCAL 33	2/1/2026	$53.78	$14.53	$12.67	$9.03	$0.00	$90.01

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- ROOFER"							
SHEETMETAL WORKER SHEETMETAL WORKERS LOCAL 17 SHEETMETAL WORKERS LOCAL 17 - A	2/1/2026	$62.93	$14.91	$18.74	$9.53	$2.98	$109.09

Apprentice: SHEETMETAL WORKER

Effective Date: 2/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	42.00	$26.43	$14.91	$6.19	$0.00	$0.00	$47.53
2	42.00	$26.43	$14.91	$6.19	$0.00	$0.00	$47.53
3	47.00	$29.58	$14.91	$10.93	$1.25	$1.62	$58.29
4	47.00	$29.58	$14.91	$10.93	$1.25	$1.62	$58.29
5	52.00	$32.72	$14.91	$11.66	$1.50	$1.74	$62.53
6	52.00	$32.72	$14.91	$11.66	$1.75	$1.75	$62.79
7	60.00	$37.76	$14.91	$12.84	$2.00	$1.93	$69.44
8	65.00	$40.90	$14.91	$13.58	$2.25	$2.04	$73.68
9	75.00	$47.20	$14.91	$15.06	$2.75	$2.28	$82.20
10	85.00	$53.49	$14.91	$16.53	$2.75	$2.49	$90.17

Apprentice to Journeyworker Ratio: 1:4

SPECIALIZED EARTH MOVING EQUIP < 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	6/1/2026	$42.24	$16.17	$21.78	$0.00	$0.00	$80.19
	12/1/2026	$42.24	$16.17	$23.52	$0.00	$0.00	$81.93
	1/1/2027	$42.24	$16.77	$23.52	$0.00	$0.00	$82.53
SPECIALIZED EARTH MOVING EQUIP > 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	6/1/2026	$42.53	$16.17	$21.78	$0.00	$0.00	$80.48
	12/1/2026	$42.53	$16.17	$23.52	$0.00	$0.00	$82.22
	1/1/2027	$42.53	$16.77	$23.52	$0.00	$0.00	$82.82
SPRINKLER FITTER SPRINKLER FITTERS LOCAL 550 SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1	1/1/2026	$72.05	$13.45	$7.45	$18.25	$0.00	$111.20

Apprentice: SPRINKLER FITTER

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	35.00	$25.22	$13.45	$13.84	$0.00	$0.00	$52.51
2	40.00	$28.82	$13.45	$14.75	$0.00	$0.00	$57.02
3	45.00	$32.42	$13.45	$15.67	$0.00	$0.00	$61.54
4	50.00	$36.03	$13.45	$16.57	$0.00	$0.00	$66.05
5	55.00	$39.63	$13.45	$17.49	$0.00	$0.00	$70.57
6	60.00	$43.23	$13.45	$18.40	$0.00	$0.00	$75.08
7	65.00	$46.83	$13.45	$19.32	$0.00	$0.00	$79.60
8	70.00	$50.44	$13.45	$20.22	$0.00	$0.00	$84.11
9	75.00	$54.04	$13.45	$21.15	$0.00	$0.00	$88.64
10	80.00	$57.64	$13.45	$22.05	$0.00	$0.00	$93.14

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice Notes							
Apprentice entered prior 9/30/10:							
Apprentice to Journeyworker Ratio: 1:3							
STEAM BOILER OPERATOR	6/1/2026	$58.70	$17.05	$13.35	$3.25	$0.00	$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	$60.14	$17.05	$13.35	$3.25	$0.00	$93.79
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN	6/1/2026	$58.70	$17.05	$13.35	$3.25	$0.00	$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	$60.14	$17.05	$13.35	$3.25	$0.00	$93.79
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
TELECOMMUNICATION TECHNICIAN	9/1/2026	$55.02	$13.00	$14.28	$7.20	$0.00	$89.50
TELECOMMUNICATION TECHNICIAN	3/1/2027	$55.98	$13.00	$14.31	$7.20	$0.00	$90.49
ELECTRICIANS LOCAL 103	9/1/2027	$57.50	$13.00	$14.36	$7.20	$0.00	$92.06
ELECTRICIANS LOCAL 103	3/1/2028	$58.46	$13.00	$14.38	$7.20	$0.00	$93.04
For apprentice rates and ratios see "Apprentice- ELECTRICIAN"							

Apprentice: TELECOMMUNICATION TECHNICIAN

Effective Date: 9/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$24.76	$13.00	$0.74	$0.00	$0.00	$38.50
2	45.00	$24.76	$13.00	$0.74	$0.00	$0.00	$38.50
3	50.00	$27.51	$13.00	$13.46	$3.60	$0.00	$57.57
4	50.00	$27.51	$13.00	$13.46	$3.60	$0.00	$57.57
5	55.00	$30.26	$13.00	$13.54	$3.96	$0.00	$60.76
6	60.00	$33.01	$13.00	$13.62	$4.32	$0.00	$63.95
7	65.00	$35.76	$13.00	$13.70	$4.68	$0.00	$67.14
8	70.00	$38.51	$13.00	$13.79	$5.04	$0.00	$70.34
9	75.00	$41.27	$13.00	$13.87	$5.40	$0.00	$73.54
10	80.00	$44.02	$13.00	$13.96	$5.76	$0.00	$76.74

Apprentice: TELECOMMUNICATION TECHNICIAN

Effective Date: 3/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$25.19	$13.00	$0.76	$0.00	$0.00	$38.95
2	45.00	$25.19	$13.00	$0.76	$0.00	$0.00	$38.95
3	50.00	$27.99	$13.00	$13.47	$3.60	$0.00	$58.06
4	50.00	$27.99	$13.00	$13.47	$3.60	$0.00	$58.06
5	55.00	$30.79	$13.00	$13.55	$3.96	$0.00	$61.30
6	60.00	$33.59	$13.00	$13.64	$4.32	$0.00	$64.55
7	65.00	$36.39	$13.00	$13.72	$4.68	$0.00	$67.79

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: TELECOMMUNICATION TECHNICIAN

Effective Date: 3/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
8	70.00	$39.19	$13.00	$13.81	$5.04	$0.00	$71.04
9	75.00	$41.99	$13.00	$13.89	$5.40	$0.00	$74.28
10	80.00	$44.78	$13.00	$13.97	$5.76	$0.00	$77.51

Apprentice to Journeyworker Ratio: 1:1

TERRAZZO FINISHERS	8/1/2026	$69.09	$12.84	$15.57	$8.02	$0.00	$105.52
BRICKLAYERS LOCAL 3 BRICKLAYERS LOCAL 3 - MARBLE & TILE	2/1/2027	$70.49	$12.84	$15.57	$8.02	$0.00	$106.92

Apprentice: TERRAZZO FINISHERS

Effective Date: 8/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$34.55	$12.84	$15.57	$8.02	$0.00	$70.98
2	60.00	$41.45	$12.84	$15.57	$8.02	$0.00	$77.88
3	70.00	$48.36	$12.84	$15.57	$8.02	$0.00	$84.79
4	80.00	$55.27	$12.84	$15.57	$8.02	$0.00	$91.70
5	90.00	$62.18	$12.84	$15.57	$8.02	$0.00	$98.61

Apprentice: TERRAZZO FINISHERS

Effective Date: 2/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$35.25	$12.84	$15.57	$8.02	$0.00	$71.68
2	60.00	$42.29	$12.84	$15.57	$8.02	$0.00	$78.72
3	70.00	$49.34	$12.84	$15.57	$8.02	$0.00	$85.77
4	80.00	$56.39	$12.84	$15.57	$8.02	$0.00	$92.82
5	90.00	$63.44	$12.84	$15.57	$8.02	$0.00	$99.87

Apprentice to Journeyworker Ratio: 1:5

TEST BORING DRILLER	6/1/2026	$53.25	$10.90	$9.75	$9.80	$0.00	$83.70
LABORERS LABORERS - FOUNDATION AND MARINE	12/1/2026	$54.75	$10.90	$9.75	$9.80	$0.00	$85.20

For apprentice rates see "Apprentice- LABORER"

TEST BORING DRILLER HELPER	6/1/2026	$49.37	$10.90	$9.75	$9.80	$0.00	$79.82
LABORERS LABORERS - FOUNDATION AND MARINE	12/1/2026	$50.87	$10.90	$9.75	$9.80	$0.00	$81.32

For apprentice rates see "Apprentice- LABORER"

TEST BORING LABORER	6/1/2026	$49.25	$10.90	$9.75	$9.80	$0.00	$79.70
LABORERS LABORERS - FOUNDATION AND MARINE	12/1/2026	$50.75	$10.90	$9.75	$9.80	$0.00	$81.20

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"							
TRACTORS/PORTABLE STEAM GENERATORS	6/1/2026	$58.70	$17.05	$13.35	$3.25	$0.00	$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	$60.14	$17.05	$13.35	$3.25	$0.00	$93.79
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
TRAILERS FOR EARTH MOVING EQUIPMENT	6/1/2026	$42.82	$16.17	$21.78	$0.00	$0.00	$80.77
TEAMSTERS JOINT COUNCIL NO. 10	12/1/2026	$42.82	$16.17	$23.52	$0.00	$0.00	$82.51
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2027	$42.82	$16.77	$23.52	$0.00	$0.00	$83.11
TUNNEL WORK - COMPRESSED AIR	6/1/2026	$61.48	$10.90	$9.75	$10.25	$0.00	$92.38
LABORERS	12/1/2026	$62.98	$10.90	$9.75	$10.25	$0.00	$93.88
LABORERS (COMPRESSED AIR)							
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE)	6/1/2026	$63.48	$10.90	$9.75	$10.25	$0.00	$94.38
LABORERS	12/1/2026	$64.98	$10.90	$9.75	$10.25	$0.00	$95.88
LABORERS (COMPRESSED AIR)							
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - FREE AIR	6/1/2026	$53.55	$10.90	$9.75	$10.25	$0.00	$84.45
LABORERS	12/1/2026	$55.05	$10.90	$9.75	$10.25	$0.00	$85.95
LABORERS (FREE AIR TUNNEL)							
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - FREE AIR (HAZ. WASTE)	6/1/2026	$55.55	$10.90	$9.75	$10.25	$0.00	$86.45
LABORERS	12/1/2026	$57.05	$10.90	$9.75	$10.25	$0.00	$87.95
LABORERS (FREE AIR TUNNEL)							
For apprentice rates see "Apprentice- LABORER"							
VAC-HAUL	6/1/2026	$42.24	$16.17	$21.78	$0.00	$0.00	$80.19
TEAMSTERS JOINT COUNCIL NO. 10	12/1/2026	$42.24	$16.17	$23.52	$0.00	$0.00	$81.93
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2027	$42.24	$16.77	$23.52	$0.00	$0.00	$82.53
WAGON DRILL OPERATOR	6/1/2026	$41.91	$10.90	$9.75	$9.11	$0.00	$71.67
LABORERS	12/1/2026	$43.35	$10.90	$9.75	$9.11	$0.00	$73.11
LABORERS - ZONE 2	6/1/2027	$44.80	$10.90	$9.75	$9.11	$0.00	$74.56
	12/1/2027	$46.25	$10.90	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$47.75	$10.90	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.25	$10.90	$9.75	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
WAGON DRILL OPERATOR (HEAVY & HIGHWAY)	6/1/2026	$41.91	$10.90	$9.75	$9.21	$0.00	$71.77
LABORERS	12/1/2026	$43.35	$10.90	$9.75	$9.21	$0.00	$73.21
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
WASTE WATER PUMP OPERATOR	6/1/2026	$59.38	$17.05	$13.35	$3.25	$0.00	$93.03
OPERATING ENGINEERS LOCAL 4	12/1/2026	$60.83	$17.05	$13.35	$3.25	$0.00	$94.48
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
WATER METER INSTALLER	8/31/2026	$74.79	$15.32	$12.61	$8.00	$0.00	$110.72
PLUMBERS & GASFITTERS LOCAL 12	3/1/2027	$76.94	$15.32	$12.61	$8.00	$0.00	$112.87
PLUMBERS & GASFITTERS LOCAL 12	8/30/2027	$79.09	$15.32	$12.61	$8.00	$0.00	$115.02
	2/2/2028	$81.29	$15.32	$12.61	$8.00	$0.00	$117.22
	9/4/2028	$83.49	$15.32	$12.61	$8.00	$0.00	$119.42
	3/5/2029	$85.69	$15.32	$12.61	$8.00	$0.00	$121.62
	9/3/2029	$87.89	$15.32	$12.61	$8.00	$0.00	$123.82
	3/4/2030	$89.84	$15.32	$12.61	$8.00	$0.00	$125.77

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

Outside Electrical

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
CABLE TECHNICIAN (Power Zone)	8/30/2026	$38.13	$11.00	$1.14	$1.00	$0.00	$51.27
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	$39.65	$11.25	$1.19	$1.00	$0.00	$53.09
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
CABLEMAN (Underground Ducts & Cables)	8/30/2026	$54.02	$11.00	$1.62	$11.14	$0.00	$77.78
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	$56.17	$11.25	$1.69	$11.57	$0.00	$80.68
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
DRIVER / GROUNDMAN CDL	8/30/2026	$44.49	$11.00	$1.33	$10.80	$0.00	$67.62
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	$46.26	$11.25	$1.39	$11.15	$0.00	$70.05
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs)	8/30/2026	$34.95	$11.00	$1.05	$1.00	$0.00	$48.00
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	$36.64	$11.25	$1.09	$1.00	$0.00	$49.98
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
EQUIPMENT OPERATOR (Class A CDL)	8/30/2026	$54.02	$11.00	$1.62	$15.22	$0.00	$81.86
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	$56.17	$11.25	$1.69	$15.65	$0.00	$84.76
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
EQUIPMENT OPERATOR (Class B CDL)	8/30/2026	$47.66	$11.00	$1.43	$11.65	$0.00	$71.74
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	$49.56	$11.25	$1.49	$12.03	$0.00	$74.33
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
GROUNDMAN	8/30/2026	$34.95	$11.00	$1.05	$1.00	$0.00	$48.00
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	$36.34	$11.25	$1.09	$1.00	$0.00	$49.68
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
GROUNDMAN -Inexperienced (<2000 Hrs.)	8/30/2026	$28.60	$11.00	$0.86	$1.00	$0.00	$41.46
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	$29.74	$11.25	$0.89	$1.00	$0.00	$42.88
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
JOURNEYMAN LINEMAN	8/30/2026	$63.55	$11.00	$1.91	$18.50	$0.00	$94.96
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	$66.08	$11.25	$1.98	$19.00	$0.00	$98.31
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							

Apprentice: JOURNEYMAN LINEMAN

Effective Date: 8/30/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$38.13	$11.00	$1.14	$2.50	$0.00	$52.77
2	65.00	$41.31	$11.00	$1.24	$2.50	$0.00	$56.05
3	70.00	$44.49	$11.00	$1.33	$2.50	$0.00	$59.32
4	75.00	$47.66	$11.00	$1.43	$4.00	$0.00	$64.09

Outside Electrical

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: JOURNEYMAN LINEMAN

Effective Date: 8/30/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
5	80.00	$50.84	$11.00	$1.53	$4.00	$0.00	$67.37
6	85.00	$54.02	$11.00	$1.62	$4.00	$0.00	$70.64
7	90.00	$57.20	$11.00	$1.72	$6.00	$0.00	$75.92

Apprentice: JOURNEYMAN LINEMAN

Effective Date: 8/29/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$39.65	$11.25	$1.19	$2.50	$0.00	$54.59
2	65.00	$42.95	$11.25	$1.29	$2.50	$0.00	$57.99
3	70.00	$46.26	$11.25	$1.39	$2.50	$0.00	$61.40
4	75.00	$49.56	$11.25	$1.49	$4.00	$0.00	$66.30
5	80.00	$52.86	$11.25	$1.59	$4.00	$0.00	$69.70
6	85.00	$56.17	$11.25	$1.69	$4.00	$0.00	$73.11
7	90.00	$59.47	$11.25	$1.79	$6.00	$0.00	$78.51

Apprentice to Journeyworker Ratio: 1:2

TELEDATA CABLE SPLICER OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	2/4/2019	$30.73	$4.70	$0.92	$2.25	$0.00	$38.60
TELEDATA LINEMAN/EQUIPMENT OPERATOR OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	2/4/2019	$28.93	$4.70	$0.89	$2.25	$0.00	$36.77
TELEDATA WIREMAN/INSTALLER/TECHNICIAN OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	2/4/2019	$28.93	$4.70	$0.89	$2.25	$0.00	$36.77

Additional Apprentice Information

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

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

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

DOCUMENT 00870

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS
Revised August 19, 2026

1. As used in these specifications:

   a. "Covered area" means the geographical area described in the solicitation from which this contract resulted:

   b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority.

   c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

   d. "Minority" includes:

      (i) Black (all persons having origins in any of the black African racial groups not of Hispanic origin);
      (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
      (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
      (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $ 10,000 the provisions of the specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (41 CFR 60-4.5 and 23 CFR Part 230) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in Paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

   a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

   b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

   c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

   d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

   e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

   f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

   g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

   h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

k. Validate all tests and other selection requirements are in compliance with 41 CFR Part 60-3 and 23 CFR Part 230.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables of affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11 The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered by the Office of Federal Contract Compliance programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8 and 23 CFR Part 230.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as many be required by the Government and keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

APPENDIX A

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

Area covered: Goal for Women apply nationwide

Goals and Timetables

Timetable	Goals (percent)
From Apr. 1, 1980 until further notice	6.9

APPENDIX B-80

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

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

Economic Areas

STATE:	Goals (percent)
MASSACHUSETTS	
004 Boston MA: SMSA Counties: 1123 Boston-Lowell-Brockton-Lawrence-Haverhill, MA-NH	4.0
MA Essex, MA Middlesex, MA Norfolk, MA Plymouth, MA Suffolk, NH Rockingham.	
5403 Fall River- New Bedford MA, Bristol	1.6
9243 Worcester-Fitchburg-Leominster, MA	1.6
6323 Springfield-Chicopee-Holyoke MA-CT MA Hampden, MA Hampshire	4.8
Non-SMSA Counties: MA Barnstable, MA Dukes, MA Nantucket	3.6
Non-SMSA Counties: MA Franklin	5.9

APPENDIX C

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

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Acts and Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Federal Highway Administration (FHWA), as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. **Non-discrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin (including limited English proficiency), age, sex, disability, or low-income status in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

3. **Solicitations for Subcontractors, including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to nondiscrimination on the grounds of race, color, national origin (including limited English proficiency), age, sex, disability, or low-income status.

4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto, and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Massachusetts Department of Transportation (MassDOT) or FHWA to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor will so certify to MassDOT or FHWA, as appropriate, and will set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance:** In the event of a contractor's noncompliance with the Nondiscrimination provisions of this contract, MassDOT will impose such contract sanctions as it or FHWA may determine to be appropriate, including, but not limited to:

    a. withholding payments to the contractor under the contract until the contractor complies; and/or
    b. cancelling, terminating, or suspending a control, in whole or in part.

6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations, and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as MassDOT or FHWA may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request MassDOT to enter into any litigation to protect the interests of MassDOT. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

APPENDIX D

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

PERTINENT NON-DISCRIMINATION AUTHORITIES:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21

- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-Aid programs and projects)

- Federal-Aid Highway Act of 1973 (23 U.S.C. § 324 *et seq.*) (prohibits discrimination on the basis of sex)

- Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. § 794 *et seq.*), as amended (prohibits discrimination on the basis of disability) and 49 CFR Part 27

- The Age Discrimination Act of 1975, as amended (42 U.S.C. § 6101 *et seq.*) (prohibits discrimination on the basis of age)

- Airport and Airway Improvement Act of 1982 (49 U.S.C. § 471, Section 47123), as amended (prohibits discrimination based on race, creed, color, national origin, or sex)

- The Civil Rights Restoration Act of 1987 (PL 100-209) (broadened the scope, coverage, and applicability of Title VI of the Civil Rights Act of 1964, the Age Discrimination Act of 1975, and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of Federal-Aid recipients, sub-recipients, and contractors, whether such programs or activities are Federally funded or not)

- Titles II and III of the Americans with Disabilities Act (42 U.S.C. §§ 12131-12189), as implemented by Department of Transportation regulations at 49 CFR parts 37 and 38 (prohibits discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities)

- The Federal Aviation Administration's Non-Discrimination Statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex)

- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (ensures discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations)

- Executive Order 13166, Improving Access to Services for People with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100)

- Title IX of the Education Amendments Act of 1972, as amended (20 U.S.C. 1681 *et seq.*) (prohibits discrimination on the basis of sex in education programs or activities)

*** END OF DOCUMENT ***

DOCUMENT 00880

Revised January 12, 2022

DEPARTMENT OF LABOR

Employment Standards Administration

MINIMUM WAGES FOR FEDERAL AND FEDERALLY ASSISTED CONTRACTS

"General Decision Number: MA20260021 05/18/2026

State: Massachusetts

Construction Types: Highway

Counties: Massachusetts Counties of
Middlesex

Modification Number	Publication Date
0	01/02/2026
1	05/18/2026

ELEC0103-007 09/01/2025

	Rates	Fringes
ELECTRICIAN	$ 66.17	37.08

ENGI0004-026 06/01/2025

	Rates	Fringes
POWER EQUIPMENT OPERATOR GROUP 2 BULLDOZER; GRADER/BLADE; MILLING MACHINE; ROLLER FOOTNOTE FOR POWER EQUIPMENT OPERATORS: A. PAID HOLIDAYS: NEW YEAR'S DAY, WASHINGTON'S BIRTHDAY, LABOR DAY, MEMORIAL DAY, INDEPENDENCE DAY, PATRIOT'S DAY, COLUMBUS DAY, VETERAN'S DAY, THANKSGIVING DAY, CHRISTMAS DAY	$ 57.18	33.70
POWER EQUIPMENT OPERATOR GROUP 1 BACKHOE/EXCAVATOR/TRACKHOE; BOBCAT/SKID STEER/SKID LOADER; BROOM/SWEEPER; GRADALL; LOADER; PAVER (ASPHALT, AGGREGATE, AND CONCRETE) FOOTNOTE FOR POWER EQUIPMENT OPERATORS: A. PAID HOLIDAYS: NEW YEAR'S DAY, WASHINGTON'S BIRTHDAY, LABOR DAY, MEMORIAL DAY, INDEPENDENCE DAY, PATRIOT'S DAY, COLUMBUS DAY, VETERAN'S DAY, THANKSGIVING DAY,		

CHRISTMAS DAY.....$ 57.83
33.70

IRON0007-031 09/16/2025

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

LABO0039-002 06/01/2018

Rates
Fringes
LABORER: ASPHALT, INCLUDES RAKER, SHOVELER,
SPREADER AND DISTRIBUTOR.....$ 33.50
22.92
LABORER (LANDSCAPE).....$ 33.25
22.92

PAIN0035-023 07/01/2024

Rates
Fringes
PAINTER: STEEL.....$ 56.76
36.00

SUMA2014-011 01/11/2017

Rates
Fringes
TRUCK DRIVER: FLATBED TRUCK.....$ 48.53
0.00
TRUCK DRIVER: DUMP TRUCK.....$ 38.92
9.73
TRUCK DRIVER: CONCRETE TRUCK.....$ 33.69
15.79
TRAFFIC CONTROL: LABORER-CONES/
BARRICADES/BARRELS - SETTER/MOVER/SWEEPER.....$ 44.49
12.41
TRAFFIC CONTROL: FLAGGER.....$ 23.00
20.44
PILEDRIVERMAN.....$ 45.65
23.33
PAINTER: SPRAY (LINESTRIPING).....$ 40.87
13.86
OPERATOR: POST DRIVER (GUARDRAIL/FENCES).....$ 41.49
23.07

OPERATOR: PILEDRIVER.....$ 44.46
16.94
OPERATOR: MECHANIC.....$ 48.14
17.02
OPERATOR: FORKLIFT.....$ 64.67
0.00
OPERATOR: CRANE.....$ 57.61
0.00
LABORER: GUARDRAIL INSTALLATION.....$ 37.70
15.37
LABORER: CONCRETE SAW (HAND HELD/WALK BEHIND).....$ 41.78
18.37
LABORER: COMMON OR GENERAL.....$ 36.58
19.40
CEMENT MASON/CONCRETE FINISHER.....$ 56.70
21.08
CARPENTER, INCLUDES FORM WORK.....$ 47.93
19.46

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.
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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at
https://www.dol.gov/agencies/whd/government-contracts.

Note: Executive Order 13658 generally applies to contracts subject
to the Davis-Bacon Act that were awarded on or between January 1,
2015 and January 29, 2022, and that have not been renewed or

extended on or after January 30, 2022. Executive Order 13658 does
not apply to contracts subject only to the Davis-Bacon Related Acts
regardless of when they were awarded. If a contract is subject to
Executive Order 13658, the contractor must pay all covered workers
at least $13.65 per hour (or the applicable wage rate listed on this
wage determination, if it is higher) for all hours spent performing on
the contract from May 11, 2026, through December 31, 2026. The
applicable Executive Order minimum wage rate will be adjusted annually.
Additional information on contractor requirements and worker
protections under Executive Order 13658 is available at
www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within
the scope of the classifications listed may be added after
award only as provided in the labor standards contract clauses
(29CFR 5.5 (a) (1) (iii)).

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

Union Rate Identifiers

A four-letter identifier beginning with characters other than
SU , UAVG , SA , or SC denotes that a union rate was
prevailing for that classification in the survey. Example:
PLUM0198-005 07/01/2024. PLUM is an identifier of the union
whose collectively bargained rate prevailed in the survey for
this classification, which in this example would be Plumbers.
0198 indicates the local union number or district council
number where applicable, i.e., Plumbers Local 0198. The next
number, 005 in the example, is an internal number used in
processing the wage determination. The date, 07/01/2024 in the
example, is the effective date of the most current negotiated
rate.

Union prevailing wage rates are updated to reflect all changes

over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

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

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

Survey Rate Identifiers

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

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

State Adopted Rate Identifiers

The SA identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications

and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination.
The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the SA identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

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

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

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

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

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

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

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

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

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

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END OF GENERAL DECISION

"

DOCUMENT A00801

SPECIAL PROVISIONS

NATICK
Federal Aid Project No. HIP(NGB)-003S(965)X
Bridge Replacement, N-03-012, Boden Lane over CSX/MBTA

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 2026 Standard Specifications for Highways and Bridges, the Supplemental Specifications contained in this book, the Construction Standard Details in effect as of July 2026, the 1990 Standard Drawings for Signs and Supports, the 2015 Overhead Signal Structure and Foundation Standard Drawings, the 11th Edition of the Manual on Uniform Traffic Control Devices (MUTCD) and the January 2026 Massachusetts Amendments to the MUTCD, the 1968 Standard Drawings for Traffic Signals and Highway Lighting, the latest edition of The American Standard for Nursery Stock, the Plans and these Special Provisions.

The Massachusetts Department of Transportation (MassDOT), along with the Town of Natick, proposes a replacement of the vehicular bridge over the MBTA Railroad which was taken out of service and removed after being struck in October of 2019. A temporary pedestrian bridge was installed to maintain pedestrian traffic in the interim until a replacement structure could be constructed. The proposed replacement will include removal and delivery of the temporary bridge to MassDOT, replacement of the bridge abutments and superstructure and will provide one lane of southbound vehicular travel along with a new sidewalk on the west side of Boden Lane and bicycle accommodation serving two directions of bicycle travel.

The limits of this project are to begin from the intersection of Boden Lane at West Central Street (Route 135), and end at the intersection of Boden Lane at Tamarack Road. This project is focused on constructing a new vehicular bridge for Boden Lane over the MBTA Commuter Rail Tracks in Natick. The proposed bridge cross-section will measure approximately 39' out to out width. It will accommodate one (1) 10'-0" travel lane with one (1) 4'-0" shoulder to the west and one (1) 2'-0" shoulder to the east, one (1) 10'-0" two-way bike lane with one (1) 1'-0" striped bike buffer and one (1) minimum 5'-6" sidewalk on the west side of the bridge. The bike lane buffer will be separated from the travel lane and shoulder by a 19 1/2" S3-MTL4 Railing with a type 1 protective screen.

The travel and bike lanes will have a constant 2% cross slope across the bridge sloped to the east away from the bike lanes and the sidewalk will have a 1.5% cross slope. The wearing surface will consist of a full depth roadway construction.

In addition to the proposed bridge replacement and roadway reconstruction, soldier pile and lagging walls are proposed on both sides of Boden Lane to support the roadway. Relocation of utility poles and overhead wires by private utility companies are required as part of this project. In addition, the Contractor will install new watermain, new drainage and conduit.

SUBSECTION 7.05 INSURANCE REQUIREMENTS

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

7.05.B: Public Liability Insurance 4.

Asbestos Liability Insurance shall be obtained for this project.

ASBESTOS TESTING

The existing structure has not been tested for asbestos but the removal of underground Verizon, Eversource, and other conduit in the way of the Contract Work and removed or abandoned be tested for Asbestos under ITEM 182.1 – INSPECTION AND TESTING FOR ASBESTOS and removed per ITEM 182.2 – REMOVAL OF ASBESTOS.

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.

NONCONFORMING COMPRESSIVE STRENGTH OF CEMENT CONCRETE

Concrete with compressive strength test results failing to attain the limits specified in Table 901.64-3 of 901.64.B: Acceptance Testing shall be evaluated for structural adequacy and serviceability at the Contractors' expense. The Department will review all production records, the concrete test records, petrographic analysis report, field notes, and the placement records for the concrete in question. If the Engineer determines the material is found to be adequate to remain in place, payment shall be adjusted in accordance with the following formula:

$$P = \frac{2(fc - f'c)(UP)(Q)}{f'c}$$

Where:

P = pay adjustment for substandard concrete
$f'c$ = specified minimum compressive strength at 28 days
fc = substandard concrete cylinder compressive strength at 56 days
Q = quantity of concrete represented by the acceptance cylinders tested
UP = unit contract price or the lump sum breakdown price per cubic yard for the class of concrete involved complete in place

RAILROAD INSURANCE REQUIREMENTS

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

Railroad Operations Directorate: Section F:

1. The Contractor shall furnish, with respect to the operations of the Contractor or any of the Contractor's Subcontractors performing within the Railroad right-of-way, broad form Railroad Protective Liability Insurance covering all work performed under this Contract in the amount of not less than $5,000,000 per occurrence, $10,000,000 aggregate combined bodily injury and property damage. The Contractor shall carry Worker's Compensation Insurance, including Employers Liability Insurance as provided by Massachusetts General Laws, Chapter 152, as amended, covering all work performed by him under the Contract. The Contractor shall carry Umbrella Liability Coverage with limits of not less than $10,000,000 per occurrence, covering all work performed by him under this Contract. Automobile Liability Insurance: The Contractor shall provide Automobile Liability Insurance to include the use of all vehicles; owned, leased, hired and non-owned, with limits not less than $1,000,000 combined single limit covering all work performed under the Contract.
2. Such insurance shall be written on an occurrence basis.
3. The MBTA and applicable railroads shall be the named insureds on such insurance. Additional named insured are listed below. Original policies and certificates shall be made out to the MBTA and applicable railroads and mailed to:

MBTA:
Treasurer-Controller
MBTA
10 Park Plaza
Boston, MA 02116
Tel. (617) 222-3064

Keolis:
General Counsel
Keolis Commuter Services, LLC
470 Atlantic Avenue
Boston, MA 02210

CSX:
General Manager
CSX
1 Bell Crossing Road
RD. #2, Box 145
Selkirk, NY 12158-9618
Tel. (518) 767-6111

4. The Contractor shall furnish to the MBTA and railroad companies a signed original of the Railroad Protective Liability Policy prior to entry upon the railroad right-of-way.
5. Such policies shall provide 30 days notice to each named insured by the insurance company before any change or cancellation of the policies.
6. Such Railroad Protective Insurance policies may be provided in forms commonly referred to as AAR/AASHTO or ISO/RIMA but not Oregon.

Questions regarding insurance should be directed to the MBTA's Risk Manager at 617-222-3064.

The Contractor shall be aware of the latest MBTA insurance limits / requirements. See the following link for more information: https://www.mbtarealty.com/licenses.html

WORK SCHEDULE

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

For the specific construction operations affecting the railroad that require weekend or night work, the Contractor shall notify and obtain approval from the Engineer prior to commencing. The Contractor shall coordinate with the affected railroad company(s) the times when the existing superstructure and substructure elements may be demolished and replaced, and when the proposed beams, deck and utilities will be placed over the railroad right-of-way. The Contractor shall coordinate with MBTA/CSX on work schedules.

The Contractor shall also note that all work to be done on Route 135 and Tamarack Road shall be performed during normal work hours. Two lanes of travel shall remain open at all times except as noted below. All Construction equipment shall be off the portion of the road open to the public by 3:30 PM, including the removal of temporary traffic control setups if required. Any work involving single-lane closures will be limited to the hours between 9:30 AM to 2:30 PM.

TRUCK SAFETY DEVICES

(Supplementing Subsection 7.04: Motor Vehicles)

All motor vehicles subject to Section 7 of Chapter 90 to be operated under this Contract shall be equipped with safety devices as provided therein and in 540 CMR 4.00.

The Contractor shall certify to the Registry of Motor Vehicles, in a manner prescribed by the Registrar, that all applicable vehicles are equipped with Lateral Protective Devices, Convex Mirrors, Cross Over Mirror(s) and Back Up Cameras in accordance with the requirements of 540 CMR 4.00.

The Contractor shall provide evidence satisfactory to the Department to demonstrate compliance with the above certification requirement for all applicable vehicles operated under this Contract by the Contractor and its subcontractors and vendors in a manner set forth by the Department. Thereafter, the Contractor shall have an affirmative obligation to continue to provide such evidence of compliance on an ongoing basis and no later than 7 days after certification with the Registry of Motor Vehicles of any additional vehicles operated under this Contract by the Contractor and its subcontractors and vendors.

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 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 Contactor must submit this as an intended change, in the form of a Proposal Schedule and in accordance with MassDOT Standard Specifications, Division I, Subsection 8.02. These proposed changes are subject to the approval of the Engineer and the impacted utilities, in the form of this Proposal Schedule and a proposed revision to the PUC form. The Contractor shall not proceed with any changes of this type without written authorization from the Engineer, that references the approved Proposal Schedule and PUC form changes. The submission of the Baseline Schedule should not include any of these types of proposed utility changes and should not delay the submission of the Baseline Schedule. As a prerequisite to the Proposal Schedule submission, and in advance of the utility notification(s) period, the Contractor shall coordinate the proposed utility changes with the Engineer and the utility companies, to develop a mutually agreed upon schedule, prior to the start of construction.

D. UTILITY DELAYS
The Contractor shall notify the Engineer upon becoming aware that a Utility owner is not advancing the work in accordance with the approved utility schedule. Such notice shall be provided to the Engineer no later than seven (7) calendar days after the occurrence of the event that the Contractor believes to be a utility delay. After such notice, the Engineer and the Contractor shall continue to diligently seek the Utility Owner's cooperation in performing their scope of Work.

In order to demonstrate that a critical path delay has been caused by a third-party Utility, the Contractor must demonstrate, through the requirements of the monthly Progress Schedule submissions and the supporting contract records associated with Subsection 8.02, 8.10 and 8.14, that the delays were beyond the control of the Contractor.

SUBSECTION 8.14 (Continued)

All documentation provided in this section is subject to the review and verification of the Engineer and, if required, the Utility Owner. In accordance with MassDOT Specifications, Division I, Subsection 8.10, a Time Extension will be granted for a delay caused by a Utility, only if the actual duration of the utility work is in excess of that shown on the Project Utility Coordination Form, and only if;

1) proper Notification of Delay was provided to MassDOT in accordance with the time requirements that are specified in this Section
2) the utility delay is a critical path impact to the Baseline Schedule (or most recently approved Progress Schedule)

E. LOCATION OF UTILITIES

The locations of existing utilities are shown on the Contract drawings as an approximation only. The Contractor shall perform a pre-construction utility survey, including any required test pits, to determine the location of all known utilities no later than thirty (30) calendar days before commencing physical site work in the affected area.

F. POST UTILITY SURVEY – NOTIFICATION

Following completion of a utility survey of existing locations, the Contractor will be responsible to notify the Engineer of any known conflicts associated with the actual location of utilities prior to the start of the work. The Engineer and the Contractor will coordinate with any utility whose assets are to be affected by the Work of this Contract. A partial list of utility contact information is provided in the Project Utility Coordination Form.

G. MEETINGS AND COOPERATION WITH UTILITY OWNERS

The Contractor shall notify the Engineer in advance of any meeting they initiate with a Utility Owner's representative to allow MassDOT to participate in the meeting if needed.

Prior to the Pre-Construction Meeting, the Contractor should meet with all Utility Owners who will be required to perform utility relocations within the first 6 months of the project, to update the affected utilities of the Project Utility Coordination Form and all other applicable Contract requirements that impact the Utilities. The Contractor shall copy the Engineer on any correspondence between the Utility Owner and the Contractor.

H. FORCE ACCOUNT / UTILITY MONITORING REQUIREMENTS

The Engineer will be responsible for recording daily Utility work force reports. The start, suspension, re-start, and completion dates of each of the Utilities, within each phase of the utility relocation work, will be monitored and agreed to by the Engineer and the Contractor as the work progresses.

I. ACCESS AND INSPECTION

The Contractor shall be responsible for allowing Utility owners access to their own utilities to perform the relocations and/or inspections. The Contractor shall schedule their work accordingly so as not to delay or prevent each utility from maintaining their relocation schedule.

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.

SOIL STOCKPILING DIRECTIVE P-22-001

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

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.

BIDDERS LIST

Pursuant to the provisions of 49 CFR Part 26.11 all official bidders will be required to report the names, addresses and telephone numbers of all firms that submitted bids or quotes in connection with this project. Failure to comply with a written request for this information within 15 business days may result in a recommendation to the Prequalification Committee that prequalification status be suspended until the information is received.

The Department will survey all firms that have submitted bids or quotes during the previous year prior to setting the annual goal and shall request that each firm report its age and gross receipts for the year.

BUILD AMERICA BUY AMERICA PREFERENCE

On Federally-aid projects the Buy America (23.CFR § 635.410) and Build America, Buy America Act. requires the following,

(1) all iron and steel used in the project are produced in the United States--this means all manufacturing processes, from the initial melting stage through the application of coatings, must occur in the United States. Foreign steel and iron can be used if the cost of the materials does not exceed 0.1% of the total Contract cost or $2,500, whichever is greater. The action of applying a coating to a covered material (i.e., steel and iron) is deemed a manufacturing process subject to Buy America. Coating includes epoxy coating, galvanizing, painting and any other coating that protects or enhances the value of a material subject to requirements of Build America, Buy America. Steel used for temporary support of excavation, including H piles, soldier piles, and sheeting when the steel is required to be left in place is subject to requirements of Build America, Buy America. Temporary steel, shall remain in place when it falls within the influence zone of the soil supporting any structure or railroad tracks.

(2) all manufactured products used in the project are produced in the United States—this means the manufactured product was manufactured in the United States and

(3) all construction materials are manufactured in the United States—this means that all manufacturing processes for the construction material occurred in the United States. “Construction materials” includes an article, material, or supply—other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives—that is or consists primarily of:

- non-ferrous metals,
- plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables),
- glass (including optic glass),
- lumber; or
- drywall.

BUILD AMERICA BUY AMERICA PREFERENCE (Continued)

The Buy America preference only applies to articles, materials, and supplies that are consumed in, incorporated into, or affixed to an infrastructure project. As such, it does not apply to tools, equipment, and supplies, such as temporary scaffolding, brought to the construction site and removed at or before the completion of the infrastructure project. Nor does a Buy America preference apply to equipment and furnishings, such as movable chairs, desks, and portable computer equipment, that are used at or within the finished infrastructure project but are not an integral part of the structure or permanently affixed to the infrastructure project.

All articles, materials, and supplies should be classified as an iron or steel product, a manufactured product, or another product as specified by law or in 2 CFR part 184 (such other products specified by law or in 2 CFR part 184 include "excluded materials" and "construction materials"); an article, material, or supply must not be considered to fall into multiple categories.

MWRA PERMITTING

The Contractor shall be aware that there are two sewer pipes owned by the MWRA crossing Boden Lane and this project requires an 8M Permit from the MWRA for the construction of the Permanent Soldier Pile and Lagging Retaining Walls to be installed across the pipes. MWRA 8m Permit Application has been submitted and approved. See document A00825 MWRA 8m Permit #26-04-2514M. As part of this process, the Contractor shall be required to perform test pits at locations shown on the plans to expose the pipes, log their locations and install vibration monitoring devices on the pipes. A representative from the MWRA will be present to witness the test pit operation and the exposed location of the pipes. Upon exposure of the pipes and installation of the monitoring devices and at the approval of the MWRA, the test pits will be backfilled by the Contractor. The Contractor shall be responsible for support of excavation as needed for the test pits and installation of monitoring devices. Refer to 8M permit for exploratory test pit conditions and prior approval. Payment for the test pits to expose the MWRA pipes is to be made under Item 191.6 Test Pit (EA). Installation of Monitoring equipment will be paid under Item 997. Vibration Monitoring (LS).

The Design Engineer will then prepare final design plans for the construction of the Permanent Soldier Pile and Lagging Retaining Walls and submit the permit documents and calculations with the 8M Permit application for review and approval by the MWRA.

NORTHERN LONG-EARED BAT AND TRICOLORED BAT PROTECTION

The northern long-eared bat (*Myotis septentrionalis*; NLEB) and tricolored bat (*Perimyotis subflavus*; TCB) are listed as federally endangered or proposed endangered, respectfully, under the Endangered Species Act (ESA). The U.S. Fish and Wildlife Service (USFWS) developed this guidance to address ESA compliance and promote conservation of NLEB and TCB. This project has been consulted with the USFWS through the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and Federal Transit Administration (FTA) Programmatic Biological Opinion/Conference Opinion for Transportation Projects in the Range of the Indiana bat, northern long-eared bat, and tricolored bat, dated December 13, 2024. and generated a May Affect, Not Likely to Adversely Affect (NLAA) determination (see **Document A00844 USFWS NLAA**). Subsequently, the project has completed Section 7 consultation under the ESA.

In advance of the uplisting of the TCB to endangered under the ESA, the following Avoidance and Minimization Measures (AMMs) must be strictly adhered to in order to protect NLEB and TCB and to be in compliance with the ESA. Contact MassDOT Environmental Services - Wildlife Unit Supervisor for questions about project limits, restrictions, or conservation measures.

General AMM

- The Contractor shall ensure all personnel working in on the project site are aware of all environmental commitments related to NLEB and TCB, including all applicable AMMs. NLEB and TCB information (https://www.fws.gov/midwest/endangered/mammals/nleb/ and https://www.fws.gov/species/tricolored-bat-perimyotis-subflavus) shall be made available to all personnel.
- On 7/9/2025, MassDOT Highway Division Environmental Services conducted a northern long-eared bat summer presence/absence survey, in accordance with the 2024 survey guidelines. The survey did not confirm the presence of NLEB and/or TCB. If work is proposed by the Contractor past 7/9/2030, additional review is required by the MassDOT Highway Division's Environmental Services Section, and additional review and restrictions may be required by the USFWS.

Tree Removal 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.*

Bridge AMM

- On 7/9/2025, MassDOT Highway Division Environmental Services, conducted a northern long-eared bat bridge/structure bat assessment, in accordance with the USFWS guidelines. The assessment did not find presence of, or evidence of use by bats, and as stated within the guidelines, the assessment is valid for two years. If bridge work is not complete before 7/9/2027, assessment of the bridge for the presence of, or evidence of use by, bats shall be completed by the MassDOT Wildlife Unit prior to continuing bridge work. The Contractor shall notify the MassDOT Wildlife Unit no later than fourteen (14) days prior to 7/9/2027 to provide adequate time for inspection. If bats are found to be present, or, if there is evidence of bat usage, work at the bridge shall not commence until after the MassDOT Wildlife Unit has completed coordination with the US Fish and Wildlife Service to determine the appropriate follow up or mitigation actions.

NOTICE TO OWNERS OF UTILITIES

The contractor shall investigate to determine the existence of other utilities that may be affected by the Contractor's operations.

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

The following are names of owners and representatives of the principal utilities that may be affected. Completeness of this list is not guaranteed by MassDOT.

DPW: Natick Public Works Department 75 West Street Natick, MA 01760 Contact: William McDowell Email: wmcdowell@natickma.org Tel: 508-647-6400 x2015	**Police**: Natick Police Department 20 East Central Street Natick, MA 01760 Contact: James G. Hicks, Police Chief Tel: 508-647-9511 Emergency: 911
Pole Set Responsibility: Eversource See ELECTRIC	**District Utility/Constructability Engineer:** MassDOT District 3 Constructability Engineer 499 Plantation Parkway Worcester, MA 01605 Contact: Ross Goodale Tel: 857-368-3204 Email: Ross.A.Goodale@dot.state.ma.us
Electric: Eversource Electric "A" 1165 Massachusetts Avenue Dorchester, MA 02125 Contact : Ned Sadowski Email: ned.sadowski@eversource.com	**Gas**: Eversource Gas 157 Cordaville Road, 3113 Southborough, MA 01772 Contact: Jeffrey Evans-Mongeon Tel: 508-305-6970 Email: Jeffrey.EvansMongeon@eversource.com
Railroad: MBTA Archives & Digital Asset Preservation 10 Park Plaza, Boston MA 02116 Contact: Sylvia Welsh Email: archives@mbta.com	**Railroad:** **CSX Transportation** 2000 West Cabot Blvd – Suite 130 Langhorne, PA 19047 Contact: Michael Sliper Email: Michael_sliper@csx.com

NOTICE TO OWNERS OF UTILITIES (Continued)

Cable: Astound 956 Massachusetts Avenue Arlington, MA 02486 Contact: Alex Ortiz Tel: 781-916-8878 Email: alext.ortiz@astound.com Comcast Cable Corporation PO Box 6505, 5 Omni Way Chelmsford, MA 01824 Contact: Wendy Brown	**Cable:** Crown Castle 80 Central Street Boxborough, MA 01719 Contact: Mark Bonanno Tel: 508-616-7818 Email: mark.bonanno@crowncastle.com MCI-Verizon Business PO Box 600 Charlton, MA 01507 Contact: Stephen Parretti Tel: 508-248-1305 Email: Stephen.parretti@verizon.com

AT&T/Teleport Communications America, c/o Siena Engineering Ground 50 Mall Rd – Suite 203 Burlington, MA 01803 Contact: Erica Hudson Tel: 781-221-8400 Email: erica.hudson@siennaengineeringgroup.com	Eversource Fiber 247 Station Drive, Mail Stop: SUMSE 320 Westwood, MA 02090 Contact: Bechir Khoury Tel: 781-441-3864 Email: bechir.khoury@eversource.com
Fire Alarm: Natick Fire Alarm 22 East Central Street Natick, MA 01760 Contact: kmitchell@natickma.org Tel : 508-651-7349 **Telephone:** Verizon 385 Myles Standish Blvd. Taunton, MA 02780 Contact: Paul Styspeck Tel : 413-787-1845 Email: paul.m.styspeck@verizon.com	**Other:** **Lumen** 1025 Eldorado Blvd. Broomfield, CO 80021 Contact: Renoy Thomas Tel: 516-712-3041 Email: relocations@lumen.com **Verizon Wireless Small Cell** 20 Alexander Drive Wallingford, CT 06492 Contact: Liz Glidden Email: Elizabeth.glidden@verizonwireless.com

EVERSOURCE EMERGENCY TELEPHONE NUMBERS

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

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

MBTA FLAGGING

The Contractor shall provide a minimum two week notice for flagging support for MBTA bridges and railroads. This applies only to bridges and railroads operated by Keolis Commuter Services (KCS). This two week notice does not apply to emergency work, only to routine or scheduled work activities. The contact person for advance request for flagging services is Rich Arnold, MBTA Railroad Operations Department, Phone number (617)-222-3635, email address: rarnold@mbta.com.

MBTA COMMUTER RAIL

Keolis Commuter Service (KCS) operates the commuter rail for the MBTA. All references to MBCR in the provisions will mean Keolis Commuter Service (KCS).

MBTA RAILROAD COORDINATION / ACCESS TO MBTA PROPERTY

The Contractor shall be required to coordinate the work of this Contract with the MBTA and Keolis Commuter Services Co. ("KCS") through the MassDOT Resident Engineer and MassDOT designated Field Staff. A majority of the prerequisites for the Contractor to perform work on or adjacent to MBTA transit lines may be found in the "MBTA Special Instructions" provided herein. The Contractor shall be required to comply with the all applicable requirements of the latest edition of the MBTA Special Instructions available at the time of Contract Award.

The Contractor will have to perform construction related activities on, over, under, within or adjacent to railroad property owned or controlled by the MBTA. Any work that will affect Commuter Rail operations, involve work on, over, under, within or adjacent to the commuter rail right of way must be coordinated with MBTA Railroad Operations and KCS and shall comply with the latest version of the MBTA Railroad Operations Directorate.

An owner or Contractor who wishes permission to enter upon or perform work over, on, under or adjacent to MBTA property shall submit to the offices of the MBTA's designated representative, a request in writing prior to the owner or the Contractor's planned commencement of any of the above stated activities; and is required to enter into a license agreement with the MBTA (www.mbtarealty.com/licenses) to access the property.

WORK AT MBTA PLATFORMS AND TRACKS

Upon completion of construction of the bridges and MBTA infrastructure, the Contractor shall be required to reconstruct/restore the areas disturbed by construction of this project to pre construction condition as directed by the Engineer. Payment for this work will be considered incidental to Item 995.01.

MBTA COORDINATION – SUBSTITUTE BUSING

Substitute bus transportation will be required for weekend MBTA Commuter Rail shutdowns. The Contractor must coordinate with MBTA Operations Department for provision of bus service. The Contractor shall contact MBTA Operations Dept. a minimum of 6 weeks prior to any planned rail shutdown. The MBTA will be responsible for planning, procuring, and administering the necessary substitute bus transportation services and operations based on the Contractor's approved work schedule.

Prime Contact:
Eric Ciborowski
32 Cobble Hill Road
Somerville, MA 02143
617-634-2567
ECIBOROWSKI@MBTA.com

Secondary Contact:
Delrico Gomes
32 Cobble Hill Road
Somerville, MA 02143
857-366-0404
DGOMES@MBTA.COM

The Contractor shall be required to attend the MBTA Weekly Track Outage Schedule Coordination Meetings held Wednesdays at 10:00 am at 32 Cobble Hill Road in the small classroom located in the training area at the rear of the building.

EMERALD ASH BORER ADVISORY

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

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.

EQUIVALENT SINGLE AXLE LOADS (ESALS)

The estimated traffic level to be used for SUPERPAVE HMA mixture designs for this contract, expressed in Equivalent Single Axle Loads (ESALs) for the design travel lane over a 20-year period, is .4 Million 18-kip (80-kn) ESALs.

WINTER WORK

The Contractor is hereby notified that winter work is expected for this project and has been taken into account in setting the completion date for the contract. Items of work that are expected to continue into the winter months include, but are not limited to, demolition of existing structures; placement of concrete for bridge substructure and superstructure elements, including deck; and construction of moment slabs and sidewalk. The relevant provisions of Subsection 901.of the Standard Specfication will be followed. Any costs, either direct costs or resulting from inefficiencies, related to continuing work in the winter shall be included in the Contractor's bid and shall not be cause for a claim for a time extension or additional compensation.

GENERAL REQUIREMENTS FOR DEMOLITION AND WORK INVOLVING PAINTED STEEL

(02/06/2020)

Demolition and work involving painted steel shall conform to the requirements of Subsection 961 of the Standard Specifications.

Work Involving Painted Steel

Hazardous materials shall be removed in the immediate area of any intended welding, heating, saw cutting or burning of steel. Hazardous material removal is required to allow the demolition of structural steel, railings, drainage systems, utility supports, steel lamp posts, etc.

The contractor shall assume that the coatings on the steel contain lead (Pb), unless otherwise determined by testing. The contractor shall certify in writing to the Engineer the results of all testing, and shall also certify that any lead (Pb) coated steel removed from the project was not reused or buried, but was sent to a scrap metal recycling facility.

Implement and maintain programs and procedures, which comply with the requirements of this specification and all applicable standards and regulations. Comply with all applicable regulations even if the regulation is not specifically referenced herein. If a state or local regulation is more restrictive than the regulation of this specification, follow the more restrictive requirements.

This requirement is intended only for the demolition and preparation prior to repair and does not include provisions for recoating of steel.

Environmental

All applicable portions of Subsections 961.65 "Worker Protection" and 961.66 "Environmental Protection and Monitoring" shall be followed when performing this work.

During chemical stripping a hand washing facility may be used in lieu of a decontamination/changing facility.

Hazardous material shall be collected during the disassembly and disposed of as outlined in Subsection 961.68 "Handling of Hazardous Waste and Reporting Release Programs".

The applicable submittals shall be according to Subsection 961.69 "Submittals".

GENERAL REQUIREMENTS FOR DEMOLITION AND WORK INVOLVING PAINTED STEEL (Continued)

Cleaning/Removal

Cutting Or Burning Of Steel

All surfaces to be welded, heated, saw cut or burned shall be cleaned so as to remove all contaminants and/or hazardous materials, which could be discharged to the environment as a function of the subsequent operations.

Lead paint shall be removed in its entirety in an area prescribed by a 6 inch (15 cm) minimum offset from the required work. The paint removal operation may be dry abrasive blasting, wet abrasive blasting or chemical stripping.

Proper level of containment shall be used when performing this work in accordance with Subsection 961.67 "Containment". Full containment is not required during chemical stripping operation however; the Contractor shall install proper shielding and/or tarpaulins under the chemical stripping operations in order to catch all debris generated during this procedure. A cleaned area must be inspected and approved before the demolition operations are started.

During cleaning operations the Contractor shall be required to furnish and erect temporary floodlights illuminating the steel surface at a minimum of 30-foot candles. This lighting shall be used in areas where there is insufficient lighting for proper cleaning operations and inspection. The Contractor shall supply electrical power.

The Contractor shall provide support for interim and final inspection of the bridge during cleaning operations. This support shall include the necessary traffic controls and safe access to the work.

Mechanical Disassembly Of Steel

All surfaces to be mechanically disassembled by shear cutting or removing bolts or rivets shall not require deleading. When shear cutting or removing bolts or rivets, the Contractor shall not use any method that will cause dust and/or particles to be emitted and/or dispersed into the environment to an extent that would expose the workers above the Action Levels of 30µg/m3.

For purposes of limiting the lead (Pb) dust, the Contractor will be required to dampen the lead paint work areas.

The contractor shall install a proper shielding and/or tarpaulins under all lead-paint-coated surfaces to be shear cut or bolts or rivets ordered removed in order to catch any loose lead paint chips, dust or particles.

VALUE ENGINEERING CHANGE PROPOSAL

This Subsection defines the conditions and requirements which apply to Value Engineering Change Proposals ("VECPs"). The purpose of this provision is to encourage the Contractor to propose changes in certain project requirements that will maintain the project's functional requirements at a savings in contract time, contract price, or both. The net savings obtained by using a VECP that meets the conditions and requirements set forth here will be shared by the Contractor and MassDOT.

VECP's under this provison are to be initiated, developed and submitted to MassDOT by the Contractor. The VECP must show the contemplated changes to the Drawings, Specifications and other requirements in the Contract. When a VECP submitted pursuant to this section is fully accepted by MassDOT, the VECP will be implemented by the Contractor and paid using the current cost and resource loaded schedule. Contractor shall demonstrate that the VECP is equal to, or better than, the original design or material; that there is an interest in public safety within the VECP; that there is a life-cycle cost benefit; and/or that end users will benefit from the shortened schedule. VECPs shall be consistent with the MassHighway/MassDOT Standard Specifications for Highways and Bridges and other applicable reference documents and directives. Any proposed deviation from these documents will need to be clearly identified in the VECP Proposal Documents, and must be approved by MassDOT's Chief Engineer before accepting this VECP.

A. In order to be considered for MassDOT review each VECP shall:
   1. Be clearly labeled pursuant to this Subsection;

   2. Yield a net savings at least two hundred and fifty thousand (250,000.00) Dollars and/or a net saving of contract completion duration of at least three (3) months;

   3. The proposed changes to contract items must:

      a. maintain the specified items' required functions (service life, reliability);

      b. meet applicable safety regulations and codes;

      c. material substitutions must be in accordance with DOT prequalified/preapproved products and must be tested in accordance with standard material specs/testing methods (and considering all relevant environmental, load, and other relevant factors);

      d. show economy of operation, ease of maintenance, ease of construction, and necessary standardized features and appearance; and

VALUE ENGINEERING CHANGE PROPOSAL (Continued)

4. Shall not require an extension of Contract Time or Contract Milestones, with the exception of cases when there are anticipated significant cost saving.

The thresholds above are considered to be a general guideline. MassDOT will consider VECPs outside of these thresholds if a significant benefit is demonstrated. Additionally, notwithstanding this VECP process, MassDOT will consider minor revisions in the form of a Contract Modification.

Further, any VECP submitted shall be in sufficient detail to clearly define the proposed change. The Contractor's failure to provide information of the type, detail and in a format to facilitate the MassDOT's review, may be grounds for rejection of the VECP. Additionally, the Contractor will not be entitled to any equitable adjustment or increased Time, due to any aspect of any of the proposed VECP including permitting, right of way, utility coordination or delayed responses by MassDOT. If, after the progression of the work associated with the executed Contract Modification for the VECP, any additional costs are realized by the Contractor or any of the sub- consultants, sub-contractors, or suppliers, the Contractor shall be obligated to pay for any and all costs.

B. The following initial items shall be provided by the Contractor for MassDOT's review. *Items 1-6 need to be submitted prior to the start of MassDOT's review of the VECP and item 7 is an important consideration for the pricing of the VECP and the timeline of the proposed VECP schedule.*

1. ***VECP Description***: A description of the difference between the existing and the proposed Contract requirements, and the comparative advantages and disadvantages of each;

2. ***VECP Change Listing***: A listing of the Contract requirements that will need to be changed, modified, or reviewed as well as the proposed Contract document changes in the Instructions to Bidders, Contract, Standard Specifications, General Requirements and Special Provisions required by the VECP.

3. ***Construction Schedule Update*:** Any changes in the Contract Time(s) or Contract Milestone(s), that will result from acceptance of the VECP, shall be accompanied by a contemporaneous schedule analysis *(i.e, the Contractor's baseline schedule submission, all past/required monthly schedule updates, a detailed assessment of all past delays, and a resource loaded Crticial Path Method schedule as specified in Section 8.0 / Subsection 8.02 of this Contract)* of the projected Work that remains including the proposed VECP related schedule changes *(inclusive of the timeline to review accept the VECP and the timeline for implementing the design changes)* in the remaining work. This shall be submitted in the form of a Proposal Schedule until the VECP has been formally accepted. Note: All of this information is to be updated, recertified, and formally accepted by MassDOT before final acceptance of this this VECP is issued.

VALUE ENGINEERING CHANGE PROPOSAL (Continued)

4. ***Date for MassDOT's Acceptance***: A statement that clearly justifies the date by which the VECP must be accepted to obtain the maximum price reduction, noting any effect upon the Contract Time(s) and/or Contract Milestone(s). This statement must include a narrative that demonstrates the most recent construction schedule has been utilized to justify that proposed acceptance date *(e.g. "in order to start to fabricate critical materials, authorization must be provided to work on the shop drawings by no later than [date]").* The Contractor should allow for at least sixty (60) to ninety (90) days for acceptance by MassDOT once all of the VECP documentation has been provided. Acceptance shall mean that MassDOT has received a finalized and executed contract modification. However, this is a proposed Contract change.
   The Contractor is fully obligated to progress the Work of the original Contract and MassDOT is not liable for any delays or costs that may occur in the review phase of any VECP proposal.

5. ***Cost and Savings Estimates***: A detailed estimate of the anticipated net savings, calculated as follows:
   a. ***Original Scope:*** Isolate the cost of performing the original contract construction activities, in accordance with the original Contract Documents, as originally bid by the Contractor, that are anticipated to be superseded by the VECP. *This cost is to include any original contract scope that is anticipated to be altered or eliminated by the VECP such as, shop drawing preparation, inspection work, testing, maintenance of traffic, or any other original contract costs, that have yet to have been performed at the time of this VECP submission.*

   b. ***New VECP Scope:*** Calculate the cost of performing the comparable construction activities associated with the VECP.

   b. ***Contractor's Engineer & Inspection***: Calculate the cost of engineering, inspection, and design work by the Contractor's Engineer/Designer. This should be a realistic estimate of the costs of any required engineering, design and review work by the Contractor's Engineer.

   d. ***MassDOT's Costs:*** MassDOT's estimate of costs to perform engineering/design reviews, cost estimate reviews, schedule reviews, and any other administrative costs to review and recommend implementation of the proposed VECP. *(including all anticipated increased costs to MassDOT on other Contracts and all anticipated follow-on increased costs to MassDOT, if any)* as provided by MassDOT. MassDOT's estimated costs must be included the VECP calculation and will be provided by MassDOT in support of the VECP evaluation process.

   e. ***Other Costs:*** Estimated costs associated with any revisions to other project related costs, such as Environmental Permits or Right of Way acquisitions, including other agency or municipality costs, as provided by MassDOT.

VALUE ENGINEERING CHANGE PROPOSAL (Continued)

Net Savings:

The net savings to be split between MassDOT and the Contractor shall be calculated using the items above as follows: a - (b+c+d+e) = net savings

6. *The Contractor shall also provide:*

   a. A proposed Change Order, which explains and justifies any required Equitable Adjustment in the Contract Price.

   b. The Contractor's actual costs expended for developing the VECP as of the date of the VECP submission;

7. ***Design Changes and Drawings*****:** The costs that are outlined above should be inclusive of the following design and engineering responsibilities.

   a. Design changes shall be prepared and stamped by the Contractor's professional designer and/or engineer. In addition, in the development of the VECP; the Contractor is responsible for anticipating and managing all aspects associated with any VECP design work that must be performed by a licensed Engineer.

   b. The Contractor's engineer must analyze and stamp all components of any aspect of the project that has been redesigned, changed, or altered as a result of this VECP.

   c. The Contractor's engineer shall provide all calculations and supporting design/engineering documentation that was utilized to develop the changes and stamped drawings. These will be used by MassDOT's Designer-of-Record to review the VECP changes. The Contractor is limited to selecting only those engineer's that have been pre-qualified by MassDOT's A&E Board.

   d. MassDOT's Designer-of-Record will review and respond to all completed design submissions related to this VECP within thirty (30) calendar days, unless determined to be a non-critical path item.

   e. MassDOT will be responsible for estimating and managing MassDOT's Designer-of-Record during the VECP review and implementation. Should any significant conflicts arise, between the Contractor's Engineer and MassDOT's Designer-of-Record, the DOT and the Contractor will work expeditiously to resolve the conflict. Should this type of conflict continue for greater than five (5) days, the Contractor is to bear all financial and time related impacts of such delay and must seek to resolve the design conflict, in an acceptable manner to MassDOT. The resolution of this conflict will be funded at the Contractor's expense – exclusive of the net saving that was agreed to at the execution of the contract modification for this VECP.

VALUE ENGINEERING CHANGE PROPOSAL (Continued)

f. The Contractor's Engineer may also be required to inspect the construction work. The Contractor is to include such anticipated inspection costs in the initial VECP.

g. MassDOT's Designer of Record will remain the Designer-of-Record for the entire Project. Any costs incurred in the use of MassDOT's Designer-of-Record by MassDOT or Contractor associated with the review of a VECP are to be included in the calculated net savings.

B. Approval of the VECP shall not occur until a Contract Modification, incorporating the VECP, is issued by MassDOT and properly executed by the Contractor. MassDOT may accept or reject part or all of any VECP at any time prior to an executed Contract

Modification for the applicable VECP. The decision of MassDOT, concerning acceptance or rejection of any VECP, shall be final and shall not be subject to dispute resolution. It is expected that several weeks may go by before the final VECP documentation has been executed with a Contract Modification. Therefore, MassDOT intends to make certain that the initial cost estimate information has not changed before entering into a Contract Modification. As the VECP evaluation process is finalized, and prior to the signed Contract Modification for the VECP, the Contractor and MassDOT must re-certify the current status of the originally proposed cost and/or schedule savings.

Until a contract modification is issued and schedule and cost/savings re-certification is complete and accepted by MassDOT, the Contractor shall remain obligated to perform the Work in accordance with the terms and conditions of the original Contract Documents.

Upon completion of the work associated with the VECP, MassDOT may require verification that the VECP savings has been achieved.

D. VECPs will be processed (distributed, reviewed, commented upon, accepted or rejected) expeditiously (pursuant to M.G.L. c. 30, § 39R); however, as this is an elective modification to the contract, MassDOT shall not be liable for any delay or cost in the review and acceptance of the VECP. During the review of the VECP, the Contractor remains obligated to progress the original Contract scope, and schedule, as planned; until a Contract Modification, accepting the Contractor re-certified VECP, has been executed by MassDOT.

The Contractor has the right to withdraw part, or all of any VECP, prior to acceptance by MassDOT. Such withdrawal shall be made in writing to the Engineer. The Contractor shall state the period of time, from the date of the initial VECP submittal, that the VECP shall remain valid and feasible. Revision of this validity and feasibility period shall be allowed only by mutual agreement of the Contractor and the Engineer in writing.

VALUE ENGINEERING CHANGE PROPOSAL (Continued)

If the Contractor desires to withdraw the proposal prior to the expiration of this period for non-technical reason, MassDOT reserves the right to recover all actual costs that have been incurred to MassDOT.

If the Contractor withdraws the VEC Proposal, MassDOT reserves the right to proceed with the VECP or any portion of the VECP as a normal change and the Contractor waives any right it may have had to share in net savings thereunder.

For purposes of this provision, expiration of the time established by the Contractor for approval shall be considered as withdrawal by the Contractor if MassDOT requests an extension of that time and the Contractor does not provide a written extension.

With regard to unknown conditions or sub-surface work, in general, the expectation is that the Contractor and MassDOT will strive to gain enough knowledge about the risks in order to provide a forward-priced Change Proposal. Therefore, any costs to fully evaluate the proposal, such as additional borings and/or test pits, must be considered in the cost evaluation of whether the VECP is worth pursuing. However, if it is impractical to gather conclusive exploratory information, before the VECP is executed, MassDOT may consider provisions in the VECP that clearly identifies the risk sharing (cost and time) related specifically to the unknown/sub-surface conditions. If these VECP provisions are acceptable to MassDOT they are to include supplemental language to provide a determination of the final savings/cost, and time impacts, no later than 45 days after the sub-surface work is completed. All other aspects of the VECP, unrelated to these Provisions, will be binding upon execution of the VECP.

ENVIRONMENTAL PERMITTING

The proposed work does not occur in jurisdictional wetland resources subject to section 401 or section 404 of the Clean Water Act; therefore, the project does not require a Water Quality Certification from the Massachusetts Department of Environmental Protection or authorization from the US Army Corps of Engineers. The proposed work qualifies for the bridge exemption authorized in the Transportation Bond Bill and is therefore not subject to the Massachusetts Wetlands Protection Act, the Massachusetts Public Waterfront Act (Chapter 91), or the Massachusetts Environmental Policy Act.

If field conditions and/or Contractor-proposed erection, demolition, staging, or other procedures require work to occur in or otherwise impact water or wetland resource areas, the Contractor is advised that no associated work can occur until all required environmental permits have been obtained allowing such work. The Contractor must notify the District Highway Director and Resident Engineer in writing at least 60 days prior to desire commencement of the proposed activity. All environmental submittals, including any Contract with Local, State, or Federal environmental agencies, must be coordinated with the District Environmental Engineer. The Contractor is expected to fully cooperate with requests for information and provide same in a timely manner. The Contractor is further advised that the Department will not entertain a delay claim due to the time required to obtain the environmental permits.

ITEM 102.3 HERBICIDE TREATMENT OF INVASIVE PLANTS HOUR

This work must be performed by persons who meet the qualifications below and are approved by the Landscape Design Section.

Work under this item consists of herbicide treatment of invasive plants currently existing within the project limits and as directed. An Invasive Plant Management Strategy (IPMS) shall be submitted to the Engineer for review and approval and the IPMS shall be implemented on-site. The IPMS shall be written and submitted per Item 102.33 Invasive Plant Management Strategy and shall be measured and paid for under that Item.

Work under this item shall be coordinated with work and schedule for Selective Clearing, Clearing and Grubbing, Mowing, Tree Removal, Planting, and Wetland Mitigation items.

Payment is per hour on-site and shall be compensation for a minimum crew of 2 licensed applicators, 2 back-pack sprayers and mist-blowers, a properly equipped spray truck with spray hoses, and a tank with sufficient capacity for a full day of work. If there is only one applicator, hourly payment shall be adjusted to 50 percent of the unit price.

Date and time stamped photos indicating start and stop time of work must be submitted if requested.

This item is not intended for manual removal of plants.

Management of plants determined to have been introduced to the site via imported loam, compost, mulch, plants, equipment, or other construction activities will be the Contractor's responsibility and at the Contractor's expense.

Herbicide shall be applied during daytime hours only.

Measures to prevent the introduction of invasive plant species to the site and to address introduction due to construction-related activities shall be covered under the Standard Specifications, Division I - Subsections 7.01(D) Plant Pest Control and 7.13 Protection and Restoration of Property as amended in these Special Provisions.

Plant species targeted for management under this item shall be as determined in the field per the site walk and as specified in the IPMS.

The definition of invasive plant species shall be as described by Massachusetts Invasive Plant Advisory Group (MIPAG): "non-native species that have spread into native or minimally managed plant systems in Massachusetts, causing economic or environmental harm by developing self-sustaining populations and becoming dominant and/or disruptive to those systems."

Control of invasive plants shall begin immediately with the initiation of construction activities and prior to any clearing or site disturbance. Treatment areas shall include stockpile locations and may, upon approval of the Engineer, extend outside the project limit. Treatment shall be done each consecutive year for the duration of the contract unless specified otherwise in the IMPS or unless directed otherwise by the MassDOT invasive species contact. Work shall be done during the growing season from May – October unless otherwise specified in the IPMS.

ITEM 102.3 (Continued)

Areas identified for vegetation control measures shall be as shown on the plans and as determined in the field by the Engineer and a MassDOT Landscape Architect. Contact at MassDOT Landscape Design Section may be contacted at: stephanie.smoot@dot.state.ma.us.

QUALIFICATIONS

The applicators shall submit and meet the qualifications outlined below. A list of contractors specializing in invasive management and approved by MassDOT Landscape Design Section is available on the following website: https://www.mass.gov/lists/landscape-design-and-roadside-maintenance under Invasive Plant Management.

Requirements

1. Company must provide proof of qualifications by providing the following:
    a. Narrative describing company, its expertise and experience with invasive plant control.
    b. Demonstrate experience with herbicide treatment as part of restorations and in sensitive areas.
    c. Describe company's technical qualifications and past performance.

2. Company must meet licensing requirements:
    a. All crew applicators must have a Massachusetts Commercial Applicator License (CORE).
    b. At least one or more applicator must have a ROW certification, if required for work.
    c. Company must provide name(s) of applicator(s) and Applicator License/Certification number for all contractor crew leaders working on the project.
    d. Company must provide documentation of any warnings, penalties or fines received in the last three (3) years.

3. Company must provide proof of experience with invasive plant control and include following:
    a. At least five (5) references from prior invasive plant control work completed in last five (5) years. Provide contact information including address, phone number and email.
    b. Provide a summary of each of these projects including nature of the problem, specific invasive vegetation treated, dates and period of treatment, methodologies used, and summary of success or not in terms of meeting performance objectives. Include summary of equipment used.
    c. Photo documentation of these projects.
    d. GPS coordinates of project locations, if available.

4. Crew leader must have expertise with invasive plant control and provide the following:
    a. Have held Core license for at least five (5) years.
    b. Resume listing five (5) or more years of experience applying pesticides with the company or with another company specializing in vegetation management.

ITEM 102.3 (Continued)

SUBMITTALS

No work shall begin without approval of the submittals.

Submittals include the following items:

Invasive Plant Management Strategy (IPMS)

At least thirty (30) days prior to proposed treatment the IPMS shall be submitted for approval by the Engineer and MassDOT Landscape Architect. All chemicals, methods and work done under this item shall be consistent with the IPMS. The IPMS shall be as described under Item 102.33.

Herbicide Use Report

Within two (2) weeks after each application, the Contractor shall provide to the Engineer and the MassDOT Landscape Architect a completed and signed MassDOT Herbicide Use Report.

Photo Documentation

Digital photos with date and time of herbicide application work, showing start time and completion time, are required and must be submitted for measurement of payment upon request.

MATERIALS

All proposed herbicides shall be as approved in the IPMS. Herbicides shall be labeled for the method of treatment and shall meet all federal, state and local regulation requirements. Application rates will depend on herbicide proposed and shall be per the manufacturer's label for specific application.

METHODS

All methods used shall be as approved in the IPMS which shall be determined during the Initial Site Walk as described under Item 102.33 Invasive Plant Management Strategy.

The Contractor shall be responsible for marking delineated areas and plants to be preserved, removed, or otherwise treated. Fencing or other materials needed for marking and delineating protected areas shall be incidental to this item.

The Contractor shall notify the Engineer a minimum of 3 days prior to date of expected herbicide application. Applicators shall notify the Engineer upon arriving on-site and upon leaving the site.

ITEM 102.3 (Continued)

Herbicide Applications

All herbicide application shall conform to Massachusetts Pesticide Laws and Regulations per the Massachusetts Department of Agricultural Resources (MDAR) Pesticide Bureau.

Mixing, applying and/or disposing of herbicides shall always be in accordance with instructions on their labels and all applicable federal, state, and local regulations. Mixing shall not occur within sensitive areas, wetlands, or buffer zones.

Contractor shall not spray 2 hours prior to precipitation, during rain, or during windy conditions. The Contractor shall be responsible for monitoring weather conditions and adjusting the work schedule as appropriate for the herbicide and application method to be used.

Targeted vegetation shall be identified and marked prior to treatment. Plants treated by foliar spray, injection or glove application or other methods that leave standing vegetation, as opposed to cut-stump application, shall remain clearly marked for identification through the contract period.

Desirable vegetation shall be protected from both spray and other physical damage.

Contractor is responsible for any damage to vegetation not designated for removal or treatment. Vegetation damaged shall be restored. Cost of replacement plants and/or restoration shall be borne by the Contractor.

Contractor shall ensure that the public does not enter a work area while herbicide application or spraying is underway.

Disposal Of Invasive Plant Material

All material to be cleared shall become the property of the Contractor. The satisfactory disposal of all cleared plant material (seeds, roots, woody vegetation, associated soils, etc.) shall be the Contractor's responsibility.

The Contractor shall take measures to prevent viable plant material from leading to further infestations (seeds, roots, woody material, etc.) while stockpiled, in transit, or at final disposal locations. All precautions shall be taken to avoid contamination of natural landscapes with invasive plants or invasive plant material.

Chipping, shredding, or on-site burning of plant material must be approved by the Engineer and included in the IMPS.

For plant material taken to an incinerating facility per the IPMS, a receipt from that facility shall be submitted to the Engineer as proof of disposal.

ITEM 102.3 (Continued)

Where feasible, it is preferable to dispose of plants on-site or to bury them on-site with on-going monitoring for re-sprouting. Disposal locations and methods must be approved and included in the IPMS. Site work such as grading and seeding to stabilize and restore disposal area shall be incidental to this item.

The Contractor shall be responsible for treating or otherwise managing areas of re-growth due to improper disposal. Treatment shall be at the Contractor's expense.

Follow-Up Treatment

Plants and areas shall be re-treated as necessary and as appropriate to the time of year. Treatment shall be for the duration of the contract and per the IPMS.

MEASURE OF SUCCESS

The expectation is a minimum of 85-95 percent control achieved after the first treatment, depending on plants targeted and extent of population, and based on the expectations laid out in the IPMS. The expectation for the contract duration is 95-100% eradication by the end of the treatment period, unless otherwise specified in the IPMS.

METHOD OF MEASUREMENT

Item 102.3 will be measured for payment by the Hour of verified crew time spent on the project doing herbicide application as and where specified herein and in the IPMS. A crew shall be defined as a minimum of two licensed applicators each equipped with (at minimum) back-pack sprayer and mist blower. The crew shall also have a properly equipped spray truck with hoses and a tank with sufficient capacity for a full day of work.

BASIS OF PAYMENT

Item 102.3 will be paid at the contract unit price per Hour, which price shall include all labor, materials, equipment, tools, and all incidentals required to complete the work.

Payment will be based upon verified time spent on the project doing herbicide application as and where specified in the IPMS and upon receipt and approval of submittals. Payment will not include travel time to and from the Contractor's place of business and nor time for investigative field trips.

If there is only one applicator, hourly payment shall be adjusted to 50 percent of the unit price.

The Invasive Plant Management Strategy will be paid for under Item 102.33.

ITEM 102.33 INVASIVE PLANT MANAGEMENT STRATEGY HOUR

This item consists of providing an Invasive Plant Management Strategy (IPMS) for the control of invasive plants currently existing on the project site and/or as directed and shall be coordinated with Item 102.3 Herbicide Treatment of Invasive Plants. Unless otherwise approved, the IPMS shall be submitted in the form of the MassDOT Invasive Plant Management Strategy Report Form.

The IPMS shall be submitted for review and approval by the MassDOT Landscape Design Section or their representative, and the IPMS shall be implemented on-site.

The Invasive Plant Management Strategy Report Form is available online at https://www.mass.gov/lists/landscape-design-and-roadside-maintenance under Invasive Plant Management.

Herbicide treatment for invasive plants shall be as described under Item 102.3 Herbicide Treatment of Invasive Plants and shall be compensated per that Item.

Work under this item shall be coordinated with work and schedule for Selective Clearing, Clearing and Grubbing, Mowing, Tree Removal, Planting, and Wetland Mitigation as relevant to the project.

Individual attending the site walk and determining the Invasive Plant Management Strategy must demonstrate expertise with vegetation management and invasive plant control and submit qualifications as described below.

QUALIFICATIONS

Individual shall be from the same company as that providing services for Item 102.3 Herbicide Treatment of Invasive Plants and shall submit the following, if not submitted under Item 102.3:

- Submit copy of current Core license.
- Submit a resume listing five (5) or more years of experience managing invasive plants with a company specializing in vegetation management.
- References shall be submitted if requested.

SUBMITTALS

Task Summary & Reports

For measurement of payment, the contractor shall submit the total sum and a breakdown of hours for the tasks performed. At a minimum, the tasks shall include the Initial Site Walk, submittal of an approved IPMS, and if requested to accommodate project or site changes, a Follow-up Site Inspection and accompanying IPMS Amendment.

ITEM 102.33 (Continued)

Interim Site Monitoring Reports and/or a Final Report shall be submitted if requested by the MassDOT Landscape Design contact. The MassDOT Landscape Design contact must be notified to attend the site inspection walk when an Interim or Final Report has been requested.

Invasive Plant Management Strategy (IPMS)

At least thirty (30) days prior to construction activities and/or any proposed treatment, the contractor shall submit the IPMS for approval by the Engineer and MassDOT Landscape Architect. All chemicals and methods proposed shall be consistent with applicable Massachusetts Wetlands Protection Act Order of Conditions.

The IPMS shall be completed in coordination with the Prime Contractor and the Engineer and shall include the following as appropriate and applicable to the project and to the IPMS Report Form questions and Guidance:

I. Project Information

a. Company writing the IPMS and performing the herbicide application.
b. Date of site walk
c. Attendees at site walk
d. Expected end date of contract and expected last treatment (month/season)

II. Brief Description of Conditions

a. Provide a free-hand sketch on construction plans or aerial image showing species, location, and as relevant, show or note extent of population as relevant to Strategy (i.e., population extends off ROW preventing eradication, small population and eradication deemed feasible within contract schedule, etc.).

III. Coordination with Roadway Contractor regarding other work

a. Tree Work: Note coordination to be implemented with tree removal, clearing, and clearing and grubbing as applicable to the project.
b. Wetland Mitigation - Include management proposed for wetland mitigation areas in the IPMS, if and as required.
c. Planting: If there will be planting in areas proposed for treatment, propose treatment and schedule to avoid herbicide damage to plants.
d. Mowing: If coordination is required with state mowers, note need in IPMS.

IV. Soil Management

a. Provide specifics on how soil with invasive plant roots (in particular) or seeds will be handled (i.e., separate stockpiles, plant material will be buried on-site, re-used on-site, disposed off-site and if so, where?).
b. Show stockpile locations on plan and include treatment schedule.
c. Note measures that will be implemented to avoid spread through equipment, including how and where equipment will be cleaned.

ITEM 102.33 (Continued)

V. Invasive Plant Treatment & Management

a. Proposed chemical and methods of treatment for each species or area.
b. Time of treatment based on target plant species.
c. Submit product label including application methods and rates (entire MSDS information need not be submitted if available online).
d. Proposed performance metrics or measure of treatment success if different from that specified under Item 102.3.
e. Method for disposing invasive plant material. This includes material that may result in spread (i.e., seeds, roots) and material that has been treated and/or is not viable (foliage, dead wood, etc.). Methods may include grinding in place, stockpiling and treating, and incinerating offsite.
f. Expected follow-up treatment for duration of contract.

VI. Monitoring Schedule if requested by MassDOT.

Note: The IPMS is critical for identifying pre-construction conditions as well as strategies for minimizing import or spread of invasive plants. Failure to provide an approved IPMS may jeopardize this item, in which case, the contractor will be responsible for management of invasive plants found on-site at no cost to the contract.

Photo Documentation

Digital photos of site conditions, typical species, and extent of infestation must be provided with the IPMS and with any follow-up monitoring or reporting. Photos of follow-up monitoring and reporting must be date and time stamped for acceptance.

METHODS

Initial Site Walk

Prior to any construction activities and soil disturbance, the Contractor shall walk the site with the Engineer and the MassDOT Landscape Architect to determine the IPMS. During the site walk the Contractor shall identify limits of work and, as necessary, mark locations of areas designated for treatment and individual plants targeted for treatment or removal. The Contractor shall be responsible for marking delineated areas and plants to be preserved, removed, or otherwise treated. Fencing or other materials needed for marking and delineating protected areas shall be incidental to this item.

IPMS Follow-up Amendment

The IPMS may be amended to address additional concerns or adjust to conditions if required by the MassDOT Landscape Architect. The amended IPMS shall be submitted to the Engineer and MassDOT Landscape Architect for approval at least fourteen (14) days prior to any proposed treatment.

ITEM 102.33 (Continued)

Interim Site Monitoring Inspection Reports

If required by the MassDOT Landscape Architect and Engineer, Interim Site Monitoring and an accompanying report shall be conducted. Interim Reports must include time and date stamped photos showing treated locations and species.

Final Inspection

A final inspection and report documenting the status of the invasive control may be required for regulatory purposes or for instances where control will be continued by others. The report shall include photo documentation of pre-construction (existing) and post-treatment conditions, notations on a plan or aerial image of area treated, summary of treatment performed, and control achieved. Final reports submittal must include time and date stamped photos.

METHOD OF MEASUREMENT

Item 102.33 will be measured for payment by the Hour. The basis for measurement shall be per the completion of tasks as approved under the Task Summary submittal and acceptance of submittals and photos described above.

BASIS OF PAYMENT

Item 102.33 will be paid at the contract unit price per Hour, which price shall include all labor, materials, equipment, tools, and all incidentals required to complete the work. Payment shall not include travel time to and from the Contractor's place of business.

ITEM 102.511 TREE PROTECTION – ARMORING AND PRUNING EACH

The work under this item shall conform to the relevant provisions of Sections 771 of the Standard Specifications and the following:

Tree protection – armoring and pruning shall be used for instances where construction activity (the use of heavy equipment), comes within proximity to potentially damage tree trunk(s) or limbs.

The work shall include the furnishing and installing of temporary tree trunk protection, minor limb pruning, or removal of lower tree limbs to prevent injury to the tree from construction equipment and activities; as shown on the Drawings; and/or as required by the Engineer.

REFERENCES

If requested, the Contractor shall provide to the Engineer one copy of the latest edition of the American National Standards Institute (ANSI) A300 Standard Practices for Tree, Shrub, and Other Woody Plant Maintenance: Part 1-Pruning and Part 5-Construction Management Standard. Provision of reference shall be incidental to this item.

MATERIALS

Trunk armoring shall be such that it prevents damage to the trunk from construction equipment. Material used for trunk armoring or mounting shall be such that installation and removal shall not damage the trunk.

Acceptable trunk armoring materials shall include two by four (2x4) wood cladding, mounted with wire or metal strapping, or when duration of construction activities is less than three months, slotted corrugated plastic pipe, mounted with duct tape. Eight (8) once untreated burlap shall be used to wrap the tree trunk prior to installation of cladding.

Alternative armoring methods or materials may be acceptable if approved by the Engineer.

The height of tree trunk cladding shall be measured from the base of the tree (including root flare) to the bottom of the first branch, or to a height of eight (8) feet, or as may be required by the Engineer.

METHODS OF WORK

Prior to construction activities, the Engineer, Contractor, and the Arborist (if item is included in the contract), shall review trees noted on the Drawings to be protected. Final decision and selection of trees to be armored and/or pruned shall be per the Engineer.

Care shall be taken to avoid damage to the bark during installation and removal of armoring. Trunk armoring shall be maintained such that it is effective for as long as required or replaced when materials are found to be damaged or ineffective, as determined by the Engineer. Replacement, if required, shall be incidental to the work. Armoring shall be removed immediately upon completion of work activities adjacent to the protected tree(s).

ITEM 102.511 (Continued)

Pruning of limbs shall conform to the techniques and standards of the most recent ANSI A300 standards.

DAMAGES OR LOSS

If trees designated for protection under this item are damaged, including root damage from unapproved trespassing onto the root zone, the Contractor shall, at his own expense, secure the services of an Arborist, described in Item 102.55. The Arborist shall be approved by MassDOT.

If, based on the recommendation of the Arborist, the Engineer determines that damages can be remedied by corrective measures, such as repairing trunk or limb injury; soil compaction remediation; pruning; soil injection fertilization; and/or watering; the damage shall be repaired as soon as possible, within the appropriate season for such work and according to industry standards.

If, based on the recommendation of the Arborist, the Engineer determines that damages are irreparable, or that the damages are such that the tree is sufficiently compromised to pose a future safety hazard, the tree shall be removed. Tree removal shall include cleanup of all wood, grinding of the stump to a depth sufficient to plant a replacement tree or plant, removal of all chips from the stump site, and filling the resulting hole with topsoil. Such tree removal(s), grinding, debris removal, and topsoil filling, shall be at the Contractor's expense.

Tree removal from improper or inadequate tree protection shall result in the Engineer assessing the Contractor monetary damages consistent with industry standards for assessed value and/or replacement.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 102.511 will be measured and paid at the contract unit price per EACH tree to be armored and pruned. This will include full compensation for all labor, equipment, materials, and incidentals for the satisfactory completion of the work and the subsequent removal and satisfactory disposal of the protective materials upon completion of the contract or as required by the Engineer.

Payment for work under this item will be scheduled as follows:

- 40% of the value shall be paid upon installation of trunk armoring and completion of pruning work, if required.
- 60% of the value shall be paid at the end of construction operations that would potentially damage the tree and after protection materials have been removed and properly disposed of by the Contractor. In the event of repairable damages, payment shall be made after the completion of remediation measures.

No separate payment will be made for costs of remedial actions, including Arborist services, tree removal, but all costs in connection therewith shall be included in the Contract unit price bid.

Tree damages assessed, due to lack of or improper tree and plant protective measures being taken, shall be deducted from the contract price of the work.

ITEM 102.521 TREE AND PLANT PROTECTION FENCE FOOT

The work under this Item shall conform to the relevant provisions of Sections 644 and 771 of the Standard Specifications and the following:

Work under this item shall consist of furnishing, installing, and maintaining tree and plant protection fence(s) in a vertical and taut position; removing and resetting fencing as may be required; and final removal of protection fence(s) at the completion of construction activities, or as otherwise required by the Engineer.

The purpose of the fencing is to signify a construction work-free zone and physical barrier, thereby preventing damage to tree roots, tree trunks, soil, and all other vegetation within this delineated Tree and Plant Protection Zone (TPPZ), as shown on the Drawings, as required by the Engineer, and as described herein.

Approximate locations of tree and plan protection fence are as follows:

Station 10+55 RT to Station 10+95 RT
Station 12+70 RT to Station 14+55 RT
Station 13+75 RT to Station 14+55 RT
Station 14+30 LT to Station 14+65 LT
Station 15+25 RT to Station 18+10 RT
Station 15+60 LT to Station 18+00 LT

Protection shall be for the duration of the construction activities unless otherwise required by the Engineer.

MATERIALS

Tree and plant protection fence(s) shall provide a minimum forty-eight (48) inch tall barrier, that remains vertical and taut. The Fence shall be orange plastic safety fence (recommended where high visibility is necessary), or wooden snow fencing, or other approved material. Posts and anchoring materials shall be incidental to the work.

Per requirements of the Engineer, additional posts, deeper post depths, and/or additional attachments shall be used if the fabric or fence sags, leans or otherwise is not providing visible or physical protection to the TPPZ.

REFERENCES

If requested, the Contractor shall provide to the Engineer one copy of the American National Standards Institute (ANSI) A300 Standard Practices for Tree, Shrub, and Other Woody Plant Maintenance Part 1, Pruning and Part 5, Construction Management Standard. Provision of reference shall be incidental to this item.

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ITEM 102.521 (Continued)

Establishment of THE TPPZ

Fencing shall be used to delineate and establish the TPPZ, adjacent to construction areas, staging areas, stockpile areas, as shown on the Drawings, and/or as required by the Engineer.

Fencing shall be located as close to the work zone limit and as far from tree trunk(s) and plants as possible to maximize the area to be protected. Fence shall run parallel and adjacent to construction activity to create a barrier between the work zone and the root zone or designated limit of plants and soils to be protected.

When construction activities surround (or have the potential to surround) trees or plants to be protected, a circular enclosure shall be used. In these instances, the TPPZ limit shall be the drip line of each tree or as close as possible to the drip line, and/or as shown on the Drawings. The drip line is defined as the outermost limit of tree canopy.

The Contractor shall not engage in any construction activity within the TPPZ without the approval of the Engineer. Activities may including operating, moving, or storing equipment, supplies, or materials; and locating temporary facilities, including trailers or portable toilets, Accessing or traversing the TPPZ shall not be permitted.

METHOD OF WORK

TPPZ fencing shall be installed prior to any construction work or staging activities. Fence(s) shall be repositioned where and as necessary for optimum tree and plant protection. Repositioning shall be incidental to this item. TPPZ fencing shall not be moved without prior approval by the Engineer.

The TPPZ shall be protected at all times from compaction of the soil; damage of any kind to trunks, bark, branches, leaves, and roots of all plants; and contamination of the soil with construction materials, debris, silt, fuels, oils, and any chemicals substance.

After construction activities are completed, or when required by the Engineer, fencing, stakes, and other anchoring materials, if any, shall be removed and disposed off-site by the Contractor.

REQUIRED WORK WITHIN THE TPPZ

In the event that grading, trenching, utility work, or storage is unavoidable within the TPPZ, the Engineer shall be notified. Measures may be required for tree protection and preservations, including air spading; the use of six (6) inch depth of wood chips or approved matting for root protection; pruning of branches; and/or trunk protection. These protection measures shall be paid under applicable contract items.

Landscaping work specified within the TPPZ shall be accomplished by hand tools. Where handwork is not feasible, with permission of the Engineer, work shall be conducted with the smallest mechanized equipment necessary.

ITEM 102.521 (Continued)

TREE AND PLANT Injury or loss

If the TPPZ is encroached by construction activity without approval, at the discretion of the Engineer, the Contractor may be required to provide a more durable barrier (e.g., Jersey Barriers, chain link fence (if not already in use) to secure the area. Costs of furnishing and installing additional or more durable barrier(s) shall be borne by the Contractor.

In such cases of encroachment, soils shall be considered compacted and tree root injury will be assumed. Action shall be taken as specified below.

In the event that trees designated for protection under this item are injured, including root injury from unapproved trespassing onto the root zone, the Contractor shall, at his own expense, secure the services of an Arborist, described under Item 102.55. The Arborist shall be approved by MassDOT.

In the event of spills, compaction or injury, the Contractor shall take corrective action immediately using methods approved by the Engineer, in coordination with the Arborist.

If, based on the recommendations of the Arborist, the Engineer determines that injuries can be remedied by corrective measures, such as repairing trunk or limb injury, soil compaction remediation, pruning, and/or watering; the injury shall be repaired as soon as possible, within the appropriate season for such work, and according to industry standards.

If, based on the recommendations of the Arborist, the Engineer determines that injuries are irreparable, or that the injuries are such that the tree is sufficiently compromised to pose a future safety hazard, the tree shall be removed. Tree removal shall include cleanup of all wood, grinding of the stump to a depth sufficient to plant a replacement tree or plant, removal of all chips from the stump site, and filling the resulting hole with topsoil. Such tree removal(s), grinding, debris removal, and filling, shall be at the Contractor's expense.

Tree removal from improper or inadequate protection of the TPPZ shall result in the Engineer assessing the Contractor monetary damages consistent with industry standards for assessed value and/or replacement.

Shrubs removals from improper or inadequate protection of the TPPZ shall be replaced with plants of similar species and equal size or the largest size plants reasonably available. The Engineer shall approve the size, quality, and quantity of the replacement plant(s). Each replacement shall include a minimum of one year of watering and establishment care, specified under Section 771.

ITEM 102.521 (Continued)

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Tree and Plant Protection Fence will be measured by the FOOT, complete in place, by the length along the top of the fence.

Tree and plant protection fence will be paid for under the contract unit price per FOOT, complete in place and shall include all materials, labor, and equipment required to furnish, install, anchor, maintain, and remove the fence upon completion, as described herein. Posts, temporary footings, anchoring and removal upon completion, shall be incidental to this item.

No separate payment will be made for costs of remedial actions, including addition of more durable barriers, Arborist services, tree or plant removal, shrub replacement and establishment, but all costs in connection therewith shall be included in the Contract unit price bid.

Tree damages assessed, due to lack of or improper tree and plant protective measures being taken, shall be deducted from the contract price of the work.

Payment for work under this item will be scheduled as follows:

- Forty (40) percent of the value payment will be made upon installation of fencing.

- Sixty (60) percent of the value payment will be made when fencing materials have been maintained to function as specified, for the intended duration, and removed and disposed off-site at the completion of protection measure requirement.

ITEM 102.533 TREE CARE - WATERING GALLON

The work under this item shall conform to the relevant provisions of Section 440 and 771 of the Standard Specifications and the following:

The purpose of this item is to provide watering for tree care during and after root pruning as directed by the Arborist. Watering shall occur during daytime hours only. This item applies only to existing trees being retained within project limits.

MATERIAL

Water shall be water from an approved source.

SUBMITTALS

Schedule for watering shall be determined in consultation with the arborist. Expected schedule shall be submitted to the Engineer. Source of the water shall be approved by the Engineer and included in the submittal.

Contractor shall submit metered record of water used or other measure approved by the Engineer. Record must show date of watering and quantity used.

METHODS

At least one day prior to watering on site, the contractor shall notify the Engineer.

Watering equipment shall be approved by the Engineer prior to watering under this item. Equipment shall be such that there is no water leaking from the tank, hoses, or any other parts. Water shall be pumped and have a minimum flow of 95 PSI. Gravity fed watering shall not be accepted under this item.

If water runs off root zone area due to slope, too high a flow rate, slow infiltration, or any other reason, water will not be approved for payment.

Watering method shall not damage plants or seeded areas or cause erosion. All damages shall be repair at the Contractor’s expense.

MEASUREMENT AND PAYMENT

Item 102.533 shall be measured by the Gallon and shall be based on the submittals described herein. Payment shall be for all labor, equipment, and materials to complete the work specified.

Item 102.533 will be paid for at the Contract unit price per Gallon which price shall include all labor equipment, materials and incidental costs required to complete the work.

ITEM 102.55 **ARBORIST** **HOUR**

DESCRIPTION

The work under this Item is for the services of a Certified Arborist. Arborist shall be an International Society of Arboriculture (ISA) Certified Arborist or a Massachusetts Certified Arborist. The Arborist shall have at least 10 years of experience in tree care, including tree protection during construction, and shall demonstrate a familiarity with the American National Standards Institute (ANSI) A300 Standard Practices for Tree, Shrub, and Other Woody Plant Maintenance Part 1Pruning, Part 5 Construction Management Standards, and Part 9 Tree Risk Assessment.

The Arborist's general responsibilities include protecting high priority trees within and adjacent to the project limits, stating areas, and access routes; recommending removal of diseased, damaged or otherwise unhealthy trees that pose a potential safety hazard; evaluating effects of construction on future health of trees close to proposed work; and recommending and/or overseeing tree work amd care.

The Arborist for this item shall not be from the same company as the company responsible for selective clearing or tree removal work.

For projects with multiple phases, projects where construction activities (work or stockpiling) shifts, or when otherwise directed by the Engineer, the Arborist shall re-evaluate conditions and provide follow-up recommendations.

SUBMITTALS

- Contractor shall submit to the Engineer for approval by MassDOT Landscape Design the qualifications and experience of the Arborist. Submittal shall include copy of current certification and a resume summarizing specific construction experience (including relevant MassDOT projects) for a minimum of five projects.
- Arborist's Report documenting recommendations shall be submitted to the Engineer and an electronic copy forwarded to MassDOT Landscape Design Section. Report shall include the following:

SCOPE OF WORK

The Arborist shall be responsible for the following tasks:

- Initial Evaluation and Report
  - recommend and prioritize trees that require removal as appropriate to contract scope, project limits, and project intent;
  - review and modify, if necessary, tree protection measures shown on the drawings
  - review and mark limits of protective fencing for trees and groups of trees to be retained;
  - review and recommend protection measures for high priority trees;
  - submit a marked-up Construction Plan that briefly notes recommendations and decisions made in the field;

ITEM 102.55 (Continued)

- submit a corresponding report including photo documentation;
- Oversight
  - direct or execute pruning of branches and/or roots, air spading, and/or other tree care operations
- Monitoring and Inspections
  - periodically inspect fencing and ensure root zones are properly protected and clear of equipment and materials as required by the Engineer
  - reevaluate tree protection measures for various phases of a project
  - submit inspection notes with relevant and dated photos to the Engineer.
- Special Care
  - oversee tree pruning for health and aesthetics
  - recommend fertilization and amendments
- recommend and oversee pest control

METHODS

Prior to any work, the Arborist shall walk the site with the Contractor, the Engineer, the Town Tree Warden, and, if specified, the MassDOT Landscape Architect, to review trees, limits of construction activities, and other concerns. Where required for proper assessment of tree impacts, limits of work shall be staked or otherwise marked in the field prior to the site walk.

Trees to be removed shall be painted or otherwise marked.

Trees to be retained shall be marked such that it does not mar or damage the tree and such that marker is not easily removed. As applicable to the work and scope of the project, trees designated for removal or to be retained shall be noted on the plan and/or in the arborist's report and photographed.

Trees designated to remain that are damaged or removed by construction activities shall be noted and photographed for inclusion in inspection reports submitted to the Engineer.

MEASUREMENT AND BASIS OF PAYMENT

Item 102.55 will be measured for payment by the Hour of time spent onsite.

Item 102.55 will be paid at the contract unit price per hour upon submittal and acceptance of Reports described above.

ITEM 114.1 DEMOLITION OF SUPERSTRUCTURE OF BRIDGE NO. N-03-012 (29L) LUMP SUM

The work under this item shall conform to the applicable provisions of Subsection 112, 960 and 961 of the Standard Specifications and the following.

The Contactor will make their own investigation of the structure to be demolished including the materials that are part of, or may, be stored in the structure. No increase will be made to the bid price due to the nature of the materials involved in the demolition or to the depth of the existing structure. All costs for permits, dump fees, special handling of hazardous materials, etcetera, shall be included in the bid price of the demolition item.

The work done under this Item includes the demolition of the existing superstructure of Bridge No. N-03-012 (29L). The work shall include (but is not limited to) removal and satisfactory stacking and delivery of the existing steel temporary pedestrian bridge to the MassDOT storage facility located at:

438 Old Union Turnpike
Lancaster, MA.

The Contractor shall take all measures necessary to protect pedestrian traffic from construction operations. Materials shall be removed carefully so as to avoid damage to adjacent utilities. During prosecution of this work, the Engineer may reject the use of any method or equipment which causes vibration or possible damage to the existing pedestrian bridge or any part thereof.

The work shall also include pre-demolition testing of the soil, in conformance with the relevant provisions of Subsection 961.66 of the 2026 Standard Specifications for Highways and Bridges and the following:

METHODS

Any lifting plans and supporting calculations shall conform to the requirements of MassDOT Standard Specifications Subsection 960 ERECTION with a required factor of safety of 150%. No blasting or use of explosives is permitted. Demolition near the railroad shall meet all requirements of the railroad owner, including but not limited to maintaining horizontal offsets to the tracks, requesting foul time if needed, to encroach the foul zone to complete the work, protecting the railroad tracks from disturbances and unsettling, etc.

REMOVAL AND STACKING OF TEMPORARY BRIDGE

The work to be done under this heading shall conform to the relevant provisions of Section 112 of the Standard Specifications, and the following:

The Contractor shall dismantle, stage, load and unload the temporary bridge in accordance with the recommendations of the manufacturer's representative. All components of the temporary bridge shall be completely disassembled and the components returned to MassDOT in a clean, refurbished manner as described further in these special provisions and accepted by MassDOT.

ITEM 114.1 (Continued)

Prior to dismantling the superstructure, the Contractor and the Engineer shall make a joint inspection to determine if any parts have been damaged through no fault of the Contractor. Any components found deficient shall be brought into compliance with temporary structure's original specifications. Such damaged parts shall be replaced by the Contractor incidental to this Item.

Submittal
Before any dismantling work of the temporary bridge is started, the Contractor shall provide the Engineer, with a written description of the procedures and methods to be used, including a time schedule. The procedure shall be submitted as stamped by a Professional Engineer registered in the Commonwealth of Massachusetts. The Engineer will either approve, give appropriate recommendations, or may disapprove entirely these procedures. Only with the Engineer's written approval will the Contractor be permitted to proceed with the dismantling process.

MassDOT Representative
The Contractor shall coordinate with the MassDOT Representative a minimum of seven days prior to delivery of the bridge components. The MassDOT Representative is Nick Heath and can be contacted at Nicholas.Heath@dot.state.ma.us.

Technical Advisor
The Contractor shall employ the services of a technical representative for the panelized bridge manufacturer for the duration of dismantling of the temporary bridge.

The Contractor shall be responsible for the payment of all services required from the above technical advisor, and the Contract bid price shall include full compensation for all costs in connection therewith.

The services of the temporary bridge technical representative are in addition to the Contractor's staff. The technical advisor shall be present during the dismantling of the temporary panelized bridge.

Tools
Tools provided for erection of the temporary structure shall be used for dismantling and shall become the property of MassDOT upon completion of this phase of the project.

Cleaning of Panelized Bridge
All damaged areas of the galvanized components shall be cleaned of any oil, grease, rust, scale, or other foreign material, and then touched up with two coats of Zinc-rich paint, meeting MassDOT Specification M7.04.11 (Paint, High Zinc Dust Content, Galvanizing Repair).

All pins, fasteners, including bolts, nuts and washers, and all threaded portions of the panelized bridge components excluding high strength bolts shall be cleaned of rust, dirt, etc. and lubricated or otherwise coated with a thin rust prevent film, in a manner satisfactory to the Engineer, to prevent rusting. Packaging in an oil-bath of any type will not be permitted. All high strength bolts shall be replaced with new ones.

ITEM 114,1 (Continued)

If any type of abrasive blasting is used to clean the components, all holes that receive the panel pins and all threaded holes shall be protected from damage due to the blasting operation.

Return of Panelized Bridge Components
All cleaned and refurbished parts shall be returned to MassDOT at the address listed above.

Replacement Parts
At the end of this contract, the Contractor shall have delivered and properly stored all parts. Any parts that have been lost or damaged and that have not been noted as damaged on the inventory prior to dismantling shall be replaced by the Contractor at the expense of the Contractor.

SUBMITTALS

The Contractor shall prepare and submit a plan indicating the proposed demolition procedures including dust control and methods to be used including equipment, tools, devices, crane capacity and location, schedule of operations, methods of utility protection and disposal location to the Engineer and MBTA for approval. The demolition plan shall be prepared in accordance with MBTA requirements. The demolition procedures and any necessary calculations and drawings shall be stamped by a Professional Engineer registered in Massachusetts, certifying that all existing structural members are suitably braced and supported throughout the demolition process. Any railroad clearance envelopes or foul time required to complete the work during demolition should be coordinated with the MBTA along with protection of the railroad tracks during demolition of existing bridge. The Contractor shall be aware and make adequate provision for the protection and/or relocations of overhead utilities located near the existing structures. The existing 10" waterline located on the east side of the bridge is to remain in place and operational during all construction activities until the replacement water main is made operational. The MBTA PTC cable attached to the existing north abutment will need to be protected during construction and relocated as shown on the plans. The Contactor's plans for demolition shall be approved by the Engineer and MBTA prior to commencement of the work.

The Contractor shall be solely responsible for maintaining the stability of the existing pedestrian bridge at all times, during the demolition and construction operations. Any designs for temporary strengthening or bracing of portions of the existing structure to are the responsibility of the Contractor. Design of temporary strengthening or bracing or portions of the existing structure shall be included in the demolition plan and procedure package. The demolition procedures and any necessary calculations and drawings shall bear the stamp of a Professional Engineer registered in the Commonwealth of Massachusetts certifying that all existing structural members are suitable braced and supported throughout the demolition process. The railroad clearance envelopes during demolition and protection of the railroad during demolition of the existing pedestrian bridge shall be included as part of the submittal.

Except as specified, all materials and debris removed under Item 114.1 shall become the property of the Contractor, and shall be recycled, reused or disposed of in accordance with all applicable local, state and federal requirements. Demolition and work involving painted steel shall conform to the requirements of Subsection 961 of the Standard Specifications. and the special provisions described above. All hazardous materials shall be contained and disposed of in accordance with state and federal environmental regulations.

ITEM 114,1 (Continued)

Debris from demolition must be carefully contained within the work zones and prevented from falling/infiltrating onto the railroad below. Shielding shall be in place to protect the railroad, pedestrians and utilities prior to any demolition work. Any material that accidentally falls outside of the shielding limits shall be immediately removed. The Contractor shall control dust resulting from demolition operations. No debris shall be swung over the pedestrian walkway on the newly constructed bridge.

All submittals shall be in accordance with Section 112 and Subsections 960.61 and 961.66.

BASIS OF PAYMENT

Item 114.1 will be paid for at the contract lump sum price which price shall include all materials, equipment, tools and labor for the removal and delivery of the existing temporary pedestrian bridge and the soil testing. All costs for permits, dump fees, taxes, and special handling of hazardous materials shall be included in the bid price of the demolition item. Temporary Protective Shielding and will be paid for under Item No. 994.01.

ITEM 127.2 SUBSTRUCTURE REMOVAL CUBIC YARD

Work under this Item shall conform to the relevant provisions of Subsections 120 and 140 of the Standard Specifications and the following:

The Contactor will make his own investigation of the structure to be demolished including the materials that are part of, or may be stored in the structure.. All costs for permits, dump fees, special handling of hazardous materials, etcetera, shall be included in the bid price of the demolition item.

The work under this item shall include the removal and satisfactory disposal of masonry from the existing bridge substructure (but not limited to) the existing masonry abutments and wingwalls, backwalls, approach slabs, wingwalls and footings, as specified herein, and which are not included under Item 114.1 Demolition of Superstructure of Bridge No. N-03-012 (29L). Additional locations for work under Bridge Excavation may also be specified by the Engineer. Masonry blocks from the existing abutments and wingwalls shall be stacked at Natick Public Works Department, 75 West St, Natick, MA 01760 and this work shall be considered incidental to Item 127.2.

PROJECT CONDITIONS

The Contractor will be required to provide Temporary Protective Shielding during substructure excavation. During demolition, debris from demolition must be carefully contained within the work zones and prevented from falling/infiltrating onto the railroad below. Shielding shall be in place to protect the railroad, pedestrians and utilities prior to any demolition work. Any material that accidentally falls outside of the shielding limits shall be immediately removed. Contractor shall control dust resulting from demolition operations. No debris shall be swung over the pedestrian walkway on the newly constructed bridge. Concrete formwork may be constructed from the top or sides.

CONSTRUCTION METHODS

Any and all temporary work platforms required for the safe performance of this work and protection of utilities shall be considered incidental to this item. Demolition shall be completed in accordance with MBTA requirements.

ITEM 127.2 (Continued)

METHOD OF MEASUREMENT

Item 127.2 will be measured for payment by the Cubic Yard of Substructure removed.

BASIS OF PAYMENT

Item 127.2 will paid at the Contract unit price per CUBIC YARD which price shall constitute full compensation for all labor, tools, materials, sawcutting, submittals, professional engineering cost, and equipment required to complete the work. .

Removal and proper disposal of any existing fittings, existing appurtenances, or existing elements attached to, embedded in, or abutting the abutments indicated for removal will be considered as incidental to the work of this Item.

Debris from construction must be carefully contained within the work zones and prevented from falling onto the railroad below. No foreign material or debris resulting from the Contractor's operations shall be permitted to enter or remain on the railroad. The Contractor shall be required to remove any debris generated from construction from the site immediately and to restore portions of the site affected by the operation to their original undisturbed condition or better. Removal of debris generated by demolition and construction will be performed at the Contractor's own expense. Contractor shall be responsible for dust control as the result of the demolition operations. Any railroad clearance envelopes and foul times to complete the work during demolition shall be coordinated with MBTA along with protection of the railroad tracks during demolition.

Temporary Protective Shielding will be required during the excavation of the existing substructure (abutments, backwalls, approach slabs, wingwalls and footings) and will be paid for under Item No. 994.01.

ITEM 129.3 OLD PAVEMENT EXCAVATION CUBIC YARD

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

The work to be done under this item shall consist of the removal and disposal of all existing hot mix asphalt pavement in the sidewalk and roadway between stations 12+00.00 to 14+65.00, stations 15+30.00 to 18+56.15, and as required by the Engineer.

The Contractor shall excavate the existing pavement in this area down to the top of the existing sub-base material. Unless otherwise directed by the Engineer, the area of the removed pavement shall be covered with special borrow. The excavated pavement material will be removed, discarded, and transported by the Contractor to an environmentally approved site without any additional compensation.

METHOD OF MEASUREMENT

Item 129.3 will be measured for payment by the cubic yard of old pavement excavated.

BASIS OF PAYMENT

Item 129.3 will be paid at the contract unit bid price per Cubic Yard, which price includes all labor, equipment, tools, sawcutting and all incidental costs required to complete the work.

ITEM 180.01 ENVIRONMENTAL HEALTH AND SAFETY PROGRAM LUMP SUM

The work shall consist of ensuring the health and safety of the Contractor's employees and subcontracting personnel, the Engineer, their representatives, the environment, and public welfare from any on-site chemical contamination present in air, soil, water and sediment.

The Contractor shall prepare and implement a site-specific Environmental Health and Safety Plan (EHASP) which has been approved and stamped by a Certified Industrial Hygienist (CIH) and includes the preparer's name and work experience. The EHASP shall include appropriate components required by OSHA Standard 29 CFR 1910.120(b) and the Massachusetts Contingency plan (MCP) 310 CMR 40.0018 and must comply with all applicable state and federal laws, regulations, standards and guidelines, and provide a degree of protection and training appropriate for implementation on the project. The EHASP shall be a dynamic document with provision for change to reflect new information, new practices or procedures, changing site environmental conditions or other situations which may affect site workers and the public. The EHASP shall be developed and implemented independently from the standard construction HASP required to work on all MassDOT construction projects.

Health and safety procedures provided by the Contractor shall comply with all the appropriate regulations that address employee working conditions, including but not limited to standards established by OSHA and National Institute for Occupational Safety and Health (NIOSH). Equipment used for the purpose of health and safety shall be approved by and meet pertinent standards and specifications of the appropriate regulatory agencies.

A copy of the most up-to-date version of the EHASP shall be maintained on-site at all times by the Contractor. The on-site copy shall contain the signature of the Engineer and each on-site employee of the MassDOT, Contractor, and Subcontractors involved with on-site activities. The employee's signature on the EHASP shall be deemed prima facie evidence that the employee has read and understands the plan. Updated copies of signature sheets shall be submitted to the Engineer.

The EHASP shall specify a Contractor Site Safety and Health Officer responsible for implementation of the EHASP and to oversee all construction activities, including handling, storage, sampling and transport, which require contact with or exposure to potentially hazardous materials.

The level of protection, required to ensure the health and safety of on-site personnel will be stipulated in the EHASP. The Site Safety and Health Officer shall implement the EHASP based on changing site and weather conditions, type of operation or activity, chemical compounds identified on-site, concentration of the chemicals, air monitoring data, physical state of the hazardous materials, potential duration of exposure to hazardous materials, dexterity required to perform work, decontamination procedures, necessary personnel and type of equipment to be utilized.

ITEM 180.01 (Continued)

During implementation of the EHASP, a daily log shall be kept by the Site Safety and Health Officer and a copy shall be provided weekly to the Engineer. This log shall be used to record a description of the weather conditions, levels of personal protection being employed, screening data and any other information relevant to on-site environmental safety conditions. The Site Safety and Health Officer shall sign and date the daily log.

Method of Measurement and Basis of Payment

Preparation and implementation of the Environmental Health and Safety Program, including the monitoring, protection and storage of all contaminated materials, as well as subsequent modifications to the EHASP, will be measured and paid for at the Lump Sum Bid Price.

Payment of 50% of the Environmental Health and Safety Program contract price will be made upon the initial acceptance of the EHASP by the Engineer. Payment of the remaining 50% of the Environmental Health and Safety Program contract price will be made upon completion of the work. The bid price shall include preparation and implementation of the EHASP as well as the cost for its enforcement by the Site Safety and Health Officer along with any necessary revisions and updates. The work of implementing the Environmental Health and Safety Program includes work involving, but not limited to, the monitoring, protection, and storage of all contaminated materials.

ITEM 180.02 PERSONAL PROTECTION LEVEL C UPGRADE HOUR

The work shall consist of providing appropriate personal protective equipment (PPE) for all personnel in an area either containing or suspected of containing a hazardous environment.

Contingencies for upgrading the level of protection for on-site workers will be identified in the EHASP and the Contractor shall have the capability to implement the personal protection upgrade in a timely manner. The protective equipment and its use shall be in compliance with the EHASP and all appropriate regulations and/or standards for employee working conditions.

Personal Protection Level C Upgrade will be measured and paid only upon upgrade to Level C and will be at the contract unit price, per hour, per worker, required in Level C personal protection. No payment will be made to the Contractor to provide Level D PPE.

ITEM 180.03 LICENSED SITE PROFESSIONAL SERVICES HOUR

Within limited areas of the project site, media (i.e. soils, sediments, surface water and/or groundwater) requiring evaluation and/or management under the Massachusetts Contingency Plan (MCP) may be encountered. A Licensed Site Professional (LSP) shall be required to provide the services necessary to comply with the requirements of the MCP. These services may include a site walk, field screening, sampling, analysis and characterization of potentially contaminated media, preparation and implementation of Immediate Response Action (IRA) Plans, Utility-Related Abatement Measure (URAM) and Release Abatement Measure (RAM) Plans, Imminent Hazard Evaluations, status reports, transmittal forms, release notification forms, risk assessments, completion statements, and related documents required pursuant to the MCP. LSP services shall also be necessary to temporarily move material generated on the project to an off-site storage location.

The name and qualifications of the LSP and all environmental technicians to be assigned to the project shall be submitted to the Engineer for approval at least four weeks prior to initial site activities. The LSP shall have a current, valid license issued by the Massachusetts Board of Registration of Hazardous Waste Site Cleanup Professionals. The LSP shall have significant experience in the oversight of MCP activities at active construction sites. Qualification packages for the LSP and each technician shall include a resume, all recent work assignments with responsibilities identified (previous 5 years), and applicable training and certifications. A list of all Notices of Noncompliance, Notice of Audit Findings and Enforcement Orders issued by the Massachusetts Department of Environmental Protection (DEP) shall be submitted for all work assignments listed for the LSP and environmental technicians. Upon approval of the LSP Qualifications, the LSP will be designated as the LSP of Record unless MassDOT designates in writing otherwise. The LSP of Record will serve as the primary point of contact for all hazardous material matters on the project.

The LSP shall evaluate soil and/or sediment with discoloration, odor, elevated field screening results, presence of petroleum liquid or sheen on the groundwater surface, or any abnormal gas or materials in the ground which are known or suspected to be oil or hazardous materials. Excavated soil and sediment which is suspected of petroleum contamination shall be field screened using the jar headspace procedures according to established DEP Guidance. All field screening equipment must be pre-approved by the Engineer. The LSP shall ensure proper on-site calibration of all field screening instrumentation.

The Engineer shall be contacted immediately when observations or any field screening results verify contamination requiring further analysis, and/or enhanced management of suspect media. Any enhanced management of contaminated soil to ensure proper stockpiling and storage is incidental to the LSP Services item. The LSP shall evaluate the need for confirmatory sampling prior to backfill in areas where contaminated material has been excavated and disposed off-site for compliance with applicable regulatory requirements. The Engineer shall approve the locations of the testing sites prior to the sampling.

ITEM 180.03 (Continued)

Contaminated media shall be handled in accordance with all applicable state and federal statutes, regulations, and policies. The LSP shall adequately evaluate contaminated media for compliance with the requirements of the MCP and Department Policies.

The Contractor and the LSP shall be aware of the reporting requirements for releases of oil and/or other hazardous material (OHM) as set forth in federal and state laws and regulations and both shall be held responsible for performing the work in accordance with all applicable Federal and State laws and regulations. The LSP shall maintain written records in a clear and concise tabular format which tracks the excavation, stockpiling, analysis and reuse/disposal of all known/suspect contaminated media. These records shall be up-to-date and submitted to the Engineer on a bi-weekly basis. The LSP shall review and summarize the laboratory data from any analyses performed on contaminated media in a tabular format and compare the results to applicable reporting thresholds. A report shall be delivered to the Engineer outlining the material sampling methods, laboratory analysis results, evaluation of applicable regulatory exemptions, reporting obligations, and proposed course of action. The laboratory report together with Chain of Custody forms for all analytical results shall be submitted to the Engineer within 14 days after completion of such analyses.

The LSP and Contractor shall be held responsible for the submission of all MCP-related documents to the Engineer at least 14 days in advance of any timeframe specified in the MCP and for the timely submission of data and tracking information as noted within this Item. All documents prepared under this Item must be reviewed and signed by the approved LSP. The Contractor and LSP shall be responsible for all fines, damages, and enforcement requirements imposed by applicable regulatory agencies for failure to meet regulatory and contract timeframes. No compensation will be provided for such fines, damages, and enforcement actions.

The Contractor and the LSP shall be aware of the reporting requirements for releases of oil and/or other hazardous material (OHM) as set forth in federal and state laws and regulations and shall both be held responsible for performing the work in accordance with all applicable Federal and State laws and regulations.

If the Contractor causes a release of OHM, the Contractor shall be responsible for assessing and remediating the release in accordance with all pertinent State and Federal regulations, including securing the services of a LSP, at his own expense.

The LSP shall coordinate all activities involving both MassDOT and the DEP through the Engineer. Any notification of release shall be approved by the Engineer before submittal to the DEP, except if an imminent hazard condition exists as defined in 309 CMR 4.03(4)(b).

ITEM 180.03 (Continued)

LABORATORY TESTING IN SUPPORT OF LSP SERVICES

Laboratory testing provides for analytical testing in support of LSP services related to maintaining MCP compliance, such as delineating the extent and type of contamination present. Sampling and testing for disposal purposes are not included and are incidental to Items 181.11-181.14.

In order to maintain compliance with the MCP and Department Policies or other regulatory requirements, the LSP shall request approval from the Engineer to obtain samples from various locations and depths within the project area and to perform laboratory analyses on those samples. No sampling shall be conducted without prior approval from the Engineer. The samples shall be delivered to a DEP-certified laboratory using proper chain-of-custody documentation for analyses which, depending upon site conditions and suspected and/or identified contaminants of concern, may include, but are not limited to, metals, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, polycyclic aromatic hydrocarbons (PAHs), extractable petroleum hydrocarbons (EPHs) and volatile petroleum hydrocarbons (VPHs). Subsequent testing, depending upon initial results, may be required for Toxicity Characteristic Leaching Procedure (TCLP) analyses (EPA Method 1311) for metals.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

LSP Services for work under this item will be measured per person, per hour of service provided by LSP, Environmental Technicians and other approved personnel. Travel time shall not be included in the billable hours.

The quantity and type of laboratory tests must be approved by the Engineer beforehand. The Contractor will be reimbursed upon satisfactory written evidence of payment. The Contractor may be required to obtain cost estimates from three DEP certified laboratories for the Engineer to choose the service provider.

LSP Services will be paid at the Contractor bid price for each hour, or fraction thereof, spent to perform the work as described above. The bid price shall be a blended rate that includes the cost of the LSP, environmental technicians and other personnel, the performance of all work tasks and field screening, including required equipment, materials and instrumentation, and production of all documentation described above. All requests for payment must be accompanied by the following information: the names of the personnel associated with the work charged under LSP Services, dates and hours worked, work conducted, including, where appropriate, locations as identified on the construction plans, and a copy of the field diary for the dates submitted.

Laboratory testing will be reimbursed upon receipt of paid invoices for testing approved by the Engineer.

This item is for LSP work for compliance with the MCP and Department Policies. LSP hours and any laboratory testing related to off-site disposal of excess soil and sediment is incidental to Items 181.11-181.14 (including, but not limited to, disposal characterization, disposal package preparation, landfill acceptance, shipment paperwork preparation, field screening, and tracking). LSP hours for groundwater management (including characterization, obtaining off-site discharge permits, compliance testing, etc.) is incidental to Item 183.1.

ITEM 181.11 DISPOSAL OF UNREGULATED SOIL TON
ITEM 181.12 DISPOSAL OF REGULATED SOIL-IN-STATE FACILITY TON
ITEM 181.13 DISPOSAL OF REGULATED SOIL-OUT-OF-STATE FACILITY TON
ITEM 181.14 DISPOSAL OF HAZARDOUS WASTE TON

The work under these Items shall include the transportation and disposal of contaminated material excavated, or excavated and stockpiled. It shall also include the cost of any additional laboratory analyses required by a particular disposal facility beyond the standard disposal test set.

Excavation of existing subsurface materials may include the excavation of contaminated soils. The Contractor shall be responsible for the proper coordination of characterization, transport and disposal, recycling or reuse of contaminated soils. Disposal, recycling or reuse will be referred to as "disposal" for the purposes of this specification. However, regardless of the use of the term herein, there will be no compensation under these items for reuse within the project limits. The Contractor will be responsible for coordinating the activities necessary for characterization, transport and disposal of contaminated soils. Such coordination will include the Engineer and his/her designee overseeing management of contaminated materials. Contaminated soils must be disposed of in a manner appropriate for the soil classification as described below and in accordance with the applicable laws of local, state and federal authorities. The Contractor shall be responsible for identifying disposal facility (ies) licensed to accept the class of contaminated soils to be managed and assure that the facility can accept the anticipated volume of soil contemplated by the project. The Contractor shall be responsible for hiring a Licensed Site Professional (LSP) and all ancillary professional services including laboratories as needed for this work. The Contractor will be responsible for obtaining all permits, approvals, manifests, waste profiles, Bills of Lading, etc. subject to the approval of the Engineer prior to the removal of the contaminated soil from the site. The Contractor and LSP shall prepare and submit to the Engineer for approval all documents required under the Massachusetts Contingency Plan (MCP) and related laws and environmental regulations to conduct characterization, transport, and disposal of contaminated materials.

CLASSES OF CONTAMINATED SOILS

The Contractor and its LSP shall determine if soil excavated or soil to be excavated is unregulated soil or contaminated soil as defined in this section. Such materials shall be given a designation for purposes of reuse or disposal based on the criteria of the MCP. Soils and sediments which are not suitable for reuse will be given a designation for purposes of off-site disposal based on the characterization data and disposal facility license requirements. The Classes of Contaminated Soils are defined as follows:

ITEM 181.11, 181.12, 181.13, and 181.14 (Continued)

UNREGULATED SOIL consists of soil, fill and dredged material with measured levels of oil and hazardous material (OHM) contamination at concentrations below the applicable Reportable Concentrations (RCs) presented in the MCP. Unregulated soil consists of material which may be reused (or otherwise disposed) as fill within the Commonwealth of Massachusetts subject to the non-degradation criteria of the MCP (310 CMR 40.0032(3), in a restricted manner, such that they are sent to a location with equal or higher concentrations of similar contaminants. Disposal areas include licensed disposal facilities, approved industrial settings in areas which will be capped or covered with pavement or loamed and seeded, and for purposes of this project should be reused as fill within the project site construction corridor whenever possible. The material cannot be placed in residential and/or environmentally sensitive (e.g. wetlands) areas. Under no circumstances shall contaminated soils be placed in an uncontaminated or less contaminated area (including the area above the groundwater table if this area shows no sign of contamination).

The Contractor shall submit to MassDOT the proposed disposal location for unregulated soils for approval. If such a disposal location is not a licensed disposal facility, the Contractor shall submit to the Engineer analytical data to characterize the disposal area sufficiently to verify that the unregulated material generated within the MassDOT construction project limits is equal to or less than the contaminant levels at the disposal site and meets the non-degradation requirements of the MCP. In addition, the Contractor shall provide written confirmation from the owner of the proposed disposal location that they have been provided with the analytical data for both the materials to be disposed as well as the disposal site characterization and that s/he agrees to accept this material. A Material Shipping Record or Bill of Lading, as appropriate, shall be used to track the off-site disposal of unregulated soil and a copy, signed by the disposal facility or property owner, shall be provided to the Engineer in order to document legal disposal of the unregulated material.

The cost of on-site disposal of unregulated soil within the project area will be considered incidental to the item of work to which it pertains.

ITEM 181.11, 181.12, 181.13, and 181.14 (Continued)

REGULATED SOIL consists of materials containing measurable levels of OHM that are equal to or exceed the applicable Reportable Concentrations for the site as defined by the MCP, 310 CMR 40.0000. Regulated soil which meets the MCP reuse criteria of the applicable soil/groundwater category for this project area may be reused on site provided that it meets the appropriate geotechnical criteria established by the Engineer. Regulated Soil may be reused (as daily or intermediate cover or pre-cap contouring material) or disposed (as buried waste) at lined landfills within the Commonwealth of Massachusetts or at an unlined landfill that is approved by the Massachusetts Department of Environmental Protection (DEP) for accepting such material, in accordance with DEP Policy #COMM-97-001, or at a similar out-of-state facility. It should be noted that soils which exceed the levels and criteria for disposal at in-state landfills, as outlined in COMM-97-001, may be shipped to an in-state landfill, but require approval from the DEP Division of Solid Waste Management and receiving facility. An additional management alternative for this material is recycling into asphalt. Regulated Soils may also be recycled at a DEP approved recycling facility possessing a Class A recycling permit subject to acceptance by the facility and compliance with DEP Policy #BWSC-94-400. Regulated Soil removed from the site for disposal or treatment must be removed via an LSP approved Bill of Lading, Manifest or applicable material tracking form. This type of facility shall be approved/permitted by the State in which it operates to accept the class of contaminated soil in accordance with all applicable local, state and federal regulations.

HAZARDOUS WASTE consists of materials which must be disposed of at a facility permitted and operated in full compliance with Federal Regulation 40 CFR 260-265, Massachusetts Regulation 310 CMR 30.000, Toxic Substances Control Act (TSCA) regulations, or the equivalent regulations of other states, and all other applicable local, state, and federal regulations. All excavated materials classified as hazardous waste shall be disposed of at an out-of-state permitted facility. This facility shall be a RCRA hazardous waste or TSCA facility, or RCRA hazardous waste incinerator. This type of facility shall be approved/permitted by the State in which it operates to accept hazardous waste in accordance with all applicable local, state and federal regulations and shall be permitted to accept all contamination which may be present in the soil excavate. The Contractor shall ensure that, when needed, the facility can accept TSCA waste materials i.e. polychlorinated biphenyls (PCBs). Hazardous waste must be removed from the site for disposal or treatment via an LSP approved Manifest.

MONITORING/SAMPLING/TESTING REQUIREMENTS

The Contractor shall be responsible for monitoring, sampling and testing during and following excavation of contaminated soils to determine the specific class of contaminated material. Monitoring, sampling and testing frequency and techniques should be performed in accordance with Item 180.03 – LSP Services. Additional sampling and analysis may be necessary to meet the requirements of the disposal facility license. The cost of such additional sampling and analysis shall be included in the bid cost for the applicable disposal items. The Contractor shall obtain sufficient information to demonstrate that the contaminated soil meets the disposal criteria set by the receiving facility that will accept the material.

ITEM 181.11, 181.12, 181.13, and 181.14 (Continued)

No excavated material will be permanently placed on-site or removed for off-site disposal until the results of chemical analyses have been received and the materials have been properly classified. The Contractor shall submit to the Engineer results of field and laboratory chemical analyses tests within seven days after their completion, accompanied by the classification of the material determined by the Contractor, and the intended disposition of the material. The Contractor shall submit to the Engineer for review all plans and documents relevant to LSP services, including but not limited to, all documents that must be submitted to the DEP.

WASTE TRACKING

Copies of the fully executed Weight Slips/Bills of Lading/ Manifests/Material Shipping Records or other material tracking form received by the Contractor from each disposal facility and for each load disposed of at that facility, shall be submitted to Engineer and the Contractor's LSP within three days of receipt by the Contractor. The Contractor is responsible for preparing and submitting such documents for review and signature by the LSP or other appropriate person with signatory authority, three days in advance of transporting soil off-site. The Contractor shall furnish a form attached to each manifest or other material tracking form for all material removed off-site, certifying that the material was delivered to the site approved for the class of material. If the proposed disposition of the material is for reuse within the project construction corridor, the Contractor shall cooperate with MassDOT to obtain a suitable representative sample(s) of the material to establish its structural characteristics in order to meet the applicable structural requirements as fill for the project.

All material transported off-site shall be loaded by the Contractor into properly licensed and permitted vehicles and transported directly to the selected disposal or recycling facility and be accompanied by the applicable shipping paper. At a minimum, truck bodies must be structurally sound with sealed tail gates, and trucks shall be lined and loads covered with a liner, which shall be placed to form a continuous waterproof tarpaulin to protect the load from wind and rain.

DECONTAMINATION OF EQUIPMENT

Tools and equipment which are to be taken from and reused off site shall be decontaminated in accordance with applicable local, state and federal regulations. This requirement shall include, but not be limited to, all tools, heavy machinery and excavating and hauling equipment used during excavation, stockpiling and handling of contaminated material. Decontamination of equipment is considered incidental to the applicable excavation item.

ITEM 181.11, 181.12, 181.13, and 181.14 (Continued)

REGULATORY REQUIREMENTS

The Contractor shall be responsible for adhering to regulations, specifications and recognized standard practices related to contaminated material handling during excavation and disposal activities. MassDOT shall not be responsible at any time for the Contractor's violation of pertinent State or Federal regulations or endangerment of laborers and others. The Contractor shall comply with all rules, regulations, laws, permits and ordinances of all authorities having jurisdiction including, but not limited to, Massachusetts DEP, the U.S. Environmental Protection Agency (EPA), Federal Department of Transportation (DOT), Massachusetts Water Resources Authority (MWRA), the Commonwealth of Massachusetts and other applicable local, state and federal agencies governing the disposal of contaminated soils.

All labor, materials, equipment and services necessary to make the work comply with such regulations shall be provided by the Contractor without additional cost to MassDOT. Whenever there is a conflict or overlap within the regulations, the most stringent provisions shall apply. The Contractor shall reimburse MassDOT for all costs it incurs, including penalties and/or for fines, as a result of the Contractor's failure to adhere to the regulations, specifications, recognized standard practices, etc., that relate to contaminated material handling, transportation and disposal.

SUBMITTALS

I. Summary of Sampling Results, Classification of Material and Proposed Disposal Option.

The following information, presented in tabular format, must be submitted to the Engineer for review and approval prior to any reuse on-site or disposal off-site. This requirement is on-going throughout the project duration. At least two weeks prior to the start of any excavation activity, the Contractor shall submit a tracking template to be used to present the information as stipulated below. Excavation will not begin until the format is acceptable to MassDOT.

Characterization Reports will be submitted for all soil, sediment, debris and groundwater characterized through the sampling and analysis program. Each report will include a site plan which identifies the sampling locations represented in the Report. The Construction Plan sheets may be used as a baseplan to record this information.

The Sampling Results will be presented in tabular format. Each sample will be identified by appropriate identification matching the sample identification shown on the Chain of Custody Record. The sample must also be identified by location (e.g. grid number or stockpile number). For each sample, the following information must be listed: the classification (unregulated, regulated, etc.), proposed disposal option for the stockpile or unit of material represented, and, all analytical results.

ITEM 181.11, 181.12, 181.13, and 181.14 (Continued)

Each Characterization Report will include the laboratory analytical report and Chain of Custody Record for the samples included in the Report.

II. Stockpiling, Transport, and Disposal.

At least two weeks prior to the start of any excavation activity, the Contractor shall submit, in writing, the following for review and shall not begin excavation activity until the entire submittal is acceptable to MassDOT.

Excavation and Stockpiling Protocol:
Provide a written description of the management protocols for performing excavation and stockpiling and/or direct loading for transport, referencing the locations and methods of excavating and stockpiling excavated material.

Disposal and Recycling Facilities:

1. Provide the name, address, applicable licenses and approved waste profile for disposal and/or recycling location(s) where contaminated soil will be disposed. Present information substantiating the suitability of proposed sites to receive classifications of materials intended to be disposed there, including the ability of the facility to accept anticipated volumes of material.

2. Provide a summary of the history of compliance actions for each disposal/recycling facility proposed to be used by the Contractor. The compliance history shall include a comprehensive list of any state or federal citations, notices of non-compliance, consent decrees or violations relative to the management of waste (including remediation waste) at the facility. Material should not be sent to facilities which are actively considered by the DEP, USEPA or other responsible agency to be in violation of federal, state or local hazardous waste or hazardous material regulations. MassDOT reserves the right to reject any facility on the basis of poor compliance history.

Transportation:
The name, address, applicable license and insurance certificates of the licensed hauler(s) and equipment and handling methods to be used in excavation, segregation, transport, disposal or recycling.

III. Material Tracking and Analytical Documentation for Reuse/Disposal.

The following documents are required for all excavation, reuse and disposal operations and shall be in the format described. At least two weeks prior to the start of any excavation or demolition activity, the Contractor shall submit the tracking templates required to present the information as stipulated below. Excavation or demolition will not begin until the format is acceptable to MassDOT.

ITEM 181.11, 181.12, 181.13, and 181.14 (Continued)

All soils, sediments and demolition debris must be tracked from the point of excavation to stockpiling to onsite treatment/processing operations to off-site disposal or onsite reuse as applicable.

Demolition Debris:
Demolition debris must be tracked if the debris is stockpiled at a location other than the point of origin or if treatment or material processing is conducted. Identification of locations will be based on the station-offset of the location. The tracking table will identify date and point of generation, any field screening such as PID or dust monitoring, visual observations/comments, quantity, and stockpile ID/processing operation location. For each unit of material tracked, the table will also track reuse of the material on-site, providing reuse date, location of reuse as defined by start and end station, width of reuse location by offset, the fill elevation range, quantity, and finish grade for said location. For demolition debris which is not reused on site, the table will also track disposal of the material as defined by disposal date, quantity and disposal facility. The table must provide a reference to any analytical data generated for the material.

Soil/Sediment:
Soil excavation will be identified based on the station-offset of the excavation location limits. The tracking table will identify date and point of generation, any field screening such as PID or dust monitoring, visual observations, quantity, and stockpile number/location. For each unit of material tracked, the table will also track reuse of the material on-site and disposal of the material off-site using the same categories identified for demolition debris above.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Disposal of contaminated soil shall be measured for payment by the Ton of actual and verified weight of contaminated materials removed and disposed of. The quantities will be determined only by weight slips issued by and signed by the disposal facility. The most cost-effective, legal disposal method shall be used. The work of the LSP for disposal under all of these items shall be incidental to the work with no additional compensation.

ITEM 181.11 Measurement for Disposal of Unregulated Soil shall be under the Contract Unit Price by the weight, in tons, of contaminated materials removed from the site and transported to and disposed of at an approved location or licensed facility, and includes any and all costs for approvals, permits, fees and taxes, additional testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEM 181.12 Measurement for Disposal of Regulated Soil – In-State Facility shall be under the Contract Unit Price by the weight in tons of contaminated materials removed from the site and transported to and disposed of at an approved in-state facility, and includes any and all costs for approvals, permits, fees and taxes, testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEM 181.11, 181.12, 181.13, and 181.14 (Continued)

ITEM 181.13 Measurement for Disposal of Regulated Soil - Out-of-State Facility shall be under the Contract Unit Price by the weight in tons of contaminated materials removed from the site and transported to and disposed of at an approved out-of-state facility, and includes any and all costs for approvals, permits, fees and taxes, testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEM 181.14 Measurement for Disposal of Hazardous Waste shall be under the Contract Unit Price by the weight in tons of hazardous waste removed from the site and transported to and disposed of at the licensed hazardous waste facility, and includes any and all costs for approvals, permits, fees and taxes, testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEM 182.1 INSPECTION AND TESTING FOR ASBESTOS LUMP SUM

The work shall include the inspecting and testing of all materials suspected of containing asbestos. When any demolition is required to enable the inspection and testing of the suspected material it will be considered incidental to this Item and the Contractor must perform all asbestos handling and testing in accordance with the regulations stated below.

Dust suppression in the form of light water sprays, foams, dust suppressants and calcium chloride will be implemented as required to control dusting during any disturbance of asbestos suspected material. Alternatively, intrusive activities may be reduced or curtailed under high wind or heavy rain conditions, which in the opinion of the Health and Safety Plan (HASP) may pose a safety hazard to the workers.

The Contractor shall employ the services of a Massachusetts licensed "Asbestos Inspector" to inspect the material to determine whether or not "ITEM 182.2 REMOVAL OF ASBESTOS" is required. Should the asbestos inspector determine laboratory testing is required, a state certified laboratory shall be used to perform all necessary tests.

REGULATIONS

U.S. Department of Labor, Occupational Safety and Health Administration, (OSHA) including but not limited to:

29 CFR 1910 Section 1001 and 29 CFR 1926 Section 58 Occupational exposure to Asbestos, Tremolite, Anthophyllite and Actinolite, Final Rule
29 CFR 1910 Section 134 Respiration Protection
29 CFR 1926 Construction Industry
29 CFR 1910 Section 2 Access to Employee Exposure and Medical Records
29 CFR 1910 Section 1200 Hazard Communication
29 CFR 1910 Section 145 Specifications for Accident Prevention Signs and Tags

U.S. Environmental Protection Agency, (EPA) including but not limited to:

40 CFR 762, CPTS 62044, FRL 2843-9, Federal Register Vol. 50 no.134, July 12, 1985 p.28530 - 28540 Asbestos Abatement Projects Rule
40 CFR 61 Subpart A Regulation for Asbestos
40 CFR 61 Subpart M (Revised Subpart B) National Emission
Standard for Asbestos

ITEM 182.1 (Continued)

U.S. Department of Transportation 49 CFR 172 and 173

Massachusetts Department of Labor Standards Regulations, (DLS) including but not limited to:

454 CMR 28.00 Removal, Containment and Encapsulation of Asbestos

Massachusetts Department of Environmental Protection (DEP) including but not limited to (supplementing subsection 7.01):

310 CMR 7.00, Section 7.09 Odor and Dust, Section 7.10 Noise, Section 7.15 Air Pollution Control Regulations
310 CMR 18.00 and 19.00 Solid Waste Regulations

Massachusetts Division of Industrial Safety 45 CMR 10.00

Local Requirements including but not limited to those of Health Departments, Fire Departments and Inspection Services Departments

Wherever there is a conflict or overlap of the above references, the most stringent provision shall apply.

BASIS OF PAYMENT

Item 182.1 will be paid for at the Contract unit price per Lump Sum, which price shall include all labor, materials, tools, equipment, and all incidental costs required to complete the work as described and as required by the Engineer.

No separate payment will be made for the protection of general public, private property, the proper inspecting and testing of the material, but all costs in connection therewith shall be included in the Contract unit price bid.

ITEM 182.2 REMOVAL OF ASBESTOS FOOT

The work shall include the removal and satisfactory disposal of existing asbestos. The Contractor's attention is directed to the fact that existing asbestos shall be inspected and tested prior to removal, to determine if special removal and disposal is required. The Contractor shall follow all the rules and regulations stated in "ITEM 182.1 INSPECTION AND TESTING FOR ASBESTOS". If asbestos is present, the Contractor shall follow all the rules and regulations stated in the section "REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING MATERIALS", under this item. The Contractor should notify and coordinate his/her efforts with the proper utility accordingly.

REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING MATERIALS

This section specifies the requirements for the handling and removal of asbestos containing material. The Contractor must perform all asbestos handling and removal work in accordance with these specifications and the following additional requirements.

U.S. Department of Labor, Occupational Safety and Health Administration, (OSHA) including but not limited to:

29 CFR 1910 Section 1001 and 29 CFR 1926 Section 58
Occupational exposure to Asbestos, Tremolite,
Anthophyllite and Actinolite, Final Rule
29 CFR 1910 Section 134 Respiration Protection
29 CFR 1926 Construction Industry
29 CFR 1910 Section 2 Access to Employee Exposure
and Medical Records
29 CFR 1910 Section 1200 Hazard Communication
29 CFR 1910 Section 145 Specifications for Accident
Prevention Signs and Tags

U.S. Environmental Protection Agency, (EPA) including but not limited to:

40 CFR 762, CPTS 62044, FRL 2843-9, Federal Register Vol. 50 no.134, July 12, 1985 p.28530 - 28540 Asbestos Abatement Projects Rule
40 CFR 61 Subpart A Regulation for Asbestos
40 CFR 61 Subpart M (Revised Subpart B) National Emission Standard for Asbestos

U.S. Department of Transportation 49 CFR 172 and 173

Massachusetts Department of Labor Standards, (DLS) including but not limited to:

454 CMR 28.00 Removal, Containment and Encapsulation of Asbestos

Massachusetts Department of Environmental Protection (DEP) including but not limited to (supplementing subsection 7.01):

ITEM 182.2 (Continued)

310 CMR 7.00, Section 7.09 Odor and Dust, Section 7.10 Noise, Section 7.15 Air Pollution Control Regulations
310 CMR 18.00 and 19.00 Solid Waste Regulations

Massachusetts Division of Industrial Safety 45 CMR 10.00

Local Requirements including but not limited to those of Health Departments, Fire Departments and Inspection Services Departments

Wherever there is a conflict or overlap of the above references, the most stringent provision shall apply.

All asbestos material shall be removed and properly disposed of by a contractor or subcontractor with a current Massachusetts Abatement Contractors License issued by the Department of Labor Standards. Work shall be supervised by a competent person as required by OSHA in 29 CFR 1926 to ensure regulatory compliance. This person must have completed a course at an EPA Training Center or equivalent course in asbestos abatement procedures, have had a minimum of four years on-the-job training and meet any additional requirements set forth in 29 CFR 1926 for a Competent Person. This person must also be certified by the Commonwealth as an Asbestos Supervisor and Asbestos Project Designer as required by 454 CMR 28.00.

Asbestos removal work shall be coordinated with all other work under the contract and shall be completed prior to performing any activities which could disturb the asbestos material or produce airborne asbestos fibers.

Dust suppression in the form of light water sprays, foams, dust suppressants and calcium chloride will be implemented as required to control dusting during trenching and excavation. Alternatively, intrusive activities may be reduced or curtailed under high wind or heavy rain conditions, which in the opinion of the Health and Safety Plan (HASP) may pose a safety hazard to the workers.

NOTIFICATION AND PERMITS
The Contractor shall prepare a formal pre-notification form at least ten (10) days prior to the start of asbestos removal work. This form must be submitted to the appropriate Regional Office of the Massachusetts Department of Environmental Protection and to the U.S. Environmental Protection Agency Region I Air and Hazardous Material Division. A copy of the submitted forms must be provided to the Engineer and kept at the work site.

Prior to starting any work, the Contractor shall also obtain any required asbestos removal permit(s) from the city/town. A copy of the permit(s) must be provided to the Engineer and posted at the work site.

The Contractor shall also obtain and pay all other applicable asbestos waste transportation and disposal permits, licenses and fees.

ITEM 182.2 (Continued)

STANDARD OPERATING PROCEDURES
The standard operating procedure shall ensure the following:

1. Proper site security including posting of warning signs and restricting access to prevent unauthorized entry into the work spaces.

2. Proper protective clothing and respiratory protection prior to entering the work spaces.

3. Safe work practices including provisions for communications; exclusion of eating, drinking, smoking, or use of procedures or equipment that would in any way reduce the effectiveness of respiratory protection or other engineering controls.

4. Proper exit practices from the work space though the showering and decontamination facilities.

5. Removing asbestos containing material in ways that minimize release of fibers.

6. Packing, labeling, loading, transporting and disposing of contaminated material in a way that minimizes or prevents exposure and contamination.

7. Emergency evacuation of personnel, for medical or safety (fire and smoke) so that exposure will be minimized.

8. Safety from accidents in the work space, especially from electrical shocks, slippery surfaces and entanglements in loose hoses and equipment.

9. Provisions for effective supervision and OSHA - specified personnel air monitoring for exposure during work.

REQUIRED SUBMITTALS
The Contractor shall submit to the Engineer the following listed items at least ten (10) calendar days prior to the start of asbestos work. No asbestos removal work activities shall commence until these items are reviewed by the Engineer, unless otherwise waived. Submittals shall be clearly labeled and in sufficient detail to enable the Engineer to form an opinion as to its conformity to the specifications.

1. Name, experience and DLS certification of proposed Supervisors and Foreman responsible for asbestos work.

2. Summary of workforce by disciplines and a notarized statement documenting that all proposed workers, by name, have received all required medical exams and have been properly trained and certified for asbestos removal work, respirator use and appropriate Massachusetts DLS, EPA and OSHA standards.

ITEM 182.2 (Continued)

3. Notarized statement that workers are physically fit and able to wear and use the type of respiratory protection proposed for the project. Notarized certification signed by an officer of the abatement contracting firm that exposure measurements, medical surveillance and worker training records are being kept in conformance with 29 CFR 1926.

4. Written plan of action and standard operating procedures (HASP) to include: location and layout of decontamination areas; sequencing of asbestos work; detailed schedule of work activities by date and interface with other project activities which affect work performance; methods used to assure safety and security; worker protection and exposure monitoring; contingency and emergency evacuation procedures; detailed description of methods to be employed to control pollution; waste handling procedures.

5. Written respiratory protection program specifying level of protection intended for each operation required by the project and details of daily inspection and maintenance elements.

6. Copies of the U.S. EPA, State and local asbestos removal pre-notification forms. If applicable, lists and copies of all permits, licenses, or manifests which will be applied for and used.

7. Name, location and applicable approval certificates for primary and secondary landfill for disposal of asbestos-containing or asbestos contaminated waste. Name, address and licenses number(s) of hauler permitted to transport waste. (Submit copies of completed manifests upon disposal).

The Contractor must provide copies of daily inspection and record logs upon request of the Engineer, at any time during project. This information will include but is not limited to work area entry data, respirator inspections and maintenance, HEPA-exhaust inspections and maintenance and other work applicable activities or reports of accidents or unusual events.

METHOD OF MEASUREMENT

ITEM 182.2 will be measured for payment by the FOOT for the complete removal and disposal of the asbestos containing material.

BASIS OF PAYMENT

Item 182.2 will be paid for at the Contract unit price per FOOT, which price shall include all labor, materials, tools, equipment, and all incidental costs required to complete the work specified above and as required by the Engineer.

No separate payment will be made for the protection of general public, private property, the proper inspecting and testing of the material, but all costs in connection therewith shall be included in the Contract unit price bid.

ITEM 183.1 TREATMENT OF CONTAMINATED GROUNDWATER GALLON

This Item addresses the treatment and disposal of contaminated groundwater encountered during excavation operations. The work generally consists of furnishing the materials, equipment, labor, services, testing/sampling, waste characterization, transportation, disposal, permits and agreements necessary to perform the work required for the collection, treatment, and disposal of contaminated groundwater.

The Contractor is advised that contaminated groundwater may be encountered during dewatering activities. The levels and nature of contamination may vary depending on location and/or depth. No data has been provided in this specification indicating the types of contaminants that may be found in groundwater encountered during this work. It will be the responsibility of the Contractor to ensure that water removed during dewatering operations is treated and disposed of in accordance with all applicable laws and regulations and in accordance with this specification.

The Contractor shall monitor the quantity of groundwater collected for treatment using an in-line totalizer flowmeter or an alternate method approved by MassDOT. The Contractor shall, at all times, minimize the quantity of groundwater removed from the excavations. All groundwater determined to be contaminated will be managed in accordance with all applicable local, state, and federal regulations.

It is not the intent herein for the Department to design for or specify to the Contractor which particular treatment is to be used, if necessary. Rather, it is the Department's intent to provide guidance to the Contractor for informational and bidding purposes only. It is, therefore, the Contractor's responsibility to use a treatment method to allow him/her to meet any and all laws, regulations, policies, guidelines and permit requirements. Treatment of contaminated groundwater for dewatering operations is generally performed using a mobile treatment trailer equipped with one or more granular-activated carbon (GAC) canisters, although other techniques are also used.

It is likely that treatment of the contaminated groundwater using granular-activated carbon will be required to complete the work under this Contract. The Methods described under Item 183.1 provides for the identification, testing, management and treatment or disposal of contaminated groundwater and shall be implemented, at a minimum and as necessary by the Contractor via Methods under Item 183.1.

The overall handling and management of contaminated groundwater is regulated under the provisions of 310 CMR 40.0000, 314 CMR 3.00 and 5.00, NPDES and other applicable laws. The unpermitted discharge of contaminated dewatering effluent into the environment (storm drain, surface water body, onto the ground) is a violation of federal and state laws and regulations. Should dewatering of contaminated groundwater be necessary, approvals must be sought from the appropriate federal, state, or local regulatory jurisdiction. The USEPA will not specify a treatment system or method, but normally requires that the treated discharge meet Massachusetts Drinking Water Standards.

ITEM 183.1 (Continued)

The discharge standards are normally met by treating the dewatered groundwater through granular-activated carbon canisters, or similar techniques. Longer term discharges to surface waters or storm drains, and any discharges to the ground, require approval and/or issuance of a permit from the DEP Division of Water Pollution Control. The Contractor shall be responsible for applying for, paying all fees for and obtaining all permits required for treatment and/or disposal of contaminated groundwater. Additional requirements may be mandated by local/regional sewer authorities for discharge to sanitary sewer or Publicly Owner Treatment Works (POTW). Copies of permit applications and correspondence from federal and state agencies and sewer authorities shall be supplied to the Engineer prior to dewatering activities.

EPA regulations published in the Federal Register on September 9, 2005 (70 FR 53663) require a National Pollutant Discharge Elimination System (NPDES) Remediation & Miscellaneous Contaminated Sites General Permit (RGP) for all contaminated construction site dewatering activities in Massachusetts (MAG910000) that will involve the discharge of water to classes of receiving waters designated in the Massachusetts Water Quality Standards (314 CMR 4.00). The application requires that operators of proposed new discharges seeking coverage under this general permit submit a Notice of Intent (NOI) to EPA New England post-marked at least 14 days prior to commencement of discharge. The Contractor is solely responsible for applying for and obtaining coverage under the NPDES Remediation General Permit from EPA and, if applicable, DEP, including the costs associated with sampling and analysis of groundwater and any application fees. The Contractor is required to submit a completed copy of the NOI to the Engineer and the Director of Environmental Programs, Construction Division, 10 Park Plaza, Boston, prior to commencement of discharge.

Upon permanent cessation of the discharges authorized by the RGP, the Contractor shall be responsible for submitting a Notice of Termination (NOT) to EPA New England within 30 days of the permanent cessation. The Contractor is required to submit to MassDOT a completed copy of the NOT within 14 days of the permanent cessation of the discharges authorized by the RGP. All costs and fees associated with the submission of the NOT will be the responsibility of the Contractor.

The Contractor shall be responsible for adhering to regulations, specifications, and recognized standard practices related to contaminated groundwater handling during dewatering activities. MassDOT shall not be responsible at any time for the Contractor's violation of pertinent local, state or federal regulations or endangerment of laborers and others. The Contractor shall comply with all rules regulations, laws, permits and ordinances of all authorities having jurisdiction including, but not limited to, Massachusetts Department of Environmental Protection (DEP), the U.S. Environmental Protection Agency (EPA), Federal Department of Transportation (DOT), Massachusetts Water Resources Authority (MWRA), the Commonwealth of Massachusetts and other applicable local, state, and federal agencies governing this work.

ITEM 183.1 (Continued)

The Contractor shall be responsible for determining compliance with the requirements of any permit and for any sampling, testing, and disposal required in connection with said permits. MassDOT and the City/Town reserve the right to collect additional samples of dewatered groundwater to determine the Contractor's compliance with the Permit's requirements. All laboratory testing is to be performed by a DEP certified laboratory for all parameters being tested. Copies of all field and laboratory testing results, reports, etc. required by the permits must be supplied to the Engineer. MassDOT, DEP, and the permit-granting agency, where applicable, reserve the right to collect additional samples of discharged groundwater to verify compliance with permit requirements.

For the purpose of these specifications and to establish a basis for the bid, it is anticipated that granular-activated carbon will be the treatment medium for dewatered contaminated groundwater. The bidder shall factor into the payment item all costs associated with the testing and analyses that may be required by the permitting agency. In addition, any laboratory testing of groundwater is to be performed by a DEP certified laboratory for the parameters being tested. Copies of all field and laboratory testing results will be supplied to the Engineer. Bid price shall also include full compensation for labor, materials, maintenance, mobilization, rental, and other related costs. Item 183.2 will be used for disposal of used granular-activated carbon canisters.

SUBMITTALS

Prior to initiating work, the Contractor shall submit an excavation dewatering plan to the MassDOT that includes a detailed description of the approach to dewatering, a description of methodology for sealing the excavation to minimize infiltration of groundwater, if deemed applicable to the work, anticipated treatment, discharge points, sampling frequency, required permits, transporters and waste facilities complete with license numbers, permit numbers, contact person, and address and telephone number that the Contractor plans to utilize for waste disposal. The plan shall be submitted for the record.

The Contractor shall submit to MassDOT for review, the proposed methods for dewatering and groundwater treatment and disposal for the various portions of the work to be done. The review shall be for methods only. The Contractor shall remain responsible for the maintenance, performance, structural integrity and safety of the systems installed for this work as well as regulatory compliance of the applicable local, state and federal discharge standards. The contractor shall provide all groundwater sampling and analyses, results and reports required by all applicable local, state and federal agencies. The Contractor shall submit to MassDOT for review all plans and documents that must be submitted to the EPA and DEP, including NOI, NOT, treatment system analytical reports and correspondence. Copies of all permits and approvals and lab analyses and test results associated with groundwater treatment and disposal must be submitted to MassDOT within 3 days of receipt by the Contractor.

ITEM 183.1 (Continued)

ESTABLISHMENT OF TREATMENT PROCEDURE

Since concentrations of contaminants in groundwater cannot be easily assessed in the field, all groundwater extracted from the ground will be considered contaminated and will be initially pumped and stored into open settling tank(s) or a fractionation tank until it can be sampled and analyzed, unless otherwise directed by MassDOT. The Contractor will perform initial sampling and analyses of the groundwater to determine the need for a permit to dispose of contaminated groundwater. Based on the results of the initial sample analysis, which must be provided to the Engineer within twenty-four (24) hours of the time the samples are received by the laboratory, the Contractor will determine the necessity for treatment(s) and disposal procedures. Sampling must also be performed to meet applicable discharge criteria as set by the appropriate regulatory agencies for the permit obtained for disposal. All discharges must meet regulatory standards set forth in the permits required for discharge. For the purposes of the bidding process, it is anticipated that the treatment system will consist of sedimentation tanks, an oil water separator and liquid-phase granular activated carbon as the primary on-site treatment medium for dewatered contaminated groundwater. MassDOT may require additional treatment processes if such is determined necessary during the groundwater testing procedure. The Contractor shall integrate the additional treatment process into the treatment system, if necessary.

The Contractor shall provide all labor, equipment and appurtenances required to treat the groundwater, subject to the approval of MassDOT. Groundwater stored and tested but not requiring treatment or off-site disposal shall be discharged to a location subject to the approval of MassDOT without payment to the Contractor.

TREATMENT UNITS

The Contractor shall furnish all labor and materials and shall install and operate temporary groundwater treatment and disposal system(s) as necessary to treat contaminated groundwater pumped from excavations during construction activities under the Contract. Such systems shall be capable of treating groundwater to meet applicable discharge criteria as set by the appropriate regulatory agencies.

The Contractor or their Environmental Consultant shall operate, maintain and modify the selected treatment system, and conduct the necessary monitoring and reporting of influent, midpoint and effluent results, as required by the discharge permit for the disposal option selected.

METHOD OF MEASUREMENT

Provide a treatment system that meets permit discharge requirements, mobilize it to the site, provide copies of laboratory analytical data indicating that the system is performing appropriately to meet permit requirements, and demobilize it from the site. This includes management and disposal of wastes generated during treatment prior to discharging such as activated carbon, etc. Work under Item 183.1 is based upon the number of gallons disposed or contaminated groundwater pumped through the granular-activated carbon (Item 183.2) as the medium for the treatment of contaminated groundwater that is found in pipe trenches, manhole excavations, catch basin excavations, that need to be dewatered.

ITEM 183.1 (Continued)

BASIS OF PAYMENT

Payment shall be made at the unit price bid per gallon of groundwater pumped, stored, treated as needed and tested as required by discharge permits and regulatory requirements, which price shall be full compensation for all necessary labor and materials, mobilization, maintenance, demobilization of the appropriate unit(s), freight, rental costs, field and laboratory testing costs and permits. Costs associated with the disposal of granular-activated carbon shall be covered under Item 183.2.

ITEM 183.2 DISPOSAL OF GRANULAR ACTIVATED CARBON POUND

Work under Item 183.2 is based upon the disposal of used granular-activated carbon as the treatment medium for contaminated groundwater (Item 183.1) that is found during excavations in which contaminated groundwater is encountered.

BASIS OF PAYMENT

Payment shall be made at the unit price bid per pound of carbon that is properly disposed and replaced, as necessary, to meet treated water discharge requirements during dewatering operations at the site. Payment for Disposal of Granular Activated Carbon shall include compensation for all labor, equipment, materials, permits, characterization, sampling and on-site or laboratory analysis as needed or required by permits, for replacement and disposal of liquid-phase activated carbon for the on-site contaminated groundwater pumping, collection, treatment and treated water discharge system during the time period required to complete the work. No payments shall be made for replacing carbon which is spent due to the Contractor's failure to remove floating petroleum product or excess sediments prior to the groundwater entering the carbon treatment units. All other costs associated with treatment of contaminated groundwater will be covered under Item 183.1- Treatment of Contaminated Groundwater.

ITEM 184.1 DISPOSAL OF TREATED WOOD PRODUCTS TON
(Rev 08/09/2016)

Work under this item shall include the transportation and disposal of all treated existing wood products directed by the Engineer.

The timber components of the existing structure are suspected to be treated with creosote, pentachlorophenol and/or CCA. This item shall include all costs for sampling, laboratory testing, loading, transportation and disposal of the treated wood. The Contractor is required to submit disposal manifests to the Engineer prior to the completion of the project. All aspects of this Item are to be completed in accordance with state and federal regulations.

Compensation

Measurement and payment will be by the weight, in tons, of treated timber transported and accepted at a licensed facility. The work shall be considered full compensation for all labor, tools, equipment, materials, testing, loading, transportation, approvals, and permits necessary for the completion of the work.

ITEM 191.6 TEST PIT TON

The work under this Item shall include the satisfactory excavation to expose the MWRA sewer pipes at locations identified on the plans and shall conform to the relevant provisions of Subsection 190 of the Standard Specifications and the following:

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 191.6 will be measured and paid per Subsections 191.80 and 191.81 respectively.

Removal of obstructions if encountered shall be considered incidental to this item.

Control of Water as necessary to perform the test pit excavations will be considered incidental to this item.

ITEM 222.3 FRAME AND GRATE (OR COVER) MUNICIPAL STANDARD EACH

The work under this item shall conform to the relevant provisions of Subsections 201, 220 of the Standard Specifications and the following:

Municipal frames and grates (or covers) shall be installed on drainage structures, unless otherwise shown on the Drawings or as directed by the Engineer.

The Contractor shall submit the Manufacturer's shop drawings for frames, grates, and covers.

MATERIALS

Grates shall be bicycle-friendly. **DO NOT USE BAR GRATES**.

Frames, grates, and covers shall come from stock listed on the MassDOT Qualified Construction Materials List for Cast Iron Frame and Grate or Cover (M8.03.0); and 2) a minimum of 10 days prior to beginning the work of this Subsection, have written approval from the Public Works Director.

All manhole lids installed on manholes in public drainage and storm water systems shall have the word "DRAIN" stamped on the top surface.

Any frames and grates or covers from existing structures which are deemed unsuitable for reuse shall not be reset nor stacked, but shall be removed and discarded at the expense of the contractor and shall become the property of the contractor and shall be legally disposed of off the site.

All castings located within the pavement area shall not be set to finished grade until after the binder course has been placed.

METHOD OF MEASUREMENT

Item 222.3 will be measured for payment by the Each frame and grate (or cover) municipal standard delivered to the site. Frame and Grate or Frame and Cover shall be considered as one unit.

BASIS OF PAYMENT

Item 222.3 Frame and Grate (Or Cover) Municipal Standard will be paid for at the Contract unit price per each, which price shall include all labor, materials, equipment and all incidental costs required to complete the work.

ITEM 271.12 12 INCH AND UNDER PIPE REMOVED AND STACKED FOOT

The work under this item shall conform to the relevant provisions of Subsection 270 of the Standard Specifications and the following:

Pipe deemed suitable for reuse by the owner shall be properly stacked at the Natick Department of Public Works, located at 75 West Street, Natick MA 01760.

CONSTRUCTION METHODS

The existing pipe shall be removed without damage.

METHOD OF MEASUREMENT

Item 271.12 will be measured for payment by the FOOT of 12 inch and under pipe removed and stacked.

BASIS OF PAYMENT

Item 271.12 will be paid for at the Contract unit bid price per foot which price will be full compensation for all materials, tools, equipment, labor and all incidental costs required to the complete the work, including the temporary storage, protection, loading, transporting, unloading and stacking of pipe as required.

Any pipe determined to be unsuitable for re-use, stacking, or not desired by the Town shall be discarded by the Contractor without additional compensation.

ITEM 458.71 EXPANDED SHALE LIGHTWEIGHT AGGREGATE CUBIC YARD

The work under this Item shall conform to the relevant provisions of Subsection 150 of the Standard Specifications and the following:

The work under this item shall consist of the furnishing and placement of expanded shale lightweight aggregate fill behind the abutments and splayed wingwalls and the soldier pile and lagging walls. This work shall be performed as hereinafter specified, to the dimensions indicated on the plans, or as directed by the Engineer.

MATERIALS

Lightweight Aggregate Fill
Lightweight aggregate for geotechnical fill shall be an approved rotary kiln expanded shale lightweight aggregate or approved equal meeting ASTM C 330. No by-product slags, cinders or by-products of coal combustion shall be permitted. Grading shall conform to ASTM C 330 as specified below. Lightweight aggregate shall have proven record of durability as determined by ASTM C 88 and ASTM C 131, and be non-corrosive, as determined by CAL DOT 422. The Lightweight aggregate shall have the following properties:

Gradation	
Sieve	ASTM C 330 Requirement
1-inch	100
3/4 in	90-100
3/8 in	10-50
No. 4	0-15

Physical Properties			
Property		Test Method	Requirement
Density	Minimum	ASTM D 4254	40 lb/ft^3
	Maximum[1]	ASTM D 4253	65 lb/ft^3
Soundness ($MgSO_4$- 5 cycles)		ASTM C 88	< 10%
Abrasive Resistance		ASTM C 131	40%
In-situ Phi (φ) Angle		ASTM D 4030	34°

Electrochemical Properties		
Property	AASHTO Test Method	Requirement
Resistivity	T 288 I	>3000 ohm-cm
pH	T 289 I	5-10
Chloride Content	T 291 I	<100 mg/kg
Sulfate Content	T 290 I	<200 mg/kg

[1] Saturated-surface-dry particles.

Density
The dry loose density shall be less than 50 pcf.
The maximum in-place compacted density (moist, surface dry) shall not exceed 60 pcf

ITEM 458.71 (Continued)

The lightweight aggregate producer shall submit verification of a compacted moist density of less than 60 pcf when measured by a one point proctor test conducted in accordance with a modified version of ASTM D698 "The Standard Test Methods of Moisture-Density Relations of Soil-Aggregate Mixtures Using a 5.5-pound Hammer and 12 inch Drop" (AASHTO T 99). Because of the cohesionless nature of coarse lightweight aggregate, the standard shall be modified as follows: The aggregate sample shall be placed in a 0.5 cubic foot bucket at the moisture content that the aggregate will be delivered to the jobsite. The sample shall be placed in three equal layers and compacted by dropping a 5.5 pound hammer from a distance of 12 inches 25 times on each layer. The wet procedure shall be performed with the lightweight aggregate tested in saturated surface dry (SSD) condition after a minimum water immersion period of 72 hours.

The minimum compacted dry density shall be equal to 65% relative density as determined by AASHTO D4253 and D4254.

Strength
The minimum strength of loosely placed material, as determined from drained triaxial test, shall equal that of a cohesionless soil with an angle of internal friction of 36°. The minimum strength to material compacted to 65% of relative density shall equal that of a cohesionless soil with an angle of internal friction of 40°.

QUALIFICATIONS

The certified supplier/producer of the lightweight aggregate backfill shall be regularly engaged in the production of lightweight aggregate backfill. This shall include the production of lightweight aggregate, with a minimum production of 10,000 total cubic yards in the previous two (2) years.

The lightweight aggregate backfill material shall have been successful applied on at least three Engineered Fill projects which have performed satisfactorily for at least three (3) years.

SUBMITTALS

Prior to the start of construction, submit product data sheet and certification from the Manufacturer that the lightweight fill product supplied meets the requirements of this Section.

At least 30 days prior to the planned start of work, product data, consistent with the above-mentioned requirements, shall be submitted for review and approval by the Engineer and shall include manufacturer's specifications, catalog cuts and other engineering data needed to demonstrate compliance with the specified requirements.

At least four weeks prior to placing, a 50-pound representative sample of the Lightweight Aggregate Backfill material shall be submitted. The approved sample shall become the standard of the material furnished under this contract.

ITEM 458.71 (Continued)

At least 30 days prior to the planned start of work, submit proposed compaction equipment and procedures including documentation that the equipment and procedures have been agreed upon by the lightweight aggregate producer as appropriate toward meeting the specified minimum compacted dry density of 65% of the relative dry density as determined by ASTM D4253 and D4254 (without crushing).

DELIVERY, STORAGE & HANDLING

As per below section Observation and Testing, upon receipt of lightweight aggregate material to the site, the dry, loose density shall be checked to ensure it meets specifications. Once unloaded on site all lightweight aggregate material shall be protected from contamination or mixing with other materials during storage, transport on site, and final placement. During months of potential freezing temperatures or snowfall the lightweight aggregate material shall be covered and kept above and standing water. No lightweight aggregate material shall be used that has not been properly stored or handled to the satisfaction of the Engineer.

CONSTRUCTION

Construct the lightweight fill in accordance with the following, unless otherwise approved by the lightweight fill manufacturer:

General
In all fill areas, compact the foundation subgrade with at least 10 passes of a smooth wheel vibratory compactor weighing at least 10,000 lbs. In confined areas, proof compact with a vibratory plate compactor weighing at least 200 lbs and imparting an impact load of at least 2.5 tons. Where exposed footing subgrades are at or near the groundwater level, static proof compaction methods may be recommended by the geotechnical engineer in lieu of vibratory methods. Remove unsuitable soils and soils that do not become firm under proof compaction and replace with compacted Gravel Borrow to create a competent bearing surface.

1. When applicable, except as noted below, lightweight fill placement shall conform to the requirements of Sections 120, 140 and 150 of the MassDOT Standard Specifications.

2. Place lightweight aggregate in areas free from standing water or frozen ground. Compact lightweight aggregate in place during construction using a smooth drum roller between 8 and 12 tons (static weight), sized to compact adequately without causing significant particle breakage. Place and compact the aggregate in 12-inch maximum loose lifts (or as required to achieve compaction) with a minimum of 2, maximum of 4 orthogonal passes of compaction equipment, unless otherwise directed by the Engineer. Perform additional passes of compaction, if required, until all measurable compaction has been achieved. In confined areas, vibratory plate compaction equipment shall be used (5 hp to 20 hp) with a minimum of two (2) passes in 6 inch lifts for a 5 hp plate and a minimum of two (2) passes in 12 inch lifts for a 20 hp plate. Do not over-compact the lightweight aggregate. Construction equipment, other than forcompaction shall not operate on the exposed fill. Each lift shall be compacted to at least 95% of maximum laboratory dry density in accordance with ASTM D-698.

ITEM 458.71 (Continued)

3. The subgrade condition in areas where lightweight aggregate backfill is to be placed shall be examined prior to placement and any conditions found unsatisfactory shall be corrected to be the satisfaction of the Engineer prior to proceeding. Unsatisfactory subgrade conditions shall include, but not be limited to frozen ground, standing water/ice, loose material, deleterious materials, ruts, organics and muck.

4. The final finish surface of the lightweight aggregate fill shall be within ±0.1 feet of the elevations shown on the plans.

5. Any lightweight aggregate material that does not comply with the specified criteria shall be removed and replaced at no additional cost.

Conduct sampling and testing at a minimum frequency listed below:

1. Compaction Test: Each course of units at 100 ft intervals.
2. Gradation Test: Weekly unless material comes from a pre-approved stockpile.
3. Density Test: Weekly unless material comes from a pre-approved stockpile.

OBSERVATION AND TESTING

All Work performed under this Contract shall be subject to observation and tests by the Engineer. The Contractor shall cooperate with the Engineer and shall furnish all materials and facilities as may be required, and shall provide convenient access to all parts of the Work for the purpose of observations to check compliance with the plans and specifications.

The Contractor will test the Lightweight Aggregate Fill for dry loose, delivered bulk density and in-place compacted density.

1. Delivered Bulk Density

   Upon receipt of material to the site, check the dry, loose density to ensure it meets specifications. Check density of every truckload delivered (perform two tests per truckload).

2. In-Place Compacted Density

   Prior to start of production placement and compaction of the lightweight aggregate:

   a. A representative of the lightweight aggregate supplier/producer shall be on site to provide expert oversite of a test compaction effort in the presence of the Engineer. The lightweight aggregate representative shall evaluate the proposed compaction equipment and number of passes relative to achieving the desired compaction without excessive crushing of the material. If alternate proposed compaction equipment results from the evaluation a second test compaction effort shall be similarly performed.

ITEM 458.71 (Continued)

b. At a minimum, the test section shall comprise at least three (3) lists of lightweight aggregate material placed and compacted with the same means, methods and equipment proposed for the production work.

c. In each lift of the test section, at least one (1) in-place density test shall be performed using the sand replacement method in a test pit, per ASTM D4914. Each test pit shall be excavated into each lift to fully penetrate the lift thickness. Per ASTM D4914, a liner such as flexible plastic sheeting shall be used to line the test pit to prevent loss of calibrated test sand into voids withing the lift being tested.

d. If the in-place density is found to be satisfactory in the test section, the means and methods of compaction shall be modified, and the test section and in-place testing in each lift repeated, until an appropriate method has been determined (Equipment type, size, number of passes) to achieve the required compaction.

e. The results of the test sections(s) in-place density testing shall be provided in a memorandum for review by the Engineer within three (3) days of completion of the test section.

During production placement of Lightweight Aggregate Fill, check density of in-place Lightweight Aggregate Fill for every 65.4 cubic meter of material installed. The minimum compacted dry density shall be equal to 65 percent of the relative dry density as determined by ASTM D-4253 & D-4254.

METHOD OF MEASUREMENT

Item 458.71 will be measured for payment by the CUBIC YARD, of material placed, complete in place to the limits and dimensions shown on the contract drawings, and as required by the Engineer.

BASIS OF PAYMENT

Item 458.71 will be paid for at the Contract unit price per CUBIC YARD, which price shall include all labor, materials, tools, equipment, submittals, staging, access, removals, storage, all field measurements and survey required, lightweight aggregate, testing, and incidental costs required to complete the work.

ITEM 657. TEMPORARY FENCE FOOT
ITEM 657.5 TEMPORARY FENCE REMOVED AND RESET FOOT

The work under these Items shall conform to the relevant provisions of Subsection 644 of the Standard Specifications and includes installation of temporary chain link fencing as shown on the plans and the following:

The work under these items shall include furnishing, installing, removing and resetting and, subsequently, removing a chain link fence and gates to be located as shown on the Plans or as directed by the Engineer. The fence and gates shall be used to close off the construction work area.

Temporary chain link fence shall be placed around the work area to protect areas with excavation as required by the Engineer and shall meet the requirements of the Standard Specifications and the Construction Standards, except the material need not be in new condition but shall not be deteriorated, not in any way jeopardize the security purposes intended.

Gates shall be used at all locations that are to be opened on a regular basis. All posts including end, corner and intermediate brace posts shall be included in the linear foot cost. The fencing height shall be 96 inches minimum.

Temporary fence shall be reset as often as required by Contractor activities to meet the project schedule and to stage the construction, subject to approval by the Engineer. The Contractor shall submit a plan to the Engineer indicating the locations and the amount of Temporary Fence and Temporary Fence, Removed and Reset that he anticipates he will install for the project. The methods of installation(s) and fence detail(s) shall also be submitted for approval by the Engineer. Fence fabric shall be placed on the face of the post away from the work area. A top tension wire, rather than a pipe top rail, shall be used. The top edge of the fabric shall be finished with "Knuckled" salvage. The Contractor shall inspect the condition of temporary fence on a daily basis. Temporary fence that is damaged shall be promptly replaced. The fence shall not be removed until the bridge and roadway work is complete.

METHOD OF MEASUREMENT

Items 657. will be measured for payment by the Foot of temporary fence installed, complete in place.

Item 657.5 will be measured for payment by the Foot of temporary fence removed and reset, complete in place.

ITEMS 657. and 657.5 (Continued)

BASIS OF PAYMENT

Item 657.and Item 657.5 will be paid for at the respective Contract unit prices per Foot; which prices shall include all labor, materials, equipment, and incidental costs required to complete the work including posts, fence fabric, gates, bracing, and footings. No payment will be made for the final removal of the temporary fence.

No payment will be made for the final removal of temporary fence. No payment will be made for any component needed to replace defective components. Fencing that is damaged due to construction accidents, vandalism and/or any other manner shall be replaced without additional compensation to the contractor.

ITEM 673. ACCESS GATE REMOVED AND STACKED EACH

The work under this Item shall conform to the relevant provisions of Subsection 665 of the Standard Specifications and the following:

The work shall include the removal of access gates as shown on the plans or as directed by the Engineer.

Any access gates damaged or lost directly or indirectly as a result of the Contractor's operations shall be replaced by the Contractor at his own expense.

Access gates removed, will be properly stacked at the Natick Department of Public Works, located at 75 West Street, Natick MA 01760.

METHOD OF MEASUREMENT

Item 673. will be measured for payment by the EACH of access gate removed and stacked.

BASIS OF PAYMENT

Item 673 will be paid for at the Contract unit price per EACH, which price shall include all labor, materials, equipment, transportation including delivery and stacking to the Natick Department of Public Works, and all incidental costs required to complete the work.

ITEM 698.3 GEOTEXTILE FABRIC FOR SEPARATION SQUARE YARD

The work under this item shall conform to the requirements of Section M9.50.0 of the Standard Specifications and the following:

The work shall include furnishing and installing geotextile fabric for separation, as required by the Engineer.

The Geotextile Fabric shall conform to the requirements of AASHTO M 288 Class 2 and shall be manufactured with material meeting M9.50.0 for Separation or a fabric approved by the Engineer. Geotextile fabric used for this Item must be one listed on the MassDOT Qualified Construction Materials List for the approved application of separation.

Geotextile Fabric shall be used to separate the in-situ slope surface in Modified Rockfill Slope and the Crushed Stone and to provide separation of the Lightweight Fill Material placed at the abutments and wingwalls and the soldier pile and lagging walls from other backfill materials. Geotextile Fabric shall also be installed as shown on the plans or in other locations designated by the Engineer.

Install geotextile fabric per manufacturer's recommendations.

METHOD OF MEASUREMENT

Item 698.3 will be measured for payment by the Square Yard, complete in place; any overlaps shall be measured as a single layer of cloth.

BASIS OF PAYMENT

Item 698.3 will be paid for at the contract unit price per Square Yard, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

ITEM 701.3 TRAPEZOIDAL DELINEATOR FOOT

The work under this Items shall conform to the relevant provisions of Subsection 701 of the Standard Specifications and the following:

GENERAL

The work under this Item consists of furnishing and installing polymer-concrete cast-in-place Tactile Warning Delineators embedded to provide separation between pedestrian pathways and same-level-adjacent separated bike lanes as shown on the plans and as required by the Engineer.

References

A. Manufacturer's recommendations

B. 2019 Research Study: Delineator for Separated Bicycle Lanes at Sidewalk Level

C. 2021 Published Paper: Tactile Walking Surface Indicators in the United States and Internationally – Research, Standards, Guidance and Practice

Submittals

A. Product Data: The Contractor shall submit manufacturer's literature describing products, installation procedures and maintenance instructions.

B. Samples for Verification Purposes: The Contractor shall submit 1-2 tile product samples from the manufacturer, minimum 3" x 12" of the kind proposed for use. Samples will be properly labeled and will contain the following information: Contract name, submitted by, date of submittal, manufacturer's name.

C. Shop Drawings: The Contractor shall submit Shop Drawings showing plans of tile placement, including joints and anchors, all materials to be used and an outline of installation procedures.

D. Material Test Reports (ASTM): The Contractor shall submit literature with test data of the proposed product related to test reports from qualified independent testing laboratory indicating that materials proposed for use are following requirements and meet the properties indicated.

Quality Control

A. Contractor shall provide polymer-concrete cast-in-place Trapezoid Tactile Warning Delineator tiles produced by a single manufacture with a minimum experience of 7 years in non-interrupted manufacturing of tactile warning surface indicators (TWSI)

B. Installer's Qualifications: The Contractor shall engage an experienced installer qualified for installation of this type and who has successfully completed detectable warning installations similar in material, design, and extent to that indicated for this project.

C. The Contractor shall have a manufacturer's representative on site for initial installation to ensure that installation methods are acceptable and consistent with manufacturer's recommendations.

ITEM 701.3 (Continued)

Delivery, Storage And Handling

A. Tiles will be suitably packaged or crated to prevent damage in shipment or handling.

Guarantee And Warranty

A. Polymer concrete cast-in-place Trapezoid Tactile Warning Delineator tiles will be guaranteed against defects in workmanship for a period of five (5) years from date of purchase. All other warranties, as specifically related to issues of handling and installation, will be the responsibility of the installation Contractor.

PRODUCTS

Materials

A. Trapezoid Tactile Warning Delineator tiles will be made of a polymer-concrete

B. Color: Terracotta Red, Natural White, Charcoal Gray, Dark Brown or other color that provides sufficient color contrast with the surrounding surface and other correlating Tactile Walking Surface Indicators (detectable warning surfaces, Tactile direction indicators)

C. the material of the tiles will meet or exceed the following ASTM test criteria using the most current test methods:

Polymer-Concrete Based Tiles	**ASTM test Property Limit**	
Compressive Strength	C 39-04	12,500 psi minimum
Tensile Strength	C 496	1,500 minimum
Flexural Ultimate Strength	C 947-03	2,500 minimum
Slip Resistance	C 1028	0.80 minimum
Water Absorption	C 97	Not to exceed 0.25%

A. Cleaning materials used on site will have code acceptable low VOC solvent content and low flammability.

B. Specifications of the concrete, sealants and related materials will be in accordance with the Contract Documents and the guidelines set by their respective manufacturers.

Manufacturers

A. Available manufacturers and models subject to compliance with these Specifications include the following or approved equal:

Manufacturer Material Model:

Trapezoid Delineators manufactured by StrongGo Industries.
Vanguard ADA Systems, Tactile Direction Indicators (“TDI”) Guide Bars
TufTile ADA Detectable Warning Products, Tactile Directional Indicators

ITEM 701.3 (Continued)

Equipment

Contractor shall provide all tools, equipment and services required for the satisfactory installation per manufacturer's instruction as Incidental Work. Equipment, which may be required, includes typical mason's tools, tape measure, a four-foot level with electronic slope readout and a non-marring rubber mallet.

EXECUTION

Preparation

A. During all concrete pouring and tile installation procedures, the Contractor shall ensure adequate safety guidelines are in place and that they are in accordance with the applicable industry and government standards.

B. The physical characteristics of the concrete will be consistent with these Specifications while maintaining a slump range of 4 inches to 7 inches to permit solid placement of the cast-in-place tactile tile system.

C. The concrete will be poured and finished, true and smooth to the required dimensions and slope prior to tile placement.

Installation

A. Contractor shall not be allowed to install Trapezoid Delineator Tiles until all submittals have been reviewed and approved by the Engineer .

B. The Trapezoid Tactile Warning Delineator tiles shall be installed per manufacturer's instructions.

C. The largest size tile manufactured will be used to minimize the amount of installation-seams. The tiles will be placed in accordance with the drawings. Cutting of the tiles may be required. Tile to tile joints between Trapezoid Tactile Warning Delineator tiles must be laid out by adjoining factory edges.

D. The tiles will be installed into the fresh concrete using a rubber mallet to ensure that there are no voids or air pockets, and the edges of tile are to be flush with the adjacent surface or as the drawings indicate to permit proper water drainage and eliminate tripping hazards between adjacent finishes.

E. While the concrete is workable, a 1/8-inch radius edging tool, (or as specified) will be used to create a finished edge of concrete, and then a steel trowel will be used to finish the concrete around the tile's perimeter.

Cleaning And Protecting

A. The Contractor shall protect trapezoid tactile warning delineators against damage during construction to comply with tile manufacturer's Specifications.

B. During and after the tile installation and the concrete curing stage, it is imperative that there will be no walking, leaning or external forces placed on the tile and/or to rock the tile, causing a void between the underside of tile and its concrete substrate.

ITEM 701.3 (Continued)

C. The Contractor shall protect trapezoid tactile warning delineators against damage from rolling loads following installation by covering with plywood or hardwood.

D. The Contractor shall clean tiles prior to the date scheduled for inspection and remove protective covering (if applicable).

METHOD OF MEASUREMENT

Item 701.3 will be measured for payment by the FOOT of Trapezoidal Delineator installed, complete in place. Spaces between the delineator panels for surface drainage, or to accommodate existing utility castings or light poles will be excluded.

BASIS OF PAYMENT

Item 701.3, Trapezoidal Delineator will be paid at the contract unit price per FOOT, which price shall be full compensation for all labor, materials, equipment, and all incidental costs required to complete the work.

Gravel, Fine Grading and Compacting, and Cement Concrete Walk will be paid for separately, under their respective Items.

ITEM 740. ENGINEER'S FIELD OFFICE AND EQUIPMENT (TYPE A) MONTH

The work under this Item shall conform to the relevant provisions of Subsection 740 of the Standard Specifications and the following:

Three computer systems and printer system meeting minimum requirements set forth below including installation, maintenance, power, paper, disks, and other supplies shall be provided at the Resident Engineer's Office:

All equipment shall be UL approved and Energy Star compliant.

The Computer System shall meet the following minimum criteria or better:

Processor:	Intel, 3.5 GHz
System Memory (RAM):	12 GB
Hard Drive:	500 GB
Optical Drive:	DVD-RW/DVD+RW/CD-RW/CD+RW
Graphics Card:	8 GB
Network Adapter:	10/100 Mbit/s
USB Ports:	6 USB 3.0 ports
Keyboard:	Generic
Mouse:	Optical mouse with scroll, MS-Mouse compliant
Video/Audio	the computer system shall be capable of allow video calling and recording:
Video camera	shall be High Definition 1080p widescreen capable video calling and recording with built in microphone. The microphone system shall capture natural audio while filtering out background noise.
Audio	shall be stereo multimedia speaker system delivering premium sound.
OS:	Latest Windows Professional with all security updates
Web Browser:	Latest Internet Explorer with all security updates
Applications:	Latest MS Office Professional with all security updates Latest Adobe Acrobat Professional with all security updates Latest Autodesk AutoCAD LT Antivirus software with all current security updates maintained through the life of the contract.
Monitors:	Two 27" LED with Full HD resolution. Max. resolution 1920 x 1080
Flash drives:	2 (two) - 128GB USB 3.0
Internet access:	High Speed (min. 24 mbps) internet access with wireless router.

ITEM 740. (Continued)

The Multifunction Printer System shall meet the following minimum criteria or better:

Color laser printer, fax, scanner, email and copier all in one with the following minimum capabilities:

- Estimated volume 8,000 pages per month
- LCD touch panel display
- 50 page reversing automatic document feeder (RADF) (not including the bypass tray)
- 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
- Automatic duplexing
- Finisher with staple functions
- Standard Ethernet. Print Controller
- Scan documents to PDF, PC and USB
- ability to print with authenticated access protection

The Contractor shall supply a maintenance contract for next day service, and all supplies (toner, staples, paper) necessary to meet estimated monthly usage.

The Engineer's Field Office and the equipment included herein including the computer system, and printer shall remain the property of the Contractor at the completion of the project. Disks, flash drives, and card readers with cards shall become the property of the Department.

Compensation for this work will be made at the contract unit price per month which price includes full compensation for all services and equipment, and incidentals necessary to provide equipment, maintenance, insurance as specified and as directed by the Engineer.

ITEM 756. NPDES STORMWATER POLLUTION PREVENTION PLAN LUMP SUM

This Item addresses the preparation and implementation of a Storm Water Pollution Prevention Plan required by the National Pollutant Discharge Elimination System (NPDES) and applicable Construction General Permit (CGP) issued by the U.S. Environmental Protection Agency (EPA).

Pursuant to the Federal Clean Water Act, construction activities which disturb one acre or more are required to apply to the EPA for coverage under the NPDES General Permit for Storm Water Discharges from Construction Activities. The Contractor shall be fully responsible for compliance with the most recently issued CGP and any subsequent revisions. Should a fine or damages be assessed against it, or MassDOT, as a result of a local, state, or federal enforcement action due to non-compliance with the CGP, the Contractor shall take full responsibility.

The NPDES CGP requires the submission of a Notice of Intent (NOI) to the EPA prior to the start of construction (defined as any activity which disturbs land, including clearing and grubbing). There is a fourteen (14) day review period commencing from the date on which EPA enters the Notice into their database. Based on the review of the NOI, EPA may require additional information, including but not limited to, the submission of the Storm Water Pollution Prevention Plan (SWPPP) for review. Work may not commence on the project until final authorization has been granted by EPA. Any additional time required by EPA for review of submittals will not constitute a basis for claim of delay.

In addition, if the project discharges to an Outstanding Resource Water, vernal pool, or is within a coastal ACEC as identified by the Massachusetts Department of Environmental Protection (DEP), a separate notification to DEP is required. DEP may also require submission of the Storm Water Pollution Prevention Plan for review and approval. Filing fees associated with the notification to DEP and, if required, the SWPPP filing to DEP shall be paid by the Contractor.

The CGP also requires the preparation and implementation of a SWPPP in accordance with the afore-mentioned statutes and regulations. The Plan will include the CGP conditions and detailed descriptions of controls of erosion and sedimentation to be implemented during construction. The contractor shall prepare the SWPPP and update it as necessary. The Contractor shall submit the Plan to the Engineer for approval at least four (4) weeks prior to any site activities. It is the responsibility of the Contractor to comply with the CGP conditions and the conditions of any state Wetlands Protection Act Order, Water Quality Certification, Corps of Engineers Section 404 Permit and other environmental permits applicable to the project and to include in the SWPPP the methods and means necessary to comply with applicable conditions of said permits.

It is the responsibility of the Contractor to complete the SWPPP in accordance with the EPA CGP, provide all information required, and obtain any and all certifications as required by the CGP. Any amendments to the SWPPP required by site conditions, schedule changes, revised work, regulations, construction methodologies, and the like are the responsibility of the Contractor. Amendments will require the approval of the Engineer prior to implementation.

ITEM 756. (Continued)

In addition to the CGP requirements for inspections, MassDOT requires inspection of all erosion controls and site conditions on a weekly basis. Inspections are also required at portions of sites that discharge to sediment or nutrient impaired or high quality waters per the CGP when each incidence of rainfall exceeding 0.25 inches in twenty-four hours or after snowmelt discharge from a storm event that produces 3.25 inches or more of snow within twenty-four hours occurs. The CGP requires that inspections be performed by a qualified individual as outlined in the CGP. MassDOT requires proof of completion of a 4 hour minimum sedimentation and erosion control training class current to the latest CGP. This individual can be, but not limited to, someone that is either a certified inspector, certified professional, or certified storm water inspector. The documentation shall be included as an appendix in the SWPPP. The inspector's qualifications shall be submitted to the Engineer for approval prior to beginning any work. This individual shall be on-site during construction to perform these inspections. In addition, if the Engineer determines at any time that the inspector's performance is inadequate, the Contractor shall provide an alternate inspector. Written weekly inspection forms, storm event inspection forms, and Monthly Summary Reports must be completed and provided to the Engineer. Monthly Summary Reports must include a summary of construction activities undertaken during the reporting period, general site conditions, erosion control maintenance and corrective actions taken, the anticipated schedule of construction activities for the next reporting period, any SWPPP amendments, and representative photographs.

The Contractor is responsible for preparation of the Plan, all SWPPP certifications, inspections, reports and any and all corrective actions necessary to comply with the provisions of the CGP. The Standard Specifications require adequate erosion control for the duration of the Contract. All control measures must be properly selected, installed, and maintained in accordance with manufacturer specifications and good engineering practices. If periodic inspections or other information indicates a control has been used inappropriately or is no longer adequate, it is the responsibility of the Contractor to replace or modify the control for site conditions at no additional cost to the Department. Contractor must maintain all control measures and other protective measures in effective operating conditions and shall consider replacement of erosion controls for each construction season.

The work under this item shall also include the preparation, submission and implementation of a Flood Contingency Plan. The plan shall address the potential need for the temporary relocation of construction and auxiliary equipment situated within the 1% annual chance of flooding zone to designated upland locations above the Base Flood Elevation during flood events. The Flood Contingency Plan shall address any additional MassDEP-required information requirements, as applicable. The Flood Contingency Plan shall be submitted to the Engineer for review and approval at the same time as the SWPPP.

This Item addresses acceptable completion of the SWPPP, any revisions/amendments required during construction, preparation of monthly reports and Flood Contingency Plan. In addition, any erosion controls beyond those specified in bid items which are selected by the Contractor to facilitate and/or address the Contractor's schedule, methods and prosecution of the work shall be considered incidental to this item.

ITEM 756. (Continued)

The CGP provides specific requirements for temporary and final stabilization. This shall be incorporated into the project schedule. The permit defines specific deadline requirements for Initial Stabilization ("immediately", i.e., no later than the end of the next work day following the day when earth-disturbing activities have temporarily or permanently ceased) and for Complete Stabilization Activities (no later than 14 calendar days after the initiation of stabilization). Stabilization criteria for vegetative and non-vegetative measures are provided in the CGP.

The CGP requires the submission of a Notice of Termination (NOT) from all operators when final stabilization has been achieved, as well as removal and proper disposal of all construction materials, waste and waste handling devices, removal of all equipment and construction vehicles, removal of all temporary stormwater controls, etc. Approval of final stabilization by the Engineer and confirmation of submission of the NOT will be required prior to submission of the Resident Engineer's Final Estimate. The permittee shall use EPA's website to prepare and submit the NOT.

BASIS OF PAYMENT

Item 756 will be paid for at the Contract unit price Lump Sum, which price shall include all labor, materials, equipment, SWPPP & Flood Contingency Plan preparation, revisions/addenda during construction, monthly reports, filing fees, and all incidental costs required to complete the work.

Payment of 50% of the Lump Sum price of this item will be made upon acceptance of the NPDES Stormwater Pollution Prevention Plan & Flood Contingency Plan.

Payment of 40% of the Lump Sum price of this item will be paid in equal monthly installments distributed across the time remaining in the accepted baseline schedule until substantial completion.

The remaining 10% of the Lump Sum price of this Item will be paid following accepted submission of a Notice of Termination (NOT) when final stabilization has been achieved.

ITEM 765.472 STEEP SLOPE MID-HEIGHT MIX POUND

Work under this Item shall conform to the relevant provisions of Section 765 of the Standard Specifications, with the following adjustments. Work under this item shall consist of furnishing Steep Slope Mid-Height seed mix as specified below in the required quantity.

MATERIALS

Submittals

1) Pre-Verification of Seed Availability. Within 30 days after the Notice to Proceed, the Contractor shall submit to the Engineer the supplier's verification of availability of seed species in the required quantities and for the anticipated date of seeding. Verification shall be on the supplier's letterhead and notarized by the supplier's notary. Species not expected to be available should be noted and substitutions recommended.

2) Final Verification of Seed Availability. No earlier than 21 days prior to ordering, the Contractor shall submit to the Engineer the supplier's verification of availability of seed species and in the required quantities. Verification shall be on the supplier's letterhead and notarized by the supplier's notary. A copy of this submittal shall be forwarded to the MassDOT Landscape Design Section. Substitutions or changes in the mix at this time must be approved by MassDOT Landscape Design Section.

3) Seed Worksheet provided herein shall be submitted to the Engineer prior to ordering seed to determine the number of pounds of Pure Live Seed required.

4) Seed Tags. The contractor shall submit original seed tags from each bag of seed used on the project or ensure that each tag is photo documented by the Engineer while on the unopened bag.

   Number of tags submitted must correspond to number of bags delivered.
   Species listed on the seed tag shall match the Final Verification of Seed Availability (Submittal #2) unless approved otherwise. Tag must include: variety and species name; lot number; purity; percentage of inert matter; percentage of weeds, noxious seeds, and other crop seeds; germination, dormant or hard seed; total viability; origin of seed; germination test date, net weight, and name and address of seller. The origin of seed must be listed on the seed tag for all species in the mix to provide verification of original (generation 0) seed source. The smallest known geographic area (township, county, ecotype region, etc.) shall be listed. Ecotypes and cultivars shall be as close to Massachusetts as possible and appropriate to the site conditions.

   A copy of this submittal shall be forwarded to the MassDOT Landscape Design Section.

ITEM 765.472 (Continued)

5) Verification of Seed Delivery. Prior to payment, contractor shall submit the Seed Delivery Verification form contained within the contract or the Supplier's Verification on company letterhead or a bill of lading. Supplier verification must include all information requested on the Verification form within this contract. The bill of lading must include variety and species name, lot number, net weight shipped, date of sale, invoice, project or seeding location, and name and address of Supplier. All information must be filled in and complete for acceptance. Information must match the seed tags and quantity of seed used on the job. A copy of this submittal shall be forwarded to the MassDOT Landscape Design Section

6) Seed Sample. If requested or if seed is from a previously opened bag, the contractor may be asked to submit to the Engineer a sample of seed from the seed bag (1-2 cups) at the time of seeding.

SEEDING SEASON

The appropriate seeding seasons are:

Spring: April 1 - May 15
Fall: October 1 - December 1 for dormant seeding

Written approval must be obtained for seeding outside the seeding season and, if approved, the permanent seed rate shall be increased by 50%.

PERMANENT SEED MIX(ES)

Calculating Pure Live Seed (PLS)

Quantities specified are PURE LIVE SEED. Greater quantities of ordered seed may be required to achieve actual specified seeding rates.

Pure Live Seed (PLS) is defined as a percentage calculated by multiplying the percent of pure seed by the percent of viable seed (total germination, hard seed, and dormant seed). For example:

If a seed label indicates 90% purity, 78% germination, 10% hard seed, and 2% dormancy, it is calculated to be 90% x [78 + 10 + 2]% = 81% PLS.

Therefore, each pound of PLS would need 1 pound / 0.81 = 1.2 pounds of seed with a 90% purity and 90% total germination

ITEM 765.472 (Continued)

Seed Mix(es) shall be as specified below. Ecotypes and cultivars shall be as close to Massachusetts as possible and appropriate to the site conditions.

Steep Slop Mid-Height Mix

	Botanical Name	Common Name	% Mix By Weight (PLS)
Grass			
	Cover Crop - Secale cereale/Avena	Cover Crop - Grain Oats/Rye	40.0%
	Schizachyrium scoparium 'Albany Pine'	Little Bluestem 'Albany Pine'	30.0%
	Elymus virginicus	Virginia Wild Rye	8.0%
	Elymus canadensis	Canada Wild Rye	5.0%
	Panicum virgatum	Switch Grass	4.5%
	Agrostis perennans	Upland Bentgrass	3.0%
	Dichanthelium clandestinum 'Tioga'	Deertongue grass 'Tioga'	2.3%
			92.8%
Herb/Forb			
	Echinacea purpurea	Purple Coneflower	3.0%
	Chamaecrista fasciculata	Partridge Pea	2.0%
	Penstemon digitalis	Beard-tongue	0.7%
	Monarda fistulosa	Wild Bergamot	0.3%
	Asclepias syriaca	Common Milkweed	0.2%
	Lespedeza capitata	Roundhead Bush Clover	0.2%
	Rudbeckia hirta-VT ecotype	Black-eyed Susan-VT ecotype	0.1%
	Aster prenanthoides	Zig Zag Aster	0.1%
	Solidago nemoralis	Grey Goldenrod	0.1%
	Aster pilosus	Heath Aster	0.1%
	Aster laevis NY Ecotype	Smooth Aster NY Ecotype	0.1%
	Pycnanthemum tenuifolium	Slender Mountain Mint	0.1%
	Solidago juncea	Early Goldenrod	0.1%
	Asclepias incarnata	Swamp Milkweed	0.1%
			7.2%
	Application Rate: 75.0 lbs PLS/Acre. No additional cover crop shall be applied.		**100.0%**

Any species substitutions shall be with a species having similar characteristics and function. Substitutions must be approved by MassDOT Landscape Design Section per the documentation submittal process.

50% Increase Adjustment for Field Conditions:

ITEM 765.472 (Continued)

Seeding under the following conditions requires a 50% increase in the permanent mix at the time of construction:

- Seeding out of season
  OR
- Seeding after Compost Blanket has been applied (unless already increased for out of season).
-

CONSTRUCTION METHODS

METHOD OF MEASUREMENT

Item 765.472 Steep Slope Mid-Height Mix will be measured for payment by the POUND of Pure Live Seed delivered and complete in place.

BASIS OF PAYMENT

Item 765.472 Steep Slope Mid-Height Mix will be paid for at the respective Contract unit price per pound of Pure Live Seed delivered upon approval of all Seed Submittal Documentation. Overseeding required to correct poor germination or establishment shall be incidental to the item.

Application and care of native seed mix will be paid for separately under Item 765.635 Native Seeding and Establishment.

Site preparation, including raking, tilling, removal of debris and stones, and other work to the prepare site for seeding shall be compensated under Item 751. Loam for Roadsides as relevant to the project.

ITEM 765.472 (Continued)

NATIVE SEED WORKSHEET

Project Description: _____ Project No: _____

Contractor: _____ Contract No: _____

Seed Mix Number & Description: _____

Contractor: Complete Prior To Ordering

Pounds of Seed Required Per Contract:

_____lbs./acre for _____Acre(s) OR _____ SY

Additional 50% increase if required (out of season or seeding over compost blanket):

_____**lbs. Total Seed Required**

Calculated Quantity for **P**ure **L**ive **S**eed (PLS[1]):

_____ **Total Pounds PLS**

Engineer: Verification at Time of Application

Number pounds delivered to site[2]: _____ Date(s): _____

Actual Seed Bag Tag/s Received or photo documented by Engineer: _____

[1] PLS=% pure seed x % viable seed (total germination, hard seed, and dormant seed).
*[2]Quantity delivered should match pounds **Total Pounds PLS** and **Verification of Seed Delivery**. Pounds should be shown on each Seed Tag.*

ITEM 765.472 (Continued)

SUPPLIER VERIFICATION OF SEED DELIVERY FOR MASSDOT PROJECTS

Date_____

We hereby certify that (*Seed Supplier*):_____

Furnished to (*Contractor*): _____

For use on: (*Project Description*) _____

Project #: _____ Contract #: _____

Pounds of Pure Live Seed: _____

Of Mix (*Description*): _____

Lot Number _____

The material was delivered on (*Date*)_____.

The labels and contents meet all State and Federal regulations. The mixture consists of the following species, including cultivars (as applicable) and ecotype region, and at the following percentages (may be attached separately):

Name (print): _____ Title: _____

Supplier: _____

Signature and Seal: _____

ITEM 765.635 NATIVE SEEDING AND ESTABLISHMENT SQUARE YARD

Work shall conform to the relevant provisions of Subsections 765 and 767 of the Standard Specifications and the following:

The work under this item shall consist of seeding, mowing, and other care to establish a stand of grass in the areas shown on the plans or as required by the Engineer. For the purposes of these specifications, the term "grass" shall apply to all the forbs, grasses, sedges, and rushes included in the materials.

QUALIFICATIONS

Seeding shall be done by a company having a minimum of five years of experience with native seed establishment. Prior to beginning work, the seeding Contractor shall furnish proof of qualifications to the Engineer for approval. Proof of qualifications shall include providing documentation (photos and contacts) to demonstrate knowledge and expertise with native seeding and establishment and proof of having completed successful native seeding projects.

SEEDING SEASON

Seeding seasons for native mixes shall be as noted in Special Provisions Subsection 765.4 Written approval must be obtained for seeding outside the seeding season and, if approved, the permanent seed rate shall be increased by 50%.

MATERIALS AND SUBMITTALS

Seed Mixes and Submittals shall be per the item(s) for permanent and annual (cover crop) seed mixes.

Compost Blanket, if used, shall meet the material and submittal requirements for that item.

Hydromulch shall be wood fiber or straw applied per the Standard Specifications and at the rates specified below and per the manufacturer.

A certified statement shall be furnished, prior to start of work, to the Engineer by the Contractor as to the number of pounds of hydromulch, tackifier, and seed, per 100 gallons of water and as applicable to products used. This statement should also specify the number of square yards of seeding that can be covered with the solution specified above.

Fertilizer

No fertilizers shall be applied.

ITEM 765.635 (Continued)

Water

Water, including hose and all other watering equipment required for the work, shall be furnished by the Contractor to the site at no additional cost. Water shall be suitable for irrigation and free from ingredients harmful to plant life. All plants injured or work damaged due to the lack of water or the use of too much water shall be the Contractor's responsibility to correct.

SEEDING

Hand broadcast method shall be used for all areas smaller than half an acre and when specified on the plans for areas over half an acre.

Seeding shall occur within 72 hours of placement of loam and final grading or the Contractor shall propose a reasonable, alternative schedule that shall be approved by the Engineer.

Surface Preparation

No seeding or soil preparation shall be done if soils are muddy or dry and compacted. Bare soils shall be raked to remove large stiff clods, lumps, brush, roots, stumps, litter and other foreign matter. Ruts and depressions shall be filled with additional loam or compost and the soil shall be re-graded to a relatively smooth finish corresponding to the required grades.

When seeding over existing or compacted soil or soil that has sat bare for more than 30 days, surface will be prepared by tilling or raking to a minimum depth of 2 inches prior to seeding and prior to Compost Blanket application (when applied).

Surface preparation shall be compensated for under for loam placement or topsoil rehandled and spread as appropriate to the project.

Jute or coir mesh, when specified in the contract, shall be placed after seeding and per the Standard Specifications and the manufacturer’s instruction.

Surface preparation shall be approved by the Engineer prior to seeding.

Seeding over Various Substrates

Loam: Seeding shall occur within 72 hours of loam placement to prevent loss of topsoil. Seed shall be manually broadcast for areas less than half an acre (each area, not cumulative area) and when specified on the plans. Broadcasting shall be immediately followed by hydromulching as specified below. When not specified on the plans, larger areas may be hydroseeded as specified below.

ITEM 765.635 (Continued)

Seed Application

All seed shall be mulched as specified herein.

Seed application shall be by broadcast seeding or by hydroseeding as described below.

Broadcast Seeding

Seed shall be broadcast spread using a cyclone or whirlwind seeder or hand broadcast. Small or light-seeded species such as bluestem may be mixed with approved filler to achieve an even distribution. Seed shall not be broadcast when wind velocities are greater than 15 mph.

Broadcast seeding shall be undertaken in two separate passes at ninety degrees to each other. One-half the seeding rate shall be applied in each direction (horizontally and vertically). To ensure seed to soil contact with broadcasting of seed, seeding shall be followed by rolling or tracking with equipment approved by the Engineer.

Broadcast seed shall be mulched with weed-free straw mulch. Hydromulching shall be as specified under Hydromulching.

Hydroseeding and Hydromulching

Hydroseed and mulching shall be per the manufacturer's directions and as follows.

Hydroseeding shall only be used for sites over half an acre in size or with permission of the Engineer.

Tank and hoses shall be cleaned from all previous hydroseeding and hydromulching projects. Seed shall be mixed into the slurry immediately before application and slurry applied within 30 minutes after seeds have been placed in the tank. Once seed has been placed in the tank, tank shall be agitated only enough to mix the seeds and keep slurry from separating.

A 2-step process shall be used for seeding in conjunction with hydromulch. Seed shall be applied with 500 lbs/acre of hydromulch in the first pass. A second pass with 1,000 lbs/ acre of hydromulch shall be applied in a second pass. Each pass shall be applied in a different direction.

Once the seed has been added to the tank mixture a one-hour time limit is set for spreading the mixture on the soil. Once the one hour has passed the excess mixture must be discarded.

For broadcast seeding, hydromulch shall be applied immediately following seeding at a rate of 1,000 lbs/acre. Tank shall be cleaned from any previous hydroseeding.

ITEM 765.635 (Continued)

CARE DURING GERMINATION AND ESTABLISHMENT

Contractor shall care for seeded areas as necessary for successful germination. Care will include watering and weed control as necessary to achieve establishment of the specified seeded species after one growing season as specified below.

The contractor shall maintain the stand of grasses to ensure healthy growth of the seeded species. Work shall include mowing or weed-whacking for weed control, watering if necessary, and removal of invasive plants.

Watering shall be sufficient to achieve soil moisture to a depth of 2 inches or more and such moisture is uniform. Method of watering shall not erode or damage soil or grassed surfaces.

General Weed Control: Unless otherwise directed, mowing shall be as specified under Mowing for Weed Control for seed establishment. Weeds shall be mowed prior to weeds setting seed (by the end of July unless otherwise approved).

Control of Invasive and Aggressive Weeds: Invasive and aggressive weeds, including but not limited to mugwort, ragweed, knapweed, foxtail, crabgrass, and chicory must be cut or treated prior to going to seed. Herbicide treatment must be coordinated with MassDOT. Undesired species (such as chicory) introduced due to use of incorrect seed mix shall be removed at the Contractor's expense.

MOWING FOR WEED CONTROL

Mowing for weed control shall be completed after weeds have sprouted and show leaf and bud growth, but prior to setting seed, generally between July 7th and August 1st, unless directed otherwise by the MassDOT Landscape Architect and the Engineer.

Mowing height shall be as needed for weed control, generally to a height of 8 inches and not below 4 inches, unless directed otherwise. Mowing shall be with a brush hog mower or string trimmer other approved equipment. Conventional lawn mowers which cannot achieve the appropriate cut shall not be used.

Contractor shall give 48-hour notice prior to mowing work. Mowing shall only occur in dry sunny weather. Litter pickup should occur prior to mowing in all areas. If required by the Engineer, cut grass shall be raked and removed. Litter pickup and raking and removal of grass shall be incidental to the work.

Mowing equipment shall be approved by the Engineer prior to work.

ITEM 765.635 (Continued)

OVER-SEEDING

Areas of bare ground greater than 2-3 feetin diameter shall be over-seeded with the specified mix during the appropriate season for seeding. Where required for overseeding mowing shall be as close to the soil as possible. Soil that is compacted shall be raked or otherwise roughened prior to over-seeding.
Over-seeding rates and methods shall be those specified above under Materials and Methods. Following over-seeding, soil shall be lightly tamped to ensure seed to soil contact and areas shall be mulched with straw mulch and watered with a fine mist to moisten soil to a depth of at least 2 inches.

Over-seeding, mulch, watering, and all work for over-seeding shall be incidental.

DETERMINING SATISFACTORY GRASS ESTABLISHMENT

A well-established stand of the specified seeded species as determined by the Engineer and the MassDOT Landscape Architect will be required for Final Acceptance. The expectation is that an acceptable number and variety of the desired permanent seeded species (not the cover crop) will be visible. Generally:

- A minimum of 75% coverage by the specified permanent seeded species after one growing season. Of that percentage, generally, depending on the mix species:
    - At least 3 types of the permanent seeded grass species shall be visible.
    - At least 3 species of wildflowers shall be visible.
- There will be no significant gaps or bare soil (generally 2-3 feet in diameter or greater).
- There will be no more than 25% coverage by weed species.
- All soil shall be stabilized and there shall be no channeling or erosion.
- There will be no invasive or aggressive species within the stand at the time of acceptance.
- There shall be no evidence of seed from non-native mixes (i.e., clover) due to failure to clean the hydroseeding tank or using incorrect mix.

Invasive and aggressive weeds (such as mugwort, ragweed, knapweed, and chicory) must be cut or treated prior to going to seed for Interim Acceptance. Herbicide treatment must be coordinated with MassDOT.

A warm-season grass mix with perennials will not have uniform growth. A uniform stand of grass may indicate use of an incorrect mix.

ITEM 765.635 (Continued)

ACCEPTANCE OF SEEDING AND ESTABLISHMENT WORK

Conditional Acceptance shall be based on proper application of seed as specified herein.

Interim Acceptance of Care. Seeding will be inspected by mid-July to assess germination and Establishment conditions as described above. When necessary for Interim Acceptance, areas shall be mowed prior to weed species producing seed and as specified above under Weed Control. ***Areas requiring weed control that are not mowed prior to weed seed dispersal will not be approved for Interim Acceptance.*** Seeding that shows good germination and is determined by the Engineer and Landscape Architect to not require weed control at the time of inspection shall be accepted for Interim Acceptance payment.

Final Acceptance of Establishment shall be given upon satisfactory Establishment as described above.

If the seeded area fails to meet the requirements of Establishment by the end of the growing season, contractor shall propose and implement remediations and site shall be inspected during the following growing season after July 1st. All remediation shall be at the contractor's expense.

METHOD OF MEASUREMENT

Native Seeding and Establishment will be measured for payment by the square yard, complete in place.

BASIS OF PAYMENT

Native Seeding and Establishment will be paid at the Contract unit price by the square yard (SY) upon Conditional, Interim, and Final Acceptances as described above. This price shall include all submittals, seeding, rolling to ensure seed-to-soil contact, weed control other than mowing, water, over-seeding, labor, materials, equipment, and all incidental costs required to complete the work of establishing a satisfactory stand of grass.

Native seed mixes shall be compensated under the respective items.

Site preparation, including raking, tilling, removal of debris and stones, and other work to the prepare site for seeding shall be compensated under Item 751. Loam for Roadsides as relevant to the project.

Mowing for weed control will be incidental to this item.

Schedule of payment shall be as follows:

30% upon Conditional Acceptance
20% upon Interim Acceptance of Care, except this amount will be reduced to zero and final payment will be reduced accordingly when areas requiring weed control are not mowed as specified in the Interim Acceptance criteria.
50% upon Final Acceptance of Establishment

ITEM 767.121 SEDIMENT CONTROL BARRIER FOOT

The work under this item shall conform to the relevant provisions of Subsections 670, 751 and 767 of the Standard Specifications and shall include the furnishing and placement of a sediment control barrier. Sediment control barrier shall be installed prior to disturbing upslope soil.

The purpose of the sediment control barrier is to slow runoff velocity and filter suspended sediments from storm water flow. Sediment barrier may be used to contain stockpile sediments, to break slope length, and to slow or prevent upgradient water or water off road surfaces from flowing into a work zone. Contractor shall be responsible for ensuring that barriers fulfill the intent of adequately controlling siltation and runoff.

Twelve-inch diameter (after installation) compost filter tubes with biodegradable natural fabric (i.e., cotton, jute, burlap) are intended to be the primary sedimentation control barrier. Photo-biodegradable fabric shall not be used.

For small areas of disturbance with minimal slope and slope length, the Engineer may approve the following sediment control methods:

- 9-inch compost filter tubes
- Straw bales which shall be trenched

No straw wattles may be used. Additional compost filter tubes (adding depth or height) shall be used at specific locations of concentrated flow such as at gully points, steep slopes, or identified failure points in the sediment capture line.

When required by permits, additional sediment barrier shall be stored on-site for emergency use and replacement for the duration of the contract.

Where shown on the plans or when required by permits, sedimentation fence shall be used in addition to compost filter tubes and straw bales and shall be compensated under that item.

Sediment control barriers shall be installed in the approximate location as shown on the plans and as required so that no excavated or disturbed soil can enter mitigation areas or adjacent wetlands or waterways. If necessary to accommodate field conditions and to maximize effectiveness, barrier locations may be shifted with approval from the Engineer. Barriers shall be in place prior to excavation work. No work shall take place outside the barriers.

MATERIALS AND CONSTRUCTION

Prior to initial placement of barriers, the Contractor and the Engineer shall review locations specified on the plans and adjust placement to ensure that the placement will provide maximum effectiveness.

Barriers shall be staked, trenched, and/or wedged as specified herein and according to the Manufacturer’s instructions. Barriers shall be securely in contact with existing soil such that there is no flow beneath the barrier.

ITEM 767.121 (Continued)

Compost Filter Tube

Compost material inside the filter tube shall meet M1.06.0, except for the following: no peat, manure or bio-solids shall be used; no kiln-dried wood or construction debris shall be allowed; material shall pass through a 2-inch sieve; and the C:N ratio shall be disregarded.

Outer tube fabric shall be made of 100% biodegradable materials (i.e., cotton, hemp or jute) and shall have a knitted mesh with openings that allow for sufficient water flow and effective sediment capture.

Tubes shall be tamped, but not trenched, to ensure good contact with soil. When reinforcement is necessary, tubes shall be stacked as shown on the detail plans.

Straw Bales

Straw bales shall be used if shown on the plans or when specified by Orders of Condition or other permit requirements.

Bales should be placed in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another. All bales should be either wire-bound or string-tied. Straw bales should be installed so that bindings are oriented around the sides (rather than along the tops and bottoms) of the bales in order to prevent deterioration of the bindings.

The barrier should be entrenched and backfilled. A trench should be excavated the width of a bale and the length of the proposed barrier to a minimum depth of 4 inches. The trench must be deep enough to remove all grass and other material which might allow underflow. After the bales are staked and chinked (filled by wedging), the excavated soil should be backfilled against the barrier. Backfill soil should conform to the ground level on the downhill side and should be built up to 4 inches against the uphill side of the barrier.

Each bale should be securely anchored by at least 2 stakes or re-bars driven through the bale. The first stake in each bale should be driven toward the previously laid bale to force the bales together. Stakes or re-bars should be driven deep enough into the ground to securely anchor the bales. For safety reasons, stakes should not extend above the bales but should be driven in flush with the top of the bale.

The gaps between the bales should be chinked (filled by wedging) with straw to prevent water from escaping between the bales. Loose straw scattered over the area immediately uphill from a straw bale barrier tends to increase barrier efficiency. Wedging must be done carefully in order not to separate the bales.

When used in a swale, the barrier should be extended to such a length that the bottoms of the end bales are higher in elevation than the top of the lowest middle bale to assure that sediment-laden runoff will flow either through or over the barrier but not around it.

ITEM 767.121 (Continued)

Sedimentation Fence

Materials and Installation shall be per Section 670.40 and 670.60 of the Standard Specifications and the following:

Sedimentation fence shall only be used if shown on the plans or when specified by Orders of Condition or other permit requirements.

When used with compost filter tubes, the tube shall be placed on a minimum of 8 inches of folded fabric on the upslope side of the fence. Fabric does not need to be trenched.

When used with straw bales, an 8-inch deep and 4-inch wide trench or V-trench shall be dug on the upslope side of the fence line. One foot of fabric shall be placed in the bottom of the trench followed by backfilling with compacted earth or gravel. Stakes shall be on the down slope side of the trench and shall be spaced such that the fence remains vertical and effective.

Width of fabric shall be sufficient to provide a 36-inch high barrier after fabric is folded or trenched. Sagging fabric will require additional staking or other anchoring.

MAINTENANCE

Maintenance of the sediment control barrier shall be per Section 670.60 of the Standard Specifications or per the Stormwater Pollution Prevention Plan (SWPPP), whichever is more restrictive.

The contractor shall inspect the sediment barrier in accordance with relevant permits. At a minimum, barriers shall be inspected at least once every 7 calendar days and after a rain event

resulting in 0.25 inches or more of rainfall. Contractor shall be responsible for ensuring that an effective barrier is in place and working effectively for all phases of the Contract.

Barriers that decompose such that they no longer provide the function required shall be repaired or replaced as directed. If the resulting berm of compost within the fabric tube is sufficiently intact (despite fabric decay) and continues to provide effective water and sediment control, barrier does not necessarily require replacement.

DISMANTLING & REMOVING

Barriers shall be dismantled and/or removed, as required, when construction work is complete and upslope areas have been permanently stabilized and after receiving permission to do so from the Engineer.

Regardless of site context, nonbiodegradable material and components of the sediment barriers, including photo-biodegradable fabric, plastic netting, nylon twine, and sedimentation fence, shall be removed and disposed off-site by the Contractor.

ITEM 767.121 (Continued)

For naturalized areas, biodegradable, natural fabric and material may be left in place to decompose on-site. In urban, residential, or other locations where aesthetics is a concern, the following shall apply:

- Compost filter tube fabric shall be cut and removed, and compost shall be raked to blend evenly (as would be done with a soil amendment or mulch). No more than a 2-inch depth shall be left on soil substrate.
- Straw bales shall be removed and disposed off-site by the Contractor. Areas of trenching shall be raked smooth and disturbed soils stabilized with a seed mix matching adjacent seeding or existing grasses (i.e., lawn or native grass mix).
- Sedimentation fence, stakes, and other debris shall be removed and disposed off-site. Site shall be restored to a neat and clean condition.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 767.121 will be measured and paid for at the contract unit price per foot of sediment control barrier which price shall include all labor, equipment, materials, maintenance, dismantling, removal, restoration of soil, and all incidental costs required to complete the work.

Additional barrier, such as double or triple stacking of compost filter tubes, will be paid for per foot of tube installed.

Barriers that have been driven over or otherwise damage by construction activities shall be repaired or replaced as directed by the Engineer at the Contractors expense.

ITEM 769.1 PAVEMENT MILLING MULCH UNDER GUARDRAIL SQUARE YARD

The work under this item shall conform to the relevant provisions of Subsection 769 of the Standard Specifications and the following:

The mulched area shall be placed in locations as shown in the plans or as approved by the Engineer.

METHOD OF MEASUREMENT

Item 769.1 will be measured for payment by the SQUARE YARD, of material placed, complete in place.

BASIS OF PAYMENT

Item 769.1 will be paid for at the Contract unit price per SQUARE YARD, which price shall include all labor, materials, tools, equipment, maintenance and all incidental costs required to complete the work.

ITEM 772.331	**CEDAR - RED - EMERALD SENTINEL 6-7 FEET**	**EACH**
ITEM 783.045	**SERVICEBERRY - AUTUMN BRILLIANCE 5-6 FEET**	**EACH**
ITEM 785.739	**INKBERRY - DENSA 30-36 INCH SPREAD / #5**	**EACH**
ITEM 790.634	**DOGWOOD - REDOSIER - ARCTIC FIRE 2-3 FEET / #3**	**EACH**
ITEM 794.732	**SUMMERSWEET SHRUB - PINK SPIRES 18-24 INCH / #2**	**EACH**
ITEM 795.014	**VIBURNUM - ARROWWOOD - NORTHERN BURGUNDY 3-4 FEET / #5**	**EACH**
ITEM 795.186	**WITCH HAZEL - HARVEST MOON 5-6 FEET**	**EACH**
ITEM 796.577	**THUNDERCLOUD SWITCHGRASS 1 GALLON**	**EACH**

DESCRIPTIONS

The work under these Items shall conform to the relevant provisions of Subsection 771 of the Standard Specifications, with the following adjustments:

The work under these items consists of furnishing, installing, Maintenance Period and Establishment Period of trees and shrubs. The type, species, sizes and locations for trees shall be as indicated on the Landscape Plan.

MATERIALS

All materials shall meet the requirements of Subsection 771.40 of Standard Specifications Material Section

Loam Borrow	M1.05.0
Compost	M1.06.0
Inorganic Amendments	M6.01.0
Fertilizer	M6.02.0
Aged Pine Bark Mulch	M6.04.5
General Planting	M6.06.0
Nursery Stock – General	M6.06.1
Wrapping for Transport	M6.07.1
Materials for Guying and Staking	M6.08.0
Water for Irrigation	M6.09.0

METHOD OF MEASUREMENT

Items 772.331, 783.045, 785.739, 790.634, 794.732, 795.014, 795.186 and 796.577 will be measured for payment by Each accepted tree and shrub, according to Subsection 771.80.

ITEMS 772.331, 783.045, 785.739, 790.634, 794.732, 795.014, 795.186 and 796.577 (Continued)

BASIS OF PAYMENT

Items 772.331, 783.045, 785.739, 790.634, 794.732, 795.014, 795.186 and 796.577 will be paid for at the respective Contract unit prices per Each for the planting of the tree and shrub types, species and sizes shown on the Landscape plan. The unit price per planting item shall include furnishing and delivering all plants, furnishing and delivering prepared backfill soil, mulch, fertilizer, excavation for plant pits, planting, pruning, guying and staking, mulching, weeding, watering, cleanup, plant establishment work and care including replacements, and for all labor, equipment, tools and incidentals necessary to complete the work prescribed in this section. Mulch and backfill planting soil for tree pits are considered incidental to this Item.

ITEM 784.103 TREE – CONTINGENCY EACH

The work under this item shall conform to the relevant provisions of Subsection 771 of the Standard Specifications and the following. The work under this item consists of providing and planting additional trees within the project, that are not shown on the plans. Trees under this item are intended for aesthetic enhancement and shade where space permits. The locations and species of trees will be determined by MassDOT during construction.

MATERIALS

All materials shall meet the requirements of Subsection 771.40 of Standard Specifications Material Section

Loam Borrow	M1.05.0
Compost	M1.06.0
Inorganic Amendments	M6.01.0
Fertilizer	M6.02.0
Aged Pine Bark Mulch	M6.04.5
General Planting	M6.06.0
Nursery Stock – General	M6.06.1
Wrapping for Transport	M6.07.1
Materials for Guying and Staking	M6.08.0
Water for Irrigation	M6.09.0

Trees shall be the following species and size:

Deciduous:
Red Oak, Quercus rubra 2-2.5” caliper
Swamp White Oak, Quercus bicolor 2-2/5” caliper
Redmond American Linden, 2-2.5” caliper

Evergreen:
Dark-Green American Arborvitae, Thuja occidentalis ‘nigra’ 6-7’ ht

CONSTRUCTION METHODS

The work shall be conducted under the supervision of the MassDOT Landscape Architect. The contractor shall contact Stephanie Smoot at (617) 595-5217 to establish coordination for the conduct of the work.

Tree locations shall be recommended by the Landscape Architect. However, the contractor shall verify that there are no conflicts with existing or proposed utilities or the drainage system at the recommended locations. Contingency tree locations shall not compromise ADA and AAB accessibility requirements. No additional Right of Way or easements will be acquired for contingency trees.

When applicable, municipality shall be responsible for all permits and approvals needed to plant contingency trees under the conditions described in Massachusetts Chapter 87 Public Shade Tree Law.

ITEM 784.103 (Continued)

METHOD OF MEASUREMENT

Item 784.103 will be measured for payment by Each accepted tree. No measurement will be made for replacement trees for trees that show unsatisfactory evidence of growth.

BASIS OF PAYMENT

Item 784.103 Tree Contingency will be paid for at the contract unit price per Each, which price shall be full compensation for all labor, materials, and all incidental costs required to complete the work. No payment will be made for replacement trees.

ITEM 852.11 TEMPORARY PEDESTRIAN BARRICADE FOOT
ITEM 852.12 TEMPORARY PEDESTRIAN CURB RAMP EACH

DESCRIPTION

Work under these items consist of furnishing, deploying, maintaining in proper operating conditions, and removing temporary pedestrian barricades and temporary pedestrian ramps as part of a Temporary Pedestrian Access Route (TPAR) in order to guide pedestrians around a fully- or partially closed sidewalk. These devices are intended to prevent pedestrians from entering the work area and to prevent pedestrians from inadvertently entering the vehicle travel lane by providing visual and physical separation between each space.

MATERIALS

The Temporary Pedestrian Barricade shall have a continuous bottom rail or edge no more than two (2) inches above the ground and six (6) inches in height (minimum) to accommodate cane users, have a smooth and continuous hand railing along the top edge no less than 32 inches above the ground and not obstruct or project into the pedestrian path of travel. Barricade walls shall be nearly vertical and generally within the same plane.

If exposed to traffic, Temporary Pedestrian Barricades shall be crashworthy.

The Temporary Pedestrian Curb Ramp shall provide a 60-inch minimum width, with a firm, stable, and non-slip surface. Protective edging with a two (2) inch minimum height shall be installed when the curb ramp or landing platform has a vertical drop of six (6) inches or greater.

The Temporary Pedestrian Curb Ramp walkway and landing area surface shall be of a solid, continuous, contrasting color abutting up to the existing sidewalk.

If a Temporary Pedestrian Curb Ramp leads to a crosswalk, a detectable warning pad must be used at the base of the ramp; if it leads to a protected path that does not conflict with vehicular traffic then a detectable pad shall not be used.

CONSTRUCTION METHODS

The Temporary Pedestrian Barricade shall be placed in an area that will provide pedestrians with a TPAR on a smooth, continuous hard surface for its entirety. The geometry and alignment of the facility shall meet the applicable requirements of the "Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities" and the Massachusetts Architectural Access Board.

The recommended width of the TPAR is 60 inches, but if constraints exist a minimum clear width of 48 inches shall be provided along its entirety. If a 60-inch width cannot be accommodated in full, a 60 inch by 60 inch passing space shall be provided every 200 feet or less along the TPAR. Turning areas shall be 60 inches by 60 inches minimum.

Lateral joints between any surfaces shall not exceed 0.5 inches. Lateral edges may be vertical up to 0.25 inches high and shall be beveled at 1V:2H between 0.25 inches and 0.5 inches.

ITEMS 852.11 and 852.12 (Continued)

The TPAR shall be kept clear of debris, snow, and ice and the Temporary Pedestrian Barricades and Temporary Pedestrian Curb Ramps shall not obstruct drainage.

Removal and/or resetting of Temporary Pedestrian Barricades and Temporary Pedestrian Curb Ramps shall be considered incidental.

BASIS OF PAYMENT

Payment for Temporary Pedestrian Barricades will be made at the contract price per linear foot installed in place, including all incidental items. This price shall include the cost of furnishing, installing, resetting, removal, and maintaining in good working condition.

Payment for Temporary Pedestrian Curb Ramps will be made at the contract price per each unit installed in place, including all incidental items. This price shall include the cost of furnishing, installing, resetting, removal, and maintaining in good condition.

ITEM 864.12 SYMBOLS (PF) EACH
ITEM 864.13 ARROWS (PF) EACH

Work under these items consists of furnishing and installing pavement marking arrows, symbols, and legends at the locations shown on the plans or as directed by the Engineer. All work shall conform to Subsection 860 and the following.

MATERIALS

Preformed Markings for Legends, Symbols, and Arrows are composed of preformed thermoplastic with pigments, glass spheres or other reflective materials, and other additives to control color, retroreflectivity, and skid resistance.

All pavement marking colors shall be white and conform to MUTCD standards, including the Daytime Color Specification Limits for Retroreflective Pavement Marking Material found in 23 CFR 655, Subpart F.

The dimensions of all pavement marking legends, symbols, and arrows shall conform to Figures 3B-16, 3B-23, 3B-24, 3C-2, 8B-7, 9C-3, 9C-7, and/or 9C-9 of the MUTCD, unless otherwise shown in the plans, and are generally categorized in the following table.

Item (Type)	Typical Applications
864.22 (Bicycle Symbols)	Bicyclist or Bicycle Outline used in bike lanes; Bicycle Detector symbol;
864.23 (Bicycle Arrows)	Arrow used with bike lane markings; Lane Use arrows at intersections

Post-installation, the surfaces of all preformed markings shall provide a minimum skid resistance value of 35 British Pendulum Number (BPN) when tested in accordance with ASTM E303, with exception to Preformed Markings for Bicycle Facilities, which shall provide a minimum of 55 BPN.

The leading edge(s) of all preformed markings shall be tapered to minimize risk of plow damage. Retroreflective properties shall be verified by an independent laboratory prior to installation. The average initial retroreflectance readings shall exceed the following minimum values:

Test Method	*White Markings
ASTM E1710 (Dry)	300 mcd/lux/m^2

*Observation Angle = 1.05°, Entrance Angle = 88.8°

The Contractor shall provide a Certificate of Compliance verifying the product supplied will meet the color, friction, and retroreflectivity requirements prior to installation.

ITEMS 864.12 and 864.13 (Continued)

CONSTRUCTION METHODS

The Contractor shall supply Shop Drawings to the Engineer for approval a minimum of 30 days in advance of installation. Shop Drawings shall include the product manufacturer's instructions, material safety data sheets (MSDS) for all components including any primers and sealers, and all tools, equipment, and procedures to be used for the installation. No work shall commence until the Shop Drawings have been approved.

It shall be the responsibility of the Contractor to prepare the surface prior to the installation of any Preformed Markings for Legends, Symbols, and Arrows. Any joints or cracks in the pavement shall be pre-treated per the manufacturer's recommendation. At larger cracks or joints the material shall be laid over the gap and off-cut 1 in. on each side of the crack or joint prior to installation.

The surface shall be clean and dry prior to installation of the system. If additional surface preparation is recommended by the manufacturer, such as the installation of a primer or preheating, it shall be completed per the manufacturer's specifications. All surface preparation shall be considered incidental to the cost of the item.

All existing pavement markings that are to remain, castings, curbs, and rumble strips within the vicinity of the Preformed Markings for Legends, Symbols, and Arrows shall be protected by the

Contractor. Existing pavement markings damaged during the installation shall be removed and replaced by the Contractor at no additional cost.

The Contractor shall follow all installation instructions from the manufacturer, including allowable ranges of temperature and humidity for installation, unless otherwise approved by the Engineer.

Upon completion of installation, a sealer shall be applied if recommended by the manufacturer. The sealer shall be installed per the manufacturer's specification. The application of a sealer shall be considered incidental to the cost of the item.

The Contractor shall maintain protection of the Preformed Markings installation from vehicle and foot traffic throughout the minimum cure time recommended by the manufacturer.

METHOD OF MEASUREMENT

Items 864.12 and 864.13 will be measured for payment respectively by the Each preformed pavement marking arrows and symbols, installed,, complete in place.

BASIS OF PAYMENT

Items 864.12 and 864.13 will be paid for at the respective contract unit price per Each, which prices shall include all material, labor, equipment, and incidental costs required to the complete the work.

ITEM 874.2 TRAFFIC SIGN REMOVED AND RESET EACH
ITEM 874.4 TRAFFIC SIGN REMOVED AND STACKED EACH

The work under these items shall conform to the relevant provisions of Subsections 828 and 840 of the Standard Specifications and the following:

The work to under this item consists of the dismantling, removal, transporting, and resetting of existing traffic signs, and their supports as indicated on the Contract Drawings.

The existing foundation shall be removed in its entirety, backfilled with compacted gravel, and the holes restored. The sign panels and supports shall be stacked on boards. The existing signs shall not be removed until the new signs and supports replacing them are ready for traffic or until the Engineer shall permit.

For signs designated to be removed and reset, the Contractor shall carefully remove the sign and post as a single assembly and stockpile at a location approved by the Engineer until the sign and post can be installed in their final location.

The Contractor shall carefully remove, transport and stack signs as directed by the Engineer. Signposts shall be discarded.

METHOD OF MEASUREMENT

Item 874.2 will be measured for payment by the Each traffic sign removed and reset.

Item 874.4 will be measured for payment by the Each traffic sign removed and stacked.

BASIS OF PAYMENT

Item 874.2 will be paid for at the Contract unit price EACH, which price shall include all labor, equipment, and materials including post bases, hardware, dismantling, loading, transporting and resetting of the signs and their supports, the excavation of the existing foundations, new foundations, new supports and hardware, placing of compacted gravel backfill and the restoration or replacement in kind where foundations are removed, and all other incidental costs required to complete the Work.

Items 874.4 will be paid for at the Contract unit price per EACH, which will include all labor and equipment, including the legal disposal of all signposts and all incidental costs required to complete the work.

ITEM 904.3 5000 PSI, ¾ IN, 685 HP CEMENT CONCRETE CUBIC YARD

The work under this item shall conform to the relavant provisions of Subsection 901 of the Standard Specifications as modified by the following:

5000 PSI, 3/4 IN. 685 HP CEMENT CONCRETE shall be used for the construction of the moment slabs and safety curbs off of the bridge. Beginning and end stations for the pay limits are as shown on the plans. This Item does not include the 5000 PSI ¾ IN, 685 HP CEMENT CONCRETE that is part of Bridge N-03-012 (included in Item 995.01).

SUBMITTALS

Submittals shall be as required in Section 901 of the Standard Specifications.

METHOD OF MEASURMENT AND BASIS OF PAYMENT

Item 904.3 will be measured and paid for per Subsections 901.80 and 901.81 respectively, which price shall include all labor, materials, equipment, formwork and all incidental costs required to complete the work.

ITEM 910.1 STEEL REINFORCEMENT FOR STRUCTURES – EPOXY COATED POUND

The work under this item shall conform to the relevant provisions of Subsection 901 of the Standard Specifications as modified by the following:

STEEL REINFORCEMENT FOR STRUCTURES – EPOXY COATED shall be used for the construction of the moment slabs and safety curbs off of the bridge. Beginning and end stations for the pay limits are as shown on the plans. This Item does not include the STEEL REINFORCEMENT FOR STRUCTURES – EPOXY COATED that is included as part of Bridge N-03-012 (included in Item 995.01).

SUBMITTALS

Submittals shall be as required in Subsection 901 of the Standard Specifications.

METHOD OF MEASURMENT AND BASIS OF PAYMENT

Item 910.1 will be measured and paid for per Subsections 901.80 and 901.81 respectively.

ITEM 945.011 30 INCH UTILITY POLE CAISSON EACH

The Work under this item shall conform to the relevant provisions of Subsections 940 and 150 of the Standard Specifications and the following:

The caisson design is to be based on loads provided by National Grid, based on soil type at the locations indicated on the drawings. Contractor is responsible for soil type determination. The design shall be performed by a Professional Engineer licensed in the Commonwealth of Massachusetts.

Utility pole caissons will be protected until the utility poles are installed. Contractor shall carefully place mod rock around the caisson.

SUBMITTAL

Forty-five (45) days prior to installing the caissons the Contractor shall submit for review and approval by the Engineer the shop drawings and installation plan which shall include but not be limited to the following:

1. A description of the equipment to be used including pile-driving equipment and cranes, as required.
2. A description of the overall pile installation operation and sequence.
3. Details of concrete formwork attachment to piles.
4. Splice details and approved welding procedure as required.

The contractor shall not begin pile-driving operations until written approval of the above submittals has been received from the Engineer, including a schedule of their proposed methods and equipment for all related installation procedures.

METHOD OF MEASUREMENT

Item 945.011 will be measured for payment by each 30 inch utility pole caisson, complete in place.

BASIS OF PAYMENT

Item 945.011 will be paid for the Contract unit price per EACH, which price shall include all labor, materials, equipment and all incidental costs required to complete the work. No separate payment shall be made for pre-drilling for caisson, drill through and/or remove obstruction(s), provide specified clearance necessary for driving the caisson within the specified tolerance and without damage, test borings, submission, shop drawings, contrate to secure pole in place, but all costs in connection therewith shall be included in the Contract unit price bid.

ITEM 950.2 TEMPORARY EXCAVATON SUPPORT LUMP SUM

The work under this item shall conform to the relevant provisions of Subsections 140, 940, 950, 955 and the following:

Under this item, the Contractor shall design, furnish and install, maintain and remove temporary excavation support systems for retaining the embankments adjacent to excavations required for the construction of the replacement bridge. The minimum limits of the excavation support systems are shown on the plans: the design of the system(s) shall be submitted for review and acceptance by the Engineer. All portions of the temporary excavation support systems shall be designed to be removed in their entirety, except as noted herein.

The Contractor shall make every effort to protect existing trees adjacent to the excavation and notify the Engineer if roots are found to be within the limits of the excavation support system.

The temporary excavation support systems for the proposed bridge structures are anticipated to consist of soldier pile and lagging or cantilevered steel sheet piling, but alternate forms of temporary shoring may be submitted for acceptance by the Engineer. Any necessary tieback anchors, deadman anchors, soil nails and/or temporary bracing are considered incidental to this item. Any part of a support of excavation system that is in the zone of influence of the bridge foundations or is in the soil below the bridge structure, shall be left in place. The excavation support systems provided shall be independent and not cause damage to the permanent structures following their removal. This assumes that the excavation support wall is offset at least 8 feet laterally from the centerline of the closest track.

The temporary excavation support system shall be designed and detailed by the Contractor to avoid impacting the existing buried utilities, including communication, water lines in the vicinity of the railroad tracks and the existing MWRA sewer. Any modifications to the support of excavation system to accommodate the existing utilities shall be incidental to this item.

The excavation support system shall extend such that the maximum slope of the excavated surface does not exceed 1 (vertical) to 2 (horizontal) unless the contractor's engineer provides calculations demonstrating that a steeper slope is stable. In no case shall the slope exceed 1 (vertical) to 1-1/2 (horizontal). The Contractor is responsible for protecting the slope's surface from erosion.

All support members shall be designed to be installed outside of the zone of influence of the railroad and new or existing structures and utilities such as the existing sewer and water line, with the exception of steel soldier piles installed in predrilled holes, encased in concrete. All support members shall be installed within the construction easement limits shown on the plans.

Should a variance from railroad specifications be granted and portions of excavation support elements be installed within the railroad's zone of influence, do not remove portions of excavation support members installed within the zone of influence of the tracks or utilities. The zone of influence is defined per Drawing 2.3.2 in Part II of the MassDOT LRFD Bridge Manual.

ITEM 950.2 (Continued)

The Contractor is responsible for control of groundwater and surface runoff drainage to allow excavation work to be performed in the dry. This may involve temporary sump pumps and temporary cofferdams (such as a temporary portable dams to mitigate water from entering the excavation). All work required to maintain a dry excavation is incidental to this item and will not be considered for additional compensation.

The Contractor shall be responsible for the preconstruction and post-construction surveys of existing buildings and structures adjacent to the construction site.

The Contractor is responsible for installation of surveyed deformation monitoring points (DMPs) to monitor movements that may be detrimental to performance of roadway and/or structures. This work shall be performed by a Registered Land Surveyor and a Geotechnical Monitoring Consultant engaged by the Contractor and shall be considered incidental to this item and will not be considered for additional compensation.

Where temporary excavation support or temporary support of excavation is called for on the Drawings, Item 950.2 shall be used.

GEOTECHNICAL INSTRUMENTATION AND MONITORING

Geotechnical instrumentation and monitoring are required at Bridge No. N-03-012 and the railroad tracks as described herein. The monitoring and instrumentation for the MWRA pipes is separate and is covered in Item 997.

Qualifications of Contractor's Instrumentation Personnel

A. The Contractor's instrumentation personnel shall include a qualified Geotechnical Monitoring Consultant who is a registered Professional Engineer in the Commonwealth of Massachusetts, who has a minimum of a Bachelor of Science degree in civil engineering, and who has at least 2 years of experience in installation and monitoring of the types of instruments specified herein and in interpreting instrumentation data and performing pre-construction surveys of existing structures. A suitably qualified engineering geologist with equivalent or better experience is also acceptable as the Geotechnical Monitoring Consultant. The Geotechnical Monitoring Consultant shall:

1. Prepare detailed step-by-step installation procedures for all instruments specified herein.
2 Be on site and supervise at least the first two installations of each type of instrument.
3. Conduct the pre-installation acceptance tests for at least the first two of each type of instrument specified herein.
4. Be on site until the completion and acceptance by the Engineer of the tasks identified herein, and subsequently be available for consultation at all times for the duration of the Contract.
5. Supervise interpretations of geotechnical instrumentation data.

ITEM 950.2 (Continued)

B. For the collection of instrumentation data, the Contractor's personnel shall be as follows:

1. The person in responsible charge of the surveyors shall be a Registered Land Surveyor in the Commonwealth of Massachusetts with a minimum of 3 years of experience in deformation measurements of the types and accuracies specified herein. The field survey party chief shall have a minimum of one year of experience in deformation survey measurements of the types and accuracies specified herein.
2. Interpretations of data shall be made by the Contractor's Geotechnical Monitoring Consultant.

Deformation Monitoring

The Contractor shall furnish, install, protect, replace, monitor and report on survey deformation monitoring points (DMPs) at the following locations as a minimum:

1. All excavation support systems shall be monitored using DMPs spaced a minimum of one every 25 linear feet along the top of the excavation support wall, to measure horizontal displacements during the Work.
2. The rails shall be monitored using DMPs spaced a minimum of one every 25 linear feet along each rail, to measure horizontal displacements 100 feet from the bridge

The Contractor's registered Surveyor and Geotechnical Monitoring Consultant shall monitor and maintain the instrumentation. The Contractor shall perform a baseline survey of each DMP consisting of two sets of independent readings prior to the beginning of excavation and demolition. During excavation, DMPs shall be monitored at least one time daily until excavation is complete. The Contractor shall provide survey data to the Engineer for review within 24 hours of collection of data. The number of points to be monitored on a daily basis and the frequency of monitoring may be increased or decreased in agreement with the Engineer based on the results of the monitoring. Survey data shall be reported to an accuracy of 0.01 feet.

The following Threshold and Limiting Values for monitoring points shall be used:

Monitoring Target		Threshold Value	Limiting Value
Track DMP (hor. and vert.)		0.25 inch	0.5 inch
Excavation Support DMP			
	horizontal	1.0 inch	2.0 inch
	vertical	0.5 inch	1.0 inch

If a Threshold Value is reached the Contractor shall increase the instrument monitoring frequency as directed by the Owner, install and monitor additional instruments as accepted by the Engineer and implement remedial measures so the Limiting Value is not reached.

ITEM 950.2 (Continued)

Stop work, immediately notify the Engineer, and take immediate remedial action if horizontal movement of the existing structure or excavation support system exceeds a Limiting Value during progress of this work. These movement criteria are intended only to establish a guideline, and in no way relieve the Contractor of its responsibility for preventing detrimental movements or damage causing structural distress in the various structures, roadways, or embankment. The Contractor shall provide all measures necessary to control movements to within the established performance criteria, or to lesser amounts as required to prevent damage. The Engineer may require the Contractor to take steps to control movements to levels which are lower, at no additional cost to the Owner, if in the Engineer's opinion the measured or observed movements are detrimental or damaging.

The work shall be executed in such a manner as to prevent damage to existing structures and other public and private property and existing improvements. The Contractor shall protect existing improvements from damage caused by settlement, lateral movement, loss of ground, undermining, washout, and other potential hazards which may be initiated by the Contractor's operations. Damage to existing facilities shall be repaired by the Contractor at its own expense.

Vibration Monitoring

Where vibratory construction methods (e.g. demolition or installation of excavation support members) are used within a distance of 100 feet of existing structures or within 200 feet of sensitive abutters, such as homeowners, the Contractor shall provide all labor and equipment to monitor and report vibrations during the Work, including rights of entry to monitor private property.

Contractor shall conduct vibration monitoring using a portable seismograph to measure vibration levels resulting from construction activities. Provide at least two seismographs which have been calibrated within the previous six months to a standard that is traceable to the National Bureau of Standards. Seismograph monitoring locations shall be mutually agreed upon by the Engineer and Contractor. Vibrations shall be monitored on a continuous basis during excavation or pile installation that use vibration or impact methods.

If vibration levels are found to exceed the maximum limits shown below, Contractor shall revise its construction operations as necessary to reduce vibration levels, at no additional cost to the Owner. The Engineer may require the Contractor to perform additional vibration monitoring if, in the opinion of the Engineer, conditions warrant such action.

Vibration monitoring shall be conducted by persons trained in the use of a seismograph and records shall be analyzed and results reported by persons familiar with analyzing and reporting the frequency content of a seismograph record. Limit construction vibrations to prevent damage to any adjacent building, structure, utilities, pipes or other features near the site. The Contractor is solely responsible to determine the maximum vibration tolerable at each location. However, in no case shall the following peak particle velocity criteria be exceeded.

ITEM 950.2 (Continued)

Frequency (Hz)	Maximum Peak Particle Velocity (in. per. sec.)
Over 40	1.0
30 to 40	0.75
20 to 30	0.75
Less than 20	0.5

Contractor shall provide written reports of monitoring results to the Engineer within 24 hours of each day's monitoring.

TEMPORARY EARTH AND/OR EXCAVATION SUPPORT SYSTEM REQUIREMENTS

The Contractor shall submit to the Engineer for approval an excavation support system design that is designed to carry all of the applicable AASHTO and American Railway Engineering and Maintenance-of-Way (AREMA) loads and meet the deflection and vibration criteria specified herein and on the drawings. Plans, shop drawings, and calculations of the earth and/or excavation support systems shall be prepared and submitted to the Engineer for review and acceptance prior to excavation. The Contractor designed excavation support systems shall meet the minimum following requirements:

1. The Contractor is responsible for selecting, designing, furnishing, installing, maintaining, monitoring, and removing the excavation support systems.

2. The Contractor shall submit plans and calculations of the proposed systems. All plans and calculations submitted shall be prepared and stamped by a Professional Engineer registered in Massachusetts.

3. The earth and/or excavation support systems shall be designed to safely resist all anticipated loads they may be subjected to while in place, including live load surcharge and any expected surcharge from construction vehicles (e.g. cranes, concrete trucks, and compaction equipment). The design shall be in accordance with the AASHTO LRFD Bridge Construction Specifications, Section 3 – Temporary Works and AREMA.

The Contractor shall submit shop drawings indicating the instrumentation and monitoring point locations, sizes, material types, and installation procedures. Contractor submittals shall be acceptable to the Engineer prior to undertaking the work.

ITEM 950.2 (Continued)

Soldier piles, if utilized, shall be pre-augered through the soil and/or bedrock stratum to the required depth and/or socketed into rock as necessary. Soldier piles shall be placed in pre-drilled holes or drilled shafts and backfilled with concrete below proposed bottom of excavation elevation and within rock sockets and with sand, crushed stone or other excavatable material above proposed bottom of footing elevation. The drilling equipment and methods used for pre-augering/drilled shaft installation at the soldier pile locations shall be suitable for drilling through the conditions to be encountered, without causing damage to overlying or adjacent structures, buried structures, utilities, or services. The drill hole must be open along its full length to at least the design minimum drill hole diameter prior to installing soldier piles and backfilling the pre-augered hole/drilled shaft after pile installation. The diameter and depth of the pre-auger shall be specified on the Contractors' shop drawings. All soldier piles and sheeting within the temporary construction easement shall be cut off to 4 feet below final grade and left in place by the Contractor, unless otherwise noted on the plans, unless within the zone of influence of the railroad. Excavation support within 12 feet of the track centerline shall be cut off 2 feet below the bottom of the tie, or 2 feet below finished grade, whichever is greater. In no case shall the cut-off point be below the top of footing.

Temporary casing or other approved method of drill hole support will be required in caving or unstable ground to permit the shaft to be formed to the minimum design drill hole diameter. The casing shall be steel, clean, watertight, and of ample strength to withstand handling and installation induced stresses and the pressure from both fluids and surrounding earth materials without distortion.

The Contractor's proposed method(s) to provide drill hole support and to prevent detrimental ground movements shall be reviewed by the Engineer. Detrimental ground movement is defined as movement which requires remedial repair measures, in order to maintain site conditions and stability of adjacent structures and utilities as determined by the Engineer.

Methods of installation of vertical temporary excavation support members which cause vibrations in excess of the maximum values specified herein will not be permitted. The Contractor shall be advised that obstructions such as existing foundations, weathered bedrock, cobbles and boulders are likely to be encountered during pre- augering/ drilled shaft installation of the soldier piles.

All materials used for the support system, whether new or used, shall be sound and free from strength-impairing defects. New steel piles shall conform to the applicable provisions of Subsection 940. Submit laboratory coupon strength testing certificates for any used steel elements, demonstrating the required minimum yield strength. Treated timber if used shall conform to the applicable provisions of Subsection 955.

ITEM 950.2 (Continued)

The Contractor shall submit to the Engineer for review a temporary excavation support system design that is designed to carry all of the applicable AASHTO and AREMA loads, including, but not limited to: earth pressure and all temporary and permanent surcharges. It shall be designed in accordance with the AASHTO Guide Design Specifications for Bridge Temporary Works, 2017, and all later interim/versions published as of the bid opening date. The temporary excavation support system must be designed and stamped by a qualified Professional Engineer registered in the Commonwealth of Massachusetts experienced in the type and complexity of excavation support required for this project. Complete detailed drawings and calculations shall be submitted to the Engineer for review and acceptance. Qualifications of the Contractor's Engineer shall be submitted with the shop drawings and design calculations.

The Contractor shall make its own evaluation of existing conditions and facilities, and of the effects of the proposed temporary excavation support system and construction methods, and shall provide in its design for all loads and methods necessary to permit construction of the specified stages of the work while maintaining public safety and protecting completed work (and all third party property) from damage caused by its operations.

Contractor shall produce drawings and design calculations prepared and stamped by a professional engineer licensed in the state of Massachusetts and submitted to the Engineer for review and acceptance. Drawings shall show all materials, member sizes, connections, methods and sequence of installation, location, and depths of system components; and the complete description of equipment and instrumentation to be used with installation, operation, and maintenance procedures. Acceptance of the working drawing does not relieve the Contractor of the sole responsibility of providing for the safety of the public, personnel, equipment, and structures, as well as successful project completion and the successful completion of the work.

The Contractor shall take into account subsurface conditions such as soil types, bedrock elevations, water surface elevations, existing foundations to be demolished and proposed new foundations. The Contractor shall accurately locate all utility lines and structures to ensure that the proposed temporary excavation support system will not interfere with any existing or proposed utilities and structures.

The plan submitted shall be sufficiently detailed so that the Contractor's method of dealing with operations shall be clearly stated. Prior to any excavation, the Engineer must review and accept complete detailed drawings and complete calculations for the temporary excavation support system in writing.

During the prosecution of this work, the Engineer may reject use of any method or equipment which causes vibrations that exceed threshold or limiting values or levels which may cause damage to portions of the adjacent structures. Any damage done to portions of the adjacent structures and/or utilities identified on the Plans to remain shall be replaced or repaired by the Contractor at its expense to the satisfaction of the Engineer. The provisions and requirements for vibration monitoring shall be followed during the temporary support of excavation work.

ITEM 950.2 (Continued)

Excavation and/or earth support systems are required where shown on the plans and as generally described below:

Bridge No. N-03-012

The temporary excavation support systems as required to allow construction of the new bridge shall, at a minimum, be installed as shown schematically on the plans. The Contractor may, at no additional cost to the Owner, install additional excavation support systems to facilitate construction. The temporary excavation support system(s) is(are) required to support the embankments during excavation and removal of the existing bridge, and during construction of the replacement bridge.

Railroad Tracks

The excavation support systems along Railroad tracks shall be installed as shown schematically on the plans. Staged construction will need to consider overhead clearances required for installation of the temporary excavation support system. The system is required to support the railroad tracks during excavation for the abutment foundation.

In addition, support of excavation shall be provided whenever the 2:1 slope line from top of rail tie, as illustrated per Drawing 2.3.2 in Part II of the MassDOT LRFD Bridge Manual, would be disturbed by an excavation or in the placement of an adjacent structure. It is the responsibility of the Contractor to determine the appropriate means and methods of shoring.

Excavation support systems adjacent to the railroad tracks shall be designed for a lateral earth pressure from Cooper E-80 vertical train loading surcharge plus 50% impact in addition to unbalanced earth pressure, groundwater pressure, and construction surcharge loads. Horizontal pressure on the excavation support wall due to the E-80 surcharge shall be determined using the strip load formula shown in the AREMA specifications, assuming uniform distribution over the tie length and axle spacing. Allowable stresses for materials shall be in accordance with AREMA.

ITEM 950.2 (Continued)

BASIS OF PAYMENT

ITEM 950.2 will be paid for at the Contract lump sum price, which price shall include all labor, tools, equipment, materials and all associated work necessary to design, provide and revise submittals, preconstruction and post construction surveys install, monitor, maintain and remove the excavation support system(s).

Excavation for construction of proposed substructure elements and demolition of existing substructure units will be paid for under Item 127.2 and Item 140, as applicable. Obstruction removal shall be considered incidental to complete the work.

No separate payment for dewatering shall be made.

No separate payment for temporarily supporting or adjusting existing utilities for the installation, removal or maintenance of the excavation support system shall be made.

ITEM 975.1 METAL BRIDGE RAILING (3 RAIL), STEEL (TYPE S3-TL4) FOOT

The work under this item shall conform to the relevant provisions of Subsection 975 of the Standard Specifications and the following:

The contractor is to be made aware that the correct designation of this Item is S3-MTL4 however because the nomenclature was never changed, the standard specifications refer to the S3-MTL4 as S3-TL4.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 975.1 will be measured and paid per Subsections 975.80 and 975.81 respectively.

ITEM 975.12 METAL PEDESTRIAN RAILING (2 RAIL) ALUMINUM FOOT

The work under this item shall conform to the relevant provisions of Subsection 975 of the Standard Specifications and the following:

The contractor shall submit shop drawings for approval showing all elements of the proposed system. The contractor shall furnish and comply with all manufacturers' data. This item only includes the Metal Pedestrian Railing (2 Rail) Aluminum off of Bridge N-03-012 (the rail on the bridge is included within Item 995.01).

METHOD OF MEASUREMENT

Item 975.12 will be measured for payment by FOOT of Metal Pedestrian Railing (2 Rail) Aluminum installed, complete in place.

BASIS OF PAYMENT

Item 975.12 will be paid at the Contract unit price per FOOT. which price shall include full compensation for all labor, tools, equipment, and incidental costs required to complete the work. This Item does not include the Metal Pedestrian Railing (2 Rail) Aluminum on Bridge N-03-012 (included in Item 995.01). Beginning and end stations for the pay limits are as shown on the plans.

ITEM 975.3 PROTECTIVE SCRREEN TYPE I FOOT

The work under this item shall conform to the relevant provisions of Subsection 975 of the Standard Specifications and the following:

The contractor shall submit shop drawings for approval showing all elements of the proposed system. The contractor shall furnish and comply with all manufacturers' data. This item only includes the Protective Screen Type I off of Bridge N-03-012 (the protective screen on the bridge is included within Item 995.01).

METHOD OF MEASUREMENT

Item 975.3 will be measured for payment by the FOOT of Protective Screen Type I installed, complete in place.

BASIS OF PAYMENT

Item 975.3 will be paid at the Contract unit price per FOOT, which price shall include full compensation for all labor, tools, equipment, and incidental costs required to complete the work. This Item does not include the Protective Screen on Bridge N-03-012 (included in Item 995.01). Beginning and end stations for the pay limits are as shown on the plans.

ITEM 991.1 CONTROL OF WATER - STRUCTURE NO. N-03-012 LUMP SUM

Item 991.1 specifies the removal and control of surface water and groundwater in the work area and treatment of the resulting discharge and sediment in order to permit all excavation, construction, and installations to be performed in the dry to the extent possible. The work under this section includes the furnishing of all labor, equipment, supplies, materials and utilities required for the installation, operation, maintenance, repair, and supervision of the dewatering system and control of surface water and treatment of resulting discharge and sediment such that the work of this Contract can proceed unhindered by water and flow into or through the work area.

All work shall be performed in accordance with the plans and specifications and to the satisfaction of MassDOT and the Engineer.

At minimum, dewatering and water control shall be required for the excavation and installation of the proposed abutments. Construction and installation of other elements may also require dewatering.

The Contractor shall follow standard Best Management Practices for the prevention of Storm Water Pollution for the Project Site. The water from the work areas shall be pumped to a dewatering detention area or other approved filtration system.

Dewatering must be to the upland and properly filtered prior to runback to receiving waters. Any runback shall be controlled to avoid sedimentation, erosion, and scour impacts to aquatic resources.

All temporary erosion and sedimentation control measures must be installed and maintained in satisfactory condition and made acceptable upon direction of the Engineer, or MassDOT.

All temporary water control devices and accessories, including but not limited to pumps, hoses, sumps, sump pits, dewatering pits, and filter tubes surrounding the pits, shall remain within the project's temporary easements.

The Contractor shall be responsible for obtaining all other necessary permits required for the work of this project, including local permits relating to temporary dewatering and water control. This includes any required water quality monitoring and the maintenance of a Discharge Monitoring Report (DMR) on site.

Dewatering and water control is critical for the Work. Some of the work of the Contract will take place in areas which could be subject to possible groundwater breakout and/or in the vicinity of wetlands, and high-water table elevations. Dewatering and surface water control is therefore critical to constructing and maintaining the Work of the Contract in the dry.

ITEM 991.1 (Continued)

The general scope of all dewatering and water control measures shall be to execute all work necessary to conduct all the Work of the Contract "in the dry" to the extent possible such that water does not interfere with the Work. The Contractor shall implement all dewatering and water control measures shown on the Contract Plans and described herein, shall install additional measures as deemed necessary, and shall conduct all operations in accordance with standard Best Management Practices (BMPs). Sediment and erosion control shall be included to control the impacts from flow created by water control and dewatering activities undertaken by the Contractor.

The Contractor shall implement dewatering and water control measures as necessary to maintain the water level such that all work, including excavations, proceeds in the dry.

The Contractor shall take all reasonable and prudent precautions during construction to provide and maintain proper equipment and facilities to remove promptly and dispose of properly, all water entering work areas and keep such areas dry so as to obtain a satisfactory undisturbed sub grade condition.

Dewatering measures shall be in operation until all work potentially affected by the dewatering measures is complete and accepted by the Engineer.

Shallow sumps may be required to maintain the lowered water level until work has been completed. Sumps shall be surrounded by suitable filter material. Pumping shall be continuous to maintain the work in the dry to the extent possible.

The Contractor shall remove all pumped water away from the work area, and provide sedimentation control and discharge in accordance with all applicable local codes and laws. All water which is discharged by dewatering or water control measures shall be passed through appropriate and adequate sediment and/or filtration measures.

The Contractor is responsible for the design of all water control procedures. Design shall include but not be limited to means, methods, and scheduling of procedures.

SUBMITTALS

At least twenty-one (21) days prior to the scheduled start of work, the Contractor shall submit his proposed method of dewatering and maintaining dry conditions, to the Engineer for review and approval. The plan shall be signed and sealed by a Professional Engineer licensed in the Commonwealth of Massachusetts.

ITEM 991.1 (Continued)

The submittal shall include as a minimum the following items:

- The Contractor's proposed design, sequence of operation, maintenance and supervision of the water control system. Locations of all water intake, sedimentation basins, and discharge points shall be clearly indicated;
- The Contractor's proposed design, sequence of operation, maintenance and supervision of the dewatering systems for the maintenance of water levels and dry excavation conditions, as specified herein;
- The Contractor's proposed contingency plan for additional surface water and groundwater control measures for all systems;
- Scheduling requirements with regard to Sedimentation Control.

WATER CONTROL RESTRICTIONS

The Contractor shall abide by the conditions of all relevant permits, if any, issued to MassDOT for the Project, which pertain to Dewatering and Water Control. The Contractor alone shall be responsible for meeting the construction and performance related conditions of the permits, performing construction dewatering monitoring as required by the permits, and shall be held accountable for penalties as a result of violations of permit conditions.

The Contractor at no time shall adversely impact any wetland areas with discharged water.

DISCHARGE OF WATER

The general performance standard for the discharge of effluent into state waters states that the discharge water shall not have a significant impact on the receiving waters. The discharged water shall therefore meet the following standards:

Solids - Discharge waters shall be free from floating, suspended and settleable solids (in concentrations or combinations greater than that of the receiving waters.

Color and Turbidity - These waters shall be free from color and turbidity in concentrations or combinations that are significantly different from the receiving waters.

The Contractor is reminded to adhere to all provisions and conditions regarding the discharge of water and general water control contained in all permits and licenses. In particular, specific guidelines (if any) regarding Total Suspended Solids (TSS), Oil and Grease, and pH in discharge water should be adhered to.

ITEM 991.1 (Continued)

MATERIALS

Pumps, Hoses, Siphons

Pumps, hoses, and siphons, if any, used by the Contractor shall be sized appropriately and also maintained in good working order by the Contractor.

All generators used to power equipment shall be equipped with quiet packs or noise diffusers to reduce off-site noise levels at the adjacent residents.

CONSTRUCTION METHODS

The Contractor shall provide all necessary electrical power for running the dewatering and water control systems. The Contractor shall provide a back-up electrical generator, pumps and related equipment and supplies on-site with output capacity sufficient to maintain continuous operation of the dewatering systems in the event the original dewatering equipment or power source(s) which is in use becomes inoperable. The back-up generator, pumps and necessary equipment and supplies shall be connected to the operating system to the greatest degree possible prior to the start of all dewatering operations in such a manner to allow immediate replacement of the inoperable equipment.

The Contractor shall take all reasonable and prudent precautions during construction to provide and maintain proper equipment and facilities to control and divert both groundwater and surface water.

Water control systems shall be operated continuously during all construction specified herein, if necessary. The operation time is to include breaks, nights, weekends, holidays and other times when work is not otherwise being performed on the site.

Where the Contractor proposes to remove water from the bottom of an excavation or ponding area by sumping as approved by the Owner and Engineer, the sump shall be surrounded by a suitable filter to prevent removal of soil fines. Pumping from sumps which remove fines from the soil shall be immediately terminated and the dewatering method revised accordingly.

The Engineer shall order to the Contractor to stop all excavation operations when in his judgement the Contractor’s water control operations are failing to produce adequate results or are posing a threat to the environment.

ITEM 991.1 (Continued)

BASIS OF PAYMENT

Item 991.1 will be paid at the Contract unit price LUMP SUM price.

The payment method for this item is a partial progressive payment. The first payment of the Lump Sum will be made upon the installation of the water control system to the satisfaction of the Engineer. The second payment of the Lump Sum bid price shall be made upon the removal and satisfactory disposal of the water control system from the project site at the completion of the work.

The Contract price shall include all tools, equipment, materials, labor , and all incidental costs required to complete the work.

Also included in this item is the removal and resetting of water control devices and appurtenances as many times as needed to advance the project. Final removal of water control devices and appurtenances is also incidental to this Item.

Also incidental to this Item are the maintenance and replacement of any component which is not in good working condition. Under-sized components will be considered as defective and will be replaced with components with sufficient capacity for no extra compensation.. The Contractor will not be compensated for the replacement of failed components.

Sediment and materials which have been filtered out of the discharge shall become the property of the Contractor and shall be disposed of properly for no additional compensation.

ITEM 994.01 TEMPORARY PROTECTIVE SHIELDING LUMP SUM
BRIDGE NO. N-03-012

The work done under this Item includes the design, furnishing, installation, maintenance, as needed, and removal and disposal of a protective shielding system under the bridge and adjacent to existing/proposed abutments. The shielding shall protect the MBTA and CSX railroad underneath from debris and dust during the following activities: 1) removal of the existing pedestrian bridge; 2) demolition of the substructure; 3) construction of a new substructure.

SUBMITTALS

The Contractor shall submit calculations and detailed drawings of the proposed shielding system to the Engineer for approval. These calculations and drawings shall be stamped by a Professional Engineer registered in Massachusetts.

The Design shall include a description of the equipment and construction methods proposed. Include means and methods for deck removal and the maximum size of deck area being removed each time by such methods.

The Design shall include a description of sequencing for the erection, removal and resetting, and final removal of the temporary protective shielding during the activities aforementioned.

CONSTRUCTION METHODS

The shielding shall conform to the following:

- Conform to all applicable local, state, and federal regulation, including Orders of Conditions, if any.
- Shielding shall be designed to safely withstand all loads that it will be subjected to. The allowable design stresses shall be in accordance with AASHTO Standard Specifications for Highway Bridges and MBTA requirements. Shielding shall also be designed to

- withstand the impact imparted by the maximum sized piece of the bridge superstructure or the maximum sized piece of the fieldstone abutments should they fall during excavation or removal.
- Shielding shall be installed or removed only upon inspection field approval of the Engineer.
- Shielding shall not lessen the existing vertical clearance under the bridge.
- Shielding suspended beneath the existing pedestrian bridge shall have all spaces along the perimeter and at the seams sealed to prevent dust and debris from escaping and falling onto the railroad below.
- Substructure shielding shall extend as far as practicable beyond the existing substructure to protect the railroad while maintaining the required clearances as determined by the MBTA. Substructure shielding will be required when demolishing the existing abutments and when constructing the new abutments.
- Superstructure shielding will be required after beam erection during the deck pour and safety curb pours and during bridge railing installation.

All materials used in the shielding system shall become the property of the Contractor and shall be removed from the site at the completion of the project.

ITEM 994.01 (Continued)

BASIS OF PAYMENT

Item 994.01 will be paid for at the contract lump sum price, which price shall include all materials, equipment, tools and labor, engineering services, submittals incidental to the design, construction, inspection, maintenance and removal of the temporary protective shielding in conformance with the approved plans, these specifications, and to the satisfaction of the Engineer.

Item 994.01 Temporary Protective Shielding will be paid in partial payments per the following schedule. The total of all partial payments to the Contractor shall equal the Lump Sum contract price regardless of the quantities of the individual components. The cost of equipment, tools, labor, and materials for any item not listed but required to complete the work shall be considered incidental to the Item and no further compensation will be allowed. The payment schedule for Item 994.01 shall be made in four (4) equal partial payments upon successful completion of the following milestones:

1. Upon the Engineer-approved installation of superstructure shielding prior to the demolition of the existing superstructure;

2. Upon the Engineer-approved removal of the substructure shielding system upon completion of the abutment removal and construction for one abutment;

3. Upon the Engineer-approved removal of the substructure shielding system upon completion of the abutment removal and construction for the other abutment;

4. Upon Engineer-approved final removal from under the new superstructure and satisfactory disposal of all temporary shielding materials from the project.

ITEM 995.01 BRIDGE STRUCTURE, BRIDGE NO. N-03-012 (CN4) LUMP SUM

The work under this Item shall conform to the relevant provisions of Section 995 of the Standard Specifications and the specific requirements stipulated below for the component parts of this Item.

For those component parts where no specific requirement is stipulated, the Standard Specifications shall apply except for payment. Galvanized steel shall meet the requirements of the Standard Specifications, Section 960.

The work under this Item shall include all materials, equipment, and labor needed to construct the following: Reinforced cement concrete approach slabs with uncoated steel reinforcement, sawing and sealing joints in asphalt pavement at bridges, precast highway guardrail transitions, Metal bridge railing (3 rail) steel (type S3-MTL4); pedestrian railing; protective screen Type I; cast-in-place reinforced cement concrete safety curbs; cast-in-place reinforced cement concrete bridge deck; cast-in-place reinforced cement concrete sidewalk; prestressed concrete box beams (B36-27 (12 beams)); spray-applied membrane waterproofing; elastomeric bridge bearing pads; reinforced concrete work with coated steel reinforcement for the construction of new abutments (including curtain walls, keeper blocks, backwalls, bridge seats), approach slabs, footings and wingwalls (including damp-proofing), and galvanized steel utility supports. A steel sleeve and casing end seals shall be used at the abutments for the proposed gas line. Contractor shall coordinate with Eversource Gas.

The work does not include any items listed separately in the proposal. Payment for materials shown on the Plans as being part of this bridge structure or which may be incidental to its construction and are not specifically included for payment under another Item shall be considered incidental to the work performed under this Item and shall be included in the unit price of the component of which they are a part.

WORK AT MBTA PLATFORMS AND TRACKS

Upon completion of construction of the bridges and MBTA infrastructure, the Contractor shall be required to reconstruct/restore the areas disturbed by construction of this project to pre construction condition as directed by the Engineer. The Contractor shall be responsible for preconstruction survey and documentation of existing conditions and coordination with the MBTA to ensure that the platforms have been properly restored to existing condition. Payment for this work will be considered incidental to Item 995.01.

SAWING & SEALING JOINTS IN ASPHALT PAVEMENT AT BRIDGES

The work under this heading consists of making a sealed kerf across the full width of the finished asphalt pavement at bridge abutments where called for on the Plans. The shape, width, and depth of the kerf shall be as shown on the Plans.

Prior to the start of the asphalt pavement operation, the Contractor shall place a mark on each curb or barrier on either side of the paved roadway. These marks shall be aligned with the actual end of the bridge deck and shall be placed so that they will not be covered or otherwise obscured by the asphalt pavement.

ITEM 995.01 (Continued)

After the completion of the paving operation, the Contractor shall snap a straight chalk line on the pavement between these two marks. The Contractor shall then saw cut the pavement along this line to the depth, width and shape as shown on the Plans. The equipment shall be approved by the Engineer prior to commencing work.

After completing the saw cutting, the Contractor shall clean the saw groove of any dust and debris with an oil free air blast. If the groove was wet sawn, the groove shall be cleaned with a water blast to remove any remaining slurry and debris, vacuumed with a Wet-or-Dry vacuum to remove

any standing water, and then dried with an air blast from a Hot-Air-Lance.

Once the groove is clean and dry, the Contractor shall fill it completely with a hot-applied bituminous crack sealer meeting the requirements of M3.05.4 in accordance with the manufacturer's application instructions and restrictions regarding ambient and material temperatures. The crack sealer shall be thoroughly cured prior to opening the road to traffic. To reduce tackiness, only boiler slag aggregate (black beauty) shall be scattered over the sealer when required by the Engineer. Conventional sand shall not be used for this purpose.

5000 PSI, 3/4 IN. 685 HP CEMENT CONCRETE

Work under this Heading shall conform to the applicable provisions of Section 901 of the Standard Specifications as modified by the following:

5000 PSI, 3/4 IN. 685 HP CEMENT CONCRETE shall be used for the construction of deck slab, sidewalk, abutments, approach slabs, wingwalls, backwalls, curtain walls, safety curbs, safety curb for the S3-MTL4, and all guardrail transitions. Concrete for the moment slab and safety curb off of the bridge shall be paid for under Item 904.3.

STRUCTURAL STEEL – GALVANIZED

The work done under this Heading includes the furnishing, fabrication, erection, and installation (including mobilization and demobilization) of permanent utility supports including steel plates, steel angles, brackets, bolts, studs and timber shims as shown on the plans. Work shall conform to the relevant provisions of Section 960 of the Standard Specifications for Highways and Bridges and the following:

Submittals – The Contractor shall submit detailed drawings to the Engineer for review and approval for both utility support systems.

PRECAST CONCRETE HIGHWAY GUARDRAIL TRANSITIONS

A. General.

The work under this Heading consists of fabricating, transporting and installing Precast Highway

Guardrail Transitions and includes all necessary labor, materials, and equipment to complete the work as shown on the Plans. The Precast Concrete Bridge Elements shall meet the requirements of Section M4: Cement Concrete and Related Materials.

ITEM 995.01 (Continued)

MATERIALS

A. Materials.

Materials shall conform to M4.09.1 and the following:

Non-Shrink Grout Products	M4.04.5
Controlled Low-Strength Material – Structural Non-Excavatable	M4.08.0
Welded Steel Wire Fabric	M8.01.2
Mechanical Reinforcing Bar Splicer	M8.01.9
Lifting Devices	PCI MNL-116
Corrugated Metal Pipe	AASHTO M 36

1. Vertical Adjustment Assembly.

Vertical Adjustment Assembly details and material requirements shall be as shown on the plans. Alternate devices may be used provided that they are adjustable and can support the anticipated loads. The design of the leveling devices, with necessary calculations, shall be submitted to the Engineer of Record for approval.

2. Threaded Inserts.

Threaded inserts are permissible to facilitate forming the keyway pours. Threaded inserts shall be hot dip galvanized or made of stainless steel. The number of threaded inserts shall be minimized, and the inserts shall not come in contact with the reinforcing steel.

3. Corrugated Metal Pipe.

Corrugated Metal Pipe to be used for forming voids as specified on the plans shall be fabricated from steel and shall have a protective metallic coating of zinc (galvanizing).

CONSTRUCTION METHODS – PLANT FABRICATION

A. Pre-Production Meeting.

The Contractor shall notify the MassDOT Research and Materials Section to determine if a pre-production meeting will be required to review the specification, shop drawings, curing plan, schedule, and discuss any specific requirements. The meeting shall be held prior to scheduling a MassDOT Inspector (refer to M4.09.4 *Department Acceptance*), and at least seven (7) days prior to the scheduled casting of any Precast Concrete Bridge Element or control section. The Contractor shall schedule the meeting, which shall include representatives of the Fabricator and MassDOT.

B. Reinforcement.

The reinforcing bars shall be installed in accordance with Subsection 901.35, including tolerances for cover and horizontal spacing of bars. Components of mechanical reinforcing bar splicers shall be set with the tolerances shown on the plans. The reinforcing bars and mechanical reinforcing bar splicers shall be assembled into a rigid cage that will maintain its shape in the form and which will not allow individual reinforcing bars to move during the placement of concrete. This cage shall be secured in the form so that the clearances to all faces of the concrete, as shown on the plans, shall be maintained.

ITEM 995.01 (Continued)

Where reinforcing bars are to protrude from one Precast Concrete Bridge Element in order to mate with reinforcing bar splicers in a second precast concrete element, the fabricator shall set the reinforcing bars and the reinforcing bar splicers with a template in order to ensure proper fit up within the tolerances specified on the plans.

C. Tolerances

Fabrication shall comply with tolerances specified on the plans. Tolerances for steel reinforcement placement shall be in accordance with Subsection 901.35. In the absence of specifications on the plans, tolerances shall comply with the latest version of the PCI MNL 135, Precast Tolerance Manual.

D. Forms

Concrete shall be cast in rigidly constructed forms, which will maintain the Precast Concrete Bridge Elements within specified tolerances to the shapes, lines and dimensions shown on the approved fabrication drawings. Forms shall be constructed from flat, smooth, non-absorbent material and shall be sufficiently tight to prevent the leakage of the plastic concrete. When wood forms are used, all faces in contact with the concrete shall be laminated or coated with a non-absorbent material. All worn or damaged forms, which cause irregularities on the concrete surface or damage to the concrete during form removal, shall be repaired or replaced before being reused. If threaded inserts are cast into the elements for support of formwork, the inserts shall be recessed a minimum of 1 inch and shall be plugged after use with a grout of the same color as that of the precast cement concrete.

CONSTRUCTION METHODS – FIELD CONSTRUCTION

B. General.

All of the Contractor's field personnel involved in the erection and assembly of the Precast Concrete Bridge Elements shall have knowledge of and follow the approved Erection Procedure.

Prior to installation, the following documentation shall be reviewed and confirmed by the MassDOT Resident Engineer or designee:

(a) QC Compressive Strength Test Report Forms attaining Design Strength, f'c for the Precast Concrete Bridge Element's representative sublot.
(b) Certificate of Compliance generated by the Fabricator as described under the Fabricator Quality Control section.
(c) QC Inspection Reports signed by the Quality Control Manager.

Field construction staff shall verify that the Resident Engineer has accepted all Precast Concrete Bridge Elements prior to installation.

C. Erection Procedure.

Prior to the erection, the Contractor shall submit an Erection Procedure for approval by the Engineer. This submittal shall include computations and drawings for the transport, hoisting, erection and handling of the Precast Concrete Bridge Elements. The Erection shall be prepared and stamped by a Professional Engineer registered in the Commonwealth of Massachusetts with working knowledge of the Contractor's equipment, approved shop drawings, and materials to build the bridge. The Erection Procedure shall, at a minimum, include the following:

ITEM 995.01 (Continued)

1. Erection Procedure

The Erection Procedure shall be prepared to conform to the requirements of 960.61, Design, Fabrication and Erection and the applicable sections in Chapter 8 of the PCI Design Handbook (eighth edition) for handling, erection, and bracing requirements. At a minimum, the Erection Procedure shall provide:

(a) Minimum concrete compressive strength for handling the Precast Concrete Bridge Elements.
(b) Concrete stresses during handling, transport, and erection.
(c) Crane capacities, pick radii, sling geometry, and lifting hardware.
(d) Verification that the equipment can handle all pick loads and weights with the required factor of safety.
(e) Evaluation of construction sequence and evaluation of any geometric conflicts in the lifting of the Precast Concrete Bridge Elements and setting them as shown on the plans.
(f) Design of crane supports including verification of subgrade for support.
(g) Location and design of all temporary bracing that will be required during erection.

Non-shrink grout and concrete materials, approved by the Engineer, shall be placed as shown on the plans. Fill joints, keyways, and voids, in strict accordance with the specifications and manufacturer's recommendations and instructions.

For footings, approach slabs and highway guardrail transitions, once these Precast Concrete Bridge Elements have been set to the correct horizontal and vertical alignment, the void between them and the supporting soil shall be filled with Controlled Low-Strength Material – Structural Non-Excavatable to the limits as shown on the plans. Add additional grout ports in the footings to facilitate the bedding process if required.

Except in approach slabs, joints shall be filled flush to the top with non-shrink grout, and any vertical misalignment between adjacent elements shall be feathered out on a slope of 1 to 12.

Curing of grout or concrete shall be performed in strict accordance with the specifications and manufacturer's recommendations. Filling shall not be completed in cold weather when either the ambient temperature or the precast member's temperature is below the manufacturer's recommendation. No localized heating of either the precast members or of the air surrounding the element will be permitted in an attempt to reach application temperatures.

If the joints or voids are not filled within five days after the Precast Bridge Elements are erected, the Contractor shall cover and protect the openings from weather and debris until they are filled.

ITEM 995.01 (Continued)

D. Survey and Layout.

Working points, working lines, and benchmark elevations shall be established prior to placement of all elements. The Contractor is responsible for field survey as necessary to complete the work. MassDOT reserves the right to perform additional independent survey. If discrepancies are found, the Contractor may be required to verify previous survey data.

E. Preparation of Closure Pours and Grouted Keyways.

Immediately prior to erecting the Precast Concrete Bridge Elements, the closure pours and grouted keyways shall be cleaned at the job site of all dust, dirt, carbonation, laitance, and other potentially detrimental materials which may interfere with the bonding of the closure pour concrete or grout and precast concrete using a high-pressure water blast. Any exposed reinforcing steel in the precast concrete shall be protected from damage during the cleaning of the keyways. Damaged epoxy coating of steel reinforcement shall be repaired, and the reinforcing steel shall be cleaned as directed by the Engineer. The surfaces of the closure pours and grouted keyways shall be wetted so that the surfaces shall have a Saturated Surface Dry (SSD) condition for at least 24 hours prior to the placement of the closure pour concrete.

F. Erection.

The elements shall be placed in the sequence and according to the methods outlined in the Erection Procedure. As the erection proceeds, the Contractor shall constantly monitor the assembly to ensure that the precast concrete bridge element is within proper horizontal and vertical location and tolerances prior to releasing it from the crane and setting the next unit. The Contractor may use shims to maintain proper setting tolerances.

The concrete elements shall be lifted only by the lifting devices, and the utmost care shall be taken to prevent distortion of the elements during handling, transportation or storage.

This approval will be contingent on the Contractor demonstrating by calculations, prepared by a Professional Engineer registered in Massachusetts, that the elements will not be damaged by the non-vertical lifting force and by documentation that the capacity of the lifting devices is adequate for the non-vertical lifting force.

After all Precast Concrete Bridge Elements have been placed, the actual overall dimensions of the structure both horizontal and vertical, as laid out shall not deviate from the nominal dimensions shown on the plans beyond a tolerance of +0 inches and -1 inches. Once the layout of Precast

Concrete Bridge Elements has been accepted by the Engineer, the Contractor shall cut all lifting devices off below the surfaces of the elements.

G. Filling of Blockouts for Lifting Devices and Threaded Inserts.

If the blockouts in the Precast Concrete Bridge Elements where the lifting devices were located will be exposed and visible after assembly is complete, the Contractor shall fill these blockouts with Mortar (M4.04.5).

After the formwork has been removed, all threaded inserts that have been cast into the precast concrete bridge deck for support of the formwork shall be filled with a grout of the same color as that of the precast concrete.

ITEM 995.01 (Continued)

PRESTRESSED CONCRETE BEAMS (B36-27)

A. General.

The work under this Heading consists of fabricating, transporting and installing Prestressed Concrete Beams (B36-27), and includes all necessary labor, materials, and equipment to complete the work as shown on the Plans. The Precast, Prestressed, and Prefabricated Concrete Elements shall meet the requirements of Section M4: Cement Concrete and Related Materials.

MATERIALS

A. Materials.

Materials shall conform to M4.09.1 and the following:

Non-Shrink Grout Products	M4.04.5
Prestressing Strands	AASHTO M 203
Welded Steel Wire Fabric	M8.01.2
Mechanical Reinforcing Bar Splicer	M8.01.9
Strand Chuck	M8.15.0
Lifting Devices	PCI MNL-116

1. Reinforcement and Prestressing Strands.

The size and grade of steel reinforcement and prestressing strands shall be as indicated on the plans. All reinforcing steel shall be epoxy coated, Grade 60. All prestressing strands shall be uncoated.

2. Transverse Ties.

The transverse ties shall be low-relaxation strands meeting the requirements of AASHTO M 203. The size and grade shall be as indicated on the plans. The ties shall be supplied with a seamless polypropylene sheath which has corrosion inhibitor grease between the strand and sheath. The location of all transverse ties, shall be as shown on the plans.

3. Threaded Inserts

Threaded inserts are permissible in Prestressed Concrete Beams for installing formwork, utility supports, or deck drains. Threaded inserts shall be hot dip galvanized or made of stainless steel and shall not come in contact with the reinforcing steel. The number of threaded inserts installed for the Contractor's convenience shall be kept to a minimum.

ITEM 995.01 (Continued)

CONSTRUCTION METHODS – PLANT FABRICATION

A. Pre-Production Meeting.

The Contractor shall notify the MassDOT Research and Materials Section to determine if a pre-production meeting will be required to review the specification, shop drawings, curing plan, schedule, and discuss any specific requirements. The meeting shall be held prior to scheduling a MassDOT Inspector (refer to M4.09.4 *Department Acceptance*), and at least seven (7) days prior to the scheduled casting of any Prestressed Concrete Beam or control section. The Contractor shall schedule the meeting, which shall include representatives of the Fabricator and MassDOT.

B. Reinforcement.

The reinforcing bars shall be installed in accordance with Subsection 901.35 of the Standard Specifications, including tolerances for cover and horizontal spacing of bars. Components of mechanical reinforcing bar splicers shall be set with the tolerances shown on the plans. The reinforcing bars and mechanical reinforcing bar splicers shall be assembled into a rigid cage that will maintain its shape in the form and which will not allow individual reinforcing bars to move during the placement of concrete. This cage shall be secured in the form so that the clearances to all faces of the concrete, as shown on the plans, shall be maintained.

C. Placing and Tensioning Strands.

Placing and tensioning strands shall be in accordance with PCI MNL-116. The location of all prestressing strands shall be as indicated on the plans.

D. Tolerances.

Fabrication shall comply with tolerances specified on the plans. Tolerances for steel reinforcement placement shall be in accordance with Subsection 901.35. In the absence of specifications on the plans, tolerances shall comply with the latest version of the PCI MNL 135, Precast Tolerance Manual.

E. Forms.

Concrete shall be cast in rigidly constructed forms, which will maintain the Prestressed Concrete Beams within specified tolerances to the shapes, lines and dimensions shown on the approved fabrication drawings. Forms shall be constructed from flat, smooth, non-absorbent material and shall be sufficiently tight to prevent the leakage of the plastic concrete. When wood forms are used, all faces in contact with the concrete shall be laminated or coated with a non-absorbent material. All worn or damaged forms, which cause irregularities on the concrete surface or damage to the concrete during form removal, shall be repaired or replaced before being reused. If threaded inserts are cast into the elements for support of formwork, the inserts shall be recessed a minimum of 1 inch and shall be plugged after use with a grout of the same color as that of the precast cement concrete.

Where applicable, the material used for forming voids in concrete deck beams and box beams shall be sufficiently strong and resistant to water to support the wet concrete, which is to be packed around the void forms, without collapsing. The void forms shall be securely anchored so that no movement will occur during placing and consolidation of the concrete. Void drains shall be installed at the locations shown on the plans and Fabricator shall ensure that the drains are in contact with the void form. After the beams have been cast and removed from the forms, the Fabricator shall check that the drains are still in contact with the void form by inserting a rigid probe into the drain for a distance greater than the thickness of the concrete at the void drain.

ITEM 995.01 (Continued)

CONSTRUCTION METHODS – FIELD CONSTRUCTION

A. General.

All of the Contractor's field personnel involved in the erection and assembly of the Prestressed Concrete Beams shall have knowledge of and follow the approved Erection Procedure and Quality Control Plan for Prestressed Concrete Beam Assembly.
Prior to installation, the following documentation shall be reviewed and confirmed by the MassDOT Resident Engineer or designee:

(d) QC Compressive Strength Test Report Forms attaining Design Strength, f'_c for the Prestressed Concrete Beam's representative sublot.
(e) Certificate of Compliance generated by the Fabricator as described under the Fabricator Quality Control section.
(f) QC Inspection Reports signed by the Quality Control Manager.

Field construction staff shall verify that the Resident Engineer has accepted all Prestressed Concrete Beams prior to installation.

B. Erection Procedure and Quality Control Plan for Prestressed Concrete Beam Assembly.

Prior to the erection, the Contractor shall submit an Erection Procedure and a Quality Control Plan for Prestressed Concrete Beam Assembly for approval by the Engineer. This submittal shall include computations and drawings for the transport, hoisting, erection and handling of the Prestressed Concrete Beams. The Erection Procedure and Quality Control Plan for Prestressed Concrete Beam Assembly shall be prepared and stamped by a Professional Engineer registered in the Commonwealth of Massachusetts with working knowledge of the Contractor's equipment, approved shop drawings, and materials to build the bridge. The Erection Procedure and Quality Control Plan for Prestressed Concrete Beam Assembly shall, at a minimum, include the following:

1. Erection Procedure

The Erection Procedure shall be prepared to conform to the requirements of 960.61, Design, Fabrication and Erection and the applicable sections in Chapter 8 of the PCI Design Handbook (eighth edition) and in accordance with MBTA requirements (in particular regarding factors of safety for crane picks) for handling, erection, and bracing requirements. At a minimum, the

Erection Procedure shall provide:

(h) Steel reinforcing details, and location and details of lifting devices
(i) Minimum concrete compressive strength for handling the Prestressed Concrete Beams.
(j) Concrete stresses during handling, transport, and erection.
(k) Crane capacities, pick radii, sling geometry, and lifting hardware.
(l) Verification that the equipment can handle all pick loads and weights with the required factor of safety.
(m) Evaluation of construction sequence and evaluation of any geometric conflicts in the lifting of the Prestressed Concrete Beams and setting them on the abutments and piers.
(n) Design of crane supports including verification of subgrade for support.
(o) Location and design of all temporary bracing that will be required during erection.

ITEM 995.01 (Continued)

2. Quality Control Plan for Prestressed Concrete Beam Assembly

The Quality Control Plan for Prestressed Concrete Beam Assembly is a document prepared and submitted by the Contractor prior to the start of work which requires the Contractor to identify and detail the sequence of construction in accordance with the project schedule and which clearly identifies all stages of field construction. The assembly procedures for the Prestressed Concrete Beams shall be submitted in PDF format on 24"x36" sheets. This document will be treated as a Construction Procedure and will be reviewed by both the Designer and the District Construction Office.

At a minimum, the Quality Control Plan for Prestressed Concrete Beam Assembly shall include the following:

(a) Listing of the equipment, materials, and personnel including their assigned responsibilities that will be used to erect and assemble the Prestressed Concrete Beams on site.
(b) Documentation of all preparatory work necessary for moving personnel, equipment, supplies, and incidentals to the project site before beginning work.
(c) Detailed schedule showing the sequence of operations that the Contractor will follow to complete the field construction from setting working points and working lines to the casting of closure pours and the curing of the closure pour concrete, as described below and as called for on the plans.
(d) Contractor's means for ensuring that the Prestressed Concrete Beam shall align to the roadway profile and cross slope and means for adjusting the final deck slab elevation.
(e) Timeline and descriptions of Quality Control activities to be followed throughout the field construction operations including methods and procedures for controlling tolerance limits both horizontally and vertically.

C. Survey and Layout.

Working points, working lines, and benchmark elevations shall be established prior to placement of all elements. The Contractor is responsible for field survey as necessary to complete the work. MassDOT reserves the right to perform additional independent survey. If discrepancies are found, the Contractor may be required to verify previous survey data.

D. **Adjacent Prestressed Concrete Box Beams**.

1. Beam Layout and Erection.

Prestressed concrete beams shall be installed to the line and grade shown on the plans in accordance with the Contractor's approved Erection Procedure and Assembly Plan. The location of the beams on the abutments and piers shall be laid out according to the nominal width of the beams as shown on the plans. Each beam shall be erected such that after erection, the beam shall lie entirely within the horizontal lines defined by its nominal width for its entire length and shall not infringe on the space allocated for any adjacent beam. The Contractor may adjust the width of the shear key between beams.

ITEM 995.01 (Continued)

Immediately prior to erecting the beams, the keyway surfaces shall be cleaned at the job site of all dust, dirt, and carbonation using a high-pressure water blast. After all beams are erected, the actual overall width of the beams as laid out shall not deviate from the nominal dimension shown on the framing plan beyond a tolerance of +0 inches and -1 inches. After the beam layout has been accepted by the Engineer, the Contractor shall cut the lifting devices off below the top of the beam.

2. Transverse Tie Tensioning.

Unless shown otherwise on the plans, the transverse ties shall be tensioned to 5,000 pounds before the keyways are filled. After the keyways are filled with mortar (M4.04.5) and the mortar has cured, the ties shall be tensioned as specified on the plans. No traffic or heavy equipment shall be allowed on the bridge until all transverse ties have been properly tensioned and the deck has been cast and cured.

3. Mortaring of Keyways.

The precast concrete keyways that will receive mortar shall be free of materials such as paint, oil, curing compound, bond breaker, dirt etc. that will inhibit bonding. The precast concrete keyways shall be hydro-blasted with equipment that can remove asphaltic material, oils, dirt, rubber, curing compounds, paint carbonation, laitance, and other potentially detrimental materials, which may interfere with the bonding of the mortar and precast concrete.

Exposed reinforcing steel in the precast beam shall be protected from damage during the cleaning of the keyways. Damaged epoxy coating of steel reinforcement shall be repaired, and the reinforcing steel shall be cleaned as directed by the Engineer.

Mortar (M4.04.5) shall be placed in strict accordance with the manufacturer's recommendations and instructions.

The keyways shall be filled flush to the top of the beams and any vertical misalignment between beams shall be feathered out on a slope of 1 to 12. Curing shall be performed in strict accordance with the manufacturer's recommendations. The keyways shall not be filled in cold weather when either the ambient temperature or the prestressed concrete beam's temperature is

below the mortar manufacturer's recommendation. No localized heating of either the prestressed concrete beams or of the air surrounding the keyway will be permitted in an attempt to reach application temperatures.

If the keyways are not filled within five days after the beams are erected, the Contractor shall cover and protect the keyways from weather and debris until they are filled.

4. Concrete Deck Slab Placement.

Prior to casting the concrete deck slab, the top of the beam shall be clean and free of all laitance or bond inhibiting agents. The concrete deck slab shall be placed after the transverse ties have been fully tensioned. Deck concrete shall be placed against the beam concrete without the use of any bonding agents.

After the formwork has been removed, all threaded inserts that have been cast into the beams for support of the formwork shall be plugged after use with a grout of the same color as that of the precast cement concrete.

ITEM 995.01 (Continued)

5. Backwalls, Curtain Walls and Keeper Blocks.

The backwalls, the curtain walls at the abutment bridge seats, and the keeper blocks shall be cast only after the beam layout has been accepted. Closed cell foam shall be attached to the bridge beams to the limits and thickness as shown on the plans and the backwall / curtain wall / keeper block concrete shall be placed directly against it. The sidewalk and safety curb may be cast after the curtain walls and exterior pier keeper blocks have been cast.

METAL PEDESTRIAN RAILING (2 RAIL), ALUMINUM

DESCRIPTION OF WORK

The work to be performed under this item shall conform to the relevant provisions of Subsection 975 of the Supplemental Specifications and the following:

The contractor shall submit shop drawings for approval showing all elements of the proposed system. Contractor shall furnish and comply with all manufacturers' data.

SCHEDULE OF BASIS FOR PARTIAL PAYMENT

Within ten (10) days after the Notice to Proceed, the Contractor shall submit on his/her proposal form a schedule of unit prices for the major component Sub-Items that make up Item 995.01 as well as the total bridge structure Lump Sum cost for Bridge Structure No. N-03-012 (CN4). The bridge structure Lump Sum breakdown quantities provided in the proposal form are estimated and not guaranteed. The total of all partial payments to the Contractor shall equal the Lump Sum contract price regardless of the accuracy of the quantities furnished by the Engineer for the individual bridge components. The cost of labor and materials for any Item not listed but required to complete the work shall be considered incidental to Item 995.01 and no further compensation will be allowed.

ITEM 995.01 (Continued)

Sub-Item	Description	Quantity	Unit	Unit Price	Total
482.31	SAWING & SEALING JOINTS IN ASPHALT PAVEMENT AT BRIDGES	61	FT		
904.3.	5000 PSI, 3/4 IN., 685 HP CEMENT CONCRETE	956	CY		
910.	STEEL REINFORCEMENT FOR STRUCTURES	7940	LB		
910.1	STEEL REINFORCEMENT FOR STRUCTURES - EPOXY COATED	106140	LB		
922	ELASTOMERIC BEARING PAD WITHOUT ANCHOR BOLTS	48	EA		
930.402	PRESTRESSED CONCRETE DECK BEAMS (B36-27)	920	FT		
930.64	PRECAST HIGHWAY GUARDRAIL TRANSITION	2	EA		
930.65	PRECAST HIGHWAY GUARDRAIL END BLOCK	2	EA		
960.	STRUCTURAL STEEL	4476	LB		
965.	MEMBRANE WATERPROOFING FOR BRIDGE DECKS	2050	SF		
970.	DAMP-PROOFING	5760	SF		
975.1	METAL BRIDGE RAILING (3 RAIL), STEEL (TYPE S3-MTL4)	155	FT		
975.12	PEDESTRIAN RAIL	80	FT		
975.3	PROTECTIVE SCREEN TYPE I	230	FT		

Total Cost of Item 995.01 =

The schedule on the proposal form applies only to Bridge Structure No. N-03-012 (CN4). Payment for similar materials and construction at locations other than at this bridge structure shall not be included under this Item. Sub-Item numbering is presented for information only in accordance with MassDOT Standard Nomenclature.

ITEM 996.4 SOLDIER PILE AND LAGGING RETAINING WALLS LUMP SUM

The work under this item shall consist of the construction of steel soldier pile (or "H-pile" and "W-pile") and precast concrete panel "lagging" retaining walls on the north and south approaches as specified herein and as indicated on the Contract Drawings. The work shall conform to the relevant provisions of Section 900 of the Standard Specifications. The final soldier pile and lagging wall design will be completed after the approval of the 8M permit, due to clearances needed for the existing MWRA utilities. The Contractor shall not order materials for the permanent wall, including precast panels, until MWRA approves the 8M permit for construction and the final design is complete.

The retaining walls shall consist of Steel "H-Piles" and "W-pile" with precast concrete panels topped with a cast-in-place cement concrete barrier cap or precast coping. Railings or fencing shall be installed along the top of the retaining walls, as indicated on the plans. Soldier pile and lagging wall will be bonded for continuity by extending a continuous epoxy-coated bar to connect the tops of all soldier piles within the cap. Lightweight fill will be used to backfill behind the retaining walls.

Soldier piles shall be installed in pre-drilled holes, or drilled shafts, advanced through all material encountered to the minimum tip embedment depth required by design, as shown on the Plans. Installation equipment shall be capable of drilling through boulders, and any other obstructions, encountered during installation.

The soldier pile and lagging wall is designed to be free draining and shall be constructed to conform to this intent. Anti-Graffiti protective coatings shall be applied to all exposed faces of concrete and steel under the permanent condition.

The supports for the soldier pile and lagging wall shall consist of vertical drilled shafts with an embedded galvanized steel soldier pile. Once the soldier pile is placed in the open drilled shaft excavation, concrete shall be placed around the soldier pile, up to bottom of proposed wall elevation shown on the Contract Drawings. Controlled low strength material (CLSM) material shall be placed above the concrete to backfill the remainder of the pre-augered drilled shaft excavation. Drilled shaft installation equipment shall be capable of drilling through boulders, cobbles, or any other obstructions, encountered during installation. If bedrock is encountered above the proposed bottom of shaft, then a rock socket must be provided to achieve the minimum Pile Tip Elevation shown on the Contract Drawings, or a minimum rock socket depth of 5 feet, whichever is deeper.

Pressure-treated timber lagging will be placed starting from the top of the existing grade and progressing to the bottom of the wall. A filter fabric will be attached to the lagging to prevent soil raveling between lagging boards. A Prefabricated Geocomposite Drain will be attached to the back of the permanent precast concrete panels and lightweight expanded shale aggregate will be used to fill the void between the panels and the lagging. A cast-in-place concrete cap or precast coping will be placed at the top of the wall. The soldier pile and lagging wall will support pedestrian railings and/or fencing. The soldier pile and lagging wall shall be furnished complete in place in accordance with the lines, grades, dimensions and all appurtenances shown on the Contract Drawings.

ITEM 996.4 (Continued)

The work under this item also includes all labor and materials.

This Item includes all material and labor necessary to complete the work in accordance with the schedule of items included herein under Basis for Partial Payment and all other items that are part of the work for which payment is not provided for elsewhere.

The panels shall be underlain by an unreinforced cement grout leveling pad. The unreinforced leveling pad shall be set on firm and level surface. Any foundation soil found to be unsuitable should be removed and replaced as directed and compacted with a vibratory compactor to provide a firm in-place foundation. The panels shall be supported on the soldier piles in the MWRA utility easement. The cost shall be incidental to the retaining wall. The work shall include but not be limited to:

1. Perform pre-construction surveys on designated abutting structures and facilities.
2. Install geotechnical instruments and preform baseline monitoring.
3. Installing soldier piles.
4. Installing lagging and precast panels between soldier piles.
5. Geotechnical instrumentation shall be monitored as the work progresses.
6. Perform post-construction surveys on designated abutting structures and facilities.

   The pre- and post-construction surveys and all instrumentation and monitoring shall be paid under Item 950.2 Temporary Excavation Support.

SUBMITTALS

All submittals shall be submitted by the Contractor at least 2 weeks prior to planned start of work, and must be accepted by the Engineer before work may proceed.

A. Working Drawings

   1. Submit working drawings at least two (2) weeks before beginning excavation, installation of temporary excavation support system, or installation of soldier pile and lagging wall.

B. Additional Requirements for Working Drawings – Working drawings shall include the following:

   1. Grades and strengths of all construction materials used.
   2. Wall Elevation and Profile view drawings showing bottom of wall and top of wall elevations along entire wall alignment.
   3. Method for installing wall.

ITEM 996.4 (Continued)

4. Method for attaching timber lagging and precast panels.

5. Method for attaching concrete cap beam.

6. Architectural Form Liner

7. Mock-up panel of a precast concrete panel.

8. Loads on the excavation support system for various stages of excavation.

9. Anticipated equipment, traffic (and other surcharge) loads on adjacent ground during construction.

10. Existing utility facilities, including underground and overhead utilities. After checking locations of utilities by field investigations, determine which conflict with or potentially may impact the construction of the proposed new wall.

C. Contractor Qualifications

1. The Contractor performing the construction of the work shall have a minimum of ten (10) years of experience in soldier pile wall design and construction and shall submit evidence of successful completion of at least five (5) similar projects.

2. The Contractor's staff shall include one registered Professional Engineer licensed to perform work in the Commonwealth of Massachusetts. The Contractor shall assign a superintendent or foreman with a minimum of five (5) years of experience in the supervision of permanent soldier pile and lagging construction.

3. The Contractor shall employ a Licensed Surveyor to set the positions of the piles shown on the pile layout plans. Contractor shall be responsible for the accuracy of the location and positioning of each pile.

D. Submit the following:

1. Provide detailed sequence of soldier pile and lagging wall construction, with starting and ending dates for each activity.

2. Provide schedule of temporary interruption of utility services.

3. Provide details for shutoff and capping or re-routing of utility services.

4. Pre-demolition Photographs or Video: Submit before the Work begins.

ITEM 996.4 (Continued)

5. Submit the preconstruction survey of existing buildings and structures adjacent to the construction site, which shall be performed by the Contractor.

6. Hazardous material remediation plan. Included in the plan are landfill records indicating receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

E. Proposed Protection Measures: Submit informational report in accordance with OSHA Part 1926 procedures, including drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control, and for noise control.

F. Shop and Erection Drawings

Submit shop and erection drawings at least thirty (30) days before beginning excavation or installation of excavation support system. Shop drawings shall include the following:

1. Method for installing all of the wall elements (drilled shafts, piles, timber lagging, drainage mat, CIP concrete cap and facing).

2. Erection Procedure for soldier piles including plan view of anticipated crane picks, radii, pile laydown area, etc.

3. Field verification of existing utilities, underground and overhead. After checking location/owner of utilities, determine which may affect the work.

4. Anticipated equipment, traffic (and other surcharge) loads on adjacent ground during construction.

5. Wall's construction materials (type, grade, strength, etc.) that shall meet Materials requirements as stated below.

G. Submit Welder Qualifications and Welding Procedures in accordance with AWS D1.1.

H. Submit design calculations prepared by a professional engineer registered in the Commonwealth of Massachusetts for the timber lagging.

I. Submit descriptive data and operating procedures for all equipment to be used. This shall include, at a minimum, machinery required to install wall, excavate soil, and remove obstructions. Submit all pertinent data including sizes, weights, capacities, torques and operating frequencies.

ITEM 996.4 (Continued)

J. During soldier pile wall construction, maintain and submit weekly to the Engineer, clearly written and illustrated reports documenting the Work as it was actually constructed. Each weekly report shall be approved and stamped by the Contractor's Professional Engineer and submitted within 24 hours of the last day of the week for which the report applies (reporting period). Each weekly report shall contain all of the daily reports for the reporting period and shall include the following information:

1. Pile identification.
2. Dimensions of the excavation and elevations of the top and bottom of piles.
3. Dates and times of soldier pile advancement.
4. Description of soils encountered, obstructions, and excavation problems, if any.
5. Reference to shop drawings, cut-outs, bearing plates, and other embedded items.
6. Indicate variations from shop drawings, if any.
7. Plumbness and deviation from plan location.
8. Elevations of bottom of soldier pile wall showing deviations, if any, from Drawings.
9. Plumbness and location of individual structural sections, showing deviations, if any, from the Drawings.

K. The Contractor shall be responsible for the preconstruction and post-construction surveys survey of existing buildings and structures adjacent to the construction site.

L. The Contractor shall submit to the Engineer for approval a list of materials proposed for use of the Anti-Graffiti Coating, giving the manufacturer's name, product name and any necessary identification numbers for each item, and the manufacturer's data sheets and recommendations for installation including relevant limitations, safety factors, environmental precautions, and application rates.

SUBSURFACE DATA

Borings were performed in 2021 and 2024 along the wall alignment at the locations shown on the contract plans. The retaining wall borings indicate that below ground obstructions may be encountered. Such obstructions may include but are not necessarily limited to cobbles or boulders. Based on the borings, bedrock is anticipated to be at least 7 feet below the tips of the soldier piles.

ITEM 996.4 (Continued)

The aforementioned data is for general information and is accurate only at the particular locations and times the subsurface explorations were made. It is the Contractor's responsibility to make interpretations and draw conclusions based on the character of materials to be encountered and the impact on his work based on his expert knowledge of the area and of earthwork techniques. The Contractor, at his/her own expense, may conduct additional subsurface explorations for his/her own information after obtaining MassDOT's approval.

MATERIALS

Casing, Concrete, and Appurtenances for the Drilled Shafts

All materials shall conform to MassDOT Standard specification for Drilled Shafts (Section 945). Drilled Shafts shall be installed with a temporary casing and filled with 4000 PSI, 3/4 INCH, 625 Cement Concrete to the elevations shown on the Plans.

Controlled Low Strength Material

CLSM (or Flowable Fill) is a lean-mix concrete, used to fill the vertical hole above the concrete in the Drilled Shaft, that shall meet MassDOT Materials Specifications M4.08.0 CLSM-Mechanical Excavatable, with a compressive strength at 90 days of 150 psi.

Steel Piles

Steel piles shall be HP12x53, W24x146, and W36x160, as shown on the Drawings, conforming to the requirements of AASHTO M183 Grade 50 or higher grade and conform to the relevant provisions of Section 940 and 960 of the Standard Specifications. The piles shall be hot dipped galvanized in accordance with AASHTO M111. The galvanizing bath shall contain nickel (0.05% to 0.09% by weight).

Painting of the exposed face of the galvanized piles shall conform to the relevant provisions of Section M7, and these Special Provisions and to the color shown on the Plans or as directed.

Precast Concrete Panels

The manufacturer of the panels should note the dimensions of retaining wall and understand that the design intent is that the entire wall have the same appearance. This shall be achieved by use of architectural form liners with a "dry laid stone" finish. The Contractor shall coordinate with the precast wall manufacturer and the Engineer to achieve this goal. The precast concrete panels shall be manufactured to the relevant provisions of Section 900 and Material Section M4 including but not limited to Subsection M4.02.14.

The architectural form liners shall manufactured of thermoformed rigid polymer alloy sheets. The liners shall accommodate form pressures to a maximum 1000 psf.

ITEM 996.4 (Continued)

The precast concrete panels shall be manufactured of air-entrained 5,000 psi, 3/4 inch cement concrete, true to line, plane and dimensions shown on the Plans.

Steel Reinforcement for Structures – Epoxy Coated

Steel reinforcement for concrete structures shall conform to the relevant provisions of Section 900 of the Standard Specifications. Reinforcing bars shall be deformed bars rolled from new billet steel conforming to the requirements of ASTM A615, Grade 60 and shall be epoxy coated. Epoxy coated reinforcing bars shall conform to ASTM A775.

Timber Lagging Placement

The temporary timber lagging boards shall be placed between the flanges of the soldier piles and bearing against the flanges on the excavation side of the wall so that the soldier pile flange overlaps the end of the lagging by at least 4 inches at both ends of the lagging boards. Excavation for the placement of the timber lagging shall be performed using lift heights no greater than 3 feet high, to prevent soil raveling or instability of the excavated face, and such that that the lagging is tight against the excavation cut face. Any voids behind the lagging shall be backfilled with suitable compacted material as shown on the Plans and as directed by the Engineer. The cost of any such backfilling required, including material, placement and compaction, shall be incidental to the cost of the lagging.

Concrete for Wall Cap

The concrete for the wall cap shall be 5000 PSI HP, 3/4 INCH 600 Cement Concrete.

Welded Shear Connectors and Clips

Headed Welded Connectors: ASTM A108, Grade 60, low carbon steel, galvanized. Prepare steel surfaces as recommended by manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1 and manufacturer's written instructions.

Mechanical Compression Anchors

The contractor shall use a heavy duty compression anchor, made of stainless steel, suitable and rated for use outdoors, in uncracked concrete, meeting the minimum size and grade shown on the Contract Drawings.

Architectural Form Liner

The Contractor shall use architectural form liners with a standard MassDOT finish. The architectural form liners shall be manufactured of medium-density plastic overlaid plywood, 5/8” minimum thickness, or thermoformed rigid polymer alloy sheets. The liners shall accommodate form pressures up to 1000 psf.

ITEM 996.4 (Continued)

Pedestrian Railings

Pedestrian Railings shall be installed along the top of the west retaining wall as detailed on the Plans. The work will be performed in accordance with the requirements of the AASHTO Standard Specifications for Highway Bridges, the Bridge Welding Code (ANSI/AASHTO/AWS D1.5) and these Special Provisions. All steel for main support posts, railing bars, base plates, anchor plates, attachment bars, and railing circles shall conform to the requirements of AASHTO M183 Grade 36 shall be hot-dip galvanized in accordance with ASTM A123.

Steel Pipe for Guardrails shall conform to ASTM A500 Schedule 80 (Extra Strong), galvanized and supplied with end caps. All Steel for railing and all attachments shall be hot-dip galvanized in accordance with the requirements of AASHTO M111. The galvanizing bath shall contain nickel (0.05% to 0.09% by weight). All welding shall conform to latest edition of the AASHTO/AWS Bridge Welding Code (ANSI/AASHTO/AWS D1.5).

Paints shall conform to the requirements of Section M7 and the following: Epoxy Urethane coating system of an epoxy intermediate coat with an aliphatic urethane finish coat shall be selected from: Valspar, Ameron, Caboline, Koppers, or an approved equal. The color of finish coat is to be black (semi-gloss).

Anti-Graffiti Compound

Two coats of anti-graffiti coating shall be applied by airless spray, brush, or roller to all exposed concrete surfaces of the retaining walls. The Contractor may not proceed with any production coating operations until the samples and mock- ups are approved. All manufacturer's recommendations and procedures shall be strictly adhered to. Approved manufacturer’s authorized representatives shall provide additional job site training in the proper mixing and application procedures of the anti-graffiti coating. The cost for sufficient involvement of the authorized representatives shall be considered incidental to this Item. All State, Federal and local safety and environmental protection requirements shall be strictly adhered to.

The anti-graffiti coating shall be a clear, non-yellowing, chemical and scratch resistant, fast curing, water-based, one-component silicone elastomer specifically formulated to protect surfaces subject to repeated graffiti attacks. It shall have no effect on the color of the concrete.

Damproofing and Drainage Board

Apply bituminous damproofing and install vertical strips of drainage board to the back side of the precast panels, as shown in the plans. The damproofing and drainage board shall conform to relevant provisions of the Standard Specifications.

ITEM 996.4 (Continued)

Prefabricated Geocomposite Drain (PGD) (also called "Drainage Board") shall consist of a drainage core with geotextile. Use drainage core material consisting of a preformed, stable, polymer plastic material with a cuspated or geonet structure. Use drainage core that supports the geotextile and provides a bonding surface for the geotextile at intervals not exceeding 1-1/8 inches in any direction. PGD shall have the geotextile fabric covering the full length of the drainage core with minimum 3-inch wide flaps/flanges of fabric extending beyond both longitudinal edges of the drainage core.

Geotextile fabric shall be composed of over 85% of polyester, polypropylene, polyolefin, or polyamide fibers by weight, that are formed into a stable network to ensure the performance during handling, installation, and service life. Use geotextile fabric that is resistant to chemical attack, rot, and mildew.

Submit Certified Test Data showing the product will meet or exceed the requirements listed in Table 1 and Table 2.

Table 1. Physical, mechanical and hydraulic requirements for the core of the PGD

Property	Test Method	Unit	Required Value
Thickness	ASTM D5199	in	0.4 to 1.0
Compressive Strength	ASTM D1621	psf	10625
In-plane flow rate*	ASTM D4716	gal/min	15 to 25

* Tested under a confining pressure of 3,600 psf and a hydraulic gradient of 1.0.

Table 2. Strength and hydraulic requirements for the fabric of the PGD

Property	Test Method	Unit	Required Value
Permittivity	ASTM D4491	sec^{-1}	≥0.2
Grab Strength	ASTM D4632/D4632M	lb	157
Elongation	ASTM D4533/D4533M	%	≥50
Trapezoidal Tear Strength	ASTM D6241	lb	56
Puncture Strength	ASTM D6241 ASTM D4833	lb lb	309 58

ITEM 996.4 (Continued)

Drain-pipe

The PGD boards shall positively discharge into the toe drain at the base of the wall, consisting of perforated 4-inch diameter, Schedule 40 PVC pipe, sloped to drain to daylight on each end. The pipe and connection to PGD shall be surrounded by a minimum of 6 inches of crushed stone, enveloped in separation fabric.

Lightweight Fill

Lightweight Fill shall be as specified under Item 458.71.

CONSTRUCTION METHODS

General Requirements

A. Install the wall in accordance with the accepted working drawings, and in such a manner as to prevent movement, settlement, loss of ground, removal of fines from the adjacent ground, and damage to or movement of adjacent structures and utilities. This could include the use of drilling slurry during installation of soldier piles in drilled shafts to maintain stable drill holes and limit the loss of ground outside the drill hole.

B. Perform field welding by certified welders in accordance with American Welding Society Standards AWS D 1.1, "Structural Welding Code - Steel."

C. Implement the Plan of Actions as submitted under Paragraph 1.3D, if Response Values as specified in the Response Value Table are reached.

D. Below ground obstructions may be encountered. Such obstructions may include, but are not necessarily limited to, boulders and various other demolition and construction debris.

E. Temporary casings used for pre-drilling holes for soldier piles shall be installed where specified on the Contract Drawings to the top of glacial outwash, glacial till, as a minimum, using rotary drilling techniques over their full depth to limit potential vibration damage to adjacent structures and facilities. Potential vibration damage could result if the piles or casing were installed using driving or vibratory methods.

ITEM 996.4 (Continued)

F. Protection of Existing Adjacent Structures

1. The Contractor shall repair all damage to adjacent properties and restore the surfaces and finishes to the original state.

2. If in the opinion of the Engineer the integrity of the adjacent railroad tracks, bridge, structures, or paved areas are jeopardized due to movement, the Contractor shall immediately discontinue further demolition or excavation in the affected area and implement accepted Plan of Action to mitigate further movement. Mitigating measures shall remain in effect until such time that the Engineer evaluates the impact on the structure and may direct the Contractor to perform any remedial work. The Contractor shall submit proposed remedial measures to the Geotechnical Engineer for review and acceptance. Submittals shall include methods and names of subcontractors. The Contractor shall proceed with remedial work upon acceptance by the Engineer. Mitigating measures shall be at no additional cost.

G. Monitoring Deflection of Wall

1. Once the soldier piles are installed to final elevation but before excavation begins, establish deformation-monitoring points on the top of the wall, spaced approximately every 20 feet along the wall (every other soldier pile). The monitoring points shall consist of painted marks on the steel member.

2. Perform a baseline survey of each deformation monitoring point before excavation begins. Survey both vertical and lateral position.

3. Perform daily survey of each top-of-wall deformation monitoring point from when excavation begins until full excavation depth is reached. Thereafter, perform weekly survey of each monitoring point until the concrete facing is constructed.

Drilled Shafts

Temporary casing shall be used to install the drilled shaft to the depth required, as shown on the Plans. Casing shall be removed from the portion above the bottom of wall elevation prior to concrete set. Excavated holes for the drilled shaft shall be within 3 inches of the plan location. All installation shall follow the relevant provisions of Section 945. If bedrock is encountered above the proposed bottom of shaft, then a rock socket must be provided to achieve the minimum Pile Tip Elevation or a minimum 5 feet rock-socket, whichever is shallower.

Following soldier pile placement, the excavated hole shall be backfilled with structural concrete from the bottom of the hole to the bottom of proposed retaining wall elevation. Tremie methods shall be used to place concrete if there is standing water in the drilled shaft excavation. From the bottom of proposed retaining wall to the ground surface, the hole should be backfilled with CLSM that is subsequently chipped/scraped off during lagging and facing installation.

ITEM 996.4 (Continued)

Steel Piles

The piles shall be set taking into account anticipated deflection at the top of wall, true to line and grade as shown on the Contract Drawings, and/or as directed. Pile shall be set by use of a temporary template or jig to ensure that pile spacing, rotation, and plumbness remain true. The temporary jig will remain in place until concrete has set. The overall vertical tolerance of the soldier piles and wall (variation from plumbness from top to bottom) shall not exceed 0.02% of the height of the wall. Rotational tolerance about the vertical axis of soldier piles shall limit flange rotation to within ¼ inch of planned square orientation. Temporary supports shall support "H-piles" for at least 5 days before concrete panel installation begins.

The "H-piles" and "W-piles" shall be installed by placing them in predrilled or preaugered drilled shaft holes at the diameters and spacing shown on the Contract Drawings. Predrilled or preaugered drilled shaft holes shall be protected as necessary against cave-ins, displacement of surrounding soil and for retention of ground water by means of temporary steel casing and/or use of slurry subject to prior written approval by the Engineer. Predrilling/preaugering shall follow the relevant provisions of Section 945.

The "H-piles" and "W-piles" shall be installed in the drilled shaft holes and shall be encased in 4000 psi concrete below wall base, and controlled low strength material above bottom of wall. A portion of the controlled low strength material shall be excavated/removed to allow the installation of lagging and concrete panels.

Welded Shear Connectors

Weld headed steel connectors to the flanges of the soldier piles in order to connect the precast concrete wall facing panels to the soldier pile. Attach headed connectors according to the American Welding Society Standards AWS D1.1 and as shown on the plans. The contractor may attach the connectors either before placing the soldier pile in the drilled hole or after excavating in front of the wall. If connectors are attached after the soldier pile has been installed and excavation in front of the wall has been completed, the contractor shall clean and prepare the surface prior to attaching the connectors. Protect the headed connectors from damage until the concrete wall facing is placed. If connectors are damaged during construction, the Contractor shall repair or replace the damaged stud at their own expense.

Mechanical Drop-in Anchors

Drill holes to the required depth into the granite block at intervals shown on the Contract Drawings. The hole diameters shall be 1/16 to 1/8 -inch bigger than the anchor. Clean out the hole with air. Install the anchor to the back of the hole and install and tighten the bolt. The Contractor shall repair or replace the damaged anchors at their own expense.

ITEM 996.4 (Continued)

Architectural Form Liner

Construct formwork to shapes, lines, and dimensions required, plumb and straight, secured and braced sufficiently rigid to prevent deformation under load, and sufficiently tight to prevent leakage, all in conformance with ACI Standard 347, "Recommended Practice for Concrete Formwork". Before form materials can be re-used, surfaces that will be in contact with freshly cast concrete shall be thoroughly cleaned, damaged areas repaired, and projecting nails withdrawn. Re-use of form material shall be subject to approval by Engineer.

Drainage Board

During facing installation, a Prefabricated Geocomposite Drain (PGD) mat or strip shall be attached to the back of the permanent precast facing panels, at the center of the panels, from the top to the bottom of the wall. The PGD should be hydraulically connected to the drainpipe by a weephole and free-draining crushed stone as specified herein and shown on the Contract Drawings. The PGD shall be installed in accordance with the manufacturer's instructions.

Precast Concrete Panels

Provide a mock-up panel for MassDOT approval. Precast concrete panels shall be placed so that their final position is as shown on the Plans. For erection, panels are handled by means of lifting devices connected to the upper edge of the panel. Panels should be placed in successive horizontal lifts in the sequence shown on the approved Shop Drawings as backfill placement proceeds. As backfill material is placed behind the panels, the panels shall be maintained in position by means of temporary wedges or bracing according to the wall supplier's recommendations. Concrete facing vertical tolerances and horizontal alignment tolerances shall not exceed ¾ inches when measured with a 10-foot long straight edge. During construction, the maximum allowable offset in any panel joint shall be 3/4 inch. The overall vertical tolerance of the wall (top to bottom) shall not exceed ½ inch per 10 feet of wall height.

The base of the precast wall panels shall be set on a base leveling pad comprised of unreinforced 3000 psi grout, set to the lines and grades shown on the drawings, to a minimum thickness of 2 inches and extend laterally a minimum of 6 inches in front and behind the wall panel. Base leveling pad shall be prepared to provide full contact to the base surface of the precast concrete wall units.

Pedestrian Railings:

Provisions related to the pedestrian railing above the soldier pile and lagging wall are included in Item 975.12.

Anti-Graffiti Compound

The treatment may be applied using low-pressure spray, brush, or roller. The surface to be treated shall be prepared as recommended by the product manufacturer prior to the application of the treatment. All activities shall be in compliance with relevant local codes and governmental regulations. Coatings shall be in compliance with the latest Volatile Organic Compound (VOC) state requirements.

ITEM 996.4 (Continued)

Manufacturer supplying the graffiti control treatment shall have been regularly engaged and specializing for the preceding ten (10) years in the formulation, manufacture and distribution of graffiti control products for masonry substrates. A representative of the manufacturer of the graffiti control treatment shall be present during preparation and application of all test areas.

Testing shall be conducted on an unobtrusive location on representative conditions. Test will include cleaning and surface preparation proposed for the project, followed by the application of the treatment. The Engineer shall approve all test areas and application procedures prior to beginning full-scale treatment. Adjacent surfaces not to be treated shall be tested for possible detrimental effect or aesthetic alteration created by exposure to the treatment and shall be protected as determined necessary.

Materials shall be delivered to the site in the manufacturer's original, unopened containers bearing the manufacturer's label. The Contractor shall store and handle the materials in accordance with the manufacturer's recommendations.

CONTROL TESTS AND INSPECTIONS

A. Testing and inspection of concrete, reinforcing steel, and steel members shall conform to MassDOT requirements.

B. Dimensions shall be verified by field measurement and shall be within the following tolerances:

1. Soldier Piles
   a. Plan location: Center of pile within 3 inches of the specified Plan location.
   b. Should piles be installed outside allowable tolerances affecting the design and appearance of the permanent structure, Contractor shall propose and carry out immediate remedial measures at the acceptance of the Engineer.
   c. Splicing of structural steel piles shall not be allowed.

2. Completed Wall
   The overall vertical tolerance of the completed wall (plumbness from top to bottom) shall not exceed 1% of the height along its face.

3. Structural Steel/Reinforcing Steel Placement
   a. Maximum tolerance for horizontal rotation at any elevation of the structural steel piles shall not exceed 5 degrees. Steel sections shall not be forcibly twisted after being seated to obtain rotational tolerance.
   b. Lateral or longitudinal steel location at top of wall: Plus or minus 2 inches of specified Plan location.

ITEM 996.4 (Continued)

BASIS OF PAYMENT

Item 996.4 will be paid at the LUMP SUM price, which priceshall include all materials, labor, tools and equipment, submittals and all incidental costs required for the installation, complete in place, including anti-graffiti coating.

Removal of obstructions and bedrock excavation are incidental. The removal and replacement of unsuitable soil is considered incidental.

Design, installation, and removal of temporary excavation support for the retaining wall is considered incidental.

Construction dewatering is incidental. If spoil and groundwater handling is required, it will be considered incidental including handling contaminants.

No separate payment for monitoring of the soldier pile and lagging wall will be made. The pre- and post-construction surveys and all instrumentation and monitoring and Geotechnical Monitoring shall be paid for under Item 950.2.

Payment for similar materials and construction at locations other than at this structure shall not be included under this Item.

Description	Quantity	Unit	Unit Price	Total
Controlled Low Strength Materials – Mechanical Excavatable	350	CY		
Drilled Shafts -24-inch Dia.	1,020	LF		
Drilled Shafts -30-inch Dia.	1,800	LF		
Precast Panels	12,700	SF		
Structural Steel (coated)	512,600	LB		
Drainage Board	12,700	SF		
Anti-Graffiti Coating	12,700	SF		
Drain Pipe	1,050	LF		
Filter Fabric	17,000	SF		

ITEM 997. VIBRATION MONITORING LUMP SUM

The work under this item shall include the development of a Vibration Monitoring plan to monitor vibrations during demolition, construction, and compaction activities which may induce vibrations above an allowable 1.0 in/sec peak particle velocity to the existing MWRA sewer pipelines and in accordance with requirements set forth in the MWRA permitting included in these contract documents. Vibration monitoring will be required during construction of the soldier pile and lagging walls, demolition of structures, bridge foundation construction and compaction of subgrade within 10 feet of the outside edge of the existing pipelines or on structures which extend to within this 10-foot limit.

The plan shall be submitted, no less than 15 days prior to the start of the pile installation, demolition and construction activities, to MassDOT and MWRA for review and approval. The plan shall at a minimum include the following requirements:

1. Installation of a geophone and seismograph on each of the MWRA pipelines. Wiring from the geophone to the seismograph inside of a polyvinyl chloride (pvc) piping to protect the wiring.

2. Monitoring installation plan with proposed monitoring locations
   a. Seismographs shall be placed as close as possible to the location of the pile installation activities.

3. Proposed equipment and calibration records
   a. Seismographs shall have a minimum range of 0.1 to 2 in/sec with an accuracy of ±5 percent of the measured peak particle velocity and a resolution of 0.01 in/sec and have three axis of measurement.

4. Continuous monitoring of vibration during work hours in both digital and hardcopy format
   a. Monitoring data shall be transmitted digitally on a daily basis to both MassDOT and MWRA.

5. Documentation of all construction related activities adjacent to the existing MWRA sewer pipelines during monitoring.

6. An action plan with steps to follow if daily peak particle velocities, at the utilities, exceed an alarm level of 1.0 in/sec.

7. A background vibration study performed over a minimum period of three days, prior to the start of construction, to establish ambient vibration levels.

Provide a visual and audible alarm system on the vibration monitoring device that warns of Vibrations exceeding 1.0 in/sec peak particle velocity and is capable of sending an alert to a cell phone.

Any damages to the MWRA sewer pipes caused by vibrations in excess of the 1.0 in/sec peak particle velocity will be repaired by the contractor at no expense to MassDOT or the MWRA.

ITEM 997 (Continued)

BASIS OF PAYMENT

Item 997. will be paid for at the contract lump sum price for Item 997., which price shall include all materials, equipment, tools and labor for the preparation of the monitoring plan, installation and maintenance of monitoring devices, and execution of all elements of the monitoring plan as indicated in this specification.

NON BID ITEM KEOLIS CONSTRUCTION SERVICES

This Item is included in these Specifications for clarification purposes only. It is intended that the following services be provided by Keolis Commuter Services with payment to be made under Non bid Item. Services include but are not limited to the following:

1. All engineering services required by KCS in the execution of the work under this contract.
2. Wiring connections from utility poles on Boden Lane to the station platform
3. Wiring connections for temporary and permanent PTC cable
4. Relocation of storage containers
5. Relocation of platform lighting and underground connections as necessary
6. Relocation of platform cabinetry and new wiring connections
7. Relocation of station equipment, benches, fences and other equipment in conflict with proposed construction.

The Contractor shall pay KCS for these services as needed to construct the project and will be reimbursed by MassDOT under this item for payments made to KCS.

DOCUMENT A00802

DETAIL SHEETS

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THE COMMONWEALTH OF MASSACHUSETTS
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
TEN PARK PLAZA-BOSTON MA

ESTIMATE OF QUANTITIES – DETAIL SHEET

CITY-TOWN: Natick
STA: 10+17.05 TO 19+20.80

YEAR: 2026
ROAD: Boden Lane
CLASS: Major Collector

TYPE OF PROJECT: West Natick Train Station Bridge Replacement

DATE: September 8th, 2026

Unclassified Excavation	925 CY	Ordinary Borrow	100 CY
Old Pavement Excavation	260 CY	Gravel Borrow	1000 CY
Class "A" Trench Excavation	50 CY	Gravel Borrow for Backfilling	
Class "B" Trench Excavation	260CY	Structures and Pipes	1350 CY
Class "B" Rock Excavation	10 CY	Crushed Stone	525 Tons
Sand Borrow	40 CY	Controlled Low-Strength Material –	
Substructure Removal	450 CY	Mechanical Excavatable (101-300 PSI)	10 CY
Bridge Excavation	2700 CY	Native Seed and Establishment	474SY
Loam for Roadsides	260 CY	Seeding	1244 SY
Dense Graded Crushed Stone		Expanded Shale Lightweight	
For Subbase	320 CY	Aggreate	7160 CY

Proposed Bridge Surface **AREA = 240 SY**

Surface Course: 1 1/2" Superpave Bridge Surface Course – 9.5 Polymer (SSC-B – 9.5 – P) over Asphalt Emulsion for Tack Coat (Rs-1h) over

Intermediate Course: 1 1/2" Superpave Bridge Protective Course – 9.5 Polymer (SPC-B – 9.5 – P) over Spray Applied Membrane Waterproofing

Proposed Full Depth Pavement **AREA = 1389 SY**

Surface Course: 1 1/2" Superpave Surface Course – 9.5 Polymer (SSC – 9.5-P) over Asphalt Emulsion for Tack Coat (Rs-1h) over
1 3/4" Superpave Surface Course – 12.5 (SSC – 12.5) over Asphalt Emulsion for Tack Coat (RS-1h) over

Intermediate Course: 2" Superpave Intermediate Course – 12.5 (SIC – 12.5) over Asphalt Emulsion for Tack Coat (RS-1h) over

Base Course: 4" Superpave Base Course – 37.5 (SBC – 37.5) over

Subbase: 4" Dense Graded Crushed Stone
8" Gravel Borrow Type b

Proposed HMA Shared Use Path/ HMA Sidewalk **AREA = 802 SY**

Surface Course: 1 1/2" Superpave Surface Course – 9.5 Polymer (SSC – 9.5-P) over Asphalt Emulsion for Tack Coat (Rs-1h) over

Intermediate Course: 2" Superpave Intermediate Course – 12.5 (SIC – 12.5) over Asphalt Emulsion for Tack Coat (RS-1h) over

Subbase: 8" Gravel Borrow Type b

Cement Concrete Sidewalk/Shared Use Path/ Pedestrian Curb Ramp/Bike Ramp **AREA = 1137 SY**

Surface: 4" Air-entrained, 4000 psi, ¾", 610 lb cement concrete over
Foundation: 8" Gravel Borrow, Type b*

ITEM 101. **Clearing and Grubbing**

The contractor shall clear and grub the side slopes to the bottom of the proposed slope limits shown on the Construction plans and where required by the Engineer.

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
10+62.85	52.44 LT	14+79.14	29.63 LT
10+22.49	24.90 RT	14+60.56	15.12 RT
15+40.11	15.11 RT	18+47.61	34.17 RT
15+54.80	30.85 LT	18+62.72	42.37 LT

ITEM 102.511 **Tree Protection – Armoring and Pruning**

Boden Lane Const BL

Station	Offset	Type
10+47.43	12.00 RT	12” & 21”
11+05.74	18.25 RT	21” RO
11+31.05	21.80 RT	21” RO
11+74.63	27.43 RT	12” RM
12+06.19	27.46 RT	27” RO
13+75.64	41.74 RT	24” RO
14+46.00	32.38 LT	30”
15+32.95	33.44 RT	48”

ITEM 102.521 **Tree and Plant Protection Fence**

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
10+52.55	16.52 RT	10+97.24	18.91 RT
12+71.90	35.30 RT	13+73.88	41.64 RT
13+77.39	41.88 RT	14+54.69	28.14 RT
14+32.42	35.77 LT	14+81.68	38.86 LT
15+25.53	36.71 RT	18+16.37	33.16 RT
15+57.89	35.65 LT	18+00.50	32.64 LT

ITEM 103. Tree Removed – Diameter Under 24 Inches

As shown on the Construction plans or as required by the Engineer.

Boden Lane Const BL

Station	Offset	Type
10+63.78	11.08 RT	9"
10+72.01	16.02 LT	18"
10+76.85	15.62 LT	12"
10+93.88	11.95 LT	12"
10+96.28	15.30 LT	18"
14+22.47	23.35 LT	12"
14+60.93	23.12 LT	21"
14+61.75	18.85 LT	12"
15+38.60	8.34 LT	12"
15+42.15	17.53 LT	18"
15+89.90	13.23 LT	12"
17+02.61	9.96 LT	12"

ITEM 104. Tree Removed – Diameter 24 Inches and Over

As shown on the Construction plans or as required by the Engineer.

Boden Lane Const BL

Station	Offset	Type
15+32.95	33.44 RT	48”
16+16.29	13.04 LT	30"
16+65.39	14.86 LT	24"
16+81.50	14.35 LT	24"

ITEM 129.3 Old Pavement Excavation

For the removal of existing sidewalk pavement below the fill sections and of existing roadway pavement where the profile is being raised.

Boden Lane Const BL
Station Ranges

12+00.00 to 14+65.00
15+30.00 to 18+56.15

ITEM 146. Drainage Structure Removed

As shown on the Utility Plans or as required by the Engineer.

W Central Street Const BL

Station	Offset	Type
26+65.37	16.76 RT	CBCI
26+84.29	13.03 LT	DMH
26+85.49	16.60 LT	CBCI
27+56.03	16.19 RT	CBCI

ITEM 191.6 Test Pit

As needed for the construction of the Permanent Soldier Pile and Lagging Retaining Walls to be installed across the two sewer pipes owned by the MWRA crossing Boden Lane.

Boden Lane Const BL

Station	Offset
14+24.88	21.19 RT
14+32.97	24.88 LT
16+00.92	21.12 RT
16+18.42	25.89 LT

ITEM 201. Catch Basin

W Central Street Const BL

Station	Offset
26+65.40	16.76 RT
26+85.49	16.60 LT
27+56.09	16.20 RT

Boden Lane Const BL

Station	Offset
10+30.60	1.03 LT
11+33.63	7.87 LT
12+87.08	7.87 LT
16+54.13	8.12 LT
17+36.10	9.63 LT
18+20.30	8.04 RT

ITEM 202. Manhole

W Central Street Const BL

Station	Offset
25+68.70	11.59 LT
24+16.67	9.70 LT
26+79.04	5.00 LT
27+66.19	4.27 RT
27+65.46	26.87 RT

ITEM 202. (Continued)

Boden Lane Const BL

Station	Offset
10+64.06	12.26 LT
10+75.53	6.78 RT
11+29.69	13.01 LT
12+77.31	13.48 LT
16+63.89	13.44 LT
17+39.41	14.74 LT
17+79.98	8.50 LT
18+25.10	1.55 LT
19+00.27	2.78 LT
18+97.98	76.81 LT

ITEM 209. Drop Inlet, Type D

Boden Lane Const BL

Station	Offset
11+71.65	17.50 RT
17+64.45	15.13 RT

ITEM 222.3 Frame and Grate (or Cover) Municipal Standard

For all new proposed catch basins, drain manhole, gutter inlets, and for adjusted catch basins and manholes as directed by the Engineer. Refer to Utility Plans.

W Central Street Const BL

Station	Offset
26+65.40	16.76 RT
26+85.49	16.60 LT
27+56.09	16.20 RT
25+68.70	11.59 LT
24+16.67	9.70 LT
26+79.04	5.00 LT
27+66.19	4.27 RT
27+65.46	26.87 RT

ITEM 222.3 (Continued)

Boden Lane Const BL

Station	Offset
10+30.60	1.03 LT
11+33.63	7.87 LT
12+87.08	7.87 LT
16+54.13	8.12 LT
17+36.10	9.63 LT
18+20.30	8.04 RT
10+64.06	12.26 LT
10+75.53	6.78 RT
11+29.69	13.01 LT
12+77.31	13.48 LT
16+63.89	13.44 LT
17+39.41	14.74 LT
17+79.98	8.50 LT
18+25.10	1.55 LT
19+00.27	2.78 LT
18+97.98	76.81 LT
11+71.65	17.50 RT
17+64.45	15.13 RT

ITEM 223.2 Frame and Grate (or Cover) Removed and Discarded

W Central Street Const BL

Station	Offset
26+65.37	16.76 RT
26+84.29	13.03 LT
26+85.49	16.60 LT
27+56.03	16.19 RT

ITEM 224.12 12 Inch Hood

For all new proposed catch basins and gutter inlets, as directed by the Engineer. Refer to Utility Plans.

W Central Street Const BL

Station	Offset
26+65.40	16.76 RT
26+85.49	16.60 LT
27+56.09	16.20 RT

ITEM 224.12 (Continued)

Boden Lane Const BL

Station	Offset
10+30.60	1.03 LT
11+33.63	7.87 LT
12+87.08	7.87 LT
16+54.13	8.12 LT
17+36.10	9.63 LT
18+20.30	8.04 RT
11+71.65	17.50 RT
17+64.45	15.13 RT

ITEM 244.12 12 Inch Reinforced Concrete Pipe Class V

W Central Street Const BL

Start Station	Start Offset	End Station	End Offset
26+79.04	5.00 LT	25+68.70	11.59 LT
25+68.70	11.59 LT	24+16.67	9.70 LT
26+65.40	16.76 RT	26+79.04	5.00 LT
26+79.04	5.00 LT	26+85.49	16.60 LT
27+56.09	16.20 RT	27+65.46	26.87 RT

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
10+14.09	11.34 LT	10+30.60	1.03 LT
10+14.09	11.34 LT	10+64.06	12.26 LT
10+64.06	12.26 LT	10+75.53	6.78 RT
10+75.53	6.78 RT	11+71.65	17.50 RT
10+64.06	12.26 LT	11+30.04	13.49 LT
11+30.04	13.49 LT	11+33.29	7.55 LT
11+30.04	13.49 LT	12+77.31	13.48 LT
12+77.31	13.48 LT	12+86.75	7.54 LT
16+54.12	7.21 LT	16+63.89	13.44 LT
16+63.89	13.44 LT	17+39.41	14.74 LT
17+39.41	14.74 LT	17+36.09	9.63 LT
17+39.41	14.74 LT	17+79.98	8.50 LT
17+79.98	8.50 LT	17+64.79	15.14 RT
17+79.98	8.50 LT	18+25.10	1.55 LT
18+25.10	1.55 LT	18+20.31	7.70 RT
18+25.10	1.55 LT	19+00.27	2.78 LT
19+00.27	2.78 LT	18+97.98	76.81 LT
18+97.98	76.81 LT	18+79.13	175.68 LT

ITEM 244.18 18 Inch Reinforced Concrete Pipe Class V

W Central Street Const BL

Start Station	Start Offset	End Station	End Offset
26+79.04	5.00 LT	27+66.19	4.27 RT
27+66.19	4.27 RT	27+65.46	26.87 RT
27+65.46	26.87 RT	27+74.27	37.99 RT

ITEM 271.12 12 Inch and Under Pipe Removed and Stacked

W Central Street Const BL

Start Station	Start Offset	End Station	End Offset
26+65.44	15.79 RT	26+84.29	13.03 LT
26+84.29	13.03 LT	26+85.44	15.63 LT
27+56.51	16.90 RT	27+73.90	38.38 RT

ITEM 303.10 10 Inch Ductile Iron Water Pipe (Mechanical Joint)

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
14+17.92	9.21 RT	16+02.24	6.72 RT

ITEM 350.10 10 Inch Gate and Gate Box

Boden Lane Const BL

Station	Offset
16+02.24	6.72 RT

ITEM 358. Gate Box Adjusted

Boden Lane Const BL

Station	Offset
10+31.77	4.19 RT
10+37.01	2.46 RT
11+43.06	4.28 RT

ITEM 373.10 10 Inch Water Pipe Insulation

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
14+60.42	26.49 LT	15+68.65	26.49 LT

ITEM 506. Granite Curb Type VB- Straight

As shown on the Construction and Curb Tie Plans.

West Central St Const BL

Start Station	Start Offset	End Station	End Offset
22+66.29	18.80 LT	22+71.51	18.81 LT
22+98.72	40.86 LT	22+99.34	64.19 LT
23+03.51	30.69 LT	23+07.80	32.45 LT
23+10.84	23.25 LT	23+12.62	27.56 LT

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
10+62.19	4.00 LT	10+74.02	4.00 LT
10+62.19	12.00 RT	11+00.00	12.00 RT
10+80.02	16.62 LT	17+92.49	20.01 LT
17+98.99	7.41 LT	18+14.84	7.41 LT
18+18.57	9.03 RT	18+28.15	9.53 RT
18+29.09	19.77 RT	18+29.09	10.53 RT
18+39.09	12.54 RT	18+39.09	19.77 RT
18+45.04	22.35 RT	18+50.88	21.73 RT
18+46.10	32.29 RT	18+53.75	31.48 RT
18+53.48	39.26 RT	18+54.53	34.55 RT
18+60.27	20.15 LT	18+60.36	20.37 LT
18+89.94	36.88 RT	18+91.21	32.44 RT
19+11.87	40.64 LT	19+11.39	44.02 LT

ITEM 506.1 Granite Curb Type VB- Curved

As shown on the Construction and Curb Tie Plans.

West Central St Const BL

Start Station	Start Offset	End Station	End Offset
22+71.51	18.81 LT	22+74.15	19.17 LT
22+98.72	40.86 LT	22+98.98	36.82 LT
23+02.62	27.70 LT	23+07.82	22.39 LT
23+10.05	31.94 LT	23+11.98	29.96 LT
23+17.99	18.39 LT	23+20.62	18.22 LT
23+79.62	17.96 LT	23+92.28	20.71 LT

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
10+25.22	0.70 RT	10+32.93	1.49 RT
10+32.93	1.49 RT	10+62.19	12.00 RT
10+38.10	16.13 LT	10+62.19	4.00 LT
18+40.46	11.61 RT	18+51.59	20.15 RT
18+45.35	7.76 LT	18+60.27	20.15 LT
18+54.53	34.55 RT	18+54.86	32.58 RT
19+01.15	16.52 RT	19+04.49	14.10 RT
19+23.46	20.96 LT	19+25.89	19.29 LT

ITEM 509. Granite Transition Curbs for Pedestrian Curb Ramps - Straight

Transition from 6-inch reveal (unless noted otherwise on pedestrian curb ramp and driveway tables) to flush reveal at sidewalk and driveways and meet existing ground surface at limits of work.

West Central St Const BL

Start Station	Start Offset	End Station	End Offset
24+32.07	18.12 LT	24+35.30	18.11 LT
25+04.22	17.82 LT	25+10.72	17.80 LT

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
10+74.02	16.62 LT	10+80.02	16.62 LT
10+74.02	4.00 LT	10+80.02	4.00 LT
18+18.57	9.03 RT	18+33.56	9.91 RT
18+31.53	7.41 LT	18+34.09	7.41 LT
18+39.09	7.41 LT	18+41.64	7.41 LT
18+61.20	22.54 LT	18+63.99	29.69 LT
18+65.80	34.35 LT	18+67.87	40.52 LT

ITEM 509.1 Granite Transition Curbs for Pedestrian Curb Ramps - Curved

Transition from 6-inch reveal (unless noted otherwise on pedestrian curb ramp and driveway tables) to flush reveal at sidewalk and driveways.

West Central St Const BL

Start Station	Start Offset	End Station	End Offset
22+74.15	19.17 LT	22+81.43	27.75 LT
24+26.53	19.82 LT	24+32.07	18.12 LT

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
18+25.09	9.76 LT	18+31.53	7.41 LT
18+38.46	10.91 RT	18+44.43	13.61 RT
18+41.64	7.41 LT	18+48.60	8.66 LT
18+49.48	17.66 RT	18+53.56	23.67 RT
18+54.29	35.64 RT	18+54.88	28.98 RT
18+91.20	32.44 RT	18+93.90	25.44 RT
18+96.60	21.25 RT	19+01.15	16.52 RT
19+11.89	41.81 LT	19+15.33	30.91 LT
19+18.06	26.73 LT	19+22.59	22.06 LT
19+11.87	40.64 LT	19+15.09	30.76 LT
19+17.80	26.56 LT	19+23.46	20.96 LT

ITEM 516. Granite Curb Corner Type A

As shown on the Drawings, or as required by the Engineer.

West Central St Const BL

Station	Offset
23+16.52	19.34 LT
23+09.54	22.09 LT
23+12.71	28.81 LT
23+09.07	32.54 LT
23+02.35	29.40 LT
22+99.95	35.40 LT

Boden Lane Const BL

Station	Offset
10+33.02	31.93 LT
10+34.02	25.53 LT
18+28.54	10.08 RT
18+39.97	11.72 RT
18+51.10	20.70 RT
18+54.07	32.22 RT

ITEM 580. Curb Removed and Reset

As shown on the Construction and Curb Tie Plans.

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
11+06.61	27.42 LT	12+82.13	37.27 LT

West Central St Const BL

Start Station	Start Offset	End Station	End Offset
23+14.59	18.80 LT	23+79.86	18.53 LT
24+51.65	18.80 LT	25+10.08	17.55 LT

ITEM 630.2 Highway Guard Removed and Discarded

As shown on the Construction Plans and where required by the Engineer.

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
11+35.93	7.11 LT	14+62.02	5.82 LT
11+33.28	12.46 RT	14+52.20	14.58 RT
15+41.40	12.95 RT	18+01.92	9.09 RT
15+36.50	6.80 LT	18+38.78	36.59 LT

ITEM 665. Chain Link Fence Removed and Stacked

As shown on the Construction Plans and where required by the Engineer.

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
11+33.87	20.90 LT	14+55.75	34.89 LT

ITEM 666. Chain Link Fence Removed and Reset

As shown on the Construction Plans and where required by the Engineer.

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
12+82.96	25.28 LT	14+55.75	34.89 LT

ITEM 673. Access Gate Removed and Stacked

As shown on the Construction Plans and where required by the Engineer.
Boden Lane Const BL

Station	Offset
11+35.12	4.34 RT
17+93.30	1.31 LT

ITEM 698.3 Geotextile Fabric for Separation

To be used to separate the slope surface in Modified Rockfill Slope and to separate the existing grade and lightweight aggregate fill along the Soldier Pile Lagging Retaining Walls.

Modified Rockfill Centroid Station:

Boden Lane Const BL
13+00, RT
16+50, RT

Soldier Pile Lagging Retaining Walls Station Range:

Boden Lane Const BL

10+69 LT	to	14+53 LT
11+71 RT	to	14+39 RT
15+78 LT	to	18+00 LT
15+73 RT	to	17+66 RT

ITEM 701.3 Trapezoidal Delineator

As shown on the Construction Plans and where required by the Engineer.

West Central St Const BL

Start Station	Start Offset	End Station	End Offset
23+05.76	37.40 LT	23+21.37	39.50 LT
24+04.15	31.39 LT	23+91.88	64.57 LT

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
17+92.48	20.51 LT	18+28.54	17.41 LT

ITEM 767.121 Sediment Control Barrier

Throughout project on side slopes as shown on the Construction Plans. Additional locations as directed by the Engineer.

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
12+40.15	32.69 RT	14+51.37	38.98 RT
14+27.24	36.53 LT	14+81.92	37.53 LT
15+22.84	43.57 RT	16+76.78	35.10 RT
15+54.78	42.80 LT	17+03.35	36.69 LT

ITEM 811.37 Electric Handhole Adjusted

If and where necessary as directed by the Engineer.

West Central St Const BL

Station	Offset
23+24.75	22.18 LT

ITEM 816. Traffic Signal Removed and Reset

As shown on the Construction Plans and where required by the Engineer.

West Central St Const BL

Station	Offset
23+20.61	28.00 LT

ITEM 864.12 Symbols (PF)

Pavement markings for bike rider symbols and other legends as shown on the Sign and Pavement Marking Plans.

Boden Lane Const BL

Station	Offset	Description
11+08.73	9.46 LT	Bike Symbol
11+53.82	13.95 LT	Bike Symbol
12+14.49	9.16 LT	Bike Symbol
12+89.74	14.02 LT	Bike Symbol
13+71.39	9.32 LT	Bike Symbol
14+52.39	13.90 LT	Bike Symbol
15+57.28	9.45 LT	Bike Symbol
16+41.70	13.77 LT	Bike Symbol
17+22.18	9.20 LT	Bike Symbol
17+87.43	17.19 LT	Bike Symbol

ITEM 864.13 Arrows (PF)

Pavement markings for bike rider symbols and other legends as shown on the Sign and Pavement Marking Plans.

Boden Lane Const BL

Station	Offset	Description
11+08.73	9.46 LT	Bike Arrow
11+53.82	13.95 LT	Bike Arrow
12+14.49	9.16 LT	Bike Arrow
12+89.74	14.02 LT	Bike Arrow
13+71.39	9.32 LT	Bike Arrow
14+52.39	13.90 LT	Bike Arrow
15+57.28	9.45 LT	Bike Arrow
16+41.70	13.77 LT	Bike Arrow
17+22.18	9.20 LT	Bike Arrow
17+87.43	17.19 LT	Bike Arrow

ITEM 866.106 6 Inch Reflectorized White Line (Thermoplastic)

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
10+36.66	11.55 LT	17+91.27	3.41 LT
10+99.74	6.62 LT	17+97.27	10.03 LT

ITEM 866.112 **12 Inch Reflectorized White Line (Thermoplastic)**

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
10+16.17	5.63 LT	10+30.82	37.84 LT
10+17.30	1.93 RT	10+18.09	2.20 RT
10+18.26	0.91 RT	10+21.95	0.34 RT
10+19.23	3.76 LT	10+28.11	0.74 LT
10+20.19	6.60 LT	10+29.66	3.38 LT
10+21.16	9.44 LT	10+30.63	6.22 LT
10+22.12	12.28 LT	10+31.59	9.06 LT
10+23.09	15.12 LT	10+32.55	11.90 LT
10+24.05	17.96 LT	10+33.52	14.74 LT
10+25.01	20.80 LT	10+34.48	17.59 LT
10+25.98	23.64 LT	10+34.74	20.67 LT
10+26.94	26.48 LT	10+33.86	24.13 LT
10+27.91	29.32 LT	10+32.88	27.64 LT
10+28.70	0.56 LT	10+35.44	20.42 LT
10+28.87	32.16 LT	10+32.35	30.98 LT
10+29.84	35.00 LT	10+32.19	34.20 LT
10+32.38	1.07 LT	10+38.18	16.02 LT
18+29.09	9.59 LT	18+29.09	7.41 LT
18+29.09	5.80 LT	18+39.09	5.80 LT
18+29.09	2.80 LT	18+39.09	2.80 LT
18+29.09	3.20 RT	18+39.09	3.20 RT
18+29.09	6.20 RT	18+39.09	6.20 RT
18+29.09	3.20 RT	18+39.09	3.20 RT
18+29.09	0.20 RT	18+39.09	0.20 RT
18+39.09	7.41 RT	18+39.09	11.11 RT
18+52.50	21.55 LT	19+10.03	24.12 LT
18+54.95	31.35 RT	18+92.99	27.31 RT
18+57.30	21.04 RT	18+58.36	30.99 RT
18+60.28	20.73 RT	18+61.34	30.67 RT
18+62.91	26.92 LT	19+10.03	24.12 LT
18+63.27	20.41 RT	18+64.32	30.35 RT
18+66.25	20.09 RT	18+67.31	30.04 RT
18+66.60	36.72 LT	19+13.98	33.91 LT
18+67.91	40.65 LT	18+90.53	39.31 LT
18+68.50	26.59 LT	18+69.10	36.57 LT
18+69.23	19.78 RT	18+70.29	29.72 RT
18+71.50	26.41 LT	18+72.09	36.39 LT
18+72.21	19.46 RT	18+73.27	29.40 RT
18+74.39	33.31 RT	18+91.48	31.49 RT
18+74.49	26.23 LT	18+75.09	36.22 LT
18+75.20	19.14 RT	18+76.26	29.08 RT
18+77.49	26.06 LT	18+78.08	36.04 LT
18+78.18	18.82 RT	18+79.24	28.77 RT
18+80.48	25.88 LT	18+81.07	35.86 LT

ITEM 866.112 (Continued)

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
18+81.16	18.51 RT	18+82.22	28.45 RT
18+83.48	25.70 LT	18+84.07	35.68 LT
18+84.15	18.19 RT	18+85.20	28.13 RT
18+86.47	25.52 LT	18+87.06	35.51 LT
18+87.13	17.87 RT	18+88.19	27.82 RT
18+89.47	25.35 LT	18+90.06	35.33 LT
18+90.11	17.56 RT	18+91.17	27.50 RT
18+92.05	15.80 RT	18+98.71	18.80 RT
18+92.46	25.17 LT	18+93.05	35.15 LT
18+93.28	13.06 RT	19+01.08	16.58 RT
18+94.51	10.33 RT	19+03.63	14.44 RT
18+95.46	24.99 LT	18+96.05	34.97 LT
18+95.74	7.59 RT	19+04.86	11.70 RT
18+96.98	4.86 RT	19+06.09	8.97 RT
18+98.21	2.12 RT	19+07.33	6.23 RT
18+98.45	24.81 LT	18+99.04	34.79 LT
18+99.44	0.61 RT	19+08.56	3.50 RT
19+00.67	3.35 RT	19+09.79	0.76 RT
19+01.44	24.63 LT	19+02.04	34.62 LT

ITEM 866.112 (Continued)

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
19+01.90	6.08 LT	19+11.02	1.98 LT
19+03.14	8.82 LT	19+12.25	4.71 LT
19+03.48	14.76 LT	19+20.80	23.67 LT
19+04.37	11.55 LT	19+13.49	7.45 LT
19+04.44	24.46 LT	19+05.03	34.44 LT
19+05.60	14.29 LT	19+14.72	10.18 LT
19+06.83	17.02 LT	19+15.95	12.92 LT
19+07.43	24.28 LT	19+08.03	34.26 LT
19+08.07	19.76 LT	19+17.18	15.65 LT
19+09.30	22.49 LT	19+18.42	18.39 LT

ITEM 867.106 6 Inch Reflectorized Yellow Line (Thermoplastic)

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
10+33.08	1.01 LT	18+27.53	6.59 RT

Broken Yellow Line - estimate quantity to be one quarter of the total length of Bike Lane

Start Station	Start Offset	End Station	End Offset
10+99.74	11.62 LT	17+91.27	15.03 LT

ITEM 874.2 Traffic Sign Removed and Reset

As shown on the Sign and Pavement Plans.

West Central St Const BL

Station	Offset
23+73.92	25.89 LT

ITEM 874.4 Traffic Sign Removed and Stacked

For removal and stacking of traffic signs as shown on the Sign and Pavement Marking Plans.

Boden Lane Const BL

Station	Offset
10+16.85	27.89 RT
10+26.88	17.22 RT
10+33.49	14.94 RT
10+44.65	23.98 LT
10+52.15	16.66 LT
18+36.75	23.37 LT

ITEM 904.3 5000 PSI, 3/4 IN, 685 HP Cement Concrete
ITEM 910.1 Steel Reinforcement for Structures – Epoxy Coated

For the moment slab and the S3-MTL4 stem at approach slab.

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
11+21.05	5.00 LT	14+68.62	5.00 LT
15+43.35	5.00 LT	17+44.06	5.00 LT

ITEM 945.011 30 Inch Utility Pole Caisson

As specified in the Utility Plans or as directed by the Engineer.

Boden Lane Const BL

Station	Offset
14+09.01	19.00 RT
15+92.20	19.00 RT

ITEM 975.1 Metal Bridge Railings (3 Rail), Steel (Type S3-MTL4)

For quantities being proposed off Bridge No. N-03-012.

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
11+23.63	4.67 LT	14+68.62	5.30 LT
15+43.35	5.00 LT	17+41.47	6.07 LT

ITEM 975.12 Metal Pedestrian Railing (2 Rail) Aluminum

For quantities being proposed off Bridge No. N-03-012.

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
10+69.40	23.54 LT	14+75.00	24.54 LT
15+55.33	24.54 LT	17+99.36	26.94 LT

ITEM 975.3 Protective Screen Type 1

For quantities being proposed off Bridge No. N-03-012.

Boden Lane Const BL

Start Station	Start Offset	End Station	End Offset
11+23.63	4.67 LT	14+68.62	5.30 LT
15+43.35	5.00 LT	17+41.47	6.07 LT

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DOCUMENT A00807

2025 CSX PUBLIC PROJECT INFORMATION FOR CONSTRUCTION AND IMPROVEMENT PROJECTS THAT MAY INVOLVE THE RAILROAD

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Proposal No. 607420-136650

CSX

PUBLIC PROJECT INFORMATION

For Construction and Improvement
Projects That May Involve the Railroad



A00807_3

Prepared by the Public Projects Group
CSX Transportation Inc. Jacksonville, FL

Last revised March 2025

INTRODUCTION

To the Communities, Businesses and Government Agencies We Serve:

CSX Corporation and its business units provide rail and intermodal service in 26 states, the District of Columbia and two Canadian provinces. CSX operates over 20,000 miles of track, helping North America maintain the strongest and most productive transportation system in the world.

In addition to CSX's vitally important customer service responsibilities, the company wants to be a good neighbor in the communities where we operate. That is why we have prepared this information. We want to make it easier for communities and other project sponsors to work with us when they have construction and improvement projects that may involve CSX rail property.

CSX's Public Projects team is involved in a wide variety of projects initiated by government agencies, local businesses and others. Accurate and timely communication of information between CSX and these parties improves planning, relationships and successful completion of projects. The tools in this manual explain important steps project sponsors must follow, including information required in connection with any public project proposal.

CSX places the highest priority on safety – for its employees and for the public. Because CSX is a business and its shareholders ultimately own its rail system, the company must also give careful consideration to anything that could adversely affect customer service, compensation for use of railroad property, and risk to railroad operation.

The Project Managers –

Public Projects Managers are the initial contact for CSX and are assigned territories by state. Please contact them directly about public projects using the information provided. General Engineering Consultants (GEC) provide additional engineering services to assist CSX in managing public projects.

CSX hopes the information and procedures provided here will make it easier for us to work together.



Will Roseborough

Director Project Development and Public Projects

CSX

PUBLIC PROJECT INFORMATION

For Construction and Improvement Projects That May Involve the Railroad

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Additional information can be obtained by contacting the following:

American Railway Engineering and Maintenance of Way Association, (301) 459-3200, or www.arema.org

U.S. Department of Transportation, Manual of Uniform Traffic Control Devices, http://mutcd.fhwa.dot.gov/

INFORMATION COVERED IN THIS MANUAL

This information is intended to assist communities and other project sponsors to plan and implement construction and improvement projects that may involve the CSX rail property.

Examples of such projects include:

Highway-Rail Grade Crossings:

Closure, removal, installation and alterations of public highway-rail grade crossings. CSX Real Estate department manages private crossings.

Bridges Over CSX:

Construction, reconstruction, rehabilitation, repair, removal, and maintenance of bridges over the railroad by outside parties.

Bridges Carrying CSX:

Construction, reconstruction, rehabilitation, repair, removal, and maintenance of bridges carrying CSX over highways and other public properties initiated by outside parties.

Parallel Roads/Facilities:

Construction, reconstruction, modification, removal, and maintenance of parallel roads or other public facilities affecting CSX property or operations.

U.S. Army Corps of Engineers Projects:

Any project undertaken by the Corps of Engineers that involves CSX property or operations.

Entry Onto CSX Property:

Temporary rights of entry onto CSX property, easements, utility installation and bridge inspections.

Other Projects Involving CSX Rail Corridors:

Publicly sponsored projects involving or altering CSX facilities or its property. These projects may be on, above, adjacent to, or otherwise have the potential to impact CSX property.

Important notes:

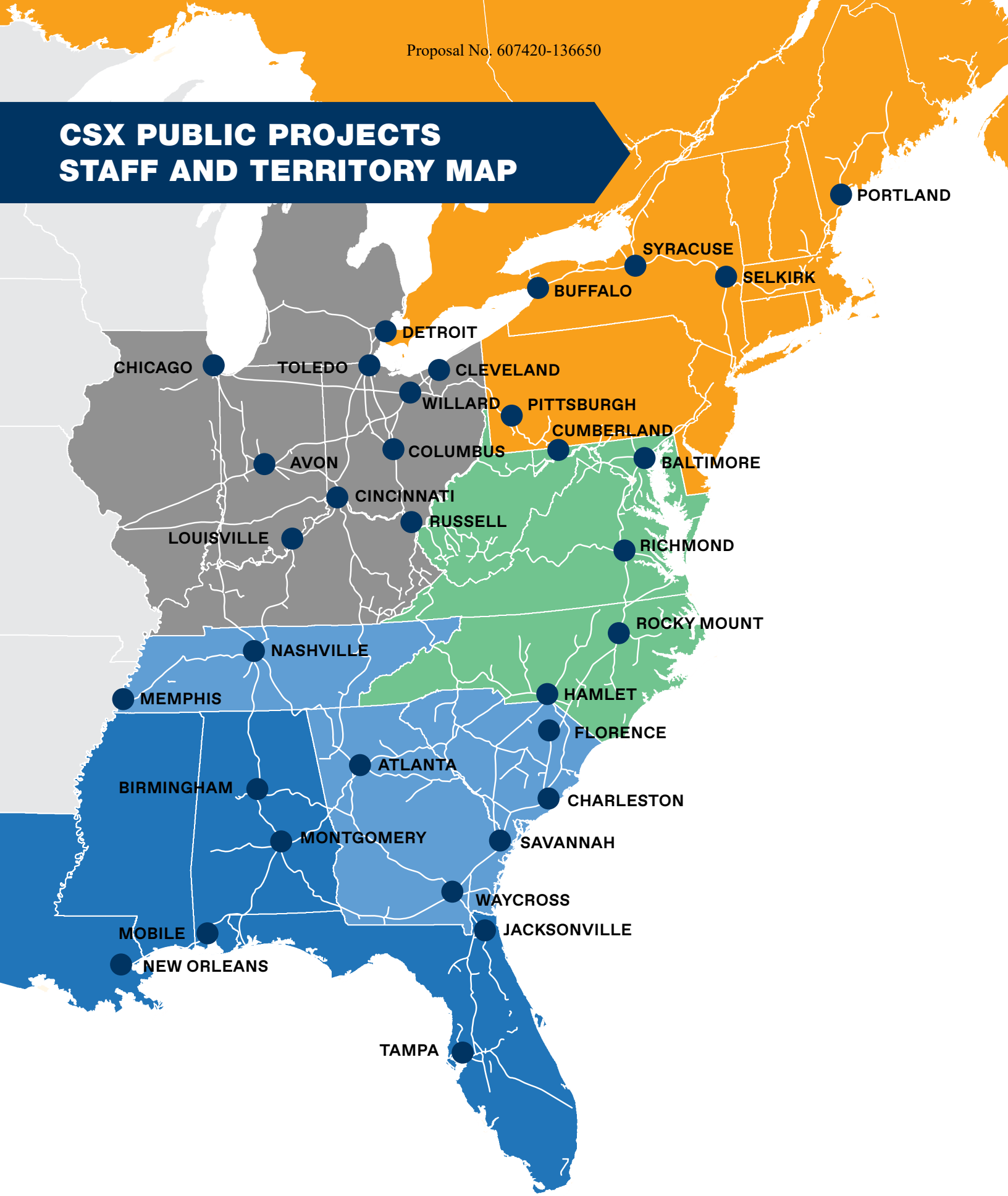
The information herein is intended to be a tool only and all statements in this manual are intended to be for broad use. This manual cannot be taken as authority to construct. Specific projects will be subject to analysis of all factors leading to formal agreements between all parties. The purpose of review by CSX is solely to ensure compliance with the minimum standards of CSX, and not for any other purpose.

The guidelines and requirements herein are provided for reference only and are subject to revision without notice. All new projects shall be designed in accordance with the most current policies, requirements, and standards of CSX.

Any items affecting railroad property not covered in this manual shall be subject to CSX's prior review and approval.

The safety of CSX employees and the general public is of paramount importance to CSX.

CSX PUBLIC PROJECTS STAFF AND TERRITORY MAP



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ADDITIONAL CSX RESOURCES AND CONTACTS

Many areas of community interest are outside the scope of this manual. The following is a list of contacts within CSX that may be helpful on other community matters:

- **Emergencies:** Emergencies and suspicious situations should be reported immediately to the CSX Public Safety Coordination Center (800) 232-0144.

- **Corporate Communications and Public Affairs:** News media information, public affairs, state and community relations. Contact: (904) 366-2949.

- **Industrial Development:** New industry site locations, track proposals. Contact: Director Technical Programs, Regional Development (904) 359-1617.

- **CSX Real Estate:** Non-Construction and Environmental right-of-entry, wire line and pipeline crossings, private crossings, compliance with codes relating to right-of-way conditions. Contact: https://www.csx.com/index.cfm/customers/value-added-services/property-real-estate/permitting-utility-wireless-infrastructure-installations-and-rights-of-entry/

- **Quiet Zones**: Contact: crossingrequests@csx.com

- **Railroad Track and Signal Maintenance:** Non-emergency track maintenance, drainage maintenance, maintenance of highway-rail grade crossings surfaces and warning systems. Contact: TellCSX@csx.com

- **Real Estate Lease or Purchase:** Contact: https://www.csx.com/index.cfm/customers/value-added-services/ property-real-estate/

- **CSX Real Estate Easements for Public Improvement Projects:** If no property rights are in place for the affected CSX property, those rights will need to be established thru CSX Real Estate prior to letting of the public project into construction. Contact: Public_ProjectsRPI@csx.com

- **Structures and Bridges:** Maintenance of bridges that are CSXT's responsibility. Contact: Assistant Chief Engineer - Structures (904) 359-1104.

- **Passenger Operations:** Amtrak, passenger train proposals, commuter train proposals, light rail corridors. Contact: Director Passenger Services Strategy (904) 359-1099.

- **Rails to Trails:** Conversion of unused rail lines to trails. Contact: https://www.csx.com/index.cfm/customers/value-added-services/property-real-estate/

- **Non Emergency Issues:** Contact: tellcsx@csx.com

I. Definitions

1. Agency – The project sponsor (i.e., State DOT, Local Agencies, Private Developer, etc.)

2. AREMA – American Railway Engineering and Maintenance-of-Way Association – the North American railroad industry standards group. The use of this term shall be in specific reference to the AREMA Manual for Railway Engineering.

3. Construction Submission – The Agency or it's representative shall submit 1 hard copy set and 1 electronic set of plans, supporting calculations, and detailed means and methods procedures for the specific proposed activity. All plans, specifications, and supporting calculations shall be signed/sealed by a Professional Engineer as defined below.

4. Controlled Demolition – Removal of an existing structure or subcomponents in a manner that positively prevents any debris or material from falling, impacting, or otherwise affecting CSX employees, equipment or property. Provisions shall be made to ensure that there is no impairment of railroad operations or CSX's ability to access its property at all times.

5. Contractor – The Agency's representative retained to perform the project work.

6. Engineer – CSX Engineering Representative or a GEC authorized to act on the behalf of CSX.

7. Field Construction Inspector (FCI): CSX may elect to use a contracted construction inspector in lieu of, or in addition to, a CSX employee flagman.

8. Flagman – A qualified CSX employee with the sole responsibility to direct or restrict movement of trains, at or through a specific location, to provide protection for workers.

9. GEC – General Engineering Consultant who has been authorized to act on the behalf of CSX. GECs perform preliminary engineering, construction inspection, and monitoring under the direction of the CSX Engineering personnel. GEC personnel also perform day-to-day administration of certain types of projects.

10. Horizontal Clearance – Distance measured perpendicularly from centerline of any track to the nearest obstruction at any elevation between TOR and the maximum vertical clearance of the track.

11. Professional Engineer – An engineer who is licensed in State or Commonwealth in which the project is to occur. All plans, specifications, and supporting calculations shall be prepared by the Professional Engineer and shall bear their seal and signature.

12. Potential to Encroach – Work having the possibility of impacting CSX property or operations; defined as one or more of the following:

    a. Any activity where access onto CSX property is required.

    b. Any activity where work is being performed on CSX ROW.

    c. Any excavation work adjacent to CSX tracks or facilities, within the Theoretical Railroad Live Load Influence Zone, or where the active earth pressure zone extends within the CSX property limits.

    d. The use of any equipment where, if tipped and laid flat in any direction (360 degrees) about its center pin, can encroach within twenty five feet (25'-0") of the nearest track centerline. This is based upon the proposed location of the equipment during use, and may be a function of the equipment boom length. Note that hoisting equipment with the potential to foul must satisfy the 150% factor of safety requirement for lifting capacities.

    e. Any work where the scatter of debris or other materials has the potential to encroach within twenty five feet (25'-0") of the nearest track centerline.

    f. Any work where significant vibration forces may be induced upon the track structure or existing structures located under, over, or adjacent to the track structure.

    g. Any other work which poses the potential to disrupt rail operations, threaten the safety of railroad employees, or otherwise negatively impact railroad property, as determined by CSX.

13. ROW – Right of Way; Refers to CSX Right-of-Way as well as all CSX property and facilities. This includes all aerial space within the property limits, and any underground facilities.

14. Submission Review Period – A minimum of 30 days will be required for the initial review response. Up to an additional 30 days may be required to review any/all subsequent submissions or resubmission.

15. Theoretical Railroad Live Load Influence Zone – A 1 horizontal to 1 vertical theoretical slope line starting at bottom corner of tie.

16. TOR – Top of Rail. This is the base point for clearance measurements. It refers to the crown (top) of the steel rail; the point where train wheels bear on the steel rails. Use the higher of the two rails when track is superelevated.

17. Track Structure – All load bearing elements which support the train. This includes, but is not limited to, the rail, ties, appurtenances, ballast, sub-ballast, embankment, retaining walls, and bridge structures.

18. Vertical Clearance – Distance measured from TOR to the lowest obstruction, within six feet (6'-0") of the track centerline, in either direction.

REQUIREMENTS FOR PRELIMINARY ENGINEERING REVIEW

Overview

Any project proposals that may affect or be near the CSX right-of-way must be evaluated by CSX. To initiate a construction or improvement project, a PE agreement is required to identify the project sponsor, the scope, define the tasks to be accomplished, and specify the payment required. Once the plans for the project are approved by CSX, a construction agreement will be developed.

Purpose

The purpose of PE is to identify issues related to safety, engineering, customer service, operations, legal and regulatory matters, expense, risk and other considerations specific to any proposed project. CSX review of plans is only to determine that the plans, and improvements constructed in accordance with the plans, satisfy CSX's requirements and do not adversely impact or damage CSXT property interests. Plans should be submitted early in project development to ensure that CSX requirements can be incorporated.

Key Points

- Starting CSX Preliminary Engineering (PE) early by providing conceptual plans lowers project costs and shortens the time required for CSX review and approval.
- Using standard agreements lowers costs and saves time.
- If the proposal requires an encroachment within CSXT Right-of-Way, the project sponsor should contact the CSX Real Estate Department when beginning PE.
- If the proposal requires a utility encroachment, the project sponsor should contact CSX Real Estate Department when beginning PE.
- CSX PE Review will not begin until the PE Agreement is fully executed and PE funds are received.

Process Steps To Be Taken

- Notify CSX Public Projects Group of the project by providing location information and conceptual plans.
- Complete and Submit New Project Initiation Form.
- Provide CSX authorization to incur preliminary engineering costs.
- Review and complete a standard PE agreement and provide payment for expenses as specified in the agreement.
- Provide project information; attend meetings (as needed), review site with CSX or GEC personnel.
- Submit initial plans to CSX or designated GEC for review.
- Respond to CSX or designated GEC comments and adjust design if necessary.
- Coordinate with CSX Real Estate as required
- Submit final design for CSX or designated GEC review.
- CSX will perform final review to ensure compliance with railroad requirements.
- CSX will estimate the cost of the work to be done by CSX, including flagging.
- If CSX takes no exceptions to the design plans (or once all CSX concerns have been addressed), CSX will prepare a standard construction agreement for execution.

Costs and Expenses

These matters are covered in more detail in the section that follows ("Payment of CSX's Costs and Expenses"). For the reasons described in that section, CSX requires advance payment for its costs and expenses of reviewing and handling the PE. All expenses of the party seeking the review will be borne by that party, including expenses for CSX employees or GEC personnel attending meetings, reviewing plans, preparing correspondence and other activities to support the review of the project.

Timing

It is in the interest of all parties to complete the PE review before commitments are made or construction steps begin. CSX will work to be responsive, with timing depending upon the complexity of the project. CSX and its GEC will work with the project sponsor to schedule PE and construction to meet project schedule objectives whenever possible, considering available resources.

Property Rights

Construction and improvement projects involving CSX property will require a conveyance of property rights,
FOR EXAMPLE:

- Highway-Rail Grade Crossings
- Bridges Over CSX
- Parallel Roads/Facilities
- Road/Bridge Widening Projects

Before CSXT will issue a Notice to Proceed for construction within their property, formal property rights will need to be verified through the CSXT Real Estate Department. CSXT Real Estate will confirm the real estate requirements for each project.

If an easement is necessary, the below listed information* will be required for review and processing:

- Cover letter – identifies the type(s) of easement(s) and why each easement area is needed. This information will assist in ensuring the correct easement(s) is/are referenced in the deed. The Construction Easement request, if temporary, includes the length of time this type of easement will be needed. The letter also includes contact information for the project contact. An email address for the project contact is to be included.
- Offer (Good Faith Offer or Fair Market Value (FMV)
- Metes and bounds description for each easement area is required to identify the easement boundaries to be included within the deed. CSXT will not be able to commence review without the metes and bounds description.
- Right-of-Way Detail Sheet calling out the easement area(s)

**Any missing information will result in a delay in processing*

Standard Documents and Estimates

CSX executes hundreds of agreements each year for preliminary engineering and construction of projects. CSX has developed standard agreements which can be executed by CSX without additional legal review. Non-standard agreements or modifications to the CSX standard agreement terms will require additional legal review and may increase project duration and/or cost. Sample standard agreement documents are available in the Appendix. CSX will begin each project with a PE estimate and PE agreement. After execution of the PE agreement and receipt of the PE deposit, CSX will complete the PE phase of the project. At the end of the PE phase, CSX will provide the project sponsor a construction estimate for all required CSX costs during the construction phase of the project. CSX provided estimates are valid for one year from date of approval noted on the estimate form.

PAYMENT OF CSX'S COSTS AND EXPENSES

Overview

The types of projects being addressed in this manual usually do not directly benefit and, in some cases, create risk to, and hurdles for, CSX's core business of providing transportation service vital to its customers and the North American economy. For these reasons, CSX seeks payment for its costs and expenses incurred in connection with project review or construction.

Examples of Costs and Expenses

Agency shall reimburse CSX for all costs and expenses incurred by CSX in connection with the Project, including, without limitation:

- All out of pocket expenses
- Travel and lodging expenses
- Telephone, facsimile, and mailing expenses
- Costs for equipment, tools, materials and supplies
- Sums paid to CSX's consultants and subcontractors
- CSX labor in connection with the Project (included but not limited to flagging), together with CSX labor overhead percentages established by CSX pursuant to applicable law
- For estimating purposes only, typical flagging costs are $1,300 per day

Key Points

- Preliminary Engineering (PE) costs are paid in advance.
- CSX construction expenses will be estimated during PE and the estimate will be incorporated into the construction agreement. Advance payment is required to cover these expenses prior to the start of project construction.
- If CSX anticipates that actual expenses will exceed the advance payment, additional payment will be required. Project work may be stopped until additional payment is received.
- If CSX's actual expenses are less than the sum of any deposits the difference will be refunded after final cost accounting.
- All funding sources must be identified up front, and any time funding sources change, CSX must be immediately informed. CSX requires the completion of a "New Project Initiation Form" at the beginning of each project. By completion of this form, the project sponsor agrees to reimburse CSX for project related costs. Each time project funding changes, a new "New Project Initiation Form" must be completed.
- All costs associated with any real estate or utility transaction will be handled separately with the CSX Real Estate Department.

INSURANCE REQUIREMENTS FOR PUBLIC PROJECTS

I. Insurance Policies:

Agency and Contractor, if and to the extent that either is performing work on or about CSX's property, shall procure and maintain the following insurance policies:

1. Commercial General Liability coverage at their sole cost and expense with limits of not less than $5,000,000 in combined single limits for bodily injury and/or property damage per occurrence, and such policies shall name CSX as an additional named insured. The policy shall include endorsement ISO CG 24 17 evidencing that coverage is provided for work within 50 feet of a railroad. If such endorsement is not included, railroad protective liability insurance must be provided as described in item 4 below.

2. Statutory Worker's Compensation and Employers Liability Insurance with limits of not less than $1,000,000, which insurance must contain a waiver of subrogation against CSX and its affiliates (if permitted by state law).

3. Commercial automobile liability insurance with limits of not less than $1,000,000 combined single limit for bodily injury and/or property damage per occurrence, and such policies shall name CSX as an additional named insured. The policy shall include endorsement ISO CA 20 70 evidencing that coverage is provided for work within 50 feet of a railroad. If such endorsement is not included, railroad protective liability insurance must be provided as described in item 4 below.

4. Railroad protective liability insurance with limits of not less than $5,000,000 combined single limit for bodily injury and/or property damage per occurrence and an aggregate annual limit of $10,000,000, which insurance shall satisfy the following additional requirements:

   a. The Railroad Protective Insurance Policy must be on the ISO/RIMA Form of Railroad Protective Insurance - Insurance Services Office (ISO) Form CG 00 35.

   b. CSX Transportation must be the named insured on the Railroad Protective Insurance Policy.

   c. Name and Address of Contractor and Agency must appear on the Declarations page.

   d. Description of operations must appear on the Declarations page and must match the Project description.

   e. Authorized endorsements must include the Pollution Exclusion Amendment - CG 28 31, unless using form CG 00 35 version 96 and later.

   f. Authorized endorsements may include:

      (i). Broad Form Nuclear Exclusion - IL 00 21

      (ii). 30-day Advance Notice of Non-renewal or cancellation

      (iii). Required State Cancellation Endorsement

      (iv). Quick Reference or Index - CL/IL 240

g. Authorized endorsements may not include:

(i). A Pollution Exclusion Endorsement except CG 28 31

(ii). A Punitive or Exemplary Damages Exclusion

(iii). A "Common Policy Conditions" Endorsement

(iv). Any endorsement that is not named in Section 4 (e) or (f) above.

(v). Policies that contain any type of deductible

5. All insurance companies must be A. M. Best rated A- and Class VII or better.

6. The CSX OP number or CSX contract number, as applicable, must appear on each Declarations page and/or certificates of insurance.

7. Such additional or different insurance as CSX may require.

II. Additional Terms:

1. Contractor must submit the original Railroad Protective Liability policy, Certificates of Insurance and all notices and correspondence regarding the insurance policies to:

   Insurance Department
   CSX Transportation, Inc.
   500 Water Street, C-907
   Jacksonville, FL 32202

   insurancedocuments@csx.com

2. Neither Agency nor Contractor may begin work on the Project until it has received CSX's written approval of the required insurance.

ENTRY ONTO CSX PROPERTY

Overview

To maintain efficient customer service and to ensure the safety of CSX employees and of those parties requesting access to CSX property, CSX requires all parties accessing its right-of-way for investigative activities or for the performance of construction work to have a written agreement with CSX fully detailing each party's responsibilities. Activities by others with the potential to affect CSX's property, operations, and or personnel without actually entering CSX property must also be reviewed with CSX and appropriate arrangements and agreements completed.

The process by which an appropriate agreement covering entry and/or the other necessary conditions or requirements can be developed and implemented is typically dependent upon the scope of the activities proposed by an outside party or agency. Although the type of agreement may vary, most agreements include insurance and liability provisions, work procedures and conditions and reimbursement provisions relating to payment to CSX for costs it may incur in relation to the entry or work. The following summarizes the various types of CSX agreements and contracts most frequently utilized to accommodate the requested entry and the proposed work activities.

Key Points

Written permission is required for all parties entering CSX property.

- Construction Agreements authorize entry onto CSX property.
- Temporary right-of-entry agreements can also be used for limited purposes.
- CSX Real Estate handles temporary rights of entry for non-construction activities.
- CSX Public Projects handles temporary rights of entry for construction activities.
- All parties must adhere to CSX Safety procedures.
- Appropriate insurance is required.

Entry for Construction Work

Entry for construction work (not exclusively associated with utility work) will require a Construction Agreement or a Temporary Right-of-Entry Agreement, as determined by the magnitude of potential impacts to CSX.

A Construction Agreement will be required for construction work that could impact CSX facilities or operation, such as construction or rehabilitation of a bridge over CSX, roadway construction or other highway improvements, or grading and/or drainage work. Additional agreements may be required for any permanent improvements/encroachments within CSX corridors or property.

Construction work that will not impact CSX facilities or operation may be handled by a Temporary Right-of-Entry Agreement, as determined by CSX Public Projects.

Entry for Non-Construction Work

A Temporary Right-of-Entry agreement is utilized by CSX primarily in situations where outside parties or agencies desire to undertake investigative work such as performing survey work, taking borings, performing bridge inspections or undertaking other activities requiring only access to CSX property and not construction work activities. Different agreements are used for temporary private crossings.

Applications for Temporary Right-of-Entry agreements for investigative and non-construction work activities (including movement of off-highway or oversized loads at grade crossings) within CSX's right-of-way can be obtained by contacting CSX Real Estate at https://www.csx.com/index.cfm/customers/value-added-services/property-real-estate/permitting-utility-wireless-infrastructure-installations-and-rights-of-entry/

Entry For Other Purposes

CSX may use other forms of agreements covering entry by outside parties or agencies depending on work scope or other factors. The process to obtain right of entry for these purposes as listed below may also be initiated through CSX Real Estate at https://www.csx.com/index.cfm/customers/value-added-services/property-real-estate/

- Environmental Right-of-Entry
- Utility Permit/License Agreement for pipeline and wire line construction – both for specifications and applications
- Land Lease applications
- Movement of oversized loads across CSX tracks at private or public highway-rail grade crossings
- Movement of off highway construction equipment across CSX tracks at private or public highway-rail grade crossings.

CONSTRUCTION MONITORING REQUIREMENTS

Overview

To ensure the safety of the public and CSX employees, maintain quality rail service to CSX customers and to protect CSX assets, CSX may require construction monitoring (in addition to flagging protection) of the project. The construction monitoring will be conducted by CSX and its consultants at project expense.

Key Points

- Construction work affecting CSX will be monitored by CSX and its consultants at the project sponsor's expense.
- Construction monitoring is in addition to flagging and other protective services.

General Guidelines

Construction monitoring includes intermittent or continuous on-site presence of CSX or its consultants during construction activities.

- The construction project sponsor, owner, or agency in charge will pay for the cost of construction monitoring. Construction monitoring will be specified, and the estimated cost will be included in the construction agreement for the project.

- Construction monitoring is in addition to railroad-approved flagging.

- Construction monitoring includes CSX review and approval of all plan changes and required contractor submissions during the construction phase of the project.

- The project sponsor is responsible for its safety and the safety of its property, contractors, and employees. CSX, as part of its construction monitoring, will review the work site for activities that could interfere with safe operation of the railroad.

- CSX and its consultants are not responsible for monitoring the general work activities under the direction of the project sponsor for compliance with safety regulation. Any observed unsafe acts or conditions will be reported immediately to the project sponsor or contractor representative.

RAILROAD FLAGGING FOR ACTIVITIES ON OR NEAR CSX PROPERTY AND TRACKS

Overview

In the interest of public safety and the safety of employees and property, CSX will work cooperatively with agencies, consultants, contractors and others who need to access railroad property when work brings them in close proximity to active railroad tracks to determine the appropriate flagging services needed and to make arrangements for those services.

Conditions When CSX Flagging Services Are Required:

- When any entity is working on, near or adjacent to active railroad tracks.
- When an outside party is using railroad property or performing operations that may affect railroad property or facilities. This includes occasions when a party has been given express permission from CSX to enter railroad property or perform such operations under the terms of a Construction agreement, Temporary Right-of-Entry agreement or other appropriate documentation.
- When work off of railroad property has the potential to impact CSX property or operations.
- When off-highway construction equipment is crossing the railroad at a private or public crossing.
- When oversized equipment or highway vehicles are to cross the railroad at a private or public crossing.
- In other instances as determined by CSX.

Key Points

Flagging services are required when projects are within close proximity to active rail lines, as required by federal law.

- Flagging services can only be performed by personnel qualified by CSX.
- Arrangements for flagging services may take up to 90 days to schedule.
- It should be understood that occasions may arise during the life of the project when CSX must temporarily reassign the project Flagman to meet the changing demands of operating its railroad. This can occur without advance warning. CSX will make every effort to coordinate events to minimize scheduling conflicts, but there may be circumstances that will cause temporary inconvenience to the project.

Construction activities shall be planned in such a manner as to minimize the amount of time flagging services are needed.

Qualified Flagging Personnel

CSX flagging services may only be performed by personnel qualified by CSX who are trained in the proper procedures related to rail operations and safety requirements, familiar with rail operations and procedures in a project area and able to communicate directly with CSX dispatching personnel and train crews.

Arrangements for CSX Flagging Services

- CSX will make arrangements for flagging services related to planned work by an outside party under the terms of a temporary right-of-entry agreement, construction agreement, environmental license agreement or other mutually acceptable arrangements.
- Advance notice must be provided to secure CSX flagging services. The level of advance notice may vary from site to site or project to project or if CSX determines, under the provisions of its labor agreements with its union forces, that flagging services can only be provided as a result of the flagging position being bid and awarded to qualified CSX personnel.
- Advance notice must be provided to cancel CSX flagging services. If advance notice to cancel is not provided, the project sponsor will be responsible for paying for the flagging until CSX is notified. Requests to cancel or end flagging should be given at least 3 days in advance.

Responsibility for Costs and Expenses

- All costs and expenses associated with CSX flagging services are the sole responsibility of the agency, consultant or contractor.
- CSX will provide its estimated costs prior to the start of the project work or its assignment of flagging personnel.
- Once flagging personnel are formally assigned by CSX to a specific work location, the period of assignment can only be changed with appropriate advanced arrangements.
- Charges for providing flagging services beyond a normal eight-hour weekday are calculated and billed at an overtime rate.
- For initial planning purposes, typical flagging cost is $1,300 per day.

Examples of Flagging Costs and Expenses

Charges billed by CSX to the agency, consultant or contractor may include, but are not limited to:

- Employee Salary
  - Hourly employee charges are based on the time an employee departs and returns to his or her headquarters location. As such, the charges can be expected to exceed the level actually incurred during the assigned coverage period or while the flagman is present at the specific work location.
  - This period also includes the time required for flagging personnel to perform the required preparations and termination procedures associated with flagging services at a location.
- Overhead Costs
  - These charges are assessed against the hourly employee charges and determined in accordance with standard accounting procedures or as mandated by governmental regulations.
- Employee Expenses or Per Diem Rate
  - This amount is calculated based on an employee's actual expenses or on a per diem rate according to the terms of applicable collective bargaining agreements between CSX and its assigned union flagging employees.
  - The amount includes travel and lodging expenses and the cost for a leased, rented, CSX, or personal vehicle to be used for transportation.
- Administrative, Accounting, and Billing Services
  - This amount is related to the time associated with setting up the agreement, arranging for and supervising the employee, billing and collection of costs, and other expenses associated with CSX providing flagging services.
- Field Construction Inspector (FCI)
  - CSX may elect to use a contracted construction inspector in lieu of, or in addition to, a CSX employee flagman.

HIGHWAY-RAIL GRADE CROSSING SURFACE MAINTENANCE AND REPLACEMENT

Overview

The crossing surface provides a path for highway vehicles to cross railroad tracks. The objective is to provide a safe, smooth, and cost effective crossing for highway and railroad traffic. Highway and railroad maintenance work in the vicinity of highway-rail grade crossings must consider safety concerns for both highway and railroad traffic before, during, and after the time the work is implemented.

Identification of the crossing and location

Each crossing has a unique DOT inventory identification number posted at the crossing. There is often more than one crossing on the same road. The crossing number (such as 123456A) must be used to identify the specific crossing in all communications with the railroad to reduce possible confusion about the specific location.

Key Points

- Report issues with crossing surfaces to TellCSX (TellCSX@csx.com)
- Coordination is required for work near crossings.
- Highways must be closed to vehicular traffic for crossing replacement or maintenance work.
- Agreements with CSX are required for crossing work and work near crossings.
- Crossing surface maintenance and replacement must be performed by CSX.
- Crossing surfaces must meet criteria set by CSX's Engineering Standards.
- For identification purposes, each crossing has a distinct DOT inventory number (such as 123456A) posted at the crossing and the railroad milepost.

When track maintenance necessitates the repair of the crossing, the cost of said repair will be the responsibility of the Agency, per applicable agreements.

Crossing Construction

Railroad track is continuous through the crossing and includes railroad ties, rail and fasteners below the surface of the crossing. The crossing surface for highway traffic can be made of several different materials. Drainage is required for all four quadrants at a crossing.

Crossing Surface Types and Selection

Crossing surface material and construction methods are selected for each crossing based on the type of highway and railroad traffic, past experience and funding available from highway agencies for individual projects.

Standard types of CSX approved crossing surfaces are Concrete or Timber/Asphalt. Projects funded by outside parties may be constructed with other materials if specified by the outside party and approved by CSX. Modular Platform “Tub” type crossings may be considered for use at locations with slow rail operations of 15 MPH or less and high road vehicle count and/or heavy vehicles.

Crossing Maintenance and Replacement

Crossing maintenance and replacement of the track and crossing surface are performed by CSX and may be billable to an outside party or highway authority as specified in an agreement. The responsibility for the maintenance of public crossing approach pavement varies by state and is specified in some individual crossing agreements or orders.

Crossing work requires closing the entire highway-rail grade crossing. Replacement of track components through a crossing requires removal of the crossing surface, replacement of track ballast, and surfacing the track through the crossing prior to replacement of the crossing surface. If the subgrade needs to be improved, the application of a hot mixed asphalt underlayment should be considered. Drainage will be reestablished for all four quadrants. After the crossing surface is replaced, the highway approach paving is completed and then the road is opened to highway traffic. Replacement of the track and crossing surface usually requires that the highway be closed for several days.

Crossing surfaces are also removed and replaced when track maintenance work is performed through a crossing such as rail replacement, tie replacement, and track surfacing (smoothing). Each crossing has the surface removed and replaced after the work has been completed. Crossings are usually closed for several days during this maintenance work.

Requesting Crossing Surface Replacement or Upgrades

Highway agencies seeking replacement of crossing surfaces should contact CSX Public Projects. The request for the work and the recommended surface must be reviewed and approved by CSX. If approved, Public Projects will prepare a standard agreement and include the cost estimate for the project.

ALTERATIONS TO HIGHWAY-RAIL GRADE CROSSING WARNING DEVICES

Overview

The Public Projects Group will process all projects proposing alterations to public highway-rail grade crossing warning systems. Included will be projects for opening new crossings, closing existing crossings, modifying or widening of existing crossings, installing new warning systems, removing and/or relocating existing warning systems and modifying/upgrading existing warning systems.

Identification of the crossing and location

Each crossing has a unique DOT inventory identification number posted at the crossing. There is often more than one crossing on the same road. The number (such as 123456A) must be used to identify the specific crossing in all communications with the railroad to reduce possible confusion about the specific location.

Key Points

- Any alterations to highway-rail grade crossing warning systems must adhere to all applicable laws, regulations and national standards.
- Requests to CSX for new or modified public at-grade crossing warning devices must be initiated by the highway agency.
- Preliminary Engineering agreements are used to define the project scope and prepare design and estimate information for each project.
- The requesting project sponsor will be responsible for advance payment for engineering, design and installation of warning devices.
- The coordination of traffic intersection signals with warning devices will be determined by the highway agency or regulatory agency.
- Construction agreements are used to implement the projects.
- Advanced Preemption timing will be limited to 50 seconds.

Design Considerations

Highway-rail grade crossing warning systems must adhere to all applicable Federal and State standards and regulations, and local policies, laws and ordinances, as well as CSX standards. The highway agency, not CSX, is responsible for determining the level and configuration of warning devices for a public highway-rail grade crossing. In addition, the highway agency or other governmental agency responsible for making warning system and equipment determinations is responsible for selecting appropriate vehicular traffic control signs and/or devices for a specific public highway. Loop Detection Circuitry will not be designed, installed, owned, or maintained by CSX.

Recommended practices and additional information are available in American Railway Engineering and Maintenance of Way Association (AREMA) manuals and the Manual on Uniform Traffic Control Devices (MUTCD)

Engineering, Cost Estimation, Installation

CSX will provide engineering, design, and cost estimates for the installation of highway-rail grade crossing warning devices at the expense of the project sponsor as part of the Preliminary Engineering for a project. Changes to highway-rail grade crossing surfaces may also require engineering and estimating by CSX. Because of labor agreements with CSX's union forces, CSX will install the highway-rail grade crossing warning devices.

Operation of Highway-Rail Grade Crossing Warning Devices

Highway-rail grade crossing warning systems are designed to activate in advance of a train entering the crossing. Train speed changes while approaching the crossing may cause the warning system to activate longer than expected. Trains stopping or making forward and reverse movements near the crossing may cause the warning system to activate and then clear after an appropriate time without a train entering the crossing.

Traffic Light Preemption Interconnection

The highway agency will determine if preemption is required. Preemption of the cycle of traffic signals at highway intersections near highway-rail grade crossings requires careful review by highway traffic engineers to determine the appropriate timing and sequence for both the traffic signal and the highway-rail grade crossing warning system. Preemption for the traffic signal may be simultaneous with, or in advance of, the warning system activation. The appropriate sequence and timing shall be provided by the highway agency and distributed to CSX to facilitate CSX's signal design. CSX will furnish one preemption interconnection circuit of a normally closed contact that is designed to open upon the approach or presence of a train and will terminate the closed preemption interconnection circuit in a common cable junction box to be used for the interconnection of the traffic signals and the grade crossing warning devices.

Advanced Preemption Timing

For grade crossing warning systems interconnected with highway traffic signals, the 2018 AREMA C&S Manual limits advanced preemption timing to 50 seconds (plus equipment response time), and CSX will abide by this standard. For more information refer to 2018 AREMA C&S Manual Part 3.1.10, section C.1

OVERHEAD AND UNDERGRADE BRIDGE PROJECTS

Overview

Given the efficiencies and environmental benefits of moving goods by rail, CSX continues to see strong demand for rail services across its network. It is critical that CSX maintain the ability to expand its network in the future.

CSX requires that new overhead bridges (including existing bridge replacements) span CSX's right-of-way and have a minimum 23' vertical clearance above top of rail. CSX requires that new undergrade bridges provide accommodations for future operating needs, as determined by CSX.

During project construction, rail operations must not be impeded. Temporary run-around track(s) and/or phased construction may be necessary as determined by CSX.

Key Points

- Overhead and undergrade bridge projects must comply with CSX's policies and standards, which are available in the appendices of this manual.
- All work on overhead and undergrade bridges must be reviewed and approved by CSX.
- CSX should be involved early in the project development phases to allow required bridge standards to be incorporated into the design of the project.
- A preliminary engineering agreement and construction agreement will be required.
- CSX property and operations (including train speeds) shall not be negatively impacted by the project.
- No temporary reduced clearances will be permitted.
- CSX requires that new overhead bridges (including existing bridge replacements) clear span CSX's right-of-way and have a minimum 23' vertical clearance above top of rail.
- All new undergrade bridges must have a ballast deck.
- MSE walls are prohibited on or adjacent to CSX property.
- Vehicular Clearance signage for clearance under CSX bridges is the responsibility of the road authority, not CSX.

General Guidelines

- All bridge projects over or under CSX shall be governed by the appropriate criteria found in the appendices. This includes but is not limited to replacements, new construction, substructure modifications and/or repairs, superstructure replacement or repair, and deck replacement or overlay.

- Temporary and final drainage plans must be approved by CSX.

- No drainage will be directed to CSX right of way.

- CSX's access to its property must be maintained.

- Plans must show all tracks and horizontal and vertical track clearances for both the existing conditions and the proposed project property or right-of-way lines.

- Bridge demolition criteria are found in the Overhead Bridge Criteria in the appendices of this manual.

- Upon completion of construction, a full set of electronic as-built drawings, showing actual measured vertical and horizontal clearances, shall be furnished to CSX.

PARALLEL ROAD CONSTRUCTION

Overview

In the interest of public safety, parallel public roads shall be located off CSX property. Parallel roads involving intersections with existing or proposed highways where public or private crossings are present should be aligned to provide sufficient distance from the crossing for the largest vehicle (design vehicle) permitted to use the road to stop between the railroad and the parallel road traffic control signs, markings, and warning devices without interfering with railroad operations, obstructing or preventing the operation of traffic control devices or obstructing the crossing in any manner.

Key Points

- Proposed parallel public roads shall be located off CSX property.
- Safety at existing highway-rail grade crossings must be considered and not adversely impacted.
- No additional drainage may be directed onto railroad property.
- CSX's access to its property must not be impeded.
- Construction may result in the need for alterations to crossing warning systems or facilities.

General Guidelines

The design of highways, highway intersection, and configuration of highway-rail grade crossings is the responsibility of the highway agency. Drainage for highway runoff, the railroad corridor, and adjacent property must be designed to reduce or maintain existing railroad drainage and to prevent standing water and potential erosion. Access for CSX equipment to the railroad property, structures, and track cannot be restricted or prevented.

Federal and State design manuals, the Manual of Uniform Traffic Control Devices (MUTCD) and additional recommended practices available in American Railway Engineering and Maintenance of Way Association manuals (AREMA) provide design information to be considered by the highway agency responsible for the project engineering. The table of contents of this document has additional information on the MUTCD and AREMA manuals and information

- Plans should include a typical section to show the relationship of the proposed work with respect to CSX property.

- Adjacent roadway projects shall comply with all aspects of the CSX Transportation Drainage Criteria.

- A railroad flagman or contracted construction inspector may be required at the project expense.

PAINTING AND CLEANING CSX BRIDGES TO IMPROVE APPEARANCE

Overview

Requests are occasionally made by outside parties for various beautification projects, including painting of overhead and undergrade bridges. These requests are considered on a case-by-case basis by CSX. The cost of painting and future aesthetic maintenance will be the responsibility of the project sponsor proposing to paint the CSX bridge. CSX will make every effort to cooperate, consistent with maintaining the safety of the public and the safe operation of the railroad.

Key Points

- CSX understands the desire of communities to improve the appearance of bridges and other structures. Safety of CSX employees, the general public and neighbors restrict some alternatives for bridge appearance improvement.
- CSX may permit others to paint CSX bridges if labor agreement, technical and responsibility requirements are resolved.
- Any surface preparation methods must follow all applicable environmental guidelines and must be approved in advance by CSX.
- CSX will not accept proposals to attach signage to CSX bridges.
- A written request should be submitted to CSX's Public Projects Group to initiate consideration of such projects.
- CSX must approve all proposed paint schemes and messaging.

Consideration of Bridge Painting Projects

Bridge painting proposals must be reviewed and approved by CSX to ensure compliance with safety and environmental regulations, CSX specifications, and to ensure that the proposal will not impact CSX's property or operations.

- CSX will require an agreement for all bridge painting proposals.
- A public agency must be a party to the agreement.
- CSX will incur no costs or liabilities as a result of the project.
- The public agency or its designee will be responsible for maintenance of the painted surfaces, including aesthetic damage caused by highway vehicles and vandalism.
- A railroad flagman will be required at the project expense.

Submission of Project Requests

A written request by the party wishing to undertake such projects should be forwarded to CSX's Public Projects Group for handling. The request should include information about the situation and the project objectives to assist CSX with completion of the review. The following information should be included:

- The project sponsor and public agency that will execute appropriate agreements for implementation as well as future maintenance of the painted surfaces.
- Paint specifications that meet CSX standards and methods for surface preparation, cleanup, and paint application.
- Qualifications and experience of the painting contractor. CSX will accept state qualified bridge painting contractors working for the responsible agency or company.
- The materials removed during the surface preparation must not impact the surrounding area including ground, water, or air. Materials must not be stored on CSX property.
- Control of paint overspray and vapors during application. The work must be done complying with appropriate regulations and over spray controlled to prevent damage to adjacent property and vehicles in the area.
- Containment system, clean up and disposal of all paint and other material removed from the bridge. The clean-up and disposal of material from the surface preparation for painting and actual painting must comply with all appropriate regulations.
- Pictures and conceptual drawing should be submitted with the initial request from the community to simplify the initial review and comment by CSX.
- Work site safety plan including keeping all personnel away from the tracks and fall protection measures where required.

Additional specifications are available upon request. Important environmental information is included in the Appendix titled "Soil and Water Management Policy."

CLEANING AND PAINTING OF BRIDGES OVER CSX

Overview

All work over CSX has the potential to impact CSX property and rail operations. CSX will review bridge painting and cleaning projects to ensure environmental and engineering standards are met. This review, flagging protection and construction monitoring costs will be paid by the project sponsor.

Key Points

- CSX understands that maintenance of bridges over CSX may include cleaning and painting. The safety of CSX employees, the general public, and the project sponsor's contractors is of paramount importance to CSX.
- A written request should be submitted to CSX's Public Projects Group to initiate this type of project. The request will be reviewed for safety considerations and compliance with CSX engineering and environmental standards.
- An agreement is required to accommodate engineering, review of plans, flagging, right-of-entry, and payment of CSX incurred costs.
- Any damage or required repair from painting operations shall be at the outside party's expense.

Requirements for Initiating and Implementing Bridge Cleaning and Painting

A Preliminary Engineering agreement is required to cover CSX's review of the project and preparation of a cost estimate and construction agreement.

To ensure safety, a railroad employee flagman must be present to control railroad operations in the area during the planned work.

A written request by the party wishing to undertake such projects should be forwarded to CSX's Public Projects Group for handling. The request should include information about the location and the project objectives to assist CSX with completion of the review. The following information should be included:

- The project sponsor and appropriate public agency that will execute appropriate agreements for implementation as well as future maintenance of the painted surfaces.
- Qualifications and experience of the painting contractor. CSX will accept state qualified bridge painting contractors working for the responsible agency or company.
- Containment system, clean up and disposal of all paint and other material removed from the bridge. The clean-up and disposal of material from the surface preparation for painting and actual painting must comply with all appropriate regulations.
- The materials removed during the surface preparation must not impact the surrounding area including ground, water, or air. Materials must not be stored on CSX property.
- Control of paint overspray and vapors during application. The work must be done complying with appropriate regulations and over spray controlled to prevent damage to adjacent property and vehicles in the area.
- Work site safety plan including keeping all personnel away from the tracks and fall protection measures where required.

Important environmental information is included in the Appendix titled "Soil and Water Management Policy."

PUBLIC ROAD CROSSING OPENINGS AND CLOSURES

Overview

CSX understands the importance of highway-rail grade crossings and their relevance to such priorities as economic development, emergency vehicle access and other growth opportunities in the communities through which we operate. Because of the safety concerns associated with highway-rail grade crossings, however, every effort must be made to obtain alternative access or additional capacity using grade separations, or by other roads leading to existing crossings.

Key Points

- Both federal and state government policies discourage the creation of new highway-rail grade crossings. To enhance highway-rail grade crossing safety, CSX endorses the United States Department of Transportation's goal of reducing the number of at-grade crossings through consolidation, elimination, grade separation and restriction of the number of new crossings installed.
- Grade separated structures are the best alternative to add new roads or additional highway capacity.
- CSX and state and federal agencies have worked with many communities to develop and implement projects that improve highway traffic flow without the creation of new highway-rail grade crossings.
- CSX, the Federal Railroad Administration (FRA), and state agencies encourage communities to consider all alternatives before planning to create new grade crossings and encourage closure of existing grade crossings where possible.
- CSX may provide incentive payments for crossing closures.
- To comply with and in support of the federal initiative to reduce crossings, CSX requires the community to identify three comparable active grade crossings to be closed for each new grade crossing.
- New crossings, if approved, shall be maintained at the appropriate agency's expense.

Crossing Closure Incentive Program

Eliminating crossings is a goal of CSX, states and the Federal Railroad Administration (FRA). Likewise, the Federal Highway Administration (FHWA) Railroad-Highway Grade Crossing Handbook acknowledges that the first alternative that should always be considered for a highway-rail at-grade crossing is elimination. Elimination of a crossing provides the highest level of crossing safety because the point of intersection between highway and railroad is removed. Closing adjacent crossings simplifies the design, installation and operation of highway-rail grade crossing warning systems. To help ensure the success of this effort, CSX may provide incentive payments for the closure of public crossings.

Considerations for Crossing Openings and Closures

The addition of any grade crossing brings the potential for incidents involving trains and motor vehicles. For this reason, both federal and state government policies discourage the creation of new grade crossings. CSX, other railroads, the United States Department of Transportation and most states encourage communities to carefully consider all alternatives, including grade separations (crossings that go over or under railroad tracks), as opposed to the creation of new at-grade crossings. The cost of a grade separation should not outweigh the enhanced safety it would provide for motorists.

CSX, the FRA and other railroads actively participate in programs such as Operation Lifesaver, an initiative dedicated to educating the public on the importance of practicing safe driving procedures at grade crossings. For more information about crossing safety, visit: http://www.beyondourrails.org/safety

Before agreeing to the establishment of a new crossing, CSX expects communities to engage in a study with the purpose of identifying existing redundant public crossings for closure. To comply with and in support of the federal initiative to reduce grade crossings, CSX requires that the community identify the closure of three or more comparable active public at-grade crossings.

As discussed above, the appropriate public authority will be expected to reimburse CSX for its cost of design, installation and future maintenance of the crossing.

Policies and Procedures to Guide New Crossing Requests:

The project sponsor requesting a new crossing or seeking to convert a private crossing to a public crossing will be asked to prepare a written request, presenting the following information:

1. A description of the proposed highway project, including proposed passive or active traffic control devices, and the need for preemption and/or interconnection with traffic signals, together with a scale drawing or sketch of the proposed highway and vicinity.

2. Expected Annual Average Daily Traffic (AADT) and proposed vehicular speed limit, photographs, aerial map.

3. A detailed explanation of the necessity of the crossing.

4. Identify at-grade crossings to be closed. Include their vehicular speed limit, AADT, and traffic type.

5. The determination by the highway or regulatory authority of the need for passive or active traffic control devices and other safety treatments (i.e., signage, roadway medians, etc.), as selected by the highway authority consistent with applicable federal and state MUTCD guidelines and requirements.

6. A plan to satisfy any appropriate regulatory authority's requirements, procedures and approval. The project sponsor should coordinate with all applicable agencies (state, county, city, etc.) to ensure proper procedures are followed.

7. Provide CSX authorization to incur costs for its Preliminary Engineering to review the crossing request (whether or not it is approved), design and construction expenses, and for the ongoing maintenance of the crossing surface and related grade crossing warning devices.

CSX will review the request for a new crossing and inform the project sponsor whether or not the new crossing is approved. CSX may deny a new crossing request due to safety or operational concerns.

BICYCLE/PEDESTRIAN PATHWAYS AND MULTI-USE TRAILS

Overview

CSX recognizes that communities often wish to establish recreational pathways and trails in the proximity of active railroad lines. While CSX will work with communities to accommodate such requests, it is critical for project sponsors to recognize that CSX requirements must be met and safety precautions taken to protect the public and CSX employees. In addition, certain requests, such as pathway crossings at grade outside of existing highway easements, will not be permitted.

Key Points

- Private or public bicycle/pedestrian pathways and trails parallel to the tracks are not permitted on CSX property.
- CSX prefers grade-separated bicycle/pedestrian pathways and multi-use trails.
- Bicycle/pedestrian pathways and trails cannot cross tracks at grade outside of existing highway easements.
- Pedestrian safety is enhanced when pathways and sidewalks are designed such that they cross the tracks at as close to a right angle as practical.
- The highway agency's design must include safety measures for at-grade pathways and trails within existing highway easements. These measures should include, at a minimum, detectable warnings. Pathways and trails should not be wider than 5'. All pathways and trails that exceed 5' in width must include additional safety measures beyond detectable warnings.
- CSX will oppose condemnation proceedings aimed at recreational use of trackside property.
- New crossings, if approved, and alterations to existing crossings, shall be maintained at the appropriate agency's expense.

CSX objects to publicly accessible parks, pathways and trails constructed within fifty (50) feet of its existing and proposed tracks. The location of publicly accessible recreational areas at such proximity to CSX poses major safety concerns and places undue liability to CSX. Agency shall be solely liable for any damages which could be mitigated or avoided by adherence to this safety standard.

Agency shall also install, own, maintain and repair, at its sole cost and expense, permanent protective fencing where its property is opposite CSX's property. Fencing shall be in accordance with CSX's standards.

CSX Policy on Pathways and Trails Parallel to CSX Property

At CSX safety is paramount. CSX's policy is not to permit private or public parallel bicycle/pedestrian paths that come within the railroad's right-of-way. CSX will insist upon safety measures such as fencing and signage where such pathways or parks are established parallel to the railroad's right-of-way. The cost of installing, inspection and future maintenance are the responsibility of the trail sponsor or agency. CSX will oppose any attempt to establish recreational usage of CSX property through condemnation. Regardless of construction of pathways and trails, CSX reserves the right to use CSX right of way for operational necessities.

Pathways and Trails Crossing CSX Tracks and Right-of-Way

Bicycle/pedestrian pathways and trails cannot cross tracks at grade outside of existing highway easements. Grade separated pathway and trail crossings are preferred in all cases, and required when outside of an existing highway easement. Pathways and trails under existing railroad structures are discouraged and will only be allowed under special circumstances. Pathways and trails under existing railroad structures will require a canopy. The canopy shall allow CSX to inspect, maintain, or repair its structure and shall not be attached to the CSX structure. Please refer to the Trail Construction Under CSX Bridges, for additional information (located in appendices to this document). Pathways and trails over and under the railroad track shall have protective fencing.

Bicycle/pedestrian pathways and trails crossing at-grade within a highway easement must have appropriate signs and warning systems as determined by the responsible highway and/or regulatory agency. When designing new sidewalk grade crossings, placing the sidewalk outside of the area occupied by grade crossing traffic control devices for vehicular traffic is important. This includes making sure that the counterweights and support arms for the automatic gates for vehicular traffic do not obstruct the sidewalk when the gate is fully lowered.

All expenses associated with the design, installation and maintenance of the pathway/trail, including the costs of signs, crossing surfaces and warning systems associated with an at-grade crossing, will be paid by the project sponsor.

Chapter 8 Section D of the Manual of Uniform Traffic Control Devices (MUTCD) provides design information to be considered by the highway agency responsible for the project engineering. The table of contents of this document has additional information on the MUTCD manual.

CSX prosecutes trespassers and every precaution must be taken to ensure that the public remains clear of CSX's property.

QUIET ZONE PROPOSALS

Overview

CSX will fully comply with the 49 CFR 222, FRA Train Horn Rule (Rule), which provides requirements for the sounding of locomotive horns when approaching public highway-rail grade crossings. The Rule also provides guidance for conditions under which a public authority with jurisdiction over the roadway crossing CSX tracks may apply for and establish Quiet Zones. A Quiet Zone is a section of a rail line that contains one or more consecutive public crossings at which locomotive horns are not routinely sounded. (For full details on the rules, CSX recommends that communities either visit the FRA web site at www.fra.dot.gov or contact the FRA's Office of Safety at 202-493-6299).

Policy on Quiet Zones

The Rule clearly defines requirements that must be satisfied by the public authority requesting that a Quiet Zone be established or continued. CSX will expect the public authority to strictly comply with these requirements.

Key Points

- This section was developed as a guideline for communities that approach CSX in regards to the implementation of a Quiet Zone under the Federal Railroad Administration's (FRA) final rule on the use of locomotive horns at public highway-rail grade crossings (49 CFR Part 222, the "Rule"), and to ensure CSX's full compliance and cooperation with respect to the Rule.

- According to the FRA, the implementation of Quiet Zones – without appropriate safeguards and equipment – increases the risk of accidents at highway-rail grade crossings. In this context, CSX encourages communities considering whether to pursue the implementation of a Quiet Zone to take into account the installation of appropriate Supplemental Safety Measures ("SSMs"), as defined in the Rule, as well as the consolidation and/or closing of adjacent crossings, all of which will act as a safeguard to potentially reduce the risk of accidents at each crossing below the risk level that existed prior to the implementation of the Quiet Zone.

- Communities that wish to implement Quiet Zones will be required to strictly comply with the Rule.

- Pursuant to the Rule, notifications and/or applications to implement or continue Quiet Zones are to be made to the FRA and must involve all relevant state and local agencies, CSX, and any other rail carriers operating in the area.

- CSX requires prepayment for all work performed to design, implement, and maintain railroad facilities within Quiet Zones.

- CSX desires to be a good corporate citizen. CSX also places importance on the quality and timeliness of service to its customers and the communities it serves. As such, consistent with the Rule, CSX will seek to encourage communities requesting Quiet Zones to implement solutions and SSMs that optimally achieve safety while minimizing the impact on railroad operations.

Should SSMs or ASMs fall out of compliance, CSX will resume train horn until repairs are made.

Plans for proposed Quiet Zones shall conform to current MUTCD standards.

CSX has published a Quiet Zone Manual, located here: https://www.csx.com/index.cfm/library/files/about-us/property/quiet-zones/

Identification of the crossing and location

Each crossing has a unique DOT inventory identification number posted at the crossing. There is often more than one crossing on the same road. The crossing number (such as 123456A) must be used to identify the specific crossing in all communications with the railroad to reduce possible confusion about the specific location.

Preliminary Planning for Quiet Zones

Preliminary work by CSX personnel and/or its consultants is likely to be required in connection with the proposed new or continued Quiet Zone, including, but not limited to: updating crossing inventory information; attending meetings; participating, to the extent feasible, in diagnostic reviews of the public, private and pedestrian crossings in a proposed Quiet Zone; preparing and processing estimates covering the cost of work to be performed by CSX, if applicable; and processing necessary agreements. CSX will coordinate preliminary planning activities with each public authority pursuant to an initial agreement that will also provide for payment to CSX for services provided during development of Quiet Zones.

Getting Started: Process for Pursuing a Quiet Zone

1. Groups or individuals interested in Quiet Zones should first contact the public authority responsible for the highway where the Quiet Zone would be located. Public authorities should then contact the FRA for additional information on Quiet Zone requirements and procedures.

2. The public authority shall initiate contact with CSX to: crossingrequests@csx.com. Those making this contact will be furnished with the Quiet Zone policy and advised of the appropriate contact within the CSX Public Projects Group for the initial planning activities with CSX.

3. If the public authority decides to proceed with preliminary planning for a Quiet Zone, the public authority shall deposit funds with CSX for CSX's Quiet Zone related expenses. After this deposit is received, CSX will assist by providing, when required, DOT inventory information and attending diagnostic review meetings, to the extent schedules permit. CSX resources to attend these meetings are limited and thus CSX will seek flexibility in establishing meeting dates and times in order to permit CSX representatives to attend.

4. The preliminary planning for a Quiet Zone project should include a review of the following principles:

    a. CSX will cooperate and work in good faith with local communities and the appropriate public authority to provide all possible assistance in a manner that protects the safety of local citizens and their communities as well as CSX's employees.

    b. In accordance with the Rule, CSX's support of a Quiet Zone proposal will require the plan to meet very specific FRA measures and requirements, which in some cases, may be subject to FRA review, approval and on-going oversight. Accordingly, CSX retains the right to review and comment on the requests.

    c. CSX expects the involvement of the state DOT, FRA, and/or state regulatory authority in any diagnostic review of a public, private and pedestrian crossing in the Quiet Zone corridor being proposed.

    d. As discussed above, the appropriate public authority will be expected to reimburse CSX for its cost of design, installation and future maintenance of safety enhancements, including, but not limited to, its installation of Supplemental Safety Measures (SSMs) and Alternative Safety Measures (ASMs). As an example, CSX installs and maintains active warning systems at highway-rail grade crossings that may be modified or expanded for a Quiet Zone. Curbs, medians, pavement markings and other traffic control signs such as advance warning signs are installed and maintained by Public Authorities. The specific responsibilities are expected to be resolved during the preliminary planning for a Quiet Zone.

    e. If one or more SSMs or ASMs selected to be installed require work by CSX, a separate standard Preliminary Engineering Agreement will be required to cover CSX's engineering, review, handling, and estimate preparation connected with the proposed work. A separate Construction Agreement will be used for implementation of the projects. The cost of this work will be the responsibility of the requesting public authority.

    f. SSMs or ASMs installed and maintained by the public authority as described above are important parts of traffic control at each crossing. The public authority is responsible for periodic inspection and repair of these items.

5. Standard CSX Public Projects Group design and estimating procedures will be used for projects related to Quiet Zones.

6. Vehicle Loop Detection Circuitry will not be designed, installed, owned, or maintained by CSX.

7. Wayside Horn Systems are not authorized for use on CSX.

APPENDIX

CSX TRANSPORTATION

PRELIMINARY ENGINEERING AGREEMENT

Public Projects Group
Jacksonville, FL
Date Issued: September 2024

PRELIMINARY ENGINEERING AGREEMENT

This Preliminary Engineering Agreement (this "Agreement") is made as of, 201, by and between CSX TRANSPORTATION, INC., a Virginia corporation with its principal place of business in Jacksonville, Florida ("CSX"), and [INSERT AGENCY NAME], a body corporate and political subdivision of the [INSERT STATE] ("Agency").

EXPLANATORY STATEMENT

1. Agency wishes to facilitate the development of the proposed [INSERT Project Description; eg: rehabilitation / repair of the Ridgeview Middle School Pedestrian Bridge Structure passing over CSX (DOT# 228 637B) in the vicinity of CSX milepost CD-6.15 on the Great Lakes Division, Columbus Subdivision, located in Columbus, Franklin County, Ohio] (the "Project").

2. Agency has requested that CSX proceed with certain necessary engineering and/or design services for the Project to facilitate the parties' consideration of the Project.

3. Subject to the approval of CSX, which approval may be withheld for any reason directly or indirectly related to safety or CSX operations, property, or facilities, the Project is to be constructed, if at all, at no cost to CSX, under a separate construction agreement to be executed by the parties at a future date.

NOW, THEREFORE, for and in consideration of the foregoing Explanatory Statement and other good and valuable consideration, the receipt and sufficiency of which are acknowledged by the parties, the parties agree as follows:

1. Scope of Work

1.1. Generally. The work to be done by CSX under this Agreement shall consist of: (i) the preparation or review and approval of preliminary and final engineering and design plans, specifications, drawings, agreements and other documents pertaining to the Project, (ii) the preparation of cost estimates for CSX's work in connection with the Project, and (iii) the review of construction cost estimates, site surveys, plats, legal descriptions, assessments, studies, easements, agreements and related construction documents submitted to CSXT by Agency for the Project (collectively, the "Engineering Work"). Engineering Work may also include office reviews, field reviews, attending hearings and meetings, and preparing correspondence, reports, and other documentation in connection with the Project. Nothing contained in this Agreement shall oblige CSX to perform work which, in CSX's opinion, is not relevant to CSX's participation in the Project.

1.2. Effect of CSX Approval or Preparation of Documents. By its review, approval or preparation of plans, specifications, drawings or other documents pursuant to this Agreement (collectively, the "Plans"), CSX signifies only that the Plans and the Project proposed to be constructed in accordance with the Plans satisfy CSX's requirements. CSX expressly disclaims all other representations and warranties in connection with the Plans, including, but not limited to, the integrity, suitability or fitness for the purposes of Agency or any other persons of such Plans or the Project constructed in accordance with the Plans.

2. Project Construction. Nothing contained in this Agreement shall be deemed to constitute CSX's approval of or consent to the construction of the Project, which approval or consent may be withheld for any reason directly or indirectly related to safety or CSX operations, property, or facilities. The Project if constructed is to be constructed, if at all, under a separate construction agreement to be executed by the parties at a future date.

3. Reimbursement of CSX Expenses.

3.1. Reimbursable Expenses. Agency shall reimburse CSX for all costs and expenses incurred by CSX in connection with the Engineering Work, including, without limitation: (i) all out of pocket expenses, (ii) travel and lodging expenses, (iii) telephone, facsimile, and mailing expenses, (iv) costs for equipment, tools, materials and supplies, (v) sums paid to consultants and subcontractors, and (vi) labor, together with labor overhead percentages established by CSX pursuant to applicable law (collectively, the "Reimbursable Expenses").

3.2. Estimate. CSX has estimated the total Reimbursable Expenses for the Project to be approximately $ [INSERT DOLLAR AMOUNT] (the "Estimate" as amended or revised). In the event CSX anticipates that actual Reimbursable Expenses may exceed such Estimate, it shall provide Agency with the revised Estimate of total Reimbursable Expenses for Agency's approval and confirmation that sufficient funds have been appropriated to cover the total Reimbursable Expenses as reflected in the revised Estimate. CSX may elect, by delivery of notice to Agency, to immediately cease all further Engineering Work, unless and until Agency provides such approval and confirmation.

3.3. Payment Terms.

3.3.1. Advance Payment in Full. Upon execution and delivery of this Agreement by Agency, Agency will deposit with CSX a sum equal to the Reimbursable Expenses, as shown by the Estimate. Agency shall pay CSX for Reimbursable Expenses in the amount set forth in CSX Schedule PA attached hereto, a copy of which shall accompany the advance payment. If CSX anticipates that it may incur Reimbursable Expenses in excess of the deposited amount, CSX will request an additional deposit equal to the then remaining Reimbursable Expenses which CSX estimates that it will incur. CSX shall request such additional deposit by delivery of invoices to Agency. Agency shall make such additional deposit within thirty (30) days following delivery of such invoice to Agency.

3.3.2. Following completion of all Engineering Work, CSX shall reconcile the total Reimbursable Expenses incurred by CSX against the total payments received from Agency and shall submit to Agency a final invoice if required. Agency shall pay to CSX the amount by which actual Reimbursable Expenses exceed total payments, as shown by the final invoice, within thirty (30) days following delivery to Agency of the final invoice. CSX will provide a refund of any unused deposits if the deposit exceeds the incurred Reimbursable Expenses for the Project.

3.3.3. In the event that Agency fails to pay CSX any sums due CSX under this Agreement: (i) Agency shall pay CSX interest at the lesser of 1.0% per month or the maximum rate of interest permitted by applicable law on the delinquent amount until paid in full; and (ii) CSX may elect, by delivery of notice to Agency: (A) to immediately cease all further work on the Project, unless and until Agency pays the entire delinquent sum, together with accrued interest; and/or (B) to terminate this Agreement.

3.4. Effect of Termination. Agency's obligation to pay CSX Reimbursable Expenses in accordance with this Section shall survive termination of this Agreement for any reason.

4. Appropriations. Agency represents to CSX that: (i) Agency has obtained appropriations sufficient to reimburse CSX for the Reimbursable Expenses encompassed by the initial Estimate; (ii) Agency shall use its best efforts to obtain appropriations necessary to cover Reimbursable Expenses encompassed by subsequent Estimates approved by Agency; and (iii) Agency shall promptly notify CSX in the event that Agency is unable to obtain such additional appropriations.

5. Termination.

5.1. By Agency. Agency may terminate this Agreement, for any reason, by delivery of notice to CSX. Such termination shall become effective upon the expiration of fifteen (15) calendar days following delivery of notice to CSX or such later date designated by the notice.

5.2. By CSX. CSX may terminate this Agreement (i) as provided pursuant to Section 3.3.3., or (ii) upon Agency's breach of any of the terms of, or its obligations under, this Agreement and such breach continues without cure for a period of ninety (90) days after written notification from CSX to Agency of such breach.

5.3. Consequences of Termination. If the Agreement is terminated by either party pursuant to this Section or any other provision of this Agreement, the parties understand that it may be impractical to immediately stop the Engineering Work. Accordingly, both parties agree that, in such instance a party may continue to perform Engineering Work until it has reached a point where it may reasonably and/or safely suspend the Engineering Work. Agency shall reimburse CSX pursuant to this Agreement for the Engineering Work performed, plus all costs reasonably incurred by CSX to discontinue the Engineering Work and all other costs of CSX incurred as a result of the Project up to the time of full suspension of the Engineering Work. Termination of this Agreement or Engineering Work on the Project, for any reason, shall not diminish or reduce Agency's obligation to pay CSX for Reimbursable Expenses incurred in accordance with this Agreement. In the event of the termination of this Agreement or the Engineering Work for any reason, CSX's only remaining obligation to Agency shall be to refund to Agency payments made to CSX in excess of Reimbursable Expenses in accordance with Section 2.

6. Subcontracts. CSX shall be permitted to engage outside consultants, counsel and subcontractors to perform all or any portion of the Engineering Work.

7. Notices. All notices, consents and approvals required or permitted by this Agreement shall be in writing and shall be deemed delivered (i) on the expiration of three (3) days following mailing by first class U.S. mail, (ii) on the next business day following mailing by a nationally recognized overnight carrier, or (iii) on the date of transmission, as evidenced by written confirmation of successful transmission, if by facsimile or other electronic transmission if sent on a business day (or if not sent on a business day, then on the next business day after the date sent), to the parties at the addresses set forth below, or such other addresses as either party may designate by delivery of prior notice to the other party:

If to CSX: CSX Transportation, Inc.
500 Water Street, J301 Jacksonville, Florida 32202
Attention: Director Project Management – Public Projects

If to Agency: _____
_____
_____
_____

8. Entire Agreement. This Agreement embodies the entire understanding of the parties, may not be waived or modified except in a writing signed by authorized representatives of both parties, and supersedes all prior or contemporaneous written or oral understandings, agreements or negotiations regarding its subject matter. In the event of any inconsistency between this Agreement and the Exhibits, the more specific terms of the Exhibits shall be deemed controlling.

9. Waiver. If either party fails to enforce its respective rights under this Agreement, or fails to insist upon the performance of the other party's obligations hereunder, such failure shall not be construed as a permanent waiver of any rights or obligations in this Agreement.

10. Assignment. CSX may assign this Agreement and all rights and obligations herein to a successor in interest, parent company, affiliate, or future affiliate. Upon assignment of this Agreement by CSX and the assumption by CSX's assignee of CSX's obligations under this Agreement, CSX shall have no further obligations under this Agreement. Agency shall not assign its rights or obligations under this Agreement without CSX's prior written consent, which consent may be withheld for any reason.

11. Applicable Law. This Agreement shall be governed by the laws of the [INSERT STATE] , exclusive of its choice of law rules. The parties further agree that the venue of all legal and equitable proceedings related to disputes under this Agreement shall be situated in Duval County, Florida, and the parties agree to submit to the personal jurisdiction of any State or Federal court situated in Duval County, Florida.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed in duplicate, each by its duly authorized officers, as of the date of this Agreement.

[INSERT AGENCY NAME]

By: _____

Print Name: _____

Title: _____

CSX TRANSPORTATION, INC.

By: _____
Will Roseborough
Director, Project Development and Public Projects

CSX SCHEDULE PA
(Advance Payment – Preliminary Engineering Agreement)

PAYMENT SUBMISSION FORM

* *

Payment is hereby provided in accordance with the terms of Section 3.3 of the Agreement dated ___________________________, 201___, between Agency and CSX.

* *

1) A copy of this Payment Submission Form shall accompany all payments delivered by Agency to CSX which shall be forwarded to the following address:

CSX Transportation, Inc.
PO BOX 530192
ATLANTA GA 30353-0192

2) Email copies of check and this form to Nicole_Henning@csx.com and LShaw@Benesch.com

* *

Upon execution and delivery of this Agreement by Agency, Agency will remit payment in accordance with Section 3.3.1. of this Agreement.

* *

(All information below to be completed by Agency providing Payment)

Check No	Payment Amount	Payment Date
________________	________________	________________

* *

Date: ____________________________________ By: ____

Name: ____________________________________

Title: ____________________________________

Phone: ____________________________________

Email: ____________________________________

APPENDIX

CSX TRANSPORTATION

CONSTRUCTION AGREEMENT

Public Projects Group
Jacksonville, FL
Date Issued: September 2024

CONSTRUCTION AGREEMENT

This Construction Agreement ("Agreement") is made as of _____, 201____, by and between CSX TRANSPORTATION, INC., a Virginia corporation with its principal place of business in Jacksonville, Florida ("CSX"), and [INSERT Name of Public Agency], a body corporate and political subdivision of the State of (INSERT Name of State] ("Agency").

EXPLANATORY STATEMENT

1. Agency has proposed to construct, or to cause to be constructed, [INSERT Project Description; eg: rehabilitation / repair of the Ridgeview Middle School Pedestrian Bridge Structure passing over CSX (DOT# 228 637B) in the vicinity of CSX milepost CD-6.15 on the Great Lakes Division, Columbus Subdivision, located in Columbus, Franklin County, Ohio] (the "Project").

2. Agency has obtained, or will obtain, all authorizations, permits and approvals from all local, state and federal agencies (including Agency), and their respective governing bodies and regulatory agencies, necessary to proceed with the Project and to appropriate all funds necessary to construct the Project.

3. Agency acknowledges that: (i) by entering into this Agreement, CSX will provide services and accommodations to promote public interest in this Project, without profit or other economic inducement typical of other Agency contractors;
(ii) neither CSX nor its affiliates (including their respective directors, officers, employees or agents) will incur any costs, expenses, losses or liabilities in excess of payments made to CSX, by or on behalf of Agency or its contractors, pursuant to this Agreement; and
(iii) CSX retains the paramount right to regulate all activities affecting its property and operations.

4. It is the purpose of this Agreement to provide for the terms and conditions upon which the Project may proceed.

NOW, THEREFORE, in consideration of the foregoing Explanatory Statement and other good and valuable consideration, the receipt and sufficiency of which are acknowledged by the parties, the parties agree as follows:

1. Project Plans and Specifications

1.1 Preparation and Approval. Pursuant to Exhibit A of this Agreement, all plans, specifications, drawings and other documents necessary or appropriate to the design and construction of the Project shall be prepared, at Agency's sole cost and expense, by Agency or CSX or their respective contractors. Project plans, specifications and drawings prepared by or on behalf of Agency shall be subject, at CSX's election, to the review and approval of CSX. Such plans, specifications and drawings, as prepared or approved by CSX, are referred to as the "Plans", and shall be incorporated and deemed a part of this Agreement. Plans prepared or submitted to and approved by CSX as of the date of this Agreement are set forth in Exhibit B to this Agreement.

1.2 Effect of CSX Approval or Preparation of Plans. By its review, approval or preparation of Plans pursuant to this Agreement, CSX signifies only that such Plans and improvements constructed in accordance with such Plans satisfy CSX's requirements. CSX expressly disclaims all other representations and warranties in connection with the Plans, including, but not limited to, the integrity, suitability or fitness for the purposes of Agency or any other persons of the Plans or improvements constructed in accordance with the Plans.

1.3 Compliance with Plans. The Project shall be constructed in accordance with the Plans.

2. Allocation and Conduct Of Work

Work in connection with the Project shall be allocated and conducted as follows:

2.1 CSX Work. Subject to timely payment of Reimbursable Expenses as provided by Section 4, CSX shall provide, or cause to be provided, the services as set forth by Exhibit A to this Agreement. Agency agrees that CSX shall provide all services that CSX deems necessary or appropriate (whether or not specified by Exhibit A) to preserve and maintain its property and operations, without impairment or exposure to liability of any kind and in compliance with all applicable federal, state and local regulations and CSX's contractual obligations, including, but not limited to, CSX's existing or proposed third party agreements and collective bargaining agreements.

2.2 Agency Work. Agency shall perform, or cause to be performed, all work as set forth by Exhibit A, at Agency's sole cost and expense.

2.3 Conduct of Work. CSX shall commence its work under this Agreement following: (i) delivery to CSX of a notice to proceed from Agency; (ii) payment of Reimbursable Expenses (as provided by Section 4.1) as required by CSX prior to the commencement of work by CSX; (iii) issuance of all permits, approvals and authorizations necessary or appropriate for such work; and (iv) delivery of proof of insurance acceptable to CSX, as required by Section 9. The initiation of any services by CSX pursuant to this Agreement, including, but not limited to, the issuance of purchase orders or bids for materials or services, shall constitute commencement of work for the purposes of this Section. The parties intend that all work by CSX or on CSX property shall conclude no later than [INSERT DATE], unless the parties mutually agree to extend such date.

3. Special Provisions Agency shall observe and abide by, and shall require its contractors ("Contractors") to observe and abide by the terms, conditions and provisions set forth in Exhibit C to this Agreement (the "Special Provisions"). To the extent that Agency performs Project work itself, Agency shall be deemed a Contractor for purposes of this Agreement. Agency further agrees that, prior to the commencement of Project work by any third party Contractor, such Contractor shall execute and deliver to CSX Schedule I to this Agreement to acknowledge Contractor's agreement to observe and abide by the terms and conditions of this Agreement.

4. Cost Of Project and Reimbursement Procedures

4.1 Reimbursable Expenses. Agency shall reimburse CSX for all costs and expenses incurred by CSX in connection with the Project, including, without limitation: (1) all out of pocket expenses, (2) travel and lodging expenses, (3) telephone, facsimile, and mailing expenses, (4) costs for equipment, tools, materials and supplies, (5) sums paid to CSX's consultants and subcontractors, and (6) CSX labor in connection with the Project, together with CSX labor overhead percentages established by CSX pursuant to applicable law (collectively, "Reimbursable Expenses"). Reimbursable Expenses shall also include expenses incurred by CSX prior to the date of this Agreement to the extent identified by the Estimate provided pursuant to Section 4.2.

4.2 Estimate. CSX has estimated the total Reimbursable Expenses for the Project as shown on Exhibit D (the "Estimate", as amended or revised). In the event CSX anticipates that actual Reimbursable Expenses for the Project may exceed such Estimate, it shall provide Agency with the revised Estimate of the total Reimbursable Expenses, together with a revised Payment Schedule (as defined by Section 4.3.1), for Agency's approval and confirmation that sufficient funds have been appropriated to cover the total Reimbursable Expenses of such revised Estimate. CSX may elect, by delivery of notice to Agency, to immediately cease all further work on the Project, unless and until Agency provides such approval and confirmation.

4.3 Payment Terms.

4.3.1 Agency shall pay CSX for Reimbursable Expenses in the amounts and on the dates set forth in the Payment Schedule as shown on Exhibit E (the "Payment Schedule", as revised pursuant to Section 4.2). CSX agrees to submit invoices to Agency for such amounts and Agency shall remit payment to CSX at the later of thirty (30) days following delivery of each such invoice to Agency or, the payment date (if any) set forth in the Payment Schedule.

4.3.2 Following completion of the Project, CSX shall submit to Agency a final invoice that reconciles the total Reimbursable Expenses incurred by CSX against the total payments received from Agency. Agency shall pay to CSX the amount by which Reimbursable Expenses exceed total payments as shown by the final invoice, within thirty (30) days following delivery of such invoice to Agency. In the event that the payments received by CSX from Agency exceed the Reimbursable Expenses, CSX shall remit such excess to Agency.

4.3.3 In the event that Agency fails to pay CSX any sums due CSX under this Agreement: (i) Agency shall pay CSX interest at the lesser of 1.0% per month or the maximum rate of interest permitted by applicable law on the delinquent amount until paid in full; and (ii) CSX may elect, by delivery of notice to Agency: (A) to immediately cease all further work on the Project, unless and until Agency pays the entire delinquent sum, together with accrued interest; and/or (B) to terminate this Agreement.

4.3.4 All invoices from CSX shall be delivered to Agency in accordance with Section 16 of this Agreement. All payments by Agency to CSX shall be made by certified check and mailed to the following address or such other address as designated by CSX's notice to Agency:

CSX Transportation, Inc.
P.O. Box 530192
Atlanta, GA 30353-0192

4.4 Effect of Termination. Agency's obligation to pay to CSX Reimbursable Expenses in accordance with Section 4 shall survive termination of this Agreement for any reason.

5. Appropriations Agency represents to CSX that: (i) Agency has appropriated funds sufficient to reimburse CSX for the Reimbursable Expenses encompassed by the Estimate attached as Exhibit D; (ii) Agency shall use its best efforts to obtain appropriations necessary to cover Reimbursable Expenses encompassed by subsequent Estimates approved by Agency; and (iii) Agency shall promptly notify CSX in the event that Agency is unable to obtain such appropriations.

6. Easements and Licenses

6.1 Agency Obligation. Agency shall acquire all necessary licenses, permits and easements required for the Project.

6.2 Temporary Construction Licenses. Insofar as it has the right to do so, CSX hereby grants Agency a nonexclusive license to access and cross CSX's property, to the extent necessary for the construction of the Project (excluding ingress or egress over public grade crossings), along such routes and upon such terms as may be defined and imposed by CSX and such temporary construction easements as may be designated on the Plans approved by CSX.

6.3 Temporary Construction Easements. CSXT may grant without warranty to Agency, if required, a temporary non-exclusive easement for access to the extent necessary for the project on terms and conditions and at a price acceptable to the parties.

6.4 Maintenance Agreement. Contemporaneous with the execution of this Agreement, CSXT and Agency have executed that certain Maintenance Agreement providing for Agency's ongoing use maintenance, repair, renewal and removal of the Project.

6.5 Permanent Easements. Insofar as it has the right to do so, CSXT shall grant, without warranty to Agency, easements for the use and maintenance (in accordance with the provisions of the Maintenance Agreement described in 6.4) of the Project wholly or partly on CSXT property as shown on the Plans approved by CSXT, if any, on terms and conditions and at a price acceptable to both parties. Upon request by CSXT, Agency shall furnish to CSXT descriptions and plat plans for the easements.

7. Permits At its sole cost and expense, Agency shall procure all permits and approvals required by any federal, state, or local governments or governmental agencies for the construction, maintenance and use of the Project, copies of which shall be provided to CSX.

8. Termination

8.1 By Agency. For any reason, Agency may, as its sole remedy, terminate this Agreement by delivery of notice to CSX. Agency shall not be entitled to otherwise pursue claims for consequential, direct, indirect or incidental damages or lost profits as a consequence of CSX's default or termination of this Agreement or Work on the Project by either party.

8.2 By CSX. In addition to the other rights and remedies available to CSX under this Agreement, CSX may terminate this Agreement by delivery of notice to Agency in the event Agency or its Contractors fail to observe the terms or conditions of this Agreement and such failure continues more than ten (10) business days following delivery of notice of such failure by CSX to Agency.

8.3 Consequences of Termination. If the Agreement is terminated by either party pursuant to this Section or any other provision of this Agreement, the parties understand that it may be impractical for them to immediately stop the Work. Accordingly, they agree that, in such instance a party may continue to perform Work until it has reached a point where it may reasonably and safely suspend the Work. Agency shall reimburse CSX pursuant to this Agreement for the Work performed, plus all costs reasonably incurred by CSX to discontinue the Work and protect the Work upon full suspension of the same, the cost of returning CSX's property to its former condition, and all other costs of CSX incurred as a result of the Project up to the time of full suspension of the Work. Termination of this Agreement or Work on the Project, for any reason, shall not diminish or reduce Agency's obligation to pay CSX for Reimbursable Expenses incurred in accordance with this Agreement. In the event of the termination of this Agreement or the Work for any reason, CSX's only remaining obligation to Agency shall be to refund to Agency payments made to CSX in excess of Reimbursable Expenses in accordance with Section 4.

9. Insurance In addition to the insurance that Agency requires of its Contractor, Agency shall acquire or require its Contractor to purchase and maintain insurance in compliance with CSX's insurance requirements attached to this Agreement as Exhibit F. Neither Agency nor Contractor shall commence work on the Project until such policy or policies have been submitted to and approved by CSX's Risk Management Department.

10. Ownership and Maintenance
[SELECT ONE OF THE FOLLOWING ALTERNATE PROVISIONS:]

- Railroad Bridge

10.1 By Agency. Agency shall own and, without cost to CSX, shall maintain, repair, replace and renew, or cause same to be done, in good condition and repair to CSX's satisfaction, the railroad bridge structure (excluding only those components which CSX owns and has agreed to maintain, repair and replace pursuant to this Section), the highway underpass structure, the roadway surfacing, the roadway slopes, the retaining walls, the roadway drainage facilities, sidewalks and lighting. In the event that Agency fails to properly maintain such structures and improvements, and such failure, in the opinion of CSX, jeopardizes the safe and efficient operation of its property, CSX shall be entitled to remedy such failure and recover from Agency the costs incurred by CSX in doing so.

10.2 By CSX. CSX shall own and, at its sole cost and expense, maintain, repair, replace and renew its tracks, ballast and approach embankments, and railroad signal and communication systems, and CSX shall be permitted to install, maintain, repair and replace other utilities, facilities and cable, or cause same to be done, as CSX authorizes from time to time on or within the railroad bridge structure.

10.3 Alterations. Agency shall not undertake any alteration, modification or expansion of the Project, without the prior approval of CSX, which may be withheld for any reason, and the execution of such agreements as CSX may require. CSX may effectuate any improvements to that portion of the Project on which CSX operates its rail line, without securing the prior approval of the Agency so long as such improvements will not have a negative impact on highway traffic using the highway underpass.

- Highway Bridge

10.1 By Agency. Agency shall own and, without cost to CSX, maintain, repair, replace and renew, or cause same to be done, in good condition and repair to CSX's satisfaction, the highway overpass structure, the roadway surfacing, the roadway slopes, the retaining walls, and the highway drainage facilities. In the event that Agency fails to properly maintain such structures and improvements and such failure, in the opinion of CSX, jeopardizes the safe and efficient operation of its property, CSX shall be entitled to remedy such failure and recover from Agency the costs incurred by CSX in doing so. Upon the cessation of use of the Project by Agency, Agency shall remove the bridge structure and restore CSX's property to its original condition, at Agency's sole cost and expense, to CSX's satisfaction.

10.2 Alterations. Agency shall not undertake any alteration, modification or expansion of the Project, without the prior approval of CSX, which may be withheld for any reason, and the execution of such agreements as CSX may require.

- At Grade Crossings

10.1 By Agency. Agency shall maintain and repair, at its sole cost and expense, all parts comprising the permanent aspects of the Project, as shown by the Plans, consisting of roadway pavement up to the outer ends of the railroad cross ties, sidewalks, guardrails, and curbs, in good and safe condition to CSX's satisfaction. In the event Agency fails to do so after reasonable notice from CSX (unless an emergency condition exists or is imminent in the opinion of CSX that requires immediate action), CSX may perform such maintenance and repair, at Agency's sole cost and expense.

10.2 By CSX. CSX shall maintain and repair the crossing surface between the ends of its cross ties and its signal facilities at the crossing, at Agency's sole cost and expense.

10.3 Alterations. Agency shall not undertake any alteration, modification or expansion of the Project, without the prior written approval of CSX, which may be withheld for any reason, and the execution of such agreements as CSX may require. CSX may undertake alterations of its property, track or facilities and shall be reimbursed by Agency for the expenses incurred by CSX with respect to the removal and restoration of the crossing in connections with such alteration.

- Other Improvements

10.1 By Agency. Agency shall own, maintain and repair, at its sole cost and expense, all parts comprising the permanent aspects of the Project, as shown by the Plans. In the event Agency fails to do so after reasonable notice from CSX (no more than thirty (30) days, unless an emergency condition exists or is imminent in the opinion of CSX, that requires immediate action), CSX may perform such maintenance and repair, at Agency's sole cost and expense. Upon the cessation of use of the Project by Agency, Agency shall remove the structure and restore CSX's property to its original condition, at Agency's sole cost and expense, to CSX's satisfaction.

10.2 Alterations. Agency shall not undertake any alteration, modification or expansion of the Project, without the prior approval of CSX, which may be withheld for any reason, and the execution of such agreements as CSX may require.

11. Indemnification

11.1 Generally. To the maximum extent permitted by applicable law, Agency and its Contractors shall indemnify, defend, and hold CSX and its affiliates harmless from and against all claims, demands, payments, suits, actions, judgments, settlements, and damages of every nature, degree, and kind (including direct, indirect, consequential, incidental, and punitive damages), for any injury to or death to any person(s) (including, but not limited to the employees of CSX, its affiliates, Agency or its Contractors), for the loss of or damage to any property whatsoever (including but not limited to property owned by or in the care, custody, or control of CSX, its affiliates, Agency or its Contractors, and environmental damages and any related remediation brought or recovered against CSX and its affiliates), arising directly or indirectly from the negligence, recklessness or intentional wrongful misconduct of the Contractors, Agency, and their respective agents, employees, invitees, contractors, or its contractors' agents, employees or invitees in the performance of work in connection with the Project or activities incidental thereto, or from their presence on or about CSX's property. The foregoing indemnification obligation shall not be limited to the insurance coverage required by this Agreement, except to the extent required by law or otherwise expressly provided by this Agreement.

11.2 Compliance with Laws. Agency shall comply, and shall require its Contractors to comply, with any federal, state, or local laws, statutes, codes, ordinances, rules, and regulations applicable to its construction and maintenance of the Project. Agency's Contractors shall indemnify, defend, and hold CSX and its affiliates harmless with respect to any fines, penalties, liabilities, or other consequences arising from breaches of this Section.

11.3 "CSX Affiliates". For the purpose of this Section 11, CSX's affiliates include CSX Corporation and all entities, directly or indirectly, owned or controlled by or under common control of CSX or CSX Corporation and their respective officers, directors, employees and agents.

11.4 Notice of Incidents. Agency and its Contractor shall notify CSX promptly of any loss, damage, injury or death arising out of or in connection with the Project work.

11.5 Survival. The provisions of this Section 11 shall survive the termination or expiration of this Agreement.

12. Independent Contractor The parties agree that neither Agency nor its Contractors shall be deemed either agents or independent contractors of CSX. Except as otherwise provided by this Agreement, CSX shall exercise no control whatsoever over the employment, discharge, compensation of, or services rendered by Agency or Agency's Contractors, or the construction practices, procedures, and professional judgment employed by Agency or its Contractor to complete the Project. Notwithstanding the foregoing, this Section 12 shall in no way affect the absolute authority of CSX to prohibit Agency or its

Contractors or anyone from entering CSX's property, or to require the removal of any person from its property, if it determines, in its sole discretion, that such person is not acting in a safe manner or that actual or potential hazards in, on or about the Project exist.

13. "Entire Agreement" This Agreement embodies the entire understanding of the parties, may not be waived or modified except in a writing signed by authorized representatives of both parties, and supersedes all prior or contemporaneous written or oral understandings, agreements or negotiations regarding its subject matter. In the event of any inconsistency between this Agreement and the Exhibits, the more specific terms of the Exhibits shall be deemed controlling.

14. Waiver If either party fails to enforce its respective rights under this Agreement, or fails to insist upon the performance of the other party's obligations hereunder, such failure shall not be construed as a permanent waiver of any rights or obligations in this Agreement.

15. Assignment CSX may assign this Agreement and all rights and obligations herein to a successor in interest, parent company, affiliate, or future affiliate. Upon assignment of this Agreement by CSX and the assumption of CSX's assignee of CSX's obligations under this Agreement, CSX shall have no further obligation under this Agreement. Agency shall not assign its rights or obligations under this Agreement without CSX's prior consent, which consent may be withheld for any reason.

16. Notices All notices, consents and approvals required or permitted by this Agreement shall be in writing and shall be deemed delivered upon personal delivery, upon the expiration of three (3) days following mailing by first class U.S. mail, or upon the next business day following mailing by a nationally recognized overnight carrier, to the parties at the addresses set forth below, or such other addresses as either party may designate by delivery of prior notice to the other party:

If to CSX: CSX Transportation, Inc.
500 Water Street, J301 Jacksonville, Florida 32202
Attention: Director Project Management – Public Projects

If to Agency: _____
_____
_____
_____

17. Severability The parties agree that if any part, term or provision of this Agreement is held to be illegal, unenforceable or in conflict with any applicable federal, state, or local law or regulation, such part, term or provision shall be severable, with the remainder of the Agreement remaining valid and enforceable.

18. Applicable Law This Agreement shall be governed by the laws of the State of [INSERT STATE OF PROJECT LOCATION], exclusive of its choice of law rules. The parties further agree that the venue of all legal and equitable proceedings related to disputes under this Agreement shall be situated in Duval County, Florida, and the parties agree to submit to the personal jurisdiction of any State or Federal court situated in Duval County, Florida.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed in duplicate, each by its duly authorized officers, as of the date of this Agreement.

[INSERT NAME OF AGENCY]
By: _____
Print Name: _____
Title: _____

CSX TRANSPORTATION, INC.
By: _____
Will Roseborough
Director, Project Development and Public Projects

EXHIBIT A
ALLOCATION OF WORK

Subject to Section 2.1, work to be performed in connection with the Project is allocated as follows:

A. Agency shall let by contract to its Contractors:

1. [INSERT DESCRIPTION OF WORK]

B. CSX shall perform or cause to be performed:

1. Preliminary engineering services.
2. Changes in communication and signal lines.
3. Flagging services and other protective services and devices as may be necessary.
4. Construction engineering and inspection to protect the interests of CSX.

EXHIBIT B
PLANS AND SPECIFICATIONS

Plans, Specifications and Drawings:

As of the date of this Agreement, the following plans, specifications and drawings have been submitted by Agency to CSX for its review and approval:

[IDENTIFY PLANS AND SPECIFICATIONS BY DATE, PREPARER, TITLE, PROJECT NUMBER, ETC.]

SHEET	DESCRIPTION	PREPARER	DATE
1 of			

EXHIBIT C

CSX SPECIAL PROVISIONS

DEFINITIONS:

As used in these Special Provisions, all capitalized terms shall have the meanings ascribed to them by the Agreement, and the following terms shall have the meanings ascribed to them below:

"CSX" shall mean CSX Transportation, Inc., its successors and assigns.

"CSX Representative" shall mean the authorized representative of CSX Transportation, Inc.

"Agreement" shall mean the Agreement between CSX and Agency, as amended from time to time.

"Agency" shall mean the [INSERT NAME OF AGENCY].

"Agency Representative" shall mean the authorized representative of [INSERT NAME OF AGENCY].

"Contractor" shall have the meaning ascribed to such term by the Agreement.

"Work" shall mean the Project as described in the Agreement.

I. AUTHORITY OF CSX ENGINEER

The CSX Representative shall have final authority in all matters affecting the safe maintenance of CSX operations and CSX property, and his or her approval shall be obtained by the Agency or its Contractor for methods of construction to avoid interference with CSX operations and CSX property and all other matters contemplated by the Agreement and these Special Provisions.

II. INTERFERENCE WITH CSX OPERATIONS

A. Agency or its Contractor shall arrange and conduct its work so that there will be no interference with CSX operations, including train, signal, telephone and telegraphic services, or damage to CSX's property, or to poles, wires, and other facilities of tenants on CSX's Property or right-of-way. Agency or its Contractor shall store materials so as to prevent trespassers from causing damage to trains, or CSX Property. Whenever Work is likely to affect the operations or safety of trains, the method of doing such Work shall first be submitted to the CSX Representative for approval, but such approval shall not relieve Agency or its Contractor from liability in connection with such Work.

B. If conditions arising from or in connection with the Project require that immediate and unusual provisions be made to protect train operation or CSX's property, Agency or its Contractor shall make such provision. If the CSX Representative determines that such provision is insufficient, CSX may, at the expense of Agency or its Contractor, require or provide such provision as may be deemed necessary, or cause the Work to cease immediately.

III. NOTICE OF STARTING WORK. Agency or its Contractor shall not commence any work on CSX Property or rights-of- way until it has complied with the following conditions:

A. Notify CSX in writing of the date that it intends to commence Work on the Project. Such notice must be received by CSX at least ten business days in advance of the date Agency or its Contractor proposes to begin Work on CSX property. The notice must refer to this Agreement by date. If flagging service is required, such notice shall be submitted at least thirty (30) business days in advance of the date scheduled to commence the Work.

B. Obtain authorization from the CSX Representative to begin Work on CSX property, such authorization to include an outline of specific conditions with which it must comply.

C. Obtain from CSX the names, addresses and telephone numbers of CSX's personnel who must receive notice under provisions in the Agreement. Where more than one individual is designated, the area of responsibility of each shall be specified.

IV. WORK FOR THE BENEFIT OF THE CONTRACTOR

A. No temporary or permanent changes to wire lines or other facilities (other than third party fiber optic cable transmission systems) on CSX property that are considered necessary to the Work are anticipated or shown on the Plans. If any such changes are, or become, necessary in the opinion of CSX or Agency, such changes will be covered by appropriate revisions to the Plans and by preparation of a force account estimate. Such force account estimate may be initiated by either CSX or Agency, but must be approved by both CSX and Agency. Agency or Contractor shall be responsible for arranging for the relocation of the third party fiber optic cable transmission systems, at no cost or expense to CSX.

B. Should Agency or Contractor desire any changes in addition to the above, then it shall make separate arrangements with CSX for such changes to be accomplished at the Agency or Contractor's expense.

V. HAUL ACROSS RAILROAD

A. If Agency or Contractor desires access across CSX property or tracks at other than an existing and open public road crossing in or incident to construction of the Project, the Agency or Contractor must first obtain the permission of CSX and shall execute a license agreement or right of entry satisfactory to CSX, wherein Agency or Contractor agrees to bear all costs and liabilities related to such access.

B. Agency and Contractor shall not cross CSX's property and tracks with vehicles or equipment of any kind or character, except at such crossing or crossings as may be permitted pursuant to this section.

VI. COOPERATION AND DELAYS

A. Agency or Contractor shall arrange a schedule with CSX for accomplishing stage construction involving work by CSX. In arranging its schedule, Agency or Contractor shall ascertain, from CSX, the lead time required for assembling crews and materials and shall make due allowance therefore.

C-2

B. Agency or Contractor may not charge any costs or submit any claims against CSX for hindrance or delay caused by railroad traffic; work done by CSX or other delay incident to or necessary for safe maintenance of railroad traffic; or for any delays due to compliance with these Special Provisions.

C. Agency and Contractor shall cooperate with others participating in the construction of the Project to the end that all work may be carried on to the best advantage.

D. Agency and Contractor understand and agree that CSX does not assume any responsibility for work performed by others in connection the Project. Agency and Contractor further understand and agree that they shall have no claim whatsoever against CSX for any inconvenience, delay or additional cost incurred by Agency or Contractor on account of operations by others.

VII. STORAGE OF MATERIALS AND EQUIPMENT

Agency and Contractor shall not store their materials or equipment on CSX's property or where they may potentially interfere with CSX's operations, unless Agency or Contractor has received CSX Representative's prior written permission. Agency and Contractor understand and agree that CSX will not be liable for any damage to such materials and equipment from any cause and that CSX may move, or require Agency or Contractor to move, such material and equipment at Agency's or Contractor's sole expense. To minimize the possibility of damage to the railroad tracks resulting from the unauthorized use of equipment, all grading or other construction equipment that is left parked near the tracks unattended by watchmen shall be immobilized to the extent feasible so that it cannot be moved by unauthorized persons.

VIII. CONSTRUCTION PROCEDURES

A. General

1. Construction work on CSX property shall be subject to CSX's inspection and approval.

2. Construction work on CSX property shall be in accord with CSX's written outline of specific conditions and with these Special Provisions.

3. Contractor shall observe the terms and rules of the CSX Safe Way manual, which Agency and Contractor shall be required to obtain from CSX, and in accord with any other instructions furnished by CSX or CSX's Representative.

B. Blasting

1. Agency or Contractor shall obtain CSX Representative's and Agency Representative's prior written approval for use of explosives on or adjacent to CSX property. If permission for use of explosives is granted, Agency or Contractor must comply with the following:

a. Blasting shall be done with light charges under the direct supervision of a responsible officer or employee of Agency or Contractor.

b. Electric detonating fuses shall not be used because of the possibility of premature explosions resulting from operation of two-way train radios.

c. No blasting shall be done without the presence of an authorized representative of CSX. At least 30 days' advance notice to CSX Representative is required to arrange for the presence of an authorized CSX representative and any flagging that CSX may require.

d. Agency or Contractor must have at the Project site adequate equipment, labor and materials, and allow sufficient time, to (i) clean up (at Agency's expense) debris resulting from the blasting without any delay to trains; and (ii) correct (at Agency's expense) any track misalignment or other damage to CSX's property resulting from the blasting, as directed by CSX Representative, without delay to trains. If Agency's or Contractor's actions result in delay of any trains, including Amtrak passenger trains, Agency shall bear the entire cost thereof.

e. Agency and Contractor shall not store explosives on CSX property.

2. CSX Representative will:

a. Determine the approximate location of trains and advise Agency or Contractor of the approximate amount of time available for the blasting operation and clean-up.

b. Have the authority to order discontinuance of blasting if, in his or her opinion, blasting is too hazardous or is not in accord with these Special Provisions.

IX. MAINTENANCE OF DITCHES ADJACENT TO CSX TRACKS

Agency or Contractor shall maintain all ditches and drainage structures free of silt or other obstructions that may result from their operations. Agency or Contractor shall provide erosion control measures during construction and use methods that accord with applicable state standard specifications for road and bridge construction, including either

(1) silt fence; (2) hay or straw barrier; (3) berm or temporary ditches; (4) sediment basin; (5) aggregate checks; and (6) channel lining. All such maintenance and repair of damages due to Agency's or Contractor's operations shall be performed at Agency's expense.

X. FLAGGING / INSPECTION SERVICE

A. CSX has sole authority to determine the need for flagging required to protect its operations and property. In general, flagging protection will be required whenever Agency or Contractor or their equipment are, or are likely to be, working within fifty (50) feet of live track or other track clearances specified by CSX, or over tracks.

B. Agency shall reimburse CSX directly for all costs of flagging that is required on account of construction within CSX property shown in the Plans, or that is covered by an approved plan revision, supplemental agreement or change order.

C. Agency or Contractor shall give a minimum of 10 days' advance notice to CSX Representative for anticipated need for flagging service. No work shall be undertaken until the flag person(s) is/are at the job site. If it is necessary for CSX to advertise a flagging job for bid, it may take up to 90-days to obtain this service, and CSX shall not be liable for the cost of delays attributable to obtaining such service.

D. CSX shall have the right to assign an individual to the site of the Project to perform inspection service whenever, in the opinion of CSX Representative, such inspection may be necessary. Agency shall reimburse CSX for the costs incurred by CSX for such inspection service. Inspection service shall not relieve Agency or Contractor from liability for its Work.

E. CSX shall render invoices for, and Agency shall pay for, the actual pay rate of the flagpersons and inspectors used, plus standard additives, whether that amount is above or below the rate provided in the Estimate. If the rate of pay that is to be used for inspector or flagging service is changed before the work is started or during the progress of the work, whether by law or agreement between CSX and its employees, or if the tax rates on labor are changed, bills will be rendered by CSX and paid by Agency using the new rates. Agency and Contractor shall perform their operations that require flagging protection or inspection service in such a manner and sequence that the cost of such will be as economical as possible.

XI. UTILITY FACILITIES ON CSX PROPERTY

Agency shall arrange, upon approval from CSX, to have any utility facilities on or over CSX Property changed as may be necessary to provide clearances for the proposed trackage.

XII. CLEAN-UP

Agency or Contractor, upon completion of the Project, shall remove from CSX's Property any temporary grade crossings, any temporary erosion control measures used to control drainage, all machinery, equipment, surplus materials, falsework, rubbish, or temporary buildings belonging to Agency or Contractor. Agency or Contractor, upon completion of the Project, shall leave CSX Property in neat condition, satisfactory to CSX Representative.

XIII. FAILURE TO COMPLY

If Agency or Contractor violate or fail to comply with any of the requirements of these Special Provisions, (a) CSX may require Agency and/or Contractor to vacate CSX Property; and (b) CSX may withhold monies due Agency and/or Contractor; (c) CSX may require Agency to withhold monies due Contractor; and (d) CSX may cure such failure and the Agency shall reimburse CSX for the cost of curing such failure.

EXHIBIT D

INITIAL ESTIMATE ATTACHED

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EXHIBIT E
PAYMENT SCHEDULE

[SELECT ONE OF FOLLOWING ALTERNATE PROVISIONS:]

Advance Payment in Full
Upon execution and delivery of notice to proceed with the Project, Agency will deposit with CSX a sum equal to the Reimbursable Expenses, as shown by the Estimate. If CSX anticipates that it may incur Reimbursable Expenses in excess of the deposited amount, CSX will request an additional deposit equal to the then remaining Reimbursable Expenses which CSX estimates that it will incur. CSX shall request such additional deposit by delivery of invoices to Agency. Agency shall make such additional deposit within 30 days following delivery of such invoice to Agency.

50/50 Payment in Advance
Upon delivery of notice to proceed with the Project, Agency will deposit with CSX a sum equal to fifty percent (50%) of the Reimbursable Expenses as shown by the Estimate. Prior to the incurrence of Reimbursable Expenses in excess of such deposit, CSX will request an additional deposit equal to the Reimbursable Expenses which CSX expects to incur. CSX shall request such additional deposit by delivery of invoices to Agency. Agency shall make such additional deposits within 30 days following delivery of such invoice to Agency.

Scheduled Payments
Agency shall deposit with CSX the following sums on or before the dates set forth below, which sums and dates shall be subject to adjustment in the event of revisions to the Estimate:

Payment Date:	Payment:
_____	_____
	Total:
	_____

Progress Payments In Arrears
Notwithstanding anything to the contrary set forth in this Agreement, Agency shall pay CSX in arrears for its Reimbursable Expenses, rather than in advance, with only such exceptions, such as purchasing materials and equipment, as the parties mutually agree. Accordingly, Agency shall remit payment to CSX for its Reimbursable Expenses within thirty (30) days following delivery to Agency of an invoice.

EXHIBIT F

INSURANCE REQUIREMENTS

I. Insurance Policies

Agency and Contractor, if and to the extent that either is performing work on or about CSX's property, shall procure and maintain the following insurance policies:

1. Commercial General Liability coverage at their sole cost and expense with limits of not less than $5,000,000 in combined single limits for bodily injury and/or property damage per occurrence, and such policies shall name CSX as an additional named insured.

2. Statutory Worker's Compensation and Employers Liability Insurance with limits of not less than $1,000,000, which insurance must contain a waiver of subrogation against CSX and its affiliates (if permitted by state law).

3. Commercial automobile liability insurance with limits of not less than $1,000,000 combined single limit for bodily injury and/or property damage per occurrence, and such policies shall name CSX as an additional named insured.

4. Railroad protective liability insurance with limits of not less than $5,000,000 combined single limit for bodily injury and/or property damage per occurrence and an aggregate annual limit of $10,000,000, which insurance shall satisfy the following additional requirements:

a. The Railroad Protective Insurance Policy must be on the ISO/RIMA Form of Railroad Protective Insurance - Insurance Services Office (ISO) Form CG 00 35.

b. CSX Transportation must be the named insured on the Railroad Protective Insurance Policy.

c. Name and Address of Contractor and Agency must appear on the Declarations page.

d. Description of operations must appear on the Declarations page and must match the Project description.

e. Authorized endorsements must include the Pollution Exclusion Amendment - CG 28 31, unless using form CG 00 35 version 96 and later.

f. Authorized endorsements may include:

(i). Broad Form Nuclear Exclusion - IL 00 21
(ii) 30-day Advance Notice of Non-renewal or cancellation
(iii) Required State Cancellation Endorsement
(iv) Quick Reference or Index - CL/IL 240

g. Authorized endorsements may not include:

(i) A Pollution Exclusion Endorsement except CG 28 31
(ii) A Punitive or Exemplary Damages Exclusion
(iii) A "Common Policy Conditions" Endorsement
(iv) Any endorsement that is not named in Section 4 (e) or (f) above.
(v) Policies that contain any type of deductible

5. All insurance companies must be A. M. Best rated A- and Class VII or better.

6. The CSX OP number or CSX contract number, as applicable, must appear on each Declarations page and/or certificates of insurance.

7. Such additional or different insurance as CSX may require.

II. Additional Terms

1. Contractor must submit the complete Railroad Protective Liability policy, Certificates of Insurance and all notices and correspondence regarding the insurance policies in an electronic format to:

Insurance Department
CSX Transportation, Inc.
500 Water Street, C-907
Jacksonville, FL 32202

OR

insurancedocuments@csx.com

2. Neither Agency nor its Designee may begin work on or about CSX property until written approval of the required insurance has been received from CSX or CSX's Insurance Compliance vendor, Ebix.

SCHEDULE I

CONTRACTOR'S ACCEPTANCE

To and for the benefit of CSX Transportation, Inc. ("CSX") and to induce CSX to permit Contractor on or about CSX's property for the purposes of performing work in accordance with the Agreement dated_____, 201____, between [INSERT NAME OF AGENCY] and CSX, Contractor hereby agrees to abide by and perform all applicable terms of the Agreement, including, but not limited to Exhibits C and F to the Agreement, and Sections 3, 9 and 11 of the Agreement.

Contractor: _____

By: _____
Name_____
Title:_____
Date: _____

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APPENDIX

CSX TRANSPORTATION

TEMPORARY RIGHT OF ENTRY AGREEMENT

Public Projects Group
Jacksonville, FL
Date Issued: March 2025

THIS AGREEMENT, made as of _____, 20___, by and between CSX TRANSPORTATION, INC., a Virginia corporation, whose mailing address is 500 Water Street, Jacksonville, Florida 32202, hereinafter called "CSX," and (**********), whose mailing address is (**********), (**********), hereinafter called "Licensee," WITNESSETH:

WHEREAS, Licensee has submitted a written application to CSX requesting permission to enter CSX's property located within the (*****) Division, (*****) Subdivision, at DOT#: (****) MP (****). (**Street**) in (**City**), (***) County, (**State**) (the "Property"), (description of scope of work), beginning (**) feet from the (****) and (***) right of way, (the "Project").

WHEREAS, CSX is willing to grant to Licensee the limited right and permission to enter upon the Property for the limited purpose of performing the Project.

NOW THEREFORE, CSX hereby grants to Licensee the right and permission to enter upon the Property for the purpose of performing said Project, subject to the terms and conditions set forth below:

1. PROJECT: The Project shall be performed at the entire cost and expense of Licensee, in accordance with good and sound engineering practices, to the satisfaction of CSX's Division Engineer or his or her duly authorized representative ("Division Engineer") and in a manner to avoid accidents, damages, unnecessary delays to or interference with train traffic of CSX. Prior to entry, Licensee shall notify the Division Engineer's representative and arrange for flagging protection in accordance to Sections 5 and 6 of this Agreement. Licensee shall not dig in the ballast line or within the tracks loading influence area, or otherwise disturb the track structure. Licensee and Licensee's employees, agents, contractors and other representatives (collectively, "Agents") shall maintain in their possession a copy of this Agreement at all times during their occupation of the Property.

2. INDEMNITY:

2.1 Licensee hereby assumes risk of and agrees to indemnify, defend, protect and save CSX and CSX's Affiliates harmless with respect to any and all attorneys' fees, liability, claims, demands, payments, suits, actions, recoveries, penalties, costs, legal expenses, judgments, settlements, and damages of every nature, degree, and kind (including direct, indirect, consequential, incidental, and punitive damages) for:

2.1.1 Personal injury, including, but not limited to bodily injury to or death of any person or persons whomsoever, including the agents, servants, Affiliates or employees of the parties;

2.1.2 The loss or damage to any property whatsoever, including property owned or in the care, custody or control of the parties hereto or their respective Affiliates;

2.1.3 Any environmental damage and any related remediation brought or recovered against CSX or any of its Affiliates; and

2.1.4 Any and all other losses or damages; arising directly or indirectly from the presence of Licensee or its Agents on or about the Property, whether or not attributable in whole or part to the negligence, gross negligence, or intentional misconduct of CSX or its Affiliates.

2.2 The parties waive any and all right or opportunity to contest the enforceability of this Section and agree that, in the event this Section, or any part of this Section, is found unenforceable by the final, unappealable judgment of a court of competent jurisdiction, this Section shall be construed so as to be enforceable to the maximum extent permitted by applicable law. In the event that such court of competent jurisdiction finds that Florida statutory construction contract indemnity monetary limits apply to this Agreement with respect to Licensee's indemnification of CSX and its Affiliates for liability caused in whole or in part by any act, omission or default by CSX or its Affiliates, the parties hereto agree that such limit shall be equal to the limits (exclusive of deductibles) of the applicable insurance required by Sections 3 and 4 of this Agreement. The parties acknowledge and agree that this monetary limit,

if required, bears a commercially reasonable relationship to this Agreement, in so far as, among other factors, the parties have taken into account the availability and cost of insurance and other risk transference devices, the scope of the Project, the risks associated with the Project, and the compensation and any other benefits exchanged between the parties in connection with this Agreement.

2.2.1 Licensee shall comply with any federal, state, or local laws, statutes, codes, ordinances, rules, and regulations applicable to its presence or performance of any activity on the Property and agrees to indemnify, defend, and hold CSX and its Affiliates harmless with respect to any fines, penalties, liabilities, or other consequences for its failure to so comply.

2.2.2 For the purpose of this Agreement, the term "Affiliates" includes all entities, directly or indirectly owned or controlled by, or under common control of a party or its respective officers, directors, employees and agents, and in the case of CSX, includes CSX Corporation, CSX and their Affiliates and their respective officers, directors, employees and agents.

2.2.3 The provisions of this Section shall survive the termination or expiration of this Agreement.

3. GENERAL LIABILITY INSURANCE: Licensee shall procure and maintain, at its expense: (i) statutory Worker's Compensation and Employers Liability Insurance with available limits of not less than $1,000,000.00, which insurance must contain a waiver of subrogation against CSX and its Affiliates; (ii) Commercial General Liability coverage (inclusive of contractual liability) with available limits of not less than $5,000,000.00 in combined single limits for bodily injury and property damage and covering the contractual liabilities assumed under this Agreement; (iii) business automobile liability insurance with available limits of not less than $1,000,000.00 combined single limit for bodily injury and/or property damage per occurrence; and (iv) such other insurance as CSX may reasonably require. Upon request, Licensee shall provide CSX with a copy of Licensee's applicable insurance policies. A policy endorsement naming CSX as an additional insured and specifying such coverage shall be furnished to CSX prior to the execution of this Agreement, and the required coverage will be kept in force until all of Licensee's obligations under this Agreement have been fully discharged and fulfilled, or until Licensee shall have been specifically released by a written instrument signed by an authorized officer of CSX. Licensee shall also provide CSX with a copy of the insurance policies. The insurance policies shall provide that the insurance carrier must give CSX notice at least thirty (30) days in advance of cancellation of coverage, of any change in coverage, or of cancellation of the policy. Notwithstanding any provisions of this Section, the liability assumed by Licensee shall not be limited to the required insurance coverage.

4. RAILROAD PROTECTIVE LIABILITY INSURANCE: Licensee agrees to purchase Railroad Protective Liability Insurance in accordance with CSX's requirements (attached as Exhibit A and incorporated into this Agreement) for the benefit of CSX for Licensee's operations under this Agreement. Licensee shall furnish an appropriate Insurance policy (and required endorsements), as the case may be, with the return of this executed Agreement.

5. PRIOR NOTIFICATION: Licensee or Licensee's Agents shall notify CSX's Roadmaster at least 10 days prior to requiring entry on the Property and shall abide by the instructions of the Division Engineer, or his or her authorized representative. The Roadmaster, (*****), can be contacted at: (*******), to schedule flagging services.

6. CLEARANCES: Neither Licensee nor Agents shall perform any Project or place or operate any equipment of Licensee or Agents at a distance closer than fifty (50) feet from the center of any track, without the prior approval of the Division Engineer. The Division Engineer may require protective services or such other services as deemed necessary or appropriate. Equipment shall be moved across CSX's track(s) only at a public crossing unless prior arrangements have been made with the Division Engineer and a Private Crossing Agreement is fully executed and in place. Licensee and Agents shall take all precautions

necessary to avoid interference with or damage to CSX's property and signal and communication facilities during their performance of the Project.

7. PROTECTIVE SERVICES: If protective services, such as flagging protection, are required by CSX, Licensee shall make arrangements with the Roadmaster to furnish such personnel, flagman or watchman, that in the Roadmaster's opinion may be necessary to protect the facilities and traffic of CSX during the performance of the Project. Licensee shall pay for the cost of such services, including all applicable surcharges and additives. These services are estimated to be $_____, as supported by the attached estimate.

8. PAYMENT FOR PROTECTIVE SERVICES: Payment shall be made by Licensee in accordance with the following designated option:

( ) Option 1: Licensee shall make an advance deposit of funds based on an estimate of the cost of protective or other services as determined by CSX. The cost for CSX's services shall then be assessed by CSX against this advance deposit. Upon completion of the Project, any unused funding will be returned to Licensee. Notwithstanding the foregoing, in the event Licensee performs any Project work without permission or without protective services (such as flagging protection) as may be required by CSX, no portion of Licensee's advance deposit will be refunded. If CSX's costs exceed the advance deposit(s), a request will be made to Licensee for additional funds or an invoice will be issued to Licensee for final payment. Licensee shall remit payment to CSX within thirty (30) days of receipt of either a request for additional funds or an invoice.

( ) Option 2: Licensee shall promptly reimburse CSX for the cost of protective or other services on an as-incurred basis, including all applicable surcharges, upon receipt of bill(s) therefor.

9. ENVIRONMENTAL: This Agreement does not include and expressly excludes the performance of any site investigation activities designed to determine environmental conditions on, about or beneath the Property. Precluded activities include performing soil borings for purposes other than geotechnical investigation, obtaining soil, sediment, groundwater and surface water samples, and conducting field or laboratory analyses of any soil, sediment, groundwater or surface water samples obtained from CSX property to identify chemical composition or environmental condition. If any type of environmental investigation is desired, a separate right of entry agreement issued through CSX's Environmental Department must be secured.

10. CLAIMS: Licensee shall, or shall require Agents, to promptly notify the Division Engineer of any loss, damage, injury or death arising out of or in connection with the Project.

11. REMEDIATION: It is understood and agreed that, upon completion of the Project, the Property shall be left in a condition satisfactory to Division Engineer or his or her duly authorized representative.

12. SAFETY:

12.1 All personnel entering the Property must comply with CSX safety rules and requirements to include, without exception, the wearing of hard hats and approved safety shoes and safety glasses with side shields. Anyone not in compliance with these rules and regulations will be asked to leave the Property.

12.2 Before performing any work authorized by this Agreement, Licensee, at its sole cost and expense, shall obtain all necessary permit(s) (including but not limited to zoning, building, construction, health, safety or environmental matters), letter(s) or certificate(s) of approval. Licensee expressly agrees and warrants that it shall conform and limit its activities to the terms of such permit(s), approval(s) and authorization(s), and shall comply with all applicable ordinances, rules, regulations, requirements and laws of any governmental authority (state, federal or local) having jurisdiction over Licensee's activities, including the location, contact, excavation and protection regulations of the Occupational Safety and Health Act (OSHA) (29 CFR 1926.651(b), et al.), and State "One Call" -"Call Before You Dig" requirements.

13. TERM: This Right-of-Entry Agreement and the permission conferred and the license granted by it does not constitute a grant of permanent easement and shall terminate upon completion of the Project or at midnight, , whichever occurs first, unless extended in writing by CSX. In the event Licensee fails to comply with terms and provisions of this Agreement, Licensee agrees to pay and agrees that CSX shall be entitled to recover costs and expenses incurred by CSX, including legal fees and expenses, to enforce the terms of this Agreement.

14. SEVERABILITY: The parties agree that if any part, term or provision of the Agreement is held to be illegal, unenforceable or in conflict with any applicable federal, state, or local law or regulation, such part, term or provision shall be severable, with the remainder of the Agreement remaining valid and enforceable. If any provision or any part of a provision of the Agreement shall be finally determined to be superseded, invalid, illegal, or otherwise unenforceable pursuant to any applicable law, ordinance, rule or regulation, such determination shall not impair or otherwise affect the validity, legality, or enforceability of the remaining provision or parts of the provision of the Agreement, which shall remain in full force and effect as if the unenforceable provision or part were deleted.

15. ENTIRE AGREEMENT: This Agreement embodies the entire understanding of the parties, may not be waived or modified except in a writing signed by authorized representatives of both parties, and supersedes all prior or contemporaneous written or oral understandings, agreements or negotiations regarding its subject matter.

16. NOTICES: All notices, consents and approvals required or permitted by this agreement shall be in writing and shall be deemed delivered; upon personal delivery, upon the expiration of three (3) business days following mailing by U.S. first class mail, or upon the next business day following mailing by a nationally recognized overnight carrier, to the Licensee at the address above, and to Licensor at the address shown on Page 1, or at such other addresses as either party may designate by delivery of prior notice to the other party .

17. TERMINATION: CSX shall have the right at any time and at its sole discretion to terminate this Agreement upon notice to Licensee.

18. WAIVER: If either party fails to enforce its respective rights under this Agreement, or fails to insist upon the performance of the other party's obligations hereunder, such failure shall not be construed as a permanent waiver of any rights or obligations in this Agreement.

19. GOVERNING LAW; VENUE: This Agreement shall be governed by and construed under the laws of the State of Florida, without regard to the choice of law provisions thereof. Venue for any action arising from, or brought to enforce, this Agreement, shall vest exclusively in the state or federal courts located in Duval County, Florida, and the parties agree to submit to the personal jurisdiction of any state or federal court located in Duval County, Florida.

20. NO ASSIGNMENT: Notwithstanding anything to the contrary contained in this Agreement, Licensee shall not permit Agents to enter the Property without first requiring Agents to agree in writing to comply with all of the terms of this Agreement. Notwithstanding the foregoing, Licensee shall continue to be responsible for insuring that Agents comply with all of the terms and conditions of this Agreement and shall indemnify and hold CSX harmless for any damages described in Section 2 above caused in whole or in part by such subcontractor. Assignment of this Agreement to any party other than Agents in accordance with this Section shall not be permitted except upon the prior written consent of CSX, which consent may be granted or withheld at CSX's sole discretion. This Agreement shall be binding upon the parties and their respective successors and assigns.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the day and year first above written.

Witness for CSX Transportation:
_____

CSX TRANSPORTATION, INC.
By: _____
Name:
Title:

Witness for: ( )
_____

( ):
By: _____

Print/Type Name:
Print/Type Title:
Who, by the execution hereof, affirms that he/she has the authority to do so and to bind the [*] to the terms and conditions of this Agreement.

ATTACHMENT "A"
INSURANCE REQUIREMENTS

I. Insurance Policies:

Agency and its Designee, if and to the extent that either is performing work on or about CSX's property, shall procure and maintain the following insurance policies:

1. Commercial General Liability coverage at their sole cost and expense with limits of not less than$5,000,000 in combined single limits for bodily injury and/or property damage per occurrence, and such policies shall name CSX as an additional named insured. The policy shall include endorsement ISO CG 24 17 evidencing that coverage is provided for work within 50 feet of a railroad. If such endorsement is not included, railroad protective liability insurance must be provided as described in item 4 below.

2. Statutory Worker's Compensation and Employers Liability Insurance with limits of not less than$1,000,000, which insurance must contain a waiver of subrogation against CSX and its affiliates (if permitted by state law).

3. Commercial automobile liability insurance with limits of not less than $1,000,000 combined single limit for bodily injury and/or property damage per occurrence, and such policies shall name CSX as an additional named insured. The policy shall include endorsement ISO CA 20 70 evidencing that coverage is provided for work within 50 feet of a railroad. If such endorsement is not included, railroad protective liability insurance must be provided as described in item 4 below.

4. Railroad protective liability insurance with limits of not less than $5,000,000 combined single limit for bodily injury and/or property damage per occurrence and an aggregate annual limit of $10,000,000, which insurance shall satisfy the following additional requirements:

a. The Railroad Protective Insurance Policy must be on the ISO/RIMA Form of Railroad Protective Insurance - Insurance Services Office (ISO) Form CG 00 35.

b. CSX Transportation must be the named insured on the Railroad Protective Insurance Policy.

c. Name and Address of Contractor and Agency must appear on the Declarations page.

d. Description of operations must appear on the Declarations page and must match the Project description.

e. Authorized endorsements must include the Pollution Exclusion Amendment - CG 28 31, unless using form CG 00 35 version 96 and later.

f. Authorized endorsements may include:
- (i). Broad Form Nuclear Exclusion - IL 00 21
- (ii) 30-day Advance Notice of Non-renewal or cancellation
- (iii) Required State Cancellation Endorsement
- (iv) Quick Reference or Index - CL/IL 240

g. Authorized endorsements may not include:
(i) A Pollution Exclusion Endorsement except CG 28 31
(ii) A Punitive or Exemplary Damages Exclusion
(iii) A "Common Policy Conditions" Endorsement
(iv) Any endorsement that is not named in Section 4 (e) or (f) above.
(v) Policies that contain any type of deductible

5. All insurance companies must be A. M. Best rated A- and Class VII or better.

6. The CSX OP number or CSX contract number, as applicable, must appear on each Declarations page and/or certificates of insurance.

7. Such additional or different insurance as CSX may require.

II. Additional Terms

1. Contractor must submit the complete Railroad Protective Liability policy, Certificates of Insurance and all notices and correspondence regarding the insurance policies in an electronic format to:

Insurance Department
CSX Transportation, Inc.
500 Water Street, C-907
Jacksonville, FL 32202

OR

insurancedocuments@csx.com

2. Neither Agency nor its Designee may begin work on or about CSX property until written approval of the required insurance has been received from CSX or CSX's Insurance Compliance vendor, Ebix.

APPENDIX

CSX TRANSPORTATION

RIGHT of ENTRY AND INDEMNITY AGREEMENT FOR BRIDGE PAINTING (AESTHETIC)

Public Projects Group
Jacksonville, FL
Date Issued: September 2024

RIGHT OF ENTRY AND INDEMNITY AGREEMENT FOR BRIDGE PAINTING (AESTHETIC)

This Agreement is made and effective as of _____, by and between CSX TRANSPORTATION, INC., a Virginia corporation, with a mailing address of 500 Water Street, Jacksonville, Florida 32202, hereinafter called "CSX," and the Name of Agency, a public corporation, under the laws of the State of State, with a mailing address of Street Address, PO Box, City State and ZIP, hereinafter called "AGENCY".

WHEREAS, CSX controls and operates a right of way and bridge located within the ****** Division, ***** Subdivision, at DOT#: 123456A MP XXX-123.45. Street Name in City, County County, State ("the Property");

WHEREAS, AGENCY has submitted a written request to enter the Property and to clean and paint the facing of the bridge (the "Project") as described in Exhibit A, attached and incorporated by reference; and

WHEREAS, CSX is willing to grant AGENCY the limited right and permission to enter upon the Property for the limited purpose of performing the Project;

NOW, THEREFORE, CSX hereby grants to AGENCY the right and permission to enter upon the Property for the purpose of performing the Project, subject to the terms and conditions set forth below:

1. TERM AND SCOPE

From the period starting from the date of execution of this Agreement, through the date that is one year from such date unless further extended by mutual agreement of the parties (the "Term"), AGENCY, through its employees, agents, contractors, subcontractors, and/or other representatives (each, a "Designee" and collectively, "Designees"), may, only once (meaning not on a repetitive basis) enter the Property and perform the Project (the "Work"). Notwithstanding the foregoing, provided that CSX shall first have approved the specifications therefore, as set forth in Section 2 hereof, AGENCY may also engage in periodic spot painting to remove graffiti (the "Spot Painting").

2. PROJECT

A. All plans, specifications, drawings and other documents necessary or appropriate to the design and performance of the Project, including but not limited to paint color and temporary attachment specifications (if any), shall be prepared, at AGENCY's sole cost and expense, by AGENCY or its Designees. Such plans shall be submitted to CSX for review and approval of CSX at least thirty (30) days prior to starting the Work or Spot Painting. The specifications for Spot Painting must include the paint color (which must be compatible with the most recent paint applied), application method (e.g. spray, brush, etc.), and structure access/reach equipment type (e.g. ladders, man lifts, etc.). CSX may require paint removal prior to Spot Painting for safety reasons; if so, AGENCY must also submit a paint removal method (e.g. sand-blasting, chemical removal, etc.). No Work or Spot Painting may begin until CSX has approved the plans and specifications. By its review or approval of plans pursuant to this Agreement, CSX signifies only that such plans and performance of the Work and Spot Painting in accordance with such plans satisfy CSX's requirements.

B. Upon receipt of the specifications, CSX's authorized representative will determine and inform AGENCY whether a flagman need be present and whether AGENCY need implement any special protective or safety measures. If a flagman is required, AGENCY shall notify CSX's authorized representative and arrange for safety protection in accordance with this Agreement.

C. The Work and Spot Painting shall be performed in accordance with good and sound practices, to the satisfaction of CSX's authorized representative in a manner to avoid accidents, damages, unnecessary delays to or interference with the continuous and uninterrupted use of CSX tracks or other operations, including train, signal, telephone and communication services, or damage to CSX's property, or to poles, wires, and other facilities of tenants on CSX's property or right-of-way. Under no circumstances shall Work or Spot Painting affect the operations or safety of trains. If conditions arising from or in connection with the Project require that immediate and unusual provisions be made to protect train operation or CSX's property, AGENCY shall make such provision.

D. The Project shall be designed and the Work and Spot painting performed at no cost, expense or liability to CSX.

3. COMMENCEMENT OF WORK; AUTHORITY OF CSX REPRESENTATIVE

A. AGENCY shall not commence any Work on CSX Property until AGENCY has:

1. Notified CSX in writing of the date that it expects Work or Spot Painting to commence on the Project. Such notice must be received by CSX at least ten (10) business days in advance of the date AGENCY proposes to begin Work or Spot Painting on the Property. The notice must refer to this Agreement by date.

2. Obtain authorization from CSX's authorized representative to begin Work on CSX property, such authorization to include an outline of specific conditions with which AGENCY must comply.

B. CSX retains the paramount right to regulate all activities affecting its property and operations. CSX's authorized representative shall have final authority in all matters affecting the safe maintenance of CSX operations and CSX property, and his or her approval shall be obtained by AGENCY for methods of construction to avoid interference with CSX operations and CSX property and all other matters contemplated by the Agreement.

4. FLAGGING / INSPECTION SERVICE

A. CSX has sole authority to determine the need for flagging required to protect its operations and property.

B. CSX shall have the right to assign an individual to the site of the Project to perform inspection service whenever, in the opinion of CSX's authorized representative, such inspection may be necessary.

C. Any CSX expenses associated with flagging and inspection service shall be calculated, estimated, and reimbursed by AGENCY in the manner described in Section 10.

D. Should CSX's authorized representative determine that flagging is necessary, AGENCY may attempt to coordinate the timing of the Work or Spot Painting with CSX's authorized representative so that the Project may be performed during times that flagging is already ongoing at the Property.

5. SAFETY

A. CSX will provide AGENCY with a copy of its safety rules and requirements prior to the commencement of the Work or Spot Painting. Any AGENCY personnel or Designee entering the Property must comply with CSX's safety rules and requirements. Anyone not in compliance with these rules and regulations will be asked to leave the Property.

B. Before performing any Work authorized by this Agreement, AGENCY, at no expense to CSX, will obtain all necessary permit(s) (including, but not limited to, zoning, building, construction, health, safety or environmental matters), letter(s) or certificate(s) of approval. AGENCY expressly agrees and warrants that it shall conform and limit activities to the terms of such permit(s), approval(s) and authorization(s), and shall comply with all applicable ordinances, rules, regulations, requirements and laws of any governmental authority (state, federal or local) having jurisdiction over the activities in the Project, including applicable provisions of the Occupational Safety and Health Act (OSHA) (29 CFR 1926.651(b), et al.).

6. ACCESS LIMITATIONS; STORAGE OF MATERIALS

A. This Agreement does not give AGENCY the right to cross CSX property or tracks with vehicles, equipment or in any other matter other than at an existing and open public crossing. At no time will anyone performing the Work or Spot Painting be allowed beyond the bridge abutments on CSX's property or be allowed on top of the bridge unless accompanied by CSX personnel.

B. AGENCY shall not store materials or equipment on CSX's property or where they may potentially interfere with CSX's operations, unless AGENCY has received prior written permission from CSX's authorized representative.

7. ENVIRONMENTAL

A. This Agreement does not include and expressly excludes the performance of any site investigation activities designed to determine environmental conditions on, about or beneath the Property.

B. AGENCY shall comply with all federal, state and local environmental laws and regulations in its work at the Property and shall perform the Work or Spot Painting in an environmentally protective manner, and shall prevent releases and spills of any materials that could harm human health or the environment, including but not limited to, hydrocarbon products, anti-freeze, spent mechanical draining, solvents, hazardous substances and hazardous wastes as defined in the Comprehensive Environmental Response, Compensation and Liability Act and the Resource Conservation and Recovery Act, respectively ("Environmental Substances"). AGENCY, at its expense, shall assume all responsibility for the investigation and cleanup of any release or discharge of any Environmental Substance at the Property that arises from the performance of any work, presence or other activity at the Property by AGENCY or its Designees. In addition to other liability terms contained in this Agreement, AGENCY agrees to indemnify, defend and hold harmless CSX and CSX's Affiliates from and against all environmental costs and expenses, including without limitation, all environmental analysis and cleanup expenses, fines and claims, or penalties arising from any work, presence or activity of the AGENCY or its Designees at the Property.

8. REMEDIATION AND CLEAN-UP

AGENCY, upon completion of the Work or Spot Painting, shall (i) remove from the Property any equipment, surplus materials, or rubbish belonging to AGENCY or AGENCY's Designee; and (ii) leave CSX Property to its original condition, satisfactory to CSX's authorized representative.

9. INSURANCE AND WAIVERS

AGENCY shall (i) acquire or require AGENCY's Designee to purchase and maintain insurance in compliance with CSX's insurance requirements attached to this Agreement as Exhibit B; (ii) require any individual not employed by AGENCY to execute the Waiver and Release Form attached hereto as Exhibit C; and (iii) require any Designee to execute the Acceptance by AGENCY Designee Form attached hereto as Exhibit D prior to entering CSX property and/ or commencing any Work or Spot Painting. Neither AGENCY nor AGENCY's Designee shall commence the Work or Spot Painting until such insurance policy or policies and forms have been submitted to and approved by CSX's Risk Management Department.

10. CSX'S COSTS AND EXPENSES; REIMBURSEMENT PROCEDURES

A. Reimbursable Expenses. AGENCY shall reimburse CSX or shall cause AGENCY's Designee to reimburse CSX for all costs and expenses incurred by CSX in connection with the Project, Work or Spot Painting (the "Reimbursable Expenses").

B. Estimate. CSX has estimated the total Reimbursable Expenses as shown on Exhibit E (the "Estimate", as amended or revised). In the event CSX anticipates that actual Reimbursable Expenses may exceed such Estimate, it shall provide AGENCY with the revised Estimate of the total Reimbursable Expenses.

C. Payment Terms. Upon execution and delivery of this Agreement by AGENCY, AGENCY will deposit with CSX a sum equal to the estimated Reimbursable Expenses, as shown by the Estimate. Following completion of the Project, CSX shall submit to AGENCY a final invoice that reconciles the total costs incurred by CSX against the total payments received from AGENCY. AGENCY shall pay to CSX the amount by which expenses exceed total payments as shown by the final invoice, within thirty (30) days following delivery of such invoice to AGENCY. In the event that the payments received by CSX from AGENCY exceed the estimated expenses, CSX shall remit such excess to AGENCY.

11. INDEMNIFICATION.

A. As a material inducement for entering into this Agreement, and without which CSX would not enter into the same, AGENCY covenants and agrees that to the extent permitted by law, AGENCY shall indemnify, defend, and hold CSX and its affiliates harmless from and against all claims, demands, payments, suits, actions, judgments, settlements, and damages of every nature, degree, and kind (including direct, indirect, consequential, incidental, and punitive damages), for any injury to or death to any person(s) (including, but not limited to the employees of CSX, its affiliates, AGENCY or its Designees), for the loss of or damage to any property whatsoever (including but not limited to property owned by or in the care, custody, or control of CSX, its affiliates, AGENCY or its Designees), arising or resulting from the performance of this Agreement by AGENCY or any other person performing any work or service on the AGENCY's behalf on or about the Property. The foregoing indemnification obligation shall not be limited to the insurance coverage required by this Agreement, except to the extent required by law or otherwise expressly provided by this Agreement.

B. Compliance with Laws. AGENCY shall comply, and shall require its Designees to comply, with any federal, state, or local laws, statutes, codes, ordinances, rules, and regulations applicable to its construction and maintenance of the Project. AGENCY's Designees shall indemnify, defend, and hold CSX and its affiliates harmless with respect to any fines, penalties, liabilities, or other consequences arising from breaches of this Section.

C. "CSX Affiliates". For the purpose of this Agreement, CSX's affiliates include CSX Corporation and all entities, directly or indirectly, owned or controlled by or under common control of CSX or CSX Corporation and their respective officers, directors, employees and agents.

D. Survival. The provisions of this Section shall survive the termination or expiration of this Agreement.

12. CLAIMS

AGENCY shall promptly notify the CSX's authorized representative of any loss, damage, or injury arising out of or in connection with the Work or Spot Painting. AGENCY shall not create, permit or suffer any mechanic's or materialmen's liens of any kind or nature to be created or enforced against any property of CSX for any such Work or Spot Painting performed.

13. MAINTENANCE

A. By AGENCY. Upon completion of the Project, AGENCY, or its Designee, shall be solely responsible for maintaining the aesthetic appearance of the Project, including taking any actions deemed necessary by CSX, in its sole discretion, to address any damage or disfiguration due to vandalism or graffiti by Spot Painting, in accordance with Section 1. In the event AGENCY or its Designee fails to maintain the aesthetic appearance of the Project in a reasonable condition, as determined by CSX in its sole discretion, CSX, after due notice to AGENCY, may [(i) require AGENCY to remove or paint over the mural, (ii) at AGENCY Designee's sole cost and expense arrange for the mural to be removed or painted over, or (iii)] take such action as it deems appropriate to restore the railroad bridge to a condition acceptable to CSX. For purposes of this Section, "due notice" shall mean thirty (30) days' notice unless CSX, in its sole discretion, determines that an emergency condition exists, in which case, AGENCY or its Designee shall take immediate action.

B. By CSX. CSX shall not in any manner be restricted from (i) maintaining, repairing, replacing or renewing its tracks, all parts of the railroad bridge supports, signal and communication systems or any other rail facilities or its property as it deems appropriate or (ii) performing any actions required to reasonably support rail operations. Neither shall CSX in any manner be responsible for any damage or disfiguration caused to the Project due to such work, actions, or railroad operations, nor shall CSX be responsible for the aesthetic appearance of the mural or the area of the railroad bridge supports upon which the Project is painted, so long as AGENCY remains responsible for the maintenance of the Project.

C. Alterations. AGENCY shall not undertake any alteration, modification or expansion of the Project, without the prior approval of CSX, which may be withheld for any reason, and the execution of such agreements as CSX may require.

14. INDEPENDENT CONTRACTOR

The parties agree that neither AGENCY nor the AGENCY Designee shall be deemed either agents or independent contractors of CSX. Except as otherwise provided by this Agreement, CSX shall exercise no control whatsoever over the employment, discharge, compensation of, or services rendered by AGENCY or AGENCY's Representative, or the construction practices, procedures, and professional judgment employed by AGENCY or AGENCY's Representative to complete the Project. Notwithstanding the foregoing, this Section shall in no way affect the absolute authority of CSX to prohibit AGENCY or AGENCY's Representative or anyone from entering CSX's property, or to require the removal of any person from its property, if it determines, in its sole discretion, that such person is not acting in a safe manner or that actual or potential hazards in, on or about the Property exist.

15. INTERPRETATION

AGENCY and CSX each acknowledge that the terms, covenants, conditions, and provisions of this Agreement have been negotiated between and jointly authored by the parties hereto, and in consequence of this joint authorship, the parties agree that no term, covenant, condition or provision hereunder shall be construed more strictly against one party or the other hereto.

16. SEVERABILITY

The parties agree that if any part, term or provision of the Agreement is held to be illegal, unenforceable or in conflict with any applicable federal, state, or local law or regulation, such part, term or provision shall be severable, with the remainder of the Agreement remaining valid and enforceable. If any provision or any part of a provision of the Agreement shall be finally determined to be superseded, invalid, illegal, or otherwise unenforceable pursuant to any applicable law, ordinance, rule or regulation, such determination shall not impair or otherwise affect the validity, legality, or enforceability of the remaining provision or parts of the provision of the Agreement, which shall remain in full force and effect as if the unenforceable provision or part were deleted.

17. ENTIRE AGREEMENT

This Agreement embodies the entire understanding of the parties, may not be waived or modified except in a writing signed by authorized representatives of all parties, and supersedes all prior or contemporaneous written or oral understandings, agreements or negotiations regarding its subject matter. No modification or alteration of the terms hereof shall be binding unless such modification or alteration is in writing and executed by the parties.

18. NOTICES

All notices, consents and approvals required or permitted by this agreement shall be in writing and shall be deemed delivered; upon personal delivery, upon the expiration of three (3) business days following mailing by U.S. first class mail, or upon the next business day following mailing by a nationally recognized overnight carrier, to the parties at the addresses set forth below, or such other addresses as either party may designate by delivery of prior notice to the other party.

TO CSX: CSX Transportation, Inc.
500 Water Street, J301
Jacksonville, Florida 32202
Attention – Director Project Management, Public Projects

TO AGENCY: Name_____
Title Agency_____
Street Address City, State ZIP_____

19. TERMINATION

CSX and AGENCY shall have the right to terminate this Agreement upon notice for any reason.

Termination of this Agreement or Work on the Project, for any reason, shall not diminish or reduce AGENCY's obligation to pay CSX for Reimbursable Expenses incurred in accordance with this Agreement. In the event of the termination of this Agreement or the Work for any reason, CSX's only remaining obligation to AGENCY shall be to refund to AGENCY payments made to CSX in excess of Reimbursable Expenses in accordance with Section 10.

20. WAIVER

If any party fails to enforce its respective rights under this Agreement, or fails to insist upon the performance of the other party's obligations hereunder, such failure shall in no way be construed as a permanent waiver of any rights or obligations in this Agreement, nor in any way to affect the validity of this Agreement or any part hereof or the right of either party to thereafter enforce each and every such provision and to exercise any such right or option. No waiver of any breach of this Agreement shall be held to be a waiver of any other or subsequent breach.

21. GOVERNING LAW; VENUE

This Agreement shall be governed by and construed under the laws of the State of Florida, without regard to the choice of law provisions thereof. Venue for any action arising from, or brought to enforce, this Agreement, shall vest exclusively in the state or federal courts located in Duval County, Florida, and the parties agree to submit to the personal jurisdiction of any state or federal court located in Duval County, Florida.

22. ASSIGNMENT

This Agreement shall be binding upon the parties hereto and upon all persons successor in interest to said parties. This Agreement shall not be assignable by AGENCY without the express written consent of CSX.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed as of the day and year first above written.

Agency

_____

Name / Title

Date: _____

CSX TRANSPORTATION, INC.

_____

Name: Will Roseborough
Title: Director, Project Development and Public Projects
Date: _____

APPROVED AS TO FORM AND LEGALITY:

_____

AGENCY Attorney

Date: _____

EXHIBIT A

PROJECT PLANS AND SPECIFICATIONS

EXHIBIT B

INSURANCE REQUIREMENTS

I. Insurance Policies:

Agency and Contractor, if and to the extent that either is performing work on or about CSX's property, shall procure and maintain the following insurance policies:

1. Commercial General Liability coverage at their sole cost and expense with limits of not less than $5,000,000 in combined single limits for bodily injury and/or property damage per occurrence, and such policies shall name CSX as an additional named insured. The policy shall include endorsement ISO CG 24 17 evidencing that coverage is provided for work within 50 feet of a railroad. If such endorsement is not included, railroad protective liability insurance must be provided as described in item 4 below.

2. Statutory Worker's Compensation and Employers Liability Insurance with limits of not less than $1,000,000, which insurance must contain a waiver of subrogation against CSX and its affiliates (if permitted by state law).

3. Commercial automobile liability insurance with limits of not less than $1,000,000 combined single limit for bodily injury and/or property damage per occurrence, and such policies shall name CSX as an additional named insured. The policy shall include endorsement ISO CA 20 70 evidencing that coverage is provided for work within 50 feet of a railroad. If such endorsement is not included, railroad protective liability insurance must be provided as described in item 4 below.

4. Railroad protective liability insurance with limits of not less than $5,000,000 combined single limit for bodily injury and/or property damage per occurrence and an aggregate annual limit of $10,000,000, which insurance shall satisfy the following additional requirements:

a. The Railroad Protective Insurance Policy must be on the ISO/RIMA Form of Railroad Protective Insurance - Insurance Services Office (ISO) Form CG 00 35.

b. CSX Transportation must be the named insured on the Railroad Protective Insurance Policy.

c. Name and Address of Contractor and Agency must appear on the Declarations page.

d. Description of operations must appear on the Declarations page and must match the Project description.

e. Authorized endorsements must include the Pollution Exclusion Amendment - CG 28 31, unless using form CG 00 35 version 96 and later.

f. Authorized endorsements may include:

(i). Broad Form Nuclear Exclusion - IL 00 21
(ii) 30-day Advance Notice of Non-renewal or cancellation
(iii) Required State Cancellation Endorsement
(iv) Quick Reference or Index - CL/IL 240

g. Authorized endorsements may not include:

(i) A Pollution Exclusion Endorsement except CG 28 31
(ii) A Punitive or Exemplary Damages Exclusion
(iii) A "Common Policy Conditions" Endorsement
(iv) Any endorsement that is not named in Section 4 (e) or (f) above.
(v) Policies that contain any type of deductible

5. All insurance companies must be A. M. Best rated A- and Class VII or better.

6. The CSX OP number or CSX contract number, as applicable, must appear on each Declarations page and/or certificates of insurance.

7. Such additional or different insurance as CSX may require.

II. Additional Terms

1. Contractor must submit the original Railroad Protective Liability policy, Certificates of Insurance and all notices and correspondence regarding the insurance policies to:

Insurance Department
CSX Transportation, Inc.
500 Water Street, C-907
Jacksonville, FL 32202

OR

insurancedocuments@csx.com

2. Neither Agency nor Contractor may begin work on the Project until it has received CSX's written approval of the required insurance.

EXHIBIT C

WAIVER AND RELEASE FORM TEMPORARY LICENSE AGREEMENT

_____ shall indemnify and hold CSX Transportation, Inc. ("CSX"), the owner or holder in interest of the tract of real property known as the CSX Transportation right of way under the_____, (the "Property"), harm- less from all claims, damages, demands, causes of action, suits, expenses (including attorney's fees and costs), judgments and interest whatsoever arising from a project to clean up and paint the bridge supports on the Property.

Signature: _____

Date:_____

Note: AGENCY must require any member, volunteer or other person not employed by AGENCY to execute this Waiver and Release Form, Exhibit C, prior to entering CSX property and/or commencing any work on the Project. A copy of all Waiver and Release Forms obtained from any member, volunteer or other person not employed by AGENCY must be sent to:

Julie Skinner
CSX Insurance Analyst
500 Water Street, 14th Floor, Jacksonville, FL 32202
Phone: 904-366-3804

EXHIBIT D

ACCEPTANCE BY AGENCY DESIGNEE

To and for the benefit of CSX Transportation, Inc. ("CSX") and to induce CSX to permit the AGENCY Designee on or about CSX's property for the purposes of performing Work or Spot Painting in accordance with the Agreement dated_____201__, between AGENCY and CSX, AGENCY Designee hereby agrees to abide by and perform all applicable terms of the Agreement, including, but not limited to Exhibit B and Exhibit C to the Agreement, and Sections 2, 3, 7, 8, 11, and 13 of the Agreement. Any notices required to be given to AGENCY Designee shall be in writing and delivered to the person identified below.

AGENCY Designee

By: _____
Print Name: _____
Title: _____
Date: _____

Notices shall be delivered to:
[name and address]

EXHIBIT E

ESTIMATE OF REIMBURSABLE EXPENSES

Attached

APPENDIX

CSX TRANSPORTATION

CSX SPECIAL PROVISIONS

Public Projects Group
Jacksonville, FL
Date Issued: September 2024

DEFINITIONS:

As used in these Special Provisions, all capitalized terms shall have the meanings ascribed to them by the Agreement, and the following terms shall have the meanings ascribed to them below:

"CSX" shall mean CSX Transportation, Inc., its successors and assigns.

"CSX Representative" shall mean the authorized representative of CSX Transportation, Inc.

"Agreement" shall mean the Agreement between CSX and Agency dated as of _____, 20___ amended from time to time.

"Agency" shall mean the _____, _____

"Agency Representative" shall mean the authorized representative of _____, _____

"Contractor" shall have the meaning ascribed to such term by the Agreement.

"Work" shall mean the Project as described in the Agreement.

I. AUTHORITY OF CSX ENGINEER

The CSX Representative shall have final authority in all matters affecting the safe maintenance of CSX operations and CSX property, and his or her approval shall be obtained by the Agency or its Contractor for methods of construction to avoid interference with CSX operations and CSX property and all other matters contemplated by the Agreement and these Special Provisions.

II. INTERFERENCE WITH CSX OPERATIONS

A. Agency or its Contractor shall arrange and conduct its work so that there will be no interference with CSX operations, including, but not limited to: train, signal, telephone and telegraphic services, or damage to CSX's property, or to poles, wires, and other facilities of tenants on CSX's Property or right-of-way. Agency or its Contractor shall store materials so as to prevent trespassers from causing damage to trains, or CSX Property. Whenever Work is likely to affect the operations or safety of trains, the method of doing such Work shall first be submitted to the CSX Representative for approval, but such approval shall not relieve Agency or its Contractor from liability in connection with such Work.

B. If conditions arising from or in connection with the Project require that immediate and unusual provisions be made to protect train operation or CSX's property, Agency or its Contractor shall make such provision. If the CSX Representative determines that such provision is insufficient, CSX may, at the expense of Agency or its Contractor, require or provide such provision as may be deemed necessary, or cause the Work to cease immediately.

C. Should work activities be required within CSX property or right-of-way, the Contractor shall request CSX to locate any buried utilities or facilities (air lines, wells, etc.). A written request shall be delivered to the CSX Representative at least five (5) days in advance. The traditional "One Call" utility locate services are not responsible for locating any CSX undergrade utilities or facilities.

III. INSURANCE

The Contractor shall not be permitted to work on, or have potential to foul, CSX property or right-of-way until CSX has acknowledged written acceptance of the insurance coverages for the proposed project. See PAGE 16 - INSURANCE REQUIREMENTS.

IV. NOTICE OF STARTING WORK

Agency or its Contractor shall not commence any work on CSX Property or rights-of-way until it has complied with the following conditions:

A. Notify CSX in writing of the date that it intends to commence Work on the Project. Such notice must be received by CSX at least ten (10) business days in advance of the date Agency or its Contractor proposes to begin Work on CSX property. The notice must refer to this Agreement by date. If flagging service is required, such notice shall be submitted at least thirty (30) business days in advance of the date scheduled to commence the Work.

B. Obtain authorization, through the Notice to Proceed, from the CSX Representative to begin Work on CSX property. Once authorization is given, Agency or Contractor shall provide a detailed schedule to include means and methods for review, comment and/or approval prior to commencement of work. CSX will in turn provide direction regarding specific conditions with which it must comply.

C. Obtain from CSX the names, addresses and telephone numbers of CSX's personnel who must receive notice under provisions in the Agreement. Where more than one individual is designated, the area of responsibility of each shall be specified.

V. WORK FOR THE BENEFIT OF THE CONTRACTOR

A. No temporary or permanent changes to wire lines or other facilities (other than third party fiber optic cable transmission systems) on CSX property that are considered necessary to the Work are anticipated or shown on the Plans. If any such changes are, or become, necessary in the opinion of CSX or Agency, such changes will be covered by appropriate revisions to the Plans and by preparation of a force account estimate. Such force account estimate may be initiated by either CSX or Agency, but must be approved by both CSX and Agency. Agency or Contractor shall be responsible for arranging for the relocation of the third party fiber optic cable transmission systems, at no cost or expense to CSX.

B. Should Agency or Contractor desire any changes in addition to the above, then it shall make separate arrangements with CSX for such changes to be accomplished at the Agency or Contractor's expense.

VI. HAUL ACROSS RAILROAD

A. If Agency or Contractor desires access across CSX property or tracks at other than an existing and open public road crossing in or incident to construction of the Project, the Agency or Contractor must first obtain the permission of CSX and shall execute a license agreement or right of entry satisfactory to CSX, wherein Agency or Contractor agrees to bear all costs and liabilities related to such access.

1. Temporary construction haul roads across CSX tracks will require a separate application and payment to CSX Property Services. Agreement extensions require additional payment. Actual cost is variable and project specific. Additional information can be found at this URL: https://www.csx.com/index.cfm/customers/value-added-services/property-real-estate/permitting-utility-installations-and-rights-of-entry/.\\

B. Agency and Contractor shall not cross CSX's property and tracks with vehicles or equipment of any kind or character, except at such crossing or crossings as may be permitted pursuant to this section.

VII. COOPERATION AND DELAYS

A. Agency or Contractor shall arrange a schedule with CSX for accomplishing stage construction involving work by CSX. In arranging its schedule, Agency or Contractor shall ascertain, from CSX, the lead time required for assembling crews and materials and shall make due allowance therefor.

B. Agency or Contractor may not charge any costs or submit any claims against CSX for hindrance or delay caused by railroad traffic; work done by CSX or other delay incident to or necessary for safe maintenance of railroad traffic; or for any delays due to compliance with these Special Provisions.

C. Agency and Contractor shall cooperate with others participating in the construction of the Project to the end that all work may be carried on to the best advantage.

D. Agency and Contractor understand and agree that CSX does not assume any responsibility for work performed by others in connection with the Project. Agency and Contractor further understand and agree that they shall have no claim whatsoever against CSX for any inconvenience, delay or additional cost incurred by Agency or Contractor on account of operations by others.

VIII. STORAGE OF MATERIALS AND EQUIPMENT

Agency and Contractor shall not store their materials or equipment on CSX's property or where they may potentially interfere with CSX's operations, unless Agency or Contractor has received CSX Representative's prior written permission. Agency and Contractor understand and agree that CSX will not be liable for any damage to such materials and equipment from any cause and that CSX may move, or require Agency or Contractor to move, such material and equipment at Agency's or Contractor's sole expense. To minimize the possibility of damage to the railroad tracks resulting from the unauthorized use of equipment, all grading or other construction equipment that is left parked near the tracks unattended by watchmen shall be immobilized to the extent feasible so that it cannot be moved by unauthorized persons.

IX. CONSTRUCTION PROCEDURES

A. General

1. Construction work on CSX property shall be subject to CSX's inspection and approval.

2. Construction work on CSX property shall be in accord with CSX's Construction Submission Criteria, latest edition and CSX's written outline of specific conditions and with these Special Provisions.

3. Contractor shall observe the terms and rules of the CSX Safe Way manual, which Agency and Contractor shall be required to obtain from CSX, and in accord with any other instructions furnished by CSX or CSX's Representative. Failure to comply with the terms of the agreement and CSX rules can result in mandatory railroad worker protective training for the Agency, Contractor and its subcontractors.

B. Blasting

1. Agency or Contractor shall obtain CSX Representative's and Agency Representative's prior written approval for use of explosives on or adjacent to CSX property. If permission for use of explosives is granted, Agency or Contractor must comply with the following:

a. Blasting shall be done with light charges under the direct supervision of a responsible officer or employee of Agency or Contractor.

b. Electric detonating fuses shall not be used because of the possibility of premature explosions resulting from operation of two-way train radios.

c. No blasting shall be done without the presence of an authorized representative of CSX. At least thirty (30) days' advance notice to CSX Representative is required to arrange for the presence of an authorized CSX representative and any flagging that CSX may require.

d. Agency or Contractor must have at the Project site adequate equipment, labor and materials, and allow sufficient time, to (i) clean up (at Agency's expense) debris resulting from the blasting without any delay to trains; and (ii) correct (at Agency's expense) any track misalignment or other damage to CSX's property resulting from the blasting, as directed by CSX Representative, without delay to trains. If Agency's or Contractor's actions result in delay of any trains, including Amtrak passenger trains, Agency shall bear the entire cost thereof.

e. Agency and Contractor shall not store explosives on CSX property.

2. CSX Representative will:

a. Determine the approximate location of trains and advise Agency or Contractor of the approximate amount of time available for the blasting operation and clean-up.

b. Have the authority to order discontinuance of blasting if, in his or her opinion, blasting is too hazardous or is not in accord with these Special Provisions.

X. ENVIRONMENTAL

A. Should soil excavation within CSX property be anticipated and said soils cannot remain on CSX property during and after construction, then CSX Environmental must be contacted at least thirty (30) days in advance of the work in order to schedule sampling, classification and disposition of material. Excavated material is prohibited from being removed from CSX property, or rights-of-way, without expressed written direction from CSX. Should final disposition require disposal of excavated material, CSX shall have sole discretion of means and location of said disposal. The project sponsor or Agency will bear all costs associated with sampling, staging and subsequent disposal if deemed necessary. Contractor will be required to obtain all disposal tickets / documentation and provide the information to the CSX Representative. CSX will not bear any costs associated with this work.

B. Any waste materials generated by the Project, including but not limited to washing with cleaning solvents, blasting, scraping, brushing and painting operations, shall be the responsibility of the Agency or its Contractor and shall be contained, collected and properly disposed of by the Agency or its Contractor. Agency and its Contractor agree to fully comply with all federal, state, and local environmental laws, regulations, statutes and ordinances at all times.

XI. MAINTENANCE OF DITCHES ADJACENT TO CSX TRACKS

Agency or Contractor shall maintain all ditches and drainage structures free of silt or other obstructions that may result from their operations. In addition, Agency or Contractor shall maintain all CSX property or right-of-way impacted by project operations including but not limited to; access or haul roads, staging areas, parking lots in a manner that provides CSX free and clear access to facilities, materials while providing acceptable driving surfaces free of drainage impacts or reduced CSX capacity. Agency or Contractor shall provide erosion control measures during construction and use methods that accord with applicable state standard specifications for road and bridge construction, including either (1) silt fence; (2) hay or straw barrier; (3) berm or temporary ditches; (4) sediment basin; (5) aggregate checks; and (6) channel lining. All such maintenance and repair of damages due to Agency's or Contractor's operations shall be performed at Agency's expense.

XII. TRACK PROTECTION / INSPECTION SERVICE

A. CSX has sole authority to determine the need for track protection required to protect its operations and property. In general, track protection will be required whenever Agency or Contractor or their equipment are, or are likely to be, working within fifty (50) feet of live track or other track clearances specified by CSX, or over tracks.

B. Agency shall reimburse CSX directly for all costs of track protection that is required on account of construction within CSX property shown in the Plans, or that is covered by an approved plan revision, supplemental agreement or change order.

C. Agency or Contractor shall give a minimum of thirty (30) days' advance notice to CSX Representative for anticipated need for track protection. No work shall be undertaken until the flag person(s) is/are at the job site. If it is necessary for CSX to advertise a flagging job for bid, it may take up to ninety (90) days to obtain this service and CSX shall not be liable for the cost of delays attributable to obtaining such service.

D. CSX shall have the right to assign an individual to the site of the Project to perform inspection service whenever, in the opinion of CSX Representative, such inspection may be necessary. Agency shall reimburse CSX for the costs incurred by CSX for such inspection service. Inspection service shall not relieve Agency or Contractor from liability.

E. CSX shall render invoices for, and Agency shall pay for, the actual pay rate of the flagpersons and inspectors used, plus standard additives, whether that amount is above or below the rate provided in the Estimate. If the rate of pay that is to be used for inspector or flagging service is changed before the work is started or during the progress of the work, whether by law or agreement between CSX and its employees, or if the tax rates on labor are changed, bills will be rendered by CSX and paid by Agency using the new rates. Agency and Contractor shall perform their operations that require track protection or inspection service in such a manner and sequence that the cost of such will be as economical as possible.

XIII. UTILITY FACILITIES ON CSX PROPERTY

Agency shall arrange, upon approval from CSX, to have any utility facilities on or over CSX Property changed as may be necessary to provide clearances for the proposed trackage.

XIV. CLEAN-UP

Agency or Contractor, upon completion of the Project, shall remove and dispose from CSX's Property any temporary construction work, any temporary erosion control measures used to control drainage, all machinery, equipment, surplus materials, falsework, rubbish, or temporary buildings belonging to Agency or Contractor. Agency or Contractor, upon completion of the Project, shall leave CSX Property in neat condition, satisfactory to the CSX Representative.

XV. FAILURE TO COMPLY

If Agency or Contractor violate or fail to comply with any of the requirements of these Special Provisions, (a) CSX may require Agency and/or Contractor to vacate CSX Property; and (b) CSX may withhold monies due Agency and/or Contractor; (c) CSX may require Agency to withhold monies due Contractor; and (d) CSX may cure such failure and the Agency shall reimburse CSX for the cost of curing such failure.

APPENDIX

CSX TRANSPORTATION

OVERHEAD BRIDGE CRITERIA

Public Projects Group
Jacksonville, FL
Date Issued: September 2024

CSX Transportation (CSX) has minimum requirements for outside parties constructing, rehabilitating, or replacing bridges over CSX's railroad tracks. These requirements are intended to provide safe and continuous passage of all train traffic during and after construction of bridges over its tracks. Part of these requirements is for the outside party to submit a detailed plan of the project as well as provide details of the construction methodology. This document provides information on the requirements by CSX for overhead bridges.

Plans and specifications for new or reconstructed bridges over CSX's railroad tracks or right-of-way shall meet the following requirements:

I. GENERAL REQUIREMENTS:

A. CSX's valuation station and the distance from the nearest milepost at the intersection of the centerline of the track and the centerline of the bridge shall be shown on the General Plan.

B. The existing and proposed minimum horizontal and vertical clearances shall be marked clearly on the General Plan and Elevation.

C. At least one subsurface exploration boring for each substructure unit adjacent to the track shall be furnished to CSX's during the design submittal. Borings shall provide enough information to design shoring and foundations.

D. Prior to construction activities, all overhead bridge projects will require the procurement of the appropriate property rights from Real Estate and other construction agreement(s) with CSX Transportation.

E. All lifting equipment and connection devices shall have capacity for 150% of the actual lifting load. The factor of safety provided by the manufacturer in the lifting capacity data shall not be considered in the 150% requirement. A licensed professional engineer, familiar with lifting and rigging, in the State where the construction work is proposed must sign and seal all plans and calculations related to critical lifting on the project.

II. CLEARANCES:

A. Horizontal Clearance: Standard horizontal clearance from centerline of the track to the face of the pier or abutment shall typically be 25'-0" or greater, but never less than 18'-0", measured perpendicular to the track. Provisions for future tracks, access roads, other CSX facilities, and drainage may require the minimum clearance be increased or use of multi-span structures. The toe of footings shall not be closer than 11'-0" from centerline of the track to provide adequate room for sheeting.

B. Vertical Clearance: A standard vertical clearance of 23'-0" shall be provided, measured from top of high rail to lowest point of structure in the horizontal clearance area which extends 6'-0" either side of the centerline of track.

C. Temporary Construction clearances to be used shall be subject to approval by CSX. Typically reductions in clearance for construction are not permitted.

D. CSX shall be furnished as-built drawings showing actual clearances as constructed.

III. CRASHWALLS:

AREMA Specifications, Chapter 8, Article 2.1.5 covers the requirements for crashwalls. Crashwalls are required when face of the pier is closer than 25’-0” from centerline of the track, measured perpendicular to the track, except as noted below.

Crashwalls shall meet the following requirements:

A. Crashwalls for single column piers shall be minimum 2’-6” thick and shall extend a minimum of 6’-0” above the top of high rail for piers located between 18’-0” and 25’-0” from the centerline of the nearest track. The wall shall extend minimum 6’-0” beyond the column on each side in the direction parallel to the track.

B. For multi-column piers, the columns shall be connected with a wall of the same thickness as the columns or 2’-6” whichever is greater. The wall shall extend a minimum of 2’-6” beyond the end of outside columns in a direction parallel to the track.

C. Reinforcing steel to adequately anchor the crashwalls to the column and footing shall be provided. For piers of heavy construction, crashwalls may be omitted. Solid piers with a minimum thickness of 2’-6” and length of 20’-0”, single column piers of minimum 4’-0” X 12’-6” dimensions or any other solid pier sections with equivalent cross sections and minimum 2’-6” thickness are considered as heavy construction.

IV. DRAINAGE:

Drainage from the bridge shall be preferably collected with drain pipes and drained away from CSX’s right-of-way. When open scuppers are provided on the bridge, none shall be closer than 25’-0” of the centerline of nearest track. Flow from the scuppers shall be directed away from CSX’s drainage ditches.

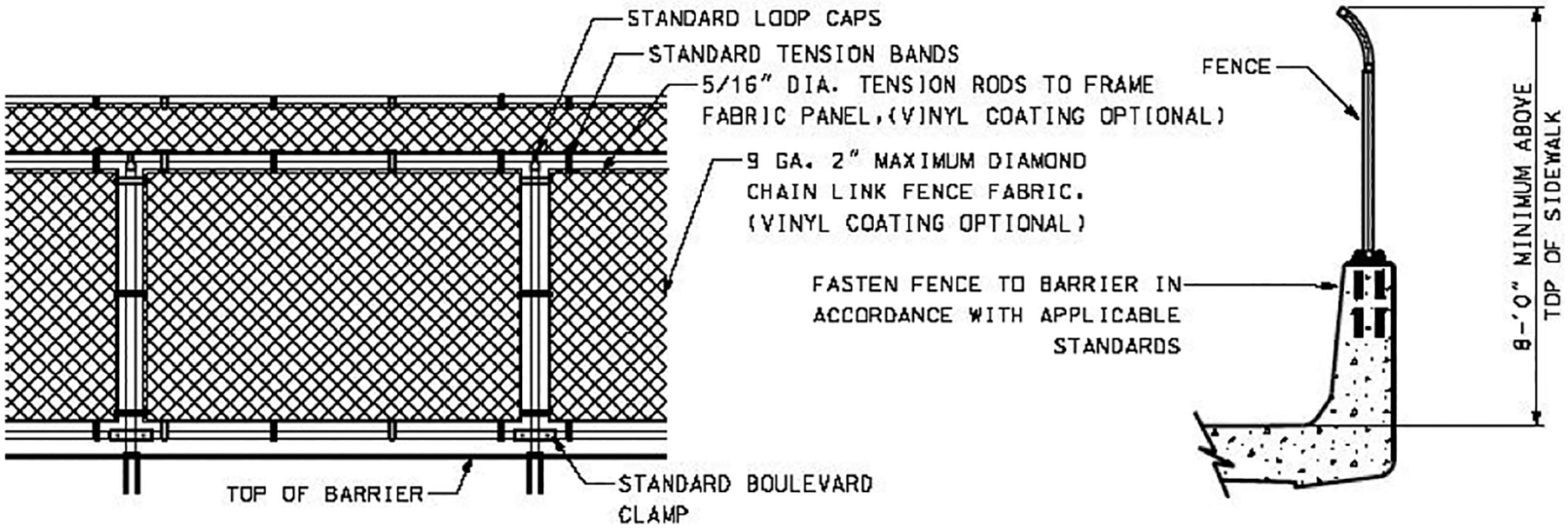
Projects including stormwater systems shall be designed for a 100-year storm event as a minimum. If stormwater is drained on or to CSX’s right-of-way, calculations must be submitted to CSX to verify the 100-year storm event is properly handled. Improvements to the adjacent drainage systems may be required at project expense, to ensure the impacted system will meet the 100-year storm event minimum condition.

During and after completion of construction, the outside party or its contractor must clear CSX’s drainage ditches of all debris to the satisfaction of CSX’s construction engineering and inspection representative.

V. PROTECTIVE FENCING:

All highway structures including controlled access highways shall have a protective barrier fence to extend at least 8'-0" from the top of the sidewalk or driving surface adjacent to the barrier wall. The fence may be placed on top of the barrier wall. The fence shall be capable of preventing pedestrians from dropping debris onto CSX's right-of-way, and in particular, passing trains.

Openings in the fence hall not exceed 2" x 2". Fencing should also include anti-climbshields or be of a configuration to minimize the likelihood of climbing on the outside of the protective fencing. A chain link fence option is shown below:



VI. STRUCTURE EXCAVATION AND SHORING:

Shoring protection shall be provided when excavating adjacent to an active track. Shoring will be provided in accordance with AREMA Manual for Railway Engineering Chapter 8 part 28, except as noted below.

Shoring will not be required if both the following conditions are satisfied:

1. Excavation does not encroach upon a 1 horizontal to 1 vertical theoretical slope line starting at bottom corner of tie (live load influence zone).

2. Track is on level ground or in a cut section and on stable soil.

When the track is on an embankment, excavating the toe of the embankment without shoring may affect the stability of the embankment. Therefore, excavation of the embankment toe without shoring will not be permitted.

Preferred protection is the cofferdam type that completely encloses the excavation. Where dictated by conditions, partial cofferdams with open sides away from the track may be used. Cofferdams shall be constructed using steel sheet piling or steel soldier piles with timber lagging. Wales and struts shall be provided as needed. The following shall be considered when designing cofferdams:

a. Shoring shall be designed to resist a vertical live load surcharge of 1,882 lbs. per square foot, in addition to active earth pressure. The surcharge shall be assumed to act on a continuous strip, 8’-6” wide. Lateral pressures due to surcharge shall be computed using the strip load formula shown in AREMA Manual for Railway Engineering, Chapter 8, Part 20.

b. Allowable stresses in materials shall be in accordance with AREMA Manual for Railway Engineering, Chapter 7, 8, and 15.

c. A construction procedure for temporary shoring shall be shown on the drawing.

d. Safety railing shall be installed when temporary shoring is within 15’-0” of the centerline of the track.

e. A minimum distance of 10 feet from centerline of the track to face of nearest point of shoring shall be maintained.

The contractor shall submit the following drawings and calculations for CSX's review and approval.

1. Three (3) sets of detailed drawings of the shoring systems showing sizes of all structural members, details of connections, and distances form centerline of track to face of shoring. Drawing shall show a section showing height of shoring and track elevation in relation to bottom of excavation.

2. One set of calculations of the shoring design.

The drawings and calculations shall be prepared by a Licensed Professional Engineer in the State where shoring is to be constructed and shall bear his seal and signature. Shoring plans shall be approved by CSX's construction engineering and inspection representative.

3. For sheeting and shoring within 18'-0" of the centerline of the track, the live load influence zone, and in slopes, the contractor shall use sheet pile. No sheet pile in slopes or within 18'-0" of the centerline of track shall be removed. Sheet piles shall be cut off 3'-0" below the finished ground line. The remaining 3'-0" shall be backfilled and compacted immediately after cut off.

VII. DEMOLITION OF EXISTING STRUCTURE:

The Contractor shall submit a detailed procedure for demolition of existing structures over or adjacent to CSX's tracks or right-of-way. The procedure shall clearly indicate the capacity of cranes, location of cranes with respect to the tracks and calculated lifting loads (refer to Section I.E of this document). The demolition procedure must be approved by CSX's construction engineering and inspection representative.

CSX's tracks, signals, structures, and other facilities shall be protected from damage during demolition of existing structure or replacement of deck slab. As a minimum, both of the following methods shall be used:

A. During demolition of the deck, a protection shield shall be erected from the underside of the bridge over the track area to catch falling debris. The protection shield shall be supported from girders or beams. The deck shall be removed by cutting it in sections and lifting each section out. The protection shield shall be designed, with supporting calculations, for a minimum of 50 pounds per square foot plus the weight of the equipment, debris, personnel, and other loads to be carried.

Large pieces of deck shall not be allowed to fall on the protection shield

B. A ballast protection system consisting of geofabric or canvas shall be placed over the track structure to keep the ballast clean. The system shall extend along the track structure for a minimum of 25'-0" beyond the limits of the demolition work, or farther if required by CSX's construction engineering and inspection representative.
C. The Contractor shall submit detailed plans, with supporting calculations, of the protection shield and ballast protection systems for approval prior to the start of demolition.

D. Blasting will not be permitted to demolish a structure over or within CSX's right-of-way.

VIII. ERECTION PROCEDURE:

The Contractor shall submit a detailed procedure for erecting over or adjacent to CSX's tracks or right-of-way. The procedure

shall clearly indicate the capacity of cranes, location of cranes with respect to the tracks and calculated lifting loads (refer to Section. E of this document). The erection procedure must be approved by CSX's construction engineering and inspection representative.

IX. PILE INSTALLATION:

A. For the installation of piles and sheeting for abutment foundations, pier foundations, retaining wall foundations, temporary and permanent shoring and other structures on or adjacent to CSX's right-of-way, the contractor may be required to submit a detailed track monitoring program for CSX's approval prior to performing any work near CSX's right-of-way.

B. The program shall specify the survey locations, the distance between the location points, and frequency of monitoring before, during, and after construction. CSX shall have the capability of modifying the survey locations and monitoring frequency as needed during the project.

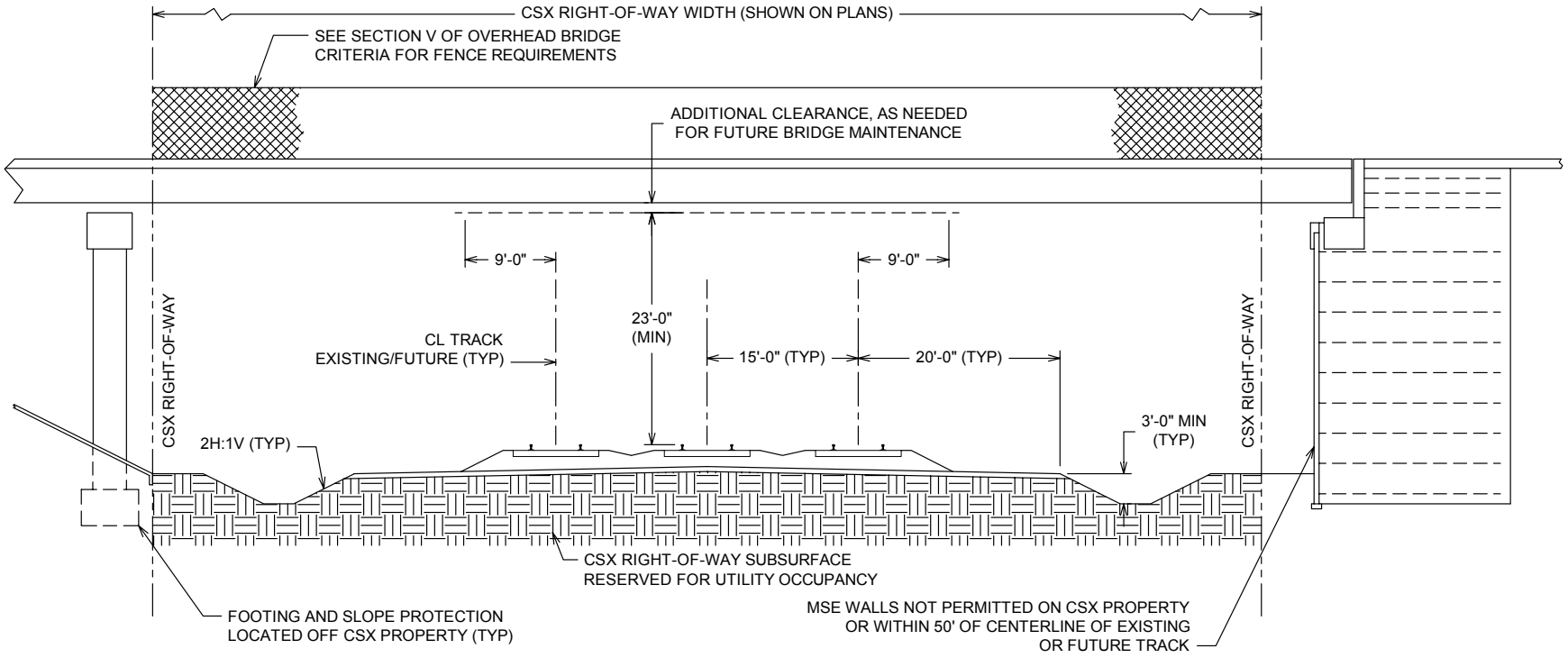
C. If any settlement is observed, CSX's construction engineering and inspection representative shall be immediately notified. CSX, at its sole discretion, shall have the right to immediately require all contractor operations to be ceased, have the excavated area immediately backfilled and/or determine what corrective action is required. Any corrective action required by CSX or performed by CSX including the monitoring of corrective action of the contractor will be at project expense.

X. PEDESTRIAN OVERHEAD:

Pedestrian overhead bridges shall be governed by this document in its entirety with the following exceptions:

A. Pedestrian overhead bridges shall span the entire width of CSX's right-of-way. Intermediate piers or other supports will not be permitted.

B. Pedestrian overhead bridges shall be completely enclosed with protective canopy or by other means to prevent users from dropping debris onto CSX's right-of-way.



TYPICAL TRACK CROSS SECTION FOR OVERHEAD BRIDGE DESIGNS

NTS

NOTES:

1. PROPOSED BRIDGES MUST CLEAR SPAN THE CSX RIGHT-OF-WAY. THE PROPOSED SUBSTRUCTURE INCLUDING ANY EMBANKMENT MUST NOT IMPEDE CSX'S ABILITY TO UTILIZE THE FULL RIGHT-OF-WAY. ANY IMPEDANCE ON CSX RIGHT-OF-WAY WILL BE SUBJECT TO ADDITIONAL REVIEW AND WRITTEN APPROVAL.
2. HORIZONTAL DIMENSIONS SHOWN ARE PERPENDICULAR TO ℄ OF TANGENT TRACK. INCREASES MUST BE PROVIDED FOR THE EFFECTS OF CURVATURE AND SUPERELEVATION.
3. ADDITIONAL VERTICAL CLEARANCE MAY BE REQUIRED TO ALLOW FOR ADJUSTMENT OF SAG IN VERTICAL CURVES (TOP OF RAIL SURVEY REQUIRED 1,000' IN EACH DIRECTION), FLOOD CONSIDERATION, AND BRIDGE CONSTRUCTION/MAINTENANCE PURPOSES.
4. ALL DRAINAGE MUST BE DIRECTED AWAY FROM CSX PROPERTY.
5. CRASHWALLS MAY BE REQUIRED BASED ON SITE SPECIFIC PARAMETERS (SEE SECTION III OF OVERHEAD BRIDGE CRITERIA).
6. THEORETICAL TOE OF SLOPE IS BASED ON THE STANDARD ROADBED SECTION. ACTUAL TOE OF SLOPE MAY VARY DUE TO EXISTING GROUND LINE.
7. THE DITCH SECTION SHOWN IS THE MINIMUM ACCEPTABLE SECTION. THE DITCH SECTION IS TO BE INCREASED AS REQUIRED BY LOCAL CONDITIONS, BASED ON HYDROLOGICAL AND HYDRAULIC STUDIES.
8. CSX RESERVES THE RIGHT TO USE THE ENTIRE WIDTH OF THE RIGHT-OF-WAY FOR CURRENT AND FUTURE UTILITIES.

REVISIONS		
DATE	LTR.	DESCRIPTION

CSX

PUBLIC PROJECTS MANUAL
TYPICAL DRAWINGS

OVERHEAD BRIDGE DETAILS
PERMANENT CLEARANCES

REF. NO.: N/A

DATE: MARCH 5, 2025 | DRAWING NO.: 1

Filename: C:\USERS\AMSLER\JACOBS\CSX - PROJECT FOLDER\400-TECHNICAL\CSX_CRITERIA\PUBLIC PROJECTS MANUAL\WORKING\GRAPHICS\OHB\1_OVERHEAD BRIDGE DETAILS - PERMANENT CLEARANCES.DWG

APPENDIX

CSX TRANSPORTATION

CRITERIA FOR UNDERGRADE RAILROAD BRIDGES

Public Projects Group
Jacksonville, FL
Date Issued: September 2024

INTRODUCTION

SECTION I: General Design

SECTION II: Design Loads

SECTION III: Construction Material Requirements

SECTION IV: Clearances

SECTION V: Superstructure

SECTION VI: Substructure

SECTION VII: Bridge Layout

SECTION VIII: Plan Preparation and Submittals

SECTION IX: Construction Considerations

EXHIBIT A

Typical Sections and Details:

- CSX Standard 2604 – Clearance Diagrams
- CSX Standard 2703 – No Trespassing Sign
- CSX Standard 2802 – Bridge Number Signs
- Typical Track Geometry and Clearances
- Steel Superstructure with Steel Deck
- Steel Superstructure with Concrete Deck
- Through Plate Girder
- Inspection Walkway System
- Steel Deck Drain Detail

INTRODUCTION

Undergrade railroad bridges are generally considered railroad structures over the roadways or other non-railroad crossings. New bridges designed and built by outside forces have the responsibility to deliver a quality product that aligns with CSX best practices for common railroad-performed future maintenance tasks, serviceability to the network, and expected performance life. This section outlines CSX-recognized guidelines for designers and contractors to deliver railroad structures while meeting CSX expectations and specifications.

I. GENERAL DESIGN

The AREMA Manual for Railway Engineering (MRE) shall serve as the overarching authority for, and recommended practice in the design, fabrication, and construction of CSX railroad bridges. The intent of this document is to provide criteria which supplements, modifies and/or supersedes the applicable sections of the AREMA MRE for designing undergrade railway bridges which are to be owned and/or operated on by CSX. Additionally, these requirements help guide an outside party through the necessary procedures for interacting with CSX and delivering an acceptable structure that is constructible, inspectable, maintainable, long lasting, and reliable.

A. The bridge shall be designed in accordance with the applicable chapter, parts, and sections from the current edition of the AREMA MRE. Applicable chapters may include, but are not limited to, the following:

- Chapter 8 Concrete Structures and Foundations
- Chapter 9 Seismic Design for Railway Structures
- Chapter 15 Steel Structures

B. Only simple spans with ballasted decks are allowed. Acceptable superstructure types are described in Section V: “Superstructures” of this Appendix. Design shall incorporate typical standard details common to CSX.

C Design and construction shall be in accordance with requirements outlined in this Appendix. The requirements in this document shall be supplemented by the AREMA MRE recommendations for fabrication and erection.

D. Bridge low chords shall pass the 100 year 24 hour storm/flood event with an additional 2 feet of freeboard.

E. Items not covered by this Appendix shall be governed by applicable highway specifications from the Commonwealth, District, Province, or State where the bridge is being constructed.

F. Any proposed deviation(s) from this criteria shall be submitted in writing to the CSX Public Projects Manager for review and approved by the CSX Chief Engineer - Design and Construction.

G. Consultants to submit a TS&L (Type, Size, and Location) plan sheet (1 sheet) for review to the CSX Public Projects Manager. After review and acceptance, design work can proceed to 30% completion. Designs which do not meet the requirements as prescribed by this document should not progress beyond 30% without CSX’s written approval. Else, the design will be considered 30% complete by CSX regardless of the Applicant’s percentage of completion.

H. Bridge superstructures and substructures shall be designed for a minimum design service life of 100 years. This may be addressed by, but not limited to, the following:

1. Additional sacrificial steel thickness added to flanges and webs of primary bridge members of steel superstructures over that which is required by design. See reference part III – Construction Material Requirements, Section C – Structural Steel Requirements, Part 1 – Material Properties.

2. A corrosion protection plan that includes additional cover for mild reinforcement, low permeability concrete mixes, concrete penetrating sealers, and durability testing.

I. Reference "Construction Submission Criteria" Appendix in this manual for other construction considerations.

J. All railroad bridge projects shall include a signed and sealed load rating analysis report, considering the As-Built conditions.

II. DESIGN LOADS

The proposed Undergrade Railroad Bridge shall be designed for the following loads:

A. Dead load shall include up to 3'-7" of ballast from top of deck to the top of tie and all other applicable dead load. The 3'-7" accounts for 7" tie height, 1'-0" minimum below tie, plus an additional 2'-0" of future ballast.

B. Live loads:

1. Steel structures shall consider both the Cooper E-90 loading and the Alternate Live Load with full diesel impact; whichever produces the greater stress.

2. Multiple track structures shall calculate live load based on the assumption that the track(s) can be located anywhere on the bridge with a maximum track spacing of 13'-0".

3. Multiple track structure design assumes that trains will operate on all tracks at any given time.

C. Seismic loading shall be considered as required between the Caltrans or governing legislation, whichever is most restrictive.

D Additional loads shall be applied as specified in the AREMA MRE Chapters 8, 9, and 15, as applicable.

E. Load Application Assumptions:

All bridges shall be designed assuming non-composite interaction between the superstructure and the deck. Adequate connection between deck and superstructure shall be provided to ensure appropriate load transfer.

III. CONSTRUCTION MATERIAL REQUIREMENTS

Design and Construction requirements for structural materials are outlined below. Deviations from, and use of items not addressed specifically in this document require CSX written approval.

A. Concrete Requirements

Concrete shall conform to the following minimum specifications, except as otherwise noted:

1. Concrete shall have a minimum compressive strength of 5,000 pounds per square inch at 28 days.

2. Cement shall conform to the following:

   i. Fly ash is prohibited in concrete unless approved by CSX. If approved, silica fume or fly ash shall not be used to reduce the quantity of cement.

   ii. For standard concrete - Cement shall be Portland cement, type I, IA or II, conforming to the requirements of ASTM C150. Alternatively, the use of Portland-limestone cement (PLC) Type IL, conforming to the requirements ASTM C595, must be approved by CSX. Specify blended cement percentage.

   iii. For high-early strength concrete - Cement shall be Portland cement, Type III or IIIA, conforming to the requirements of ASTM C150. Alternatively, the use of Portland-limestone cement (PLC) Type IL(10) or Type IL(10) A, conforming to the requirements ASTM C595, must be approved by CSX.

3. Cement content shall be 7.0 minimum to 8.0 maximum sacks of cement per cubic yard of concrete.

4. Air content shall be 5%-7% (by volume) unless otherwise approved by CSX. Air-entraining admixture shall conform to the requirements of ASTM C260.

5. Admixtures, other than air entrainment, shall not be used without approval by CSX.

6. Exposed surfaces shall be formed in a manner which shall produce a smooth and uniform appearance without rubbing or plastering. All concrete corners/edges shall have a 3/4” chamfer provided unless otherwise noted on the plans or where embedded plates are located. The top surface is to have a smooth finish, free of all float or trowel marks.

7. Concrete water repellent and curing compound shall meet the following requirements:

   i. Water repellent material shall consist of a silane based, one part liquid penetrating sealer, in accordance with AREMA Chapter 8, Part 1 and in conformance with applicable ASTM designations.

   ii. Water repellent shall be applied to curbs, top and sides of bent caps, and top and sides of wingwalls.

8. For precast elements, the fabricator shall stencil the fabricator’s name, date of fabrication, the bridge number, lifting weight, and piece mark on each component. Stencil shall be placed in such a manner to be visible from the installed position.

9. The production facility must be pre-certified. Production procedures for the manufacture of precast members shall be in accordance with the AREMA MRE and the current edition of the Precast Concrete Institute's Manual MNL 116 for Quality Control.

10. The area around all lifting loops shall be recessed so that the loops can be removed to a depth of 3/4" and grouted. Properly designed lift anchors are acceptable in lieu of lifting loops.

11. The fabricator will be responsible for loading and properly securing the precast concrete members for shipment via rail, barge, or truck. All concrete components shall be made available, at CSX's discretion, for inspection by the Engineer-of-Record and CSX at the fabricator's plant prior to shipment.

12. Block outs used to create internal voids in a precast concrete member shall be securely tied down to prevent displacement during concrete placement. Tie block outs to rebar, NOT prestressing strands.

B. Reinforcing Steel Requirements

Fabrication, bending and placement of reinforcing steel and dowel bars shall be in accordance with Chapter 8 of the AREMA MRE, current edition and conform to the following minimum specifications, except as otherwise noted:

1. Reinforcing steel shall be deformed, new billet bars per current ASTM A615 Specifications and meet Grade 60 requirements.

2. All dimensions for reinforcing bars refer to the centerline of the bar except in the bar bending details where dimensions are out-to-out.

3. Bars shall be free from dirt, paint, oil, grease, rust and other foreign substances.

4. Reinforcing bars shall meet the lap requirements of Chapter 8 of the AREMA MRE, current edition.

5. Mechanical splices are not permitted unless approved by CSX. If approved, the mechanical splice shall fully develop the strength of the reinforcing bar, and shall be certified by the manufacturer.

6. Bars shall be bent in accordance with Concrete Reinforcing Steel Institute (CRSI) Manual of Standard Practice.

7. Reinforcing is to be blocked to proper location and securely wired against displacement. Tack welding of reinforcing is prohibited. Minimum concrete cover not otherwise noted shall meet current AREMA MRE Chapter 8 recommendations.

8. For on-site reinforcing steel storage, dunnage shall be provided. Reinforcing bars shall be off the ground and away from mud, dirt, and other contaminants.

9. Reinforcement supports shall be made entirely of plastic or stainless steel.

C. Structural Steel Requirements

All Structural Steel shall conform to the following minimum specifications, except as otherwise noted:

1. Material Properties

i. Rolled steel and Built-Up Steel members shall be ASTM A709, Grade 50. 70 ksi or higher strength steel is prohibited.

ii. Commonly rolled and available standard steel shapes as made available in the AISC Manual of Steel Construction are preferred for structural components. Built-up members are permitted subject to CSX approval.

iii. Plate Flanges shall not exceed 3" in thickness.

iv. Minimum steel thickness shall be ½" even if calculations determine otherwise. Additionally, all steel material shall be 1/8" greater in thickness than determined by calculation.

v. Pipe pile steel shall be ASTM A252, Grade 3 (Modified 50 ksi).

vi. H-Pile steel shall be ASTM A690.

vii. Sheet Pile steel shall be ASTM A572, Grade 50.

viii. H-Pile splices shall conform to ASTM A992 or ASTM A572, Grade 50.

2. All structural steel shall be painted with a 3-coat system, including weathering steel.

i. Clean surfaces in accordance with SSPC-SP6, current edition. Paint shall be applied in accordance with SSPC-PA1, current edition.

ii. Paint Systems: The products of one coating system from a single manufacturer shall be used for shop and field coating work. Do not mix coating systems or products of different manufacturers.

iii. Hot-Dip Galvanizing: The zinc for Hot-Dip Galvanizing shall be Special High Grade (SHG), conforming to ASTM B6, Specification for zinc.

iv. Color for paint systems: The color of the topcoat steel shall be Federal Standard 595 Color – FS16473 Aircraft Gray.

v. Shop Coating – Paint System: Inorganic zinc-rich primer/epoxy intermediate/urethane finish coating system.

1. This system shall be shop applied to all bridge surfaces designated for coating with the exception that contact surfaces of field connections be shop primed with inorganic zinc rich primer only. After all bridge surfaces have been primed with one coat of inorganic zinc rich primer, all field connection surfaces shall be masked off. A full coat of the epoxy intermediate shall then be applied followed by a stripe coat of that same epoxy intermediate coating to all edges, crevices, and other irregularly shaped surfaces. Following the full and stripe coats of epoxy intermediate, a full urethane finish coat shall be applied.

2. After bridge erection is complete, field coating using this system shall be performed on all damaged areas, all field connections, all fasteners, and any other areas not coated in the shop. Surface prep shall be in accordance with SSPC-SP2 or SSPC-SP3.

3. One of the following coating systems shall be selected and applied:

MANUFACTURER	FIRST COAT (DFT)	SECOND COAT (DFT)	THIRD COAT (DFT)
Carboline Company	Carbozinc 11 HS (2.0 to 3.0 mils)	Carboguard 885 (3.0 to 5.0 mils)	Carbothane 134 HG (2.0 to 2.5 mils)
International	Interzinc 22 HS (2.0 to 3.0 mils)	Intergard 475 HS (4.0 to 6.0 mils)	Interthane 990 HS (2.0 to 3.0 mils)
PPG-Protective and Marine Coatings	Dimetcote 9 (2.0 to 4.0 mils)	Amercoat 385 (4.0 to 6.0 mils)	Amercoat 450H (2.0 to 3.0 mils)
Sherwin-Williams	Zinc Clad II Plus B69VZ12/B69BZ13/B69D11 (2.0 to 4.0 mils)	Recoatable Epoxy B67A5/B67V5 (4.0 to 6.0 mils)	Hi-Solids Polyurethane B65 300/B60V30 (3.0 to 4.0 mils)

4. All bridges shall be coated with a sealer and anti-graffiti coating. The sealer and anti-graffiti coating shall be compatible with the paint coating system.

3. Welding Requirements

i. Welds and welding procedures shall be in accordance with the American Welding Society (AWS) Bridge Welding Code D1.5, current edition and all addenda.

ii Welded Connections:

1. Only submerged arc welding (SAW), shielded metal arc welding (SMAW), or flux core arc welding (FCAW) may be used. If FCAW is used, it shall be gas shielded with 71-T1 electrodes unless otherwise approved. Any other process must be approved by CSX.

2. Welding electrodes for arc welding shall meet the current requirements of the AWS Bridge Welding Code. As noted above, if FCAW is used, the electrodes shall be 71-T1.

4. Bolting Requirements

i. Bolts shall conform to ASTM F3125, grade A325, high strength, Type 1 bolts. Grade A490 Bolts are not permitted.

ii. Nuts shall meet the current requirements of ASTM A563 Specifications.

iii. Washers shall meet the current requirements of ASTM F436 Specifications.

iv. Bolted connections shall be made with 7/8” diameter bolts.

v. All bolted structural members shall have a minimum of three (3) bolts at each connection face.

vi. All 7/8” diameter bolts shall be tightened to a minimum tension per bolt of 39,000 lbs. A bolt tension calibrator is to be used to verify minimum tension.

vii. All shop bolt holes shall be sub-drilled and reamed or drilled from the solid. At no time are holes to be sub-punched and reamed or punched full size. All holes shall be 1/16” larger than the specified bolt size unless noted otherwise.

viii. All bolt holes that require field drilling shall be drilled from the solid. At no time are holes to be torch cut or produced by other means and methods. Oversizing holes for field fit up shall be done by reaming using a fluted reamer with a tapered shank. Reamer diameter shall be 1/16” larger than the specified bolt diameter. Holes, new or enlarging, made by use of cutting torch is cause for rejection of the entire member.

IV. CLEARANCES

Permanent clearances shall be maintained at all times. Construction phasing and means and methods shall ensure permanent clearances are maintained during construction. Permanent clearances protect the structure from oversized or unauthorized loads by providing sufficient clearance and protective devices.

A. Under Bridge Vehicular Clearances (Permanent Vertical Clearance Under the Structure)

1. Undergrade structures shall be designed to ensure that the structure will be protected from oversized or unauthorized loads by providing sufficient vertical clearance and protective devices. Provide a minimum vertical clearance over the entire roadway width for all new or reconstructed structures as follows:

i. 16'-6", including any future wearing surfaces, for steel superstructures with 5 or more rolled beams or 4 or more deck plate girders per track.

ii. 17'-6", including any future wearing surfaces, for steel through plate girders or less than 4 deck plate girders per track with bolted bottom flanges.

iii. 20'-0", including any future wearing surfaces, for steel through plate girders or less than 4 deck plate girders per track with welded bottom flanges.

iv. Concrete superstructures are not permitted over any span of a roadway crossing.

v. Vertical clearance must not be violated due to the deflection of the superstructure.

2. Variance from vertical clearances defined above shall require prior review by CSX. The variance required shall provide exhaustive justification. Cost shall not be the determining factor.

3. Roadway profile and roadway design vehicle information shall be provided and considered in vertical clearance design. If resurfacing or any other activity is to be performed below the undergrade structure, the owner of the roadway must submit a request for approval from CSX. This request must provide the existing measured and posted clearances of the structure and the proposed configuration after work is completed.

B. Permanent Horizontal and Vertical Bridge Clearances (on the structure)

Permanent horizontal and vertical clearances on an undergrade structure shall conform to the requirements of the AREMA MRE, Chapter 15, Part 1 and the following:

1. Standard clearances on the bridge shall not be modified without written notice of approval by the CSX Chief Engineer – Design & Construction. Any proposed modification shall be furnished with detailed engineering justification for review.

2. Commonwealth, District, Provincial, or State clearance laws must not be violated. Legal requirements must be upheld, unless written permission for waiver is provided by the appropriate regulatory authority.

3. Adequate clearance, structural geometry, and capacity shall be provided for a future track and future vertical track raises. The structure shall not require modifications to accommodate the additional 2'-0" of future ballast.

4. Track centers shall not be closer than 15’-0”.

5. Standard clearances shown are for tangent track. Increases in clearances must be provided to account for effects from curvature and superelevation as per CSX Standard Drawing 2604.

6. Minimum horizontal clearance on the bridge shall be provided as shown in Exhibit A – “Typical Track Geometry and Clearances”.

C. Sacrificial Impact Protection Devices

CSX must approve vertical clearances in violation of Section IV.A: “Under Bridge Vehicular Clearances”. All CSX approved exceptions must adhere to the following guidelines for Sacrificial Impact Protection Devices:

1. All structures with vertical clearances less than defined in Section IV.A: “Under Bridge Vehicular Clearances” shall be protected with a sacrificial device on each side of the structure.

2. Sacrificial beam shall be placed at least 1” below the low chord of the main structural bridge.

3. Protection shall be in the form of a redundant steel fascia beam and must be adequately anchored to the bridge seat.

4. The sacrificial beam shall not be connected to the structural beams via diaphragms.

5. The sacrificial beam deflection from impact, if struck, shall be considered for the beam’s placement in front of the main structure to avoid damage to the main structural members.

V. SUPERSTRUCTURE

Permanent clearances shall be maintained at all times. Construction phasing and means and methods shall ensure permanent clearances are maintained during construction. Permanent clearances protect the structure from oversized or unauthorized loads by providing sufficient clearance and protective devices.

A. General Span Arrangement

1. All bridges shall be comprised of simple spans. Continuous spans are prohibited.

2. Skewed bridges shall be avoided, and all framing shall be orthogonal. Severe skews shall be avoided even at the expense of providing longer spans or making changes in the roadway alignment. Site conditions may not allow the complete elimination of bridge skew, but skew elimination shall be considered and presented to CSX for approval.

3. Superstructure designs shall provide accommodations for inspection, future maintenance, and bearing replacements.

B. Acceptable Superstructure Types

All railroad bridge replacements shall reduce the number of spans of a given bridge asset where feasible. Single span bridges are ideal. Piers or bents may be provided after other design options have been exhausted. The following is a list of undergrade structure types that are acceptable to CSX and listed in the order of preference. CSX’s preferred superstructure type is the highest listed feasible alternative unless a detailed type selection report provides justifications that a lower listed alternative is more beneficial to CSX and to the project.

1. Rolled Beams with steel deck. There shall be at least 5 beams per track.

2. Built Up Girders with steel deck. There shall be at least 5 beams per track.

3. T hrough Plate Girders with steel deck will be considered by CSX when conditions preclude any other structure types.

4. Rolled Beams with concrete deck. There shall be at least 5 beams per track.

5. Built Up Girders with concrete deck. There shall be at least 5 beams per track.

6. Undergrade structures of deck truss or through truss design are discouraged. However, in unusual circumstances, they will be considered by CSX if conditions preclude the use of any other type of structure.

7. Where possible, use of Railroad standard span details are encouraged. Railroad standard spans are composed of rolled W section beams, W section diaphragms, and a concrete ballasted deck.

Note: Concrete box beams, concrete girders, and concrete slab superstructures are not permitted.

C. Deck Requirements

All bridges are designed to assume non-composite strength. Mechanical connections shall be provided as necessary to provide adequate load transfer between the deck to the superstructure.

1. Deck Type – The deck shall be a uniform ballast pan across all tracks. Intermediate curbs shall not be permitted. The deck must be designed to prevent ballast or other material from falling through.

2. Deck Width – The deck width shall be a function of future track, access road, existing track(s), minimum horizontal clearances and minimum of 15’-0” spacing between centerlines of tracks and ballasted walkways. Ballasted walkways shall occur between all tracks and on the field side of the exterior track.

3. Parapet Walls – All bridge deck limits shall be equipped with minimum 6’-0” tall continuous parapet walls on each fascia measured from the top surface of the bridge deck to the top of wall and allow for a minimum 3’-6” height from top of ballast to top of wall when considering future ballast. Parapet walls shall include two (2) 6” conduit ducts on each parapet to accommodate signal and utility needs.

4. Ballast Depth – The minimum required depth of ballast shall be 1’-0” measured from the top of the deck waterproofing to the bottom of the tie, at the centerline of the low rail. This dimension shall be clearly labeled on the contract drawings, cross section views.

5. Ties – Timber crossties measuring 7” tall x 9” wide x 8’-6” long shall be used. Ties are to be spaced at 1’-8” centers. Alternatively, concrete crossties may be used also at 1’-8” centers, or steel crossties may be used at 2’-0” centers.

6. Track Material – Track material such as rail, plates, spikes, et cetera shall be subject to review by CSX or provided by CSX at project expense.

7. Inside Guardrail – Inside guard rails are required across the following bridge span types:

i. Through truss

ii. Pony truss

iii. Deck trusses on towers

iv. Deck plate girders (for spans over 100'-0")

v. Movable spans and other structures as designated by CSX

Contact CSX to receive the guardrail standards. The use of these span types are subject to railroad approval.

D. Concrete Deck

Cast-In-Place concrete decks are preferred. However, precast concrete decks are permitted. Both types of concrete decks shall conform to the following requirements:

1. The bridge deck shall have adequate anchorage to the bridge superstructure. Shear studs shall not be permitted.

2. The outside edge of the slab shall be not more than 1'-6" from the centerline of the outside (fascia) girder.

3. Provide a drip edge on the outside edge, bottom face of the deck slab.

4. Concrete deck to include ballast mat and waterproofing.

E. Steel Deck

1. Steel deck plates shall be shop welded with a pair of 5/16" continuous fillet welds to each floor beam or deck girder. Deck units shall be shop assembled with multiple beams per unit, and areas to be field welded shall be masked and field painted after welding is complete.

2. The closing deck plate between adjacent deck units shall be fillet welded to the beams with continuous 5/16" fillet welds at each beam. After deck plates are welded to the beam, fill space between deck plates at joint with material compatible with deck waterproofing membrane.

3. The minimum thickness of steel deck plates shall be 1".

4. For multiple deck girders with steel deck plates:

i. Provide a welded field splice in the deck plate at or near the centerline of bearing of the girders. Provide a closing deck plate from the abutments to this field splice that is normal to the girders and normal to the long direction of the main deck plates. This will avoid splicing deck plates over the back wall.

ii. Outside girders shall be spaced such that deck plates will not overhang the flange of the outside girders by more than 2" and a steel parapet wall shall be provided. The wall shall be securely anchored to the deck girder and have a minimum width of 1'-0" at the top.

5. Steel deck to include Ballast Mat and Waterproofing.

F. Ballast Retainers, Fences and Handrails

1. Ballast retainers must be designed to prevent ballast from falling on the roadway.

2. If the parapet walls do not meet FRA requirements, handrails shall be provided on both sides of the deck as well as off both ends of the bridge to ensure safe walking access.

3. Fencing may be included where required by the Applicant or CSX. Handrails and fences shall be simple designs that require minimum maintenance and shall meet the criteria presented in Section IV: “Clearances” of this Appendix.

G. External Walkway

1. External walkways are discouraged and require CSX approval.
2. The ballast section may be used as walkway at the discretion of CSX provided that the clear distance from centerline of track to the ballast retainer is a minimum of 9’-0”.

3. The walkways shall be constructed of solid material and a curb or toe board shall be provided at a height of 4” from top of walkway.

4. To prevent cracking under live loads, 1/4” control joints shall be provided in concrete curbs, concrete walkways and concrete ballast retainers and shall be spaced at 10’-0” or less for the lengths of the structure.

5. When walking structures are used, provide a detail showing the walkway transition from bridge to roadbed at the bridge ends. Where there is a vertical distance from the roadbed walking surface to the bridge walkway, adjust the roadbed walkway profile to eliminate the vertical separation or provide other means to provide a safe transition. The design shall not restrict drainage at the abutments and shall be submitted to CSX for review.

H. Drainage

Inadequate drainage facilities can severely limit the life span of the superstructure. The following drainage requirements shall be met:

1. The top surface of waterproofing protection shall have a minimum transverse slope of 1/8” per foot with a crown at the centerline of the deck.

2. The top surface of waterproofing protection shall have a minimum longitudinal slope of 0.5%.

3. The designer may provide drainage toward one end of the structure, or when the structure’s length is excessive, provide adequate deck grades and deck drains to drain the structure to both ends.

4. All deck types shall be designed and constructed to provide the required slopes and to direct water to deck drains.

5. When the deck is level or slopes less than 0.5%, underlayment is to be used to provide required slopes.

6. Deck drains shall be cast iron and downspouts shall be galvanized steel. Deck drains shall have a grate or perforated cover. Downspouts shall be provided with cleanouts at each change in direction. See Exhibit A –"Steel Deck Drain Detail".

7. Deck drains shall not discharge on other bridge elements or traffic passing underneath the structure.

I. Ballast Mat and Waterproofing

1. Materials for ballast mat and waterproofing and the construction and installation shall be in accordance with the AREMA MRE, Chapter 8.

2. All bridge decks shall use ballast mat "ATP-DR Ballast Mat Type 4" by Progress Rail or approved equal.

3. Spray applied ballast protection mat shall be a minimum of 250 mils.

4. All bridge decks shall be waterproofed using membrane waterproofing. Waterproofing shall be a two-component, sprayable polyurea, 100% solids elastomeric coating. TuffGrip HP11-90, manufactured by Rhino Linings is the preferred material or equal alternative.

5. Waterproofing membrane shall be a minimum of 120 mils.

6. Waterproofing system shall be UV stabilized.

7. Waterproofing shall be applied to the entire surface of deck and bottom 3'-0" of inside faces of parapets.

8. All deck joints between spans shall be watertight.

9. Waterproofing installation shall be observed and approved by the manufacturer's representative.

J. Steel Superstructure

The steel superstructure shall be designed per the AREMA MRE, Chapter 15, unless otherwise required by CSX or herein.

1. Fracture critical member material, fabrication, welding, inspection and testing shall be in accordance with the AREMA MRE, Chapter 15.

2. The diameter of high strength bolts shall be 7/8".

3. Bolted joints shall be strictly designed as slip critical only.

4. Splices shall be avoided. When splice locations are required, the location of the splice shall account for future maintenance and access. Final splice details and location must be approved by CSX.

5. CSX requires all structural elements to be designed with additional sacrificial thickness for future corrosion. Sacrificial thickness shall be at least 1/8".

6. All structural steel members must have a minimum thickness of ½".

7. Diaphragms or cross frames shall be provided for all steel spans as required.

8. Mechanisms providing for jacking of spans are required for all steel structures at bridge seats. Design and details shall provide accommodation for future maintenance.

9. All end diaphragms require jacking stiffeners. Ensure adequate vertical clearance is provided between the bridge seat and the diaphragm for future jacking and maintenance. Jacking locations as well as jacking loads shall be specifically denoted and called out in the bridge plans. Jacking loads shall be sized to accommodate full dead load of the structure, including future ballast.

K. Rolled Beams

1. Coping and other member modifications for primary members are not allowed.

2. Connections to rolled members shall be bolted. Welding is not permitted.

L. Welded Plate Girders

1. Built-up girder and beam sections shall utilize welds per AREMA Chapter 15.

2. Flange width and thickness must be continuous along the length of the girder. Flange transitions are not permitted.

3. When a lateral bracing system is required, girder connections shall be bolted.

4. Bearing stiffeners shall be welded to both top and bottom flanges with CJP groove weld, or mill-to-bear.

5. End Diaphragms shall have access holes for accessibility to the bearings and backwalls.

6. Inspection walkways shall be included between any girders which have a depth of 5’-0” or more beneath the deck.

M. Through Plate Girders

1. Through plate girder bridges are only permitted upon CSX approval.

2. The use of intermediate girders is discouraged due to interference with track maintenance.

3. All stringers shall frame into floor beams.

4. Intermediate floor beams shall frame into the girder web using double connection angles and high strength bolts.

5. End floor beams shall be provided, and connections shall be designed such that the bridge can be jacked up by placing jacks between the end floor beams and pier or abutment. Jacking stiffeners shall be provided at points of jacking.

6. All stringers shall have top and bottom flanges clipped at an angle not greater than 45 degrees to permit future field removal and installation.

N. Concrete Superstructure

Concrete superstructures shall not be considered for undergrade railroad bridges.

O. Bearings

Bearings shall be designed per the AREMA MRE Chapter 15 part 5.

1. Elastomeric bearings are not permitted for use on CSX undergrade railroad bridges.

2. Provisions for the replacement of bearings shall be considered in the design. Bridges shall be designed to accommodate cyclical bearing replacement through jacking operations.

3. Each type of bearing system or component has differing characteristics and capacities to accommodate or restrain translational and rotational movements and to resist vertical and horizontal loads. The bearing type chosen for a particular bridge application must have adequate load and movement capabilities. Acceptable bearing types are as follows:

i. Rocker Plate Bearing

ii. Spherical Bearing

iii. Rocker Pedestal

iv. Fixed Pedestal

v. Multi-Rotational Disc Bearing (applicant to maintain)

vi. Multi-Rotational Spherical Bearing (applicant to maintain)

vii. Roller Nest with Ovaloid Rollers with Pintels and Keeper Plates (applicant to maintain)

VI. SUBSTRUCTURE

Design and Construction requirements for structural materials are outlined below. Deviations from, and use of items not addressed specifically in this document require CSX written approval.

A. Foundations

1. Footings for all substructures shall be located and designed to allow a minimum of 12’-0” measured perpendicular from centerline of nearest active track to face of shoring to facilitate footing construction.

2. Cross-hole Sonic Log (CSL) Testing is required for every drilled shaft to evaluate the integrity of drilled shafts/caissons. The Plans and Specifications shall include provisions for this testing. CSL tube testing pipe shall be steel. Other testing methods may be necessary, as required by CSX.

3. Drilled shafts within the influence of live load, track, and soil surcharge shall be designed with permanent or temporary casing for protection against cave-in, subsidence and or displacement of surrounding ground. Casing shall be designed for live load due to the railroad surcharge in addition to all other applicable loads. Drilled shafts shall be designed to allow the drilling operation to proceed without impacting the railroad operation.

B. Abutments and Wing Walls

1. The minimum abutment width shall be sufficient to provide for 15'-0" track centers, and a standard roadbed section. For multiple track bridges, the abutment width shall be sufficient to provide for the standard shoulder, plus 15'-0" track centers for each existing or future track.

2. Provide a minimum of 6" from edge of masonry plate or bearing to edge of concrete.

3. Slope the top of bridge seat to drain.

4. Design shall provide accommodations for future maintenance. Abutment seat shall accommodate adequate jacking locations corresponding with the superstructure jacking stiffeners and shall not require the removal of bearings in order to jack. Jacking locations as well as jacking area shall be specifically denoted and laid out on the bridge plans.

5. Wing walls shall be designed to support 2 horizontal to 1 vertical embankment slope, a level approach to the bridge walkways, and provide positive ballast containment. MSE and sheet pile walls are not permissible.

6. Provide minimum clearance necessary between end of structural steel and face of backwalls to accommodate expansion, but not less than 4" at each end.

7. Provide water stops at all construction joints. Water stops shall be a hollow bulb PVC 9" X 3/8" (Bulb 3/4" inside diameter, 1-1/2" outside diameter) placed continuous across the joint.

8. Provide waterproofing on the backside of all abutments and wing walls. Waterproofing shall be as follows or approved equal: "MasterSeal 581" by BASF. Waterproofing system shall be UV stabilized.

9. 2'-0" of clean porous backfill, measured horizontally, shall be provided full height below sub ballast, behind all abutments and wing walls.

10. Provide adequate drainage behind abutments and wing walls utilizing filter fabric-wrapped perforated pipe drains at the base of the abutments and wingwalls. When abutment geometry does not allow for perforated pipe drains, weep holes with screens may be required. Drainage from the bridge shall drain away from the CSX right of way.

11. Non-perforated pipe shall be connected to the perforated pipe and drain away from the bridge with a 1% minimum slope.

12. Sloping embankments in front of abutments shall be comprised of large riprap (minimum 12" nominal sized stone) grouted with concrete on top of filter fabric. Sloping embankments shall be sloped no greater than 2 horizontal to 1 vertical.

C. Piers

1. Single column piers shall not be considered for undergrade structures. Piers shall be solid pier walls with a minimum thickness of 4'-0". Pier types shall be clearly identified in the TS&L (Type, Size, and Location) general plan sheet for CSX approval.

2. Width of pier cap shall be minimum 4'-0" measured at the bearing seat.

3. S lope the top of the bridge seat to drain.

4. Provide a minimum of 6" from edge of masonry plate or bearing to edge of concrete.

5. Provide a minimum of 1'-6" beyond the outside edge of outermost masonry plate or bearing to end of the pier.

6. Bridge piers adjacent to roadways shall be protected from vehicular traffic as required per AASHTO and governing standards or regulations.

D. Signage and Miscellaneous

1. CSX's standard "No Trespassing" and bridge number signs shall be furnished and installed as required by CSX sign standards 2703 and 2802, respectively, provided in Exhibit A.

2. Undergrade roadway clearance signs, advance warning signs, and other roadway signage shall be the responsibility of the roadway agency. Signs shall not be attached to the bridge.

3. The Applicant shall be responsible for graffiti removal from the structure, regardless of other provisions for division of maintenance responsibility.

VII. BRIDGE LAYOUT

A. The TS&L (Type, Size, and Location) as well as the general plan drawing of the bridge shall show the railroad valuation stations at the front face of backwalls, and centerline of piers or bents, along the centerline of the bridge. Distance from front face of low milepost backwall to low milepost nearest the bridge shall also be shown. The following criteria will serve as a guide for labeling the bridge layout.

1. CSX bridges are laid out in direction of increasing milepost, increasing from left to right on plans.

2. Plans shall denote the railroad direction and the nearest significant terminal or junction leading away from either end of the bridge.

3. Substructures are numbered starting with zero and increasing in the direction of increasing mileposts.

4. Superstructures are numbered starting with 1 and increasing in the direction of increasing mileposts.

5. Floor systems of through plate girder, through truss, and deck truss spans are numbered starting with 0 and increasing in the direction of increasing mileposts.

6. Bridge components are numbered from left to right facing the direction of increasing milepost.

B. Low mile post backwall GPS coordinates shall be detailed on plans, in degrees-minutes-seconds, or decimal format with precision to six (6) decimal places.

C. For bridges on curves, the girders, abutments, and piers shall be located with reference to chords.

D. Bridge shall be located to provide optimal railroad grade, profile, and alignment of structures and track.

VIII. PLAN PREPARATION AND SUBMITTALS

A. Preliminary Plans

1. An electronic copy of Type, Size and Location (TS&L) plans shall be submitted to CSX for review and acceptance. The TS&L plan shall show plan view, elevation and typical cross section of the proposed structure. CSX acceptance must be issued, in writing, before proceeding with design.

2. Furnish cross sections showing the CSX Clearance Envelope, topographic map with contours, and soil exploration data along with TS&L plans. CSX acceptance must be granted before proceeding with design.

B. CSX will assign a bridge designation when TS&L plans are reviewed and accepted. This bridge designation shall be shown on all drawings.

C. Construction Work Plans

1. CSX may require construction work plans to be submitted, particularly when work is being performed in the proximity of an active track, with potential to foul.

2. All construction work plans shall be submitted in accordance with Appendix: “Construction Submission Criteria”.

D. Material Submissions

1. Structural steel shop drawings shall be provided for CSX review and acceptance, prior to ordering material. Welding procedures shall be submitted with the structural steel shop drawings.

2. Concrete mix designs shall be submitted for CSX review and acceptance, prior to ordering material.

3. Third party testing reports shall be provided to CSX for review and acceptance in a timely manner.

4. All other materials shall be provided in accordance with the plans. All materials shall be reviewed and approved by the Agency or its representative. Proposed changes are subject to review and acceptance by CSX. Approved material submissions shall be furnished to CSX for confirmation and project documentation.

E. Final Plans

1. Provide electronic set of final signed and sealed design plans and calculations for CSX acceptance. Final plans shall include a stress sheet with bending, shear, and axial design load stresses and capacities for all main members as well as Cooper E load ratings for both Normal and Maximum conditions at 60 mph, 40 mph, 25 mph, and 10 mph.

SUPERSTRUCTURE RATING TABLE

SPAN	SHAPE	CONTROLLING MEMBER	A_w (in^2)	S_n (in^3)	F_y (ksi)	SPAN +/- (C-C)		DL	LL	I (60mph)	NORMAL RATING			MAXIMUM RATING		
											60mph	25mph	10mph	60mph	25mph	10mph
SPAN 3 (2 - DPG)	BUILT-UP 1913	DPG	35	3937	30	76'-11"	SHEAR (kips)	43	240	96	78	85	93	141	154	169
							MOMENT (k-ft.)	820	4042	1617	64	70	77	99	108	119
Span 4 (2 - DPG)	BUILT-UP 1924	DPG	48	7258	30	98'-11"	SHEAR (kips)	66	297	107	87	93	102	158	170	185
							MOMENT (k-ft.)	1624	6326	2266	77	83	91	120	129	140

2. Submit special provisions or special specifications for CSX acceptance.

3. Provide an electronic set of as-built plans to CSX upon completion of construction. All Changes shall be noted and clearly called out on a redlined set of as-built plans. All pages shall be clearly marked “AS-BUILT” and include the date of completion. AS-BUILT plans shall contain complete pile logs for all piles included in the final structure.

IX. CONSTRUCTION CONSIDERATIONS

A. After the construction contract is awarded, a copy of the contract shall be provided to CSX.

B. Maintenance of Railroad Traffic

1. It is essential that the construction be performed with minimum interference to rail traffic. Continuity of safe rail operations will be required for the duration of the project.

2. The Agency’s Design Engineer should contact the CSX Public Project Manager in the preliminary design stage to determine railroad operational requirements. The most effective method of maintaining traffic is to temporarily reroute traffic around the construction site using detour tracks. Detour tracks will be required where feasible. If detour tracks cannot be provided, the new superstructure shall be constructed adjacent to final location and lifted or rolled into place. Construction plans shall show complete details of temporary bridges and/or lift-in or roll-in structure.

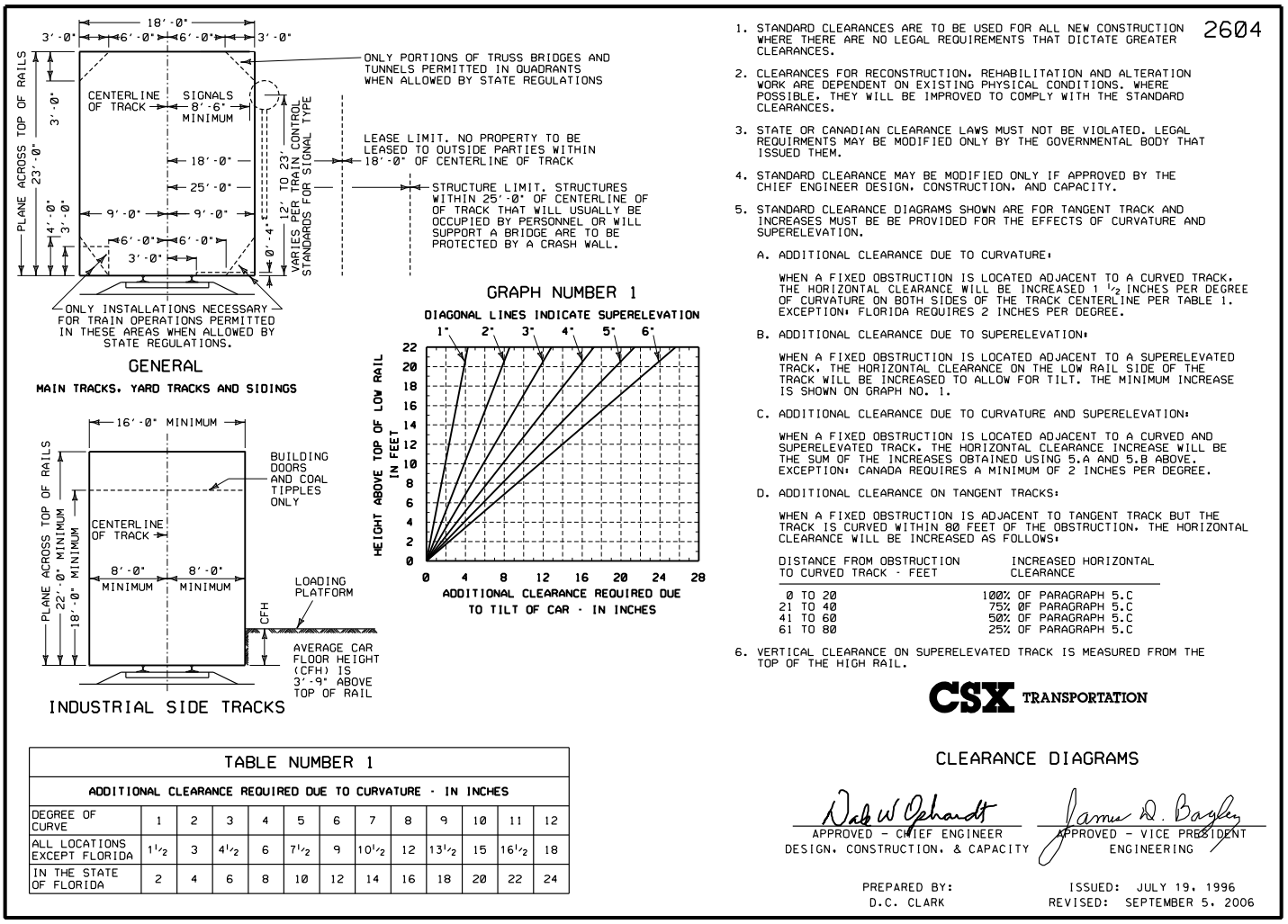
3. A detailed construction procedure for maintaining traffic shall be shown on the plans. When construction requires total interruption of rail traffic, an estimate of the time required will be shown in the procedure. This interval must be within the approved time frame furnished by the Public Project Manager.

4. Prior to the start of construction, written approval from CSX for the construction procedure must be secured.

EXHIBIT A

Typical Sections and Details:

- CSX Standard 2604 – Clearance Diagrams
- CSX Standard 2703 – No Trespassing Sign
- CSX Standard 2710 – Milepost and Numeral Signs
- Typical Track Geometry and Clearances
- Steel Superstructure with Steel Deck
- Steel Superstructure with Concrete Deck
- Through Plate Girder
- Inspection Walkway System
- Steel Deck Drain Detail



1. STANDARD CLEARANCES ARE TO BE USED FOR ALL NEW CONSTRUCTION WHERE THERE ARE NO LEGAL REQUIREMENTS THAT DICTATE GREATER CLEARANCES.
2. CLEARANCES FOR RECONSTRUCTION, REHABILITATION AND ALTERATION WORK ARE DEPENDENT ON EXISTING PHYSICAL CONDITIONS. WHERE POSSIBLE, THEY WILL BE IMPROVED TO COMPLY WITH THE STANDARD CLEARANCES.
3. STATE OR CANADIAN CLEARANCE LAWS MUST NOT BE VIOLATED. LEGAL REQUIRMENTS MAY BE MODIFIED ONLY BY THE GOVERNMENTAL BODY THAT ISSUED THEM.
4. STANDARD CLEARANCE MAY BE MODIFIED ONLY IF APPROVED BY THE CHIEF ENGINEER DESIGN, CONSTRUCTION, AND CAPACITY.
5. STANDARD CLEARANCE DIAGRAMS SHOWN ARE FOR TANGENT TRACK AND INCREASES MUST BE BE PROVIDED FOR THE EFFECTS OF CURVATURE AND SUPERELEVATION.

   A. ADDITIONAL CLEARANCE DUE TO CURVATURE:

   WHEN A FIXED OBSTRUCTION IS LOCATED ADJACENT TO A CURVED TRACK, THE HORIZONTAL CLEARANCE WILL BE INCREASED 1 1/2 INCHES PER DEGREE OF CURVATURE ON BOTH SIDES OF THE TRACK CENTERLINE PER TABLE 1. EXCEPTION: FLORIDA REQUIRES 2 INCHES PER DEGREE.

   B. ADDITIONAL CLEARANCE DUE TO SUPERELEVATION:

   WHEN A FIXED OBSTRUCTION IS LOCATED ADJACENT TO A SUPERELEVATED TRACK, THE HORIZONTAL CLEARANCE ON THE LOW RAIL SIDE OF THE TRACK WILL BE INCREASED TO ALLOW FOR TILT. THE MINIMUM INCREASE IS SHOWN ON GRAPH NO. 1.

   C. ADDITIONAL CLEARANCE DUE TO CURVATURE AND SUPERELEVATION:

   WHEN A FIXED OBSTRUCTION IS LOCATED ADJACENT TO A CURVED AND SUPERELEVATED TRACK, THE HORIZONTAL CLEARANCE INCREASE WILL BE THE SUM OF THE INCREASES OBTAINED USING 5.A AND 5.B ABOVE. EXCEPTION: CANADA REQUIRES A MINIMUM OF 2 INCHES PER DEGREE.

   D. ADDITIONAL CLEARANCE ON TANGENT TRACKS:

   WHEN A FIXED OBSTRUCTION IS ADJACENT TO TANGENT TRACK BUT THE TRACK IS CURVED WITHIN 80 FEET OF THE OBSTRUCTION, THE HORIZONTAL CLEARANCE WILL BE INCREASED AS FOLLOWS:

DISTANCE FROM OBSTRUCTION TO CURVED TRACK - FEET	INCREASED HORIZONTAL CLEARANCE
0 TO 20	100% OF PARAGRAPH 5.C
21 TO 40	75% OF PARAGRAPH 5.C
41 TO 60	50% OF PARAGRAPH 5.C
61 TO 80	25% OF PARAGRAPH 5.C

6. VERTICAL CLEARANCE ON SUPERELEVATED TRACK IS MEASURED FROM THE TOP OF THE HIGH RAIL.

CSX TRANSPORTATION

CLEARANCE DIAGRAMS

APPROVED - CHIEF ENGINEER DESIGN, CONSTRUCTION, & CAPACITY

APPROVED - VICE PRESIDENT ENGINEERING

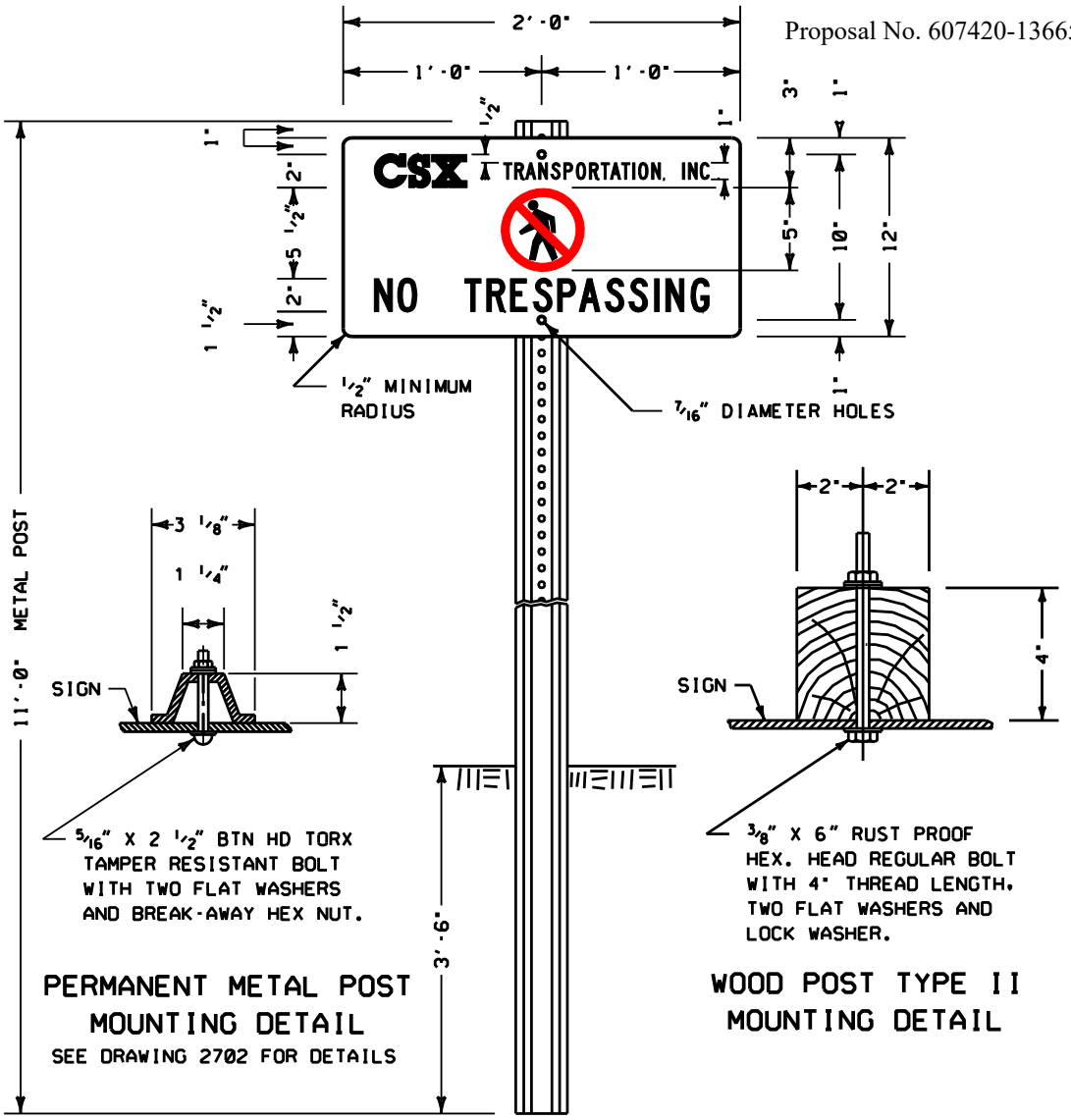
PREPARED BY: D.C. CLARK

ISSUED: JULY 19, 1996
REVISED: SEPTEMBER 5, 2006

TABLE NUMBER 1

ADDITIONAL CLEARANCE REQUIRED DUE TO CURVATURE - IN INCHES

DEGREE OF CURVE	1	2	3	4	5	6	7	8	9	10	11	12
ALL LOCATIONS EXCEPT FLORIDA	1 1/2	3	4 1/2	6	7 1/2	9	10 1/2	12	13 1/2	15	16 1/2	18
IN THE STATE OF FLORIDA	2	4	6	8	10	12	14	16	18	20	22	24



DESCRIPTION	UNITS	CLASS	ITEM
SIGN, NO TRESPASSING, ALUMINUM	EACH	014	8005800
SIGN, NO TRESPASSING, COMPOSITE	EACH	014	8005805
2 1/2" FASTENERS - TORX TAMPER RESISTANT	EACH	110	0007301
BIT INSERT FOR TORX TAMPER RESISTANT BOLT	EACH	451	0023038
SIGN POST, METAL PERMANENT	EACH	014	8004600
SIGN POST, WOOD TYPE II	EACH	049	3040611

SIGN BLADE: 0.080" ALUMINUM ALLOY 5052-H38 / 6061-T6 OR ALUMINUM/PLASTIC COMPOSITE MATERIAL 4MM THICK WITH ROUNDED CORNERS. HOLES TO BE 7/16" DIAMETER. BLADE TO BE DEGREASED AND ETCHED.

FACING: WHITE HIGH INTENSITY PRISMATIC REFLECTIVE SHEETING 3930 MANUFACTURED BY 3M CORPORATION OR EQUIVALENT. APPLIED PER MANUFACTURER'S INSTRUCTIONS. THE SHEETING SHALL COMPLY ASTM D4956.

TEXT: BLACK SILKSCREEN. SCOTCHCAL OR EQUAL. CORPORATE SYMBOL TO BE CURRENT DESIGN. OTHER LETTERS SHALL CONFORM TO THE FEDERAL HIGHWAY ADMINISTRATION STANDARD ALPHABET. SERIES C. PEDESTRIAN PROHIBITED SYMBOL. 5" DIAMETER FEDERAL HIGHWAY ADMINISTRATION SIGN R9-3A. FIGURE - BLACK. CIRCLE AND DIAGONAL STRIPE - RED.

LOCATION: THE PLACEMENT OF SIGNS MUST BE IN COMPLIANCE WITH ANY STATE OR LOCAL LAWS THAT APPLY TO THEIR USE.

SET POST A MINIMUM OF 12'-0" (13'-0" IN PENNSYLVANIA) FROM CENTERLINE OF TRACK AND 5' TO 15' AHEAD OF THE BRIDGE BACKWALL.

USE AT ALL STRUCTURES OVER PUBLIC ROADWAYS, BRIDGES, AND LOCATIONS SPECIFIED IN THE TIMETABLE.

WHEN USED AT BRIDGES, PLACE A SIGN ON BOTH THE RIGHT AND LEFT SIDE OF THE TRACK AT EACH END OF THE STRUCTURE.

ORIENT SIGN SO THAT LETTERS ARE FACING AWAY FROM THE STRUCTURE.

WHEN USED ON RAILROAD PROPERTY AWAY FROM TRACKS, PLACE THE SIGN AT EDGE OF PROPERTY WITH THE LETTERS FACING AWAY FROM THE PROPERTY.

CSX TRANSPORTATION

NO TRESPASSING SIGN

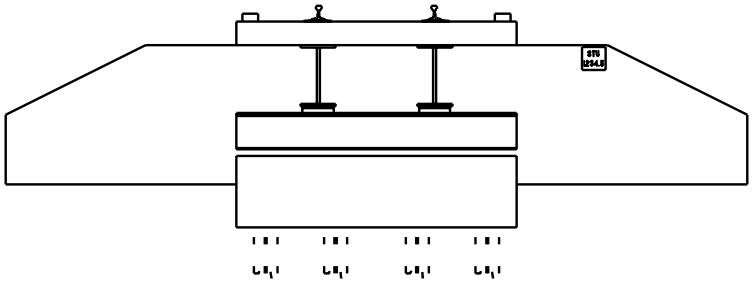
APPROVED - DIRECTOR ENGINEERING STANDARDS

APPROVED - AVP ENGINEERING

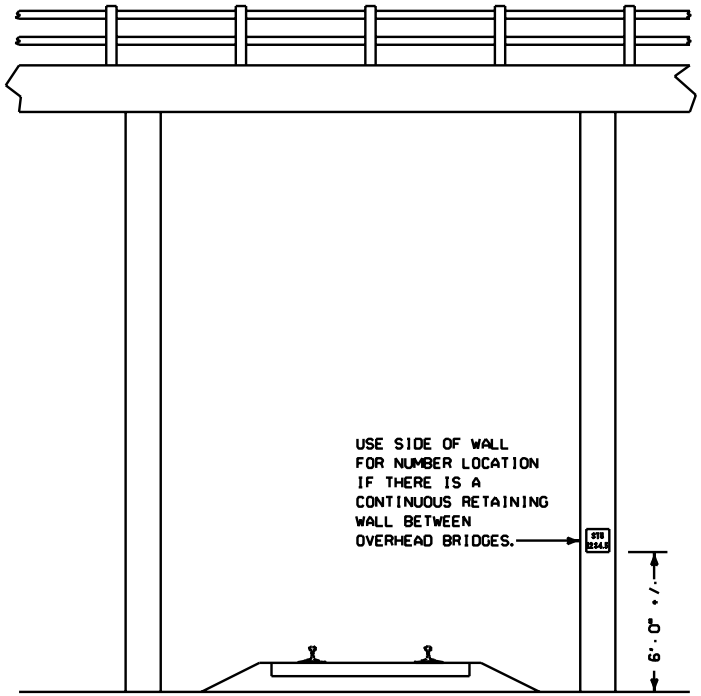
PREPARED BY: J. E. BEYERL

ISSUED: APRIL 14, 2003
REVISED: OCTOBER 28, 2011

2802



BRIDGE SIGN LOCATION · BACKWALL



BRIDGE SIGN LOCATION · OVERHEAD BRIDGES

ALL BRIDGES AND TRESTLES ARE TO BE NUMBERED WITH THE MILEPOST PREFIX OF THE SUBDIVISION ON WHICH THE STRUCTURE IS LOCATED AND THE MILEPOST LOCATION TO THE NEAREST ONE-TENTH OF A MILE.

THE BRIDGE NUMBER IS TO BE PAINTED ON EACH BACKWALL ON THE RIGHT HAND SIDE OF THE STRUCTURE FOR A TRAIN APPROACHING THE STRUCTURE.

OVERHEAD STRUCTURES WILL HAVE THE BRIDGE NUMBER PAINTED ON THE PIER NEXT TO THE MAIN TRACK ON THE RIGHT HAND SIDE FOR A TRAIN APPROACHING THE STRUCTURE. IF THERE IS A CONTINUOUS RETAINING WALL BETWEEN ADJACENT OVERHEAD BRIDGES, THE BRIDGE NUMBER WILL BE PAINTED ON THE RETAINING WALL WHERE THE EDGE OF THE OVERHEAD BRIDGE CROSSES OVER THE TRACK.

THE BRIDGE NUMBER LOCATION ON THE STRUCTURE IS TO BE DETERMINED BY THE DESIGN OF THE STRUCTURE.

ON BACKWALLS, IF PRACTICABLE, THE LOCATION SELECTED SHOULD BE CLEARLY VISABLE FROM TRAINS AND INSPECTION VEHICLES USING THE STRUCTURE.

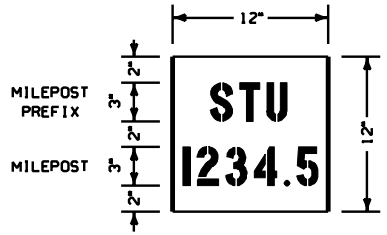
ON PIERS AND RETAINING WALLS, THE LOWER EDGE OF THE SIGN SHOULD BE ABOUT SIX FEET ABOVE GROUND LEVEL.

BRIDGE NUMBERS ARE TO BE 3" HIGH.

BRIDGE NUMBERS ARE TO BE PAINTED WITH BLACK LETTERS ON A WHITE BACKGROUND OR WHITE LETTERS ON A BLACK BACKGROUND DEPENDING ON WHICH COMBINATION WILL PROVIDE THE BEST LEGIBILITY WHEN APPLIED TO THE BRIDGE.

BRIDGE NUMBERS ARE TO CONFORM TO THE C. H. HANSEN GOTHIC STENCILS, OR EQUIVALENT. THE STENCILS MAY BE ORDERED USING

LETTERS, ITEM NUMBER 451 0033263, HANSEN SET NUMBER 10033
NUMBERS, ITEM NUMBER 451 0033303, HANSEN SET NUMBER 10013



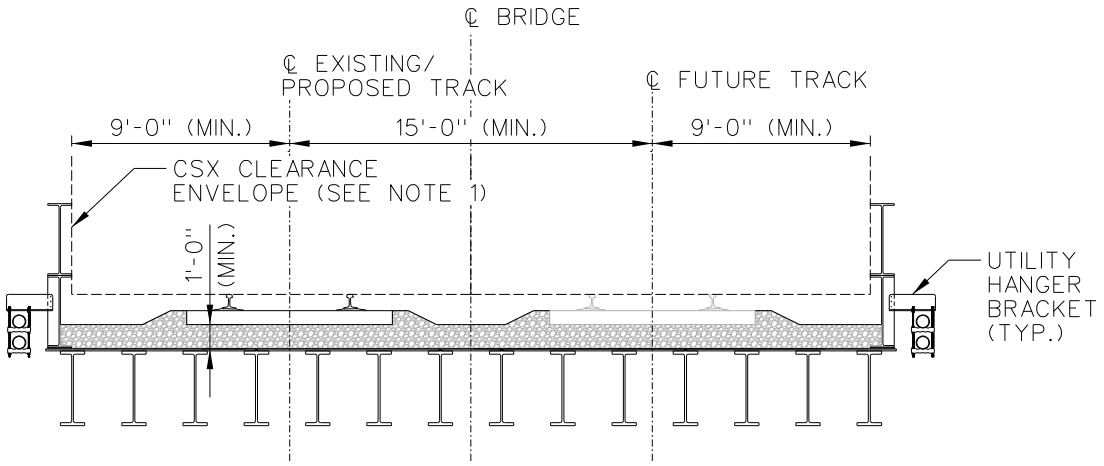
BLACK LETTERS ON WHITE BACKGROUND.

TYPICAL BRIDGE SIGN

CSX TRANSPORTATION

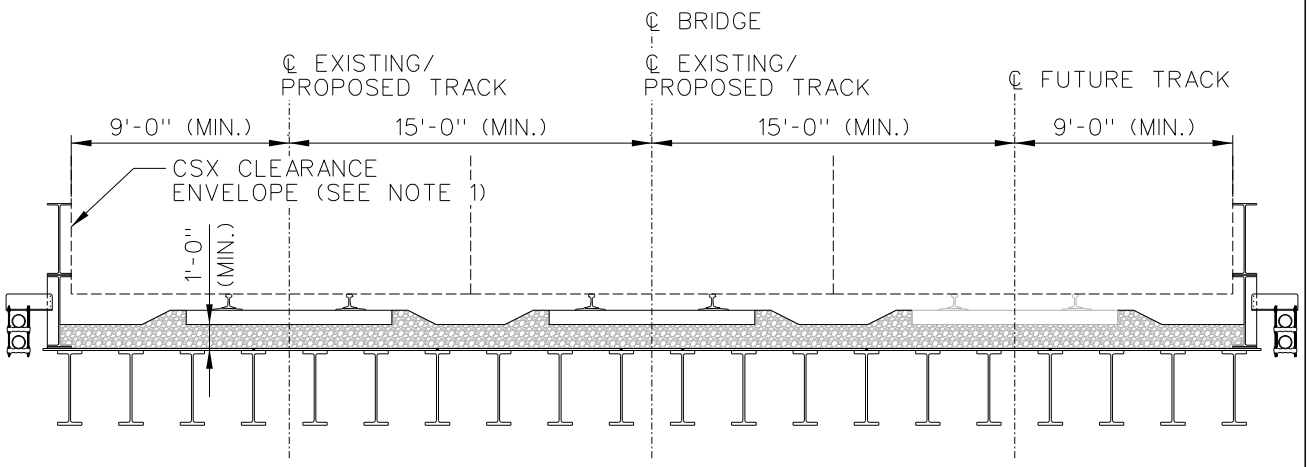
BRIDGE NUMBER SIGNS

SIGNED	SIGNED
REVIEWED · ENGINEER STANDARDS AND TESTING	APPROVED · ASSISTANT VICE PRESIDENT, EQUIPMENT AND TRACK SYSTEMS ENGINEERING
ISSUED, OCTOBER 30, 1998	REVISED, INITIAL ISSUE



UNDERGRADE BRIDGE - TYPICAL ONE TRACK SECTION

(DIAPHRAGMS/CROSS FRAMES NOT SHOWN FOR CLARITY)



UNDERGRADE BRIDGE - TYPICAL TWO TRACK SECTION

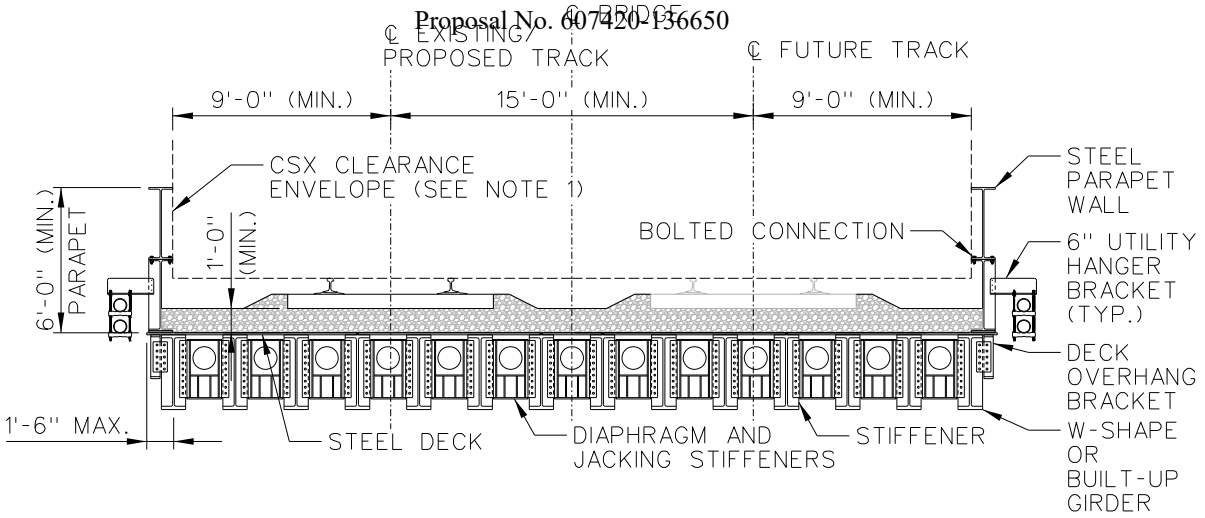
NOTES:

1. TANGENT TRACK SHOWN. INCREASES IN CLEARANCES MUST BE PROVIDED TO ACCOUNT FOR EFFECTS FROM CURVATURE AND SUPERELEVATION. REFER TO CSX STANDARD DRAWING 2604.

CSX

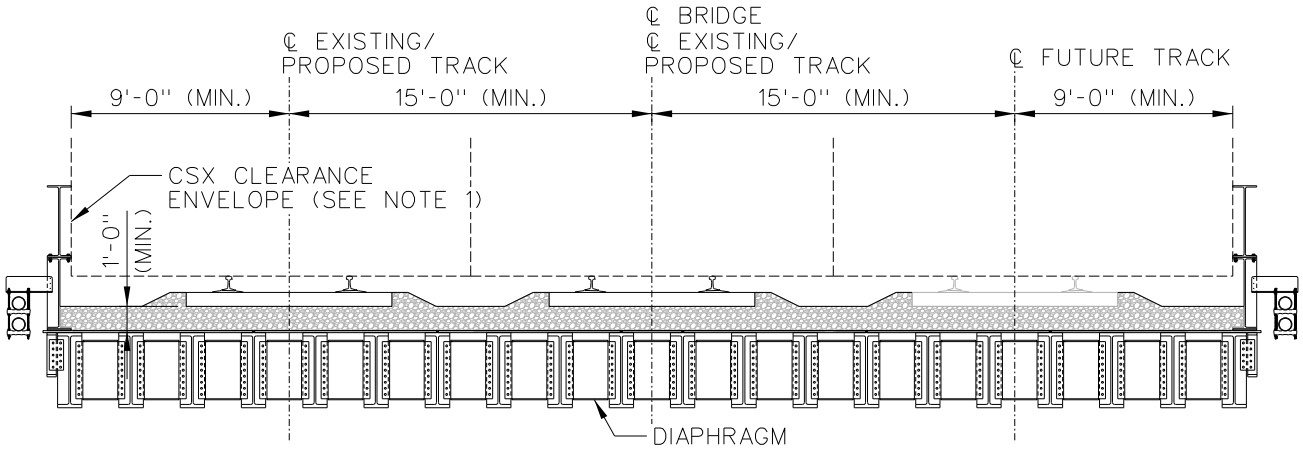
PUBLIC PROJECTS - UNDERGRADE BRIDGE DETAILS
TYPICAL TRACK GEOMETRY AND CLEARANCES
TYPICAL SECTION

A00807 - 133
FOR REFERENCE ONLY



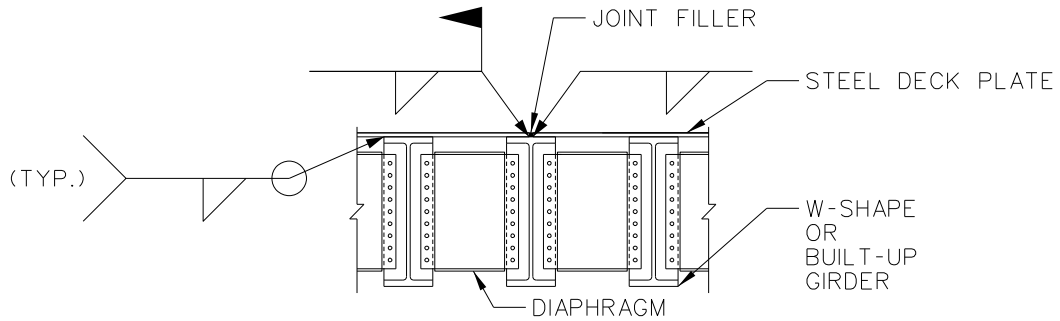
TYPICAL SECTION - ONE TRACK AT END DIAPHRAGM

(BEARING AND SUBSTRUCTURE NOT SHOWN FOR CLARITY)



TYPICAL SECTION - TWO TRACKS AT INTERMEDIATE DIAPHRAGM

(NOTES SIMILAR TO FIGURE ABOVE UNLESS NOTED OTHERWISE)



TYPICAL DECK WELD DETAIL

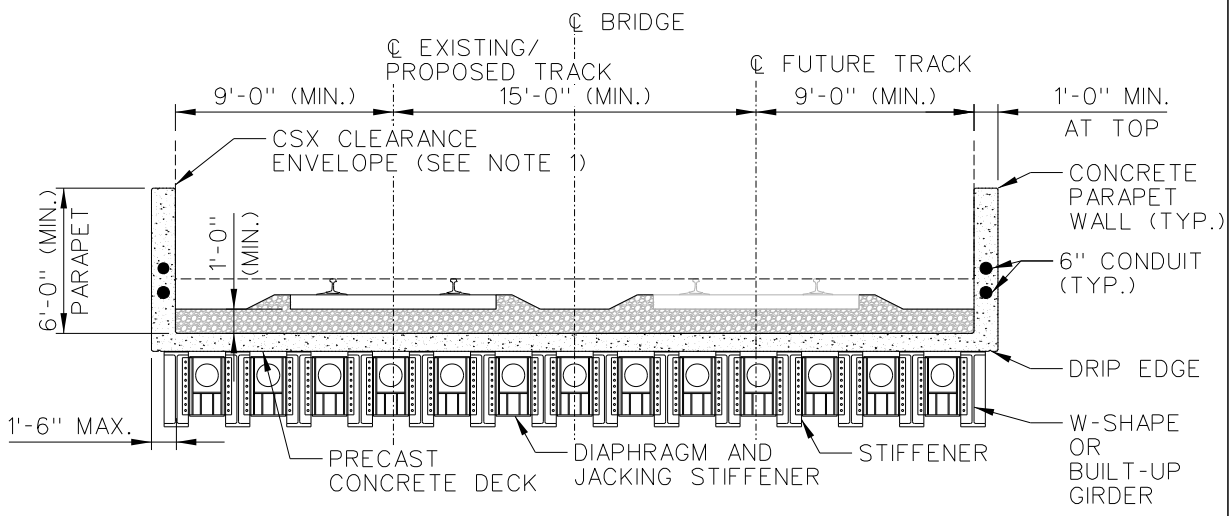
NOTES:

1. TANGENT TRACK SHOWN. INCREASES IN CLEARANCES MUST BE PROVIDED TO ACCOUNT FOR EFFECTS FROM CURVATURE AND SUPERELEVATION. REFER TO CSX STANDARD DRAWING 2604.

CSX

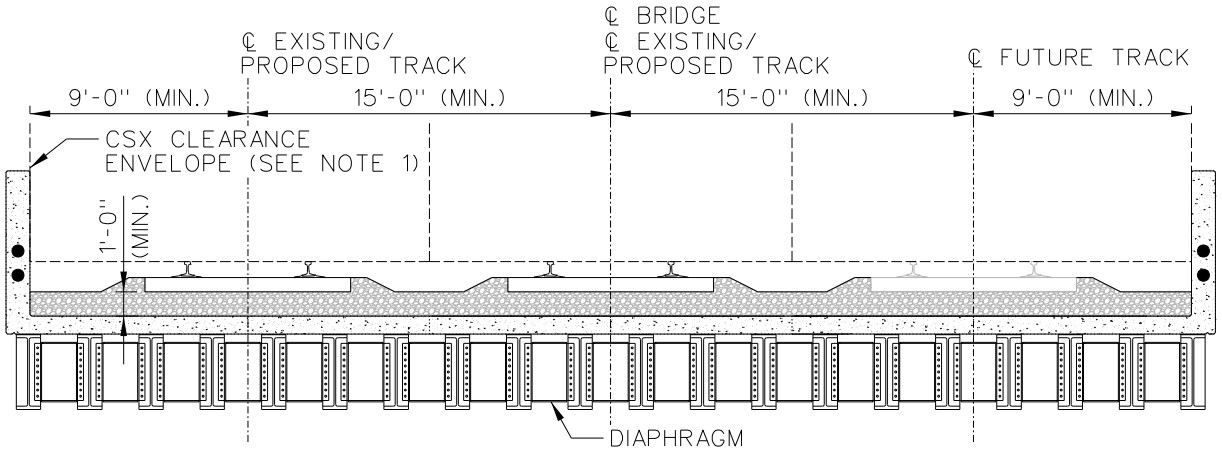
PUBLIC PROJECTS - UNDERGRADE BRIDGE DETAILS
STEEL SUPERSTRUCTURE WITH STEEL DECK
TYPICAL SECTION

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FOR REFERENCE ONLY



TYPICAL SECTION - ONE TRACK AT END DIAPHRAGM

(BEARING AND SUBSTRUCTURE NOT SHOWN FOR CLARITY)



TYPICAL SECTION - TWO TRACKS AT INTERMEDIATE DIAPHRAGM

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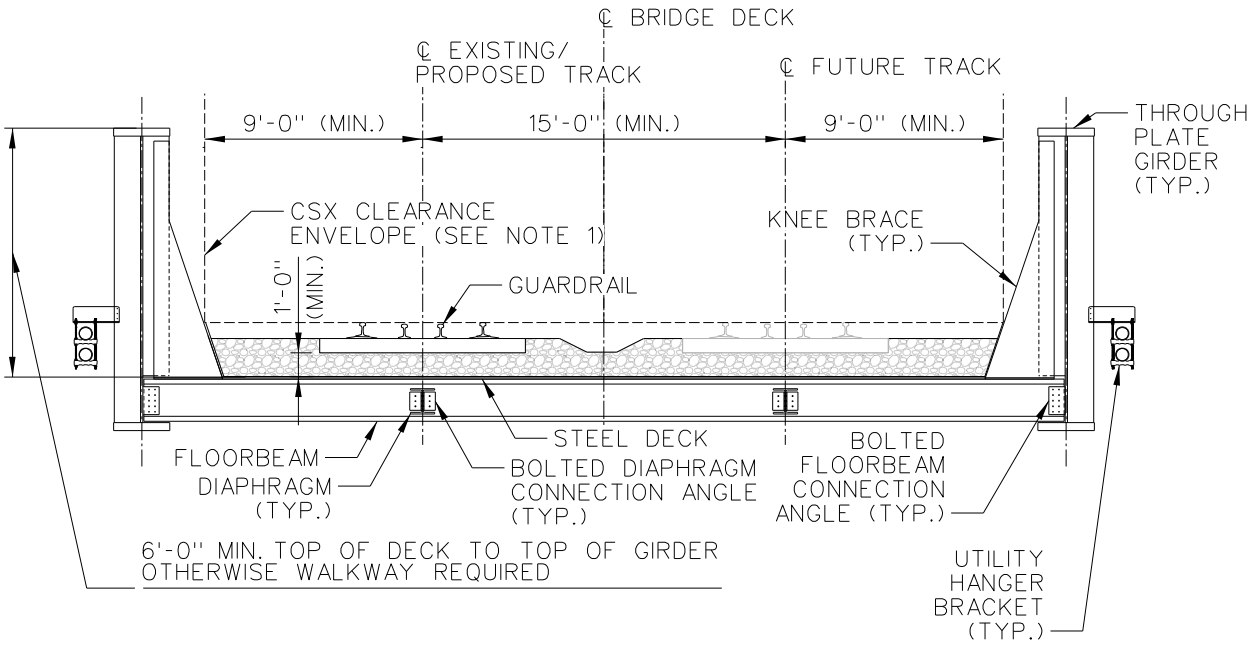
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1. TANGENT TRACK SHOWN. INCREASES IN CLEARANCES MUST BE PROVIDED TO ACCOUNT FOR EFFECTS FROM CURVATURE AND SUPERELEVATION. REFER TO CSX STANDARD DRAWING 2604.

CSX

PUBLIC PROJECTS - UNDERGRADE BRIDGE DETAILS
STEEL SUPERSTRUCTURE WITH CONCRETE DECK
TYPICAL SECTION

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FOR REFERENCE ONLY



TYPICAL SECTION - ONE TRACK

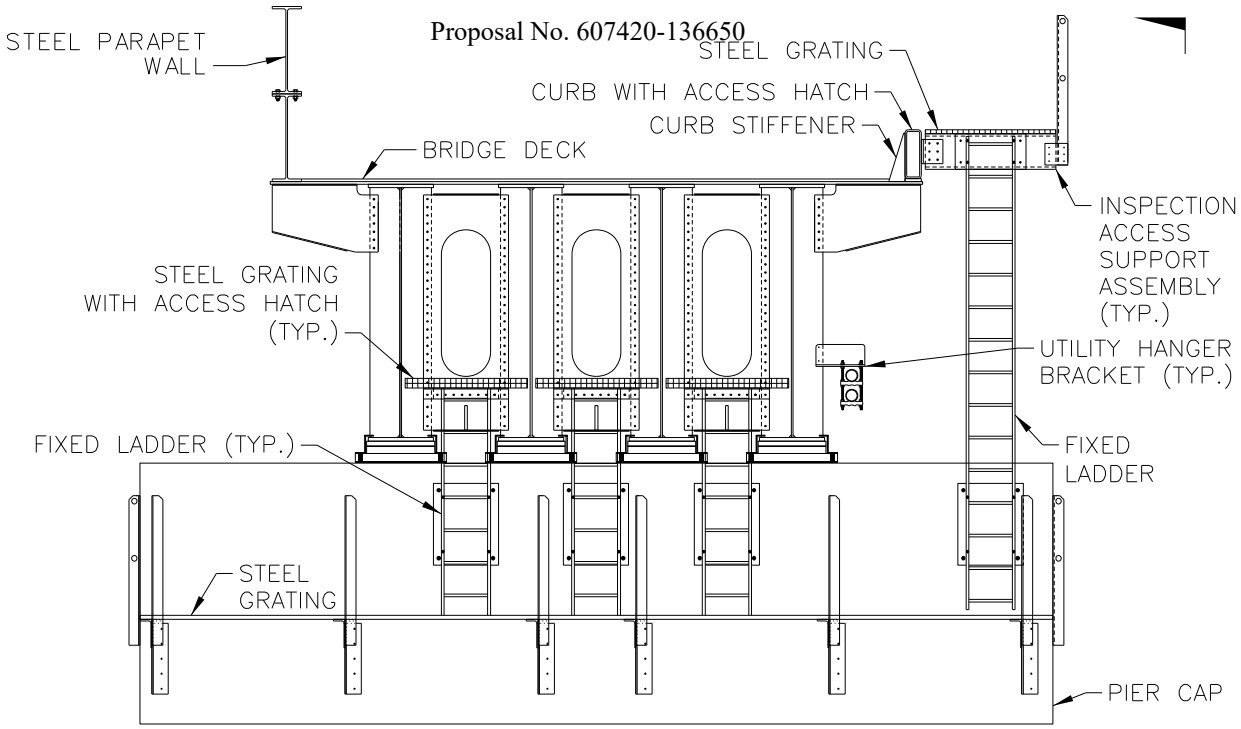
NOTES:

1. TANGENT TRACK SHOWN. INCREASES IN CLEARANCES MUST BE PROVIDED TO ACCOUNT FOR EFFECTS FROM CURVATURE AND SUPERELEVATION. REFER TO CSX STANDARD DRAWING 2604.

CSX

PUBLIC PROJECTS - UNDERGRADE BRIDGE DETAILS
THROUGH PLATE GIRDER
TYPICAL SECTION

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FOR REFERENCE ONLY

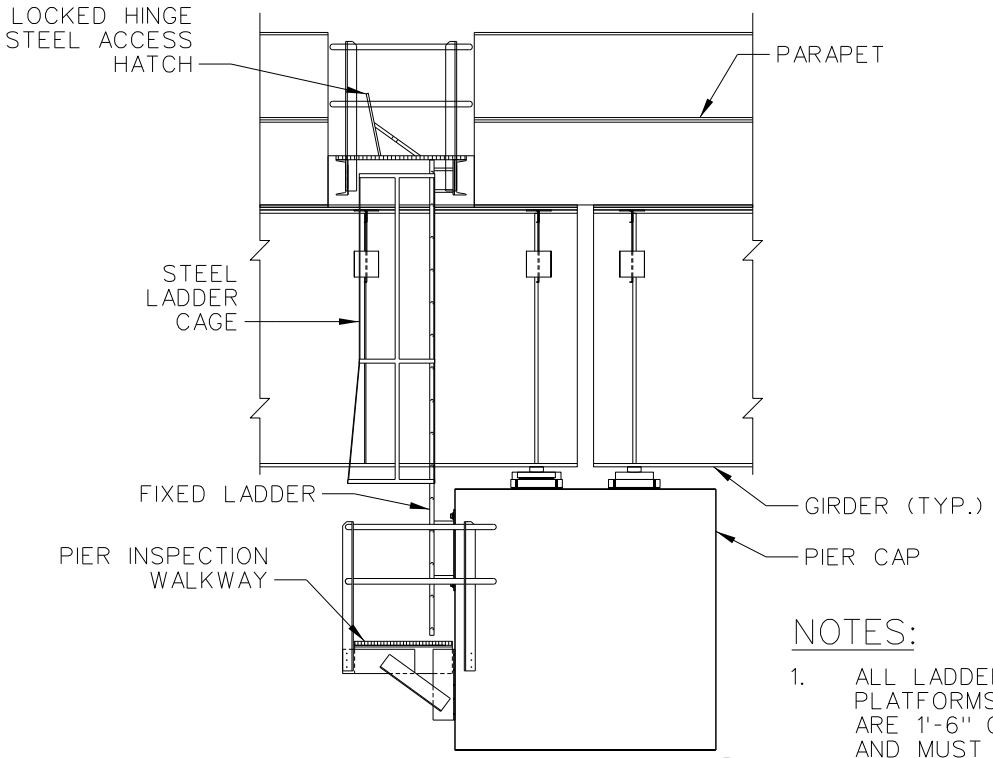


SECTION

SCALE: N.T.S.

(SUBSTRUCTURE, HANDRAIL, AND STEEL LADDER CAGE NOT SHOWN FOR CLARITY)

A



VIEW

N.T.S.

A

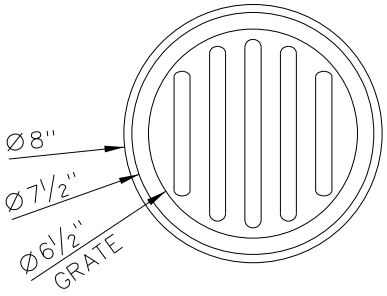
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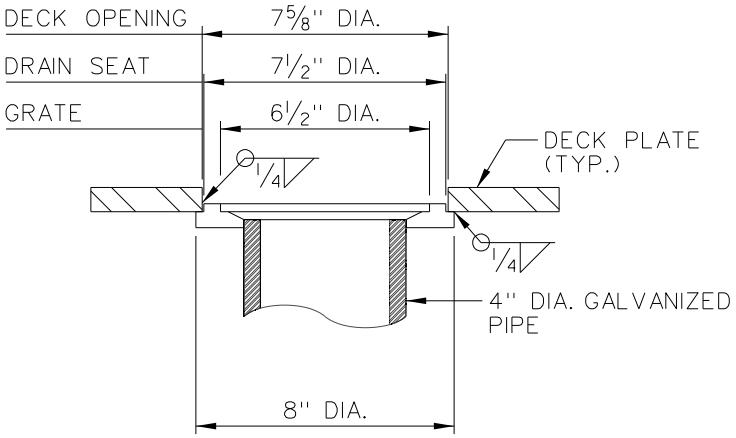
1. ALL LADDERS, INSPECTION PLATFORMS, AND HATCHES ARE 1'-6" OUT TO OUT AND MUST COMPLY WITH OSHA AND AREMA SAFETY REQUIREMENTS.

CSX

PUBLIC PROJECTS - UNDERGRADE BRIDGE DETAILS
INSPECTION WALKWAY SYSTEM

FOR REFERENCE ONLY





STEEL DECK DRAIN

CSX

PUBLIC PROJECTS - UNDERGRADE BRIDGE DETAILS
STEEL DECK DRAIN DETAIL

APPENDIX

CSX TRANSPORTATION

TRAIL CONSTRUCTION AROUND CSX BRIDGES

(Non-Vehicular crossing over or under the railroad)

Public Projects Group
Jacksonville, FL
Date Issued: September 2024

All trails impacting the railroad shall be designed in accordance with these Guidelines, the Manual of Uniform Traffic Control Devices (MUTCD), AASHTO code and any applicable sections of the AREMA MRE.

A. At Grade Crossing

1. CSX does not allow at grade trail crossings. Alternative plans should be considered to avoid crossing railroad tracks at grade.

2. At grade crossings immediately adjacent to an existing public roadway crossing with existing highway railroad warning devices may be considered. However, all costs associated with the installation of the new crossing surface and crossing warning device changes or relocation will be borne by the Applicant.

3. Scope of proposed crossing work will be determined at a joint diagnostic meeting between CSX and the Applicant.

4. The trail must conform to CSX and MUTCD requirements.

B. Trail Parallel to Track

1. CSX does not allow trails parallel to the track on CSX right-of-way and does not permit the use of CSX Access Roads for trail use.

2. CSX structures shall not be used to serve trail traffic or support a structure serving trail traffic.

3. Fences or barriers such as vegetation, ditches, and/or berms shall separate trails that are outside CSX right-of-way and running parallel to the track to stop trespassers from entering CSX right-of-way.

C. Undergrade Crossing (Railroad structure over trail)

CSX discourages the construction of new undergrade structures. Consider the use of existing structures to cross CSX tracks. If an undergrade structure is the only feasible structure type for the proposed site, a detailed type selection report must be submitted to justify its use. In accordance with Homeland Security requirements, some railroad sites and structures are off limits for trail use and crossing.

Undergrade trail crossings which also serve to convey water are not permitted.

1. Existing Undergrade Structures

i. CSX may reject, at its discretion, the use of any existing undergrade structure for trail use.

ii. Existing culvert pipe, box or arch structures, designed to convey water, are not permitted for trail crossing use.

iii. An open deck structure shall be modified to a ballast deck or solid deck structure to maintain a safe crossing under a railroad structure. If modifying an existing open deck structure is not practical, provide a protective cover over the trail as described.

2. New Undergrade Crossing

i. New undergrade structures shall be designed per the undergrade railroad bridge criteria presented in these guidelines.

ii. All pipe and concrete box culverts shall be designed per CSX requirements and any applicable sections of the AREMA MRE.

iii. Confined structures are discouraged. To improve safety and sight distance, all structures shall be tangent without curvature.

iv. The clear width and height of pedestrian structures shall be subject to the project site and structure length. The line of sight, historical security data, and lighting shall be used for determining the required size of opening.

v. Vertical Clearance shall not be less than 8'-0".

3. Canopy

A canopy will be installed under the existing or new undergrade CSX structure as follows:

i. The minimum clearance between the top of the canopy and the underside of the bridge shall be 5 feet.

ii. The trail in the vicinity of the undergrade bridge must be able to be closed and the canopy removed as necessary at the trail owner's expense, to allow CSX access to inspect and maintain the bridge. The trail must remain closed until the CSX work is completed and the canopy and fencing is restored. CSX will not be responsible for any damage to the portions of the canopy that occur due to CSX inspection, maintenance, operations or other work.

iii. The canopy shall be adequately designed to sustain the impact of debris falling from the CSX bridge. Debris with potential to fall includes but is not limited to tie plates which are approximately 1'-6" x 8" x 1 1/2" and weigh approximately 36.5 pounds.

iv. The canopy shall extend at least 15'-0" beyond the bridge fascia on either side of the bridge.

4. Drainage

The drainage pattern of the site before and after construction shall be analyzed. Adequate drainage provisions shall be incorporated into the plans and specifications. A detailed hydraulic report may be required subject to site condition. The hydraulic report must meet the CSX Hydraulic Criteria. The cost of the hydraulic report and any required associated reports shall be the responsibility of the applicant.

5. Fence

i. Provide fencing along the trail to prevent trespassing near the CSX track area and facilities. The Applicant shall specify the appropriate fencing to contain the trail traffic within the trail, crossing CSX right-of-way. Fence limits are subject to each project site and must be determined on a case by case basis.

ii. Fencing shall be located where it will not impede CSX's access to the bridge for inspection and shall be removed and replaced at the Applicant's expense when necessary for access by CSX.

iii. All CSX right-of-way fencing, for trails adjacent to the CSX right-of-way, must be provided, installed outside CSX right-of-way and maintained by the Applicant.

iv. Gates must be provided to readily permit CSX access to the undergrade bridge areas from below the bridge. CSX to provide a lock.

6. Signs

i. All access to trails crossing CSX railroad track shall be protected with bollard posts and signs prohibiting non-authorized vehicular access.

ii. All advisory and regulatory signs shall be in compliance with MUTCD and AASHTO. “No Trespassing” signs shall be posted every 500’-0”.

7. Plan Requirements

i. Plans shall show all clearances between the proposed trail and the bridge structure.

ii. Provide the closure procedure for periods when the trail will require closure in the vicinity of the undergrade bridge due to CSX inspection, maintenance, or other operations.

iii. Clearly show and label the CSX right of way lines on the plans.

iv. Show canopy clearances on the plans.

v. Provide details for fence and signage details to prevent trespassers from accessing the CSX right of way.

8. Construction Submittals

i. During construction, CSX will review all submittals relating to the installation of the trail components in relation to the bridge structure.

APPENDIX

CSX TRANSPORTATION

CONSTRUCTION SUBMISSION CRITERIA

Public Projects Group
Jacksonville, FL
Date Issued: September 2024

INTRODUCTION

SECTION I: Definitions

SECTION II: Construction Submissions

SECTION III: Hoisting Operations

SECTION IV: Demolition Procedure

SECTION V: Erection Procedure

SECTION VI: Temporary Excavation and Shoring

SECTION VII: Track Monitoring

INTRODUCTION

The intent of this document is to guide outside agencies and their Contractors when performing work on, over, or with potential to impact CSX property (ROW). Work plans shall be submitted for review to the designated CSX Engineering Representative for all work which presents the potential to affect CSX property or operations; this document shall serve as a guide in preparing these work plans. All work shall be performed in a manner that does not adversely impact CSX operations or safety; as such, the requirements of this document shall be strictly adhered to, in addition to all other applicable standards associated with the construction. Applicable standards include, but are not limited to, CSX Standards and Special Provisions, CSX Insurance Requirements, CSX Pipeline Occupancy Criteria, as well as the governing local, county, state and federal requirements. It shall be noted that this document and all other CSX standards are subject to change without notice, and future revisions will be made available at the CSX website: www.csx.com.

I. DEFINITIONS

1. Agency – The project sponsor (i.e., State DOT, Local Agencies, Private Developer, etc.)

2. AREMA – American Railway Engineering and Maintenance-of-Way Association – the North American railroad industry standards group. The use of this term shall be in specific reference to the AREMA Manual for Railway Engineering.

3. Construction Submission – The Agency or its representative shall submit six (6) sets of plans, supporting calculations, and detailed means and methods procedures for the specific proposed activity. All plans, specifications, and supporting calculations shall be signed/sealed by a Professional Engineer as defined below.

4. Controlled Demolition – Removal of an existing structure or subcomponents in a manner that positively prevents any debris or material from falling, impacting, or otherwise affecting CSX employees, equipment or property. Provisions shall be made to ensure that there is no impairment of railroad operations or CSX's ability to access its property at all times.

5. Contractor – The Agency's representative retained to perform the project work.

6. Engineer – CSX Engineering Representative or a GEC authorized to act on the behalf of CSX.

7. Flagman – A qualified CSX employee with the sole responsibility to direct or restrict movement of trains, at or through a specific location, to provide protection for workers.

8. GEC – General Engineering Consultant who has been authorized to act on the behalf of CSX.

9. Horizontal Clearance – Distance measured perpendicularly from centerline of any track to the nearest obstruction at any elevation between TOR and the maximum vertical clearance of the track.

10. Professional Engineer – An engineer who is licensed in State or Commonwealth in which the project is to occur. All plans, specifications, and supporting calculations shall be prepared by the Licensed Professional Engineer and shall bear his/her seal and signature.

11. Potential to Foul – Work having the possibility of impacting CSX property or operations; defined as one or more of the following:

   a. Any activity where access onto CSX property is required.

b. Any activity where work is being performed on CSX ROW.

c. Any excavation work adjacent to CSX tracks or facilities, within the Theoretical Railroad Live Load Influence Zone, or where the active earth pressure zone extends within the CSX property limits.

d. The use of any equipment where, if tipped and laid flat in any direction (360 degrees) about its center pin, can encroach within twenty five feet (25'-0") of the nearest track centerline. This is based upon the proposed location of the equipment during use, and may be a function of the equipment boom length. Note that hoisting equipment with the potential to foul must satisfy the 150% factor of safety requirement for lifting capacities.

e. Any work where the scatter of debris, or other materials has the potential to encroach within twenty five feet (25'-0") of the nearest track centerline.

f. Any work where significant vibration forces may be induced upon the track structure or existing structures located under, over, or adjacent to the track structure.

g. Any other work which poses the potential to disrupt rail operations, threaten the safety of railroad employees, or otherwise negatively impact railroad property, as determined by CSX.

12. ROW – Right of Way; Refers to CSX Right-of-Way as well as all CSX property and facilities. This includes all aerial space within the property limits, and any underground facilities.

13. Submission Review Period - a minimum of thirty (30) days in advance of start of work. Up to thirty (30) days will be required for the initial review response. Up to an additional thirty (30) days may be required to review any/all subsequent submissions or resubmission.

14. Theoretical Railroad Live Load Influence Zone – A 1 horizontal to 1 vertical theoretical slope line starting at bottom corner of tie.

15. TOR – Top of Rail. This is the base point for clearance measurements. It refers to the crown (top) of the steel rail; the point where train wheels bear on the steel rails.

16. Track Structure – All load bearing elements which support the train. This includes, but is not limited to, the rail, ties, appurtenances, ballast, sub-ballast, embankment, retaining walls, and bridge structures.

17. Vertical Clearance – Distance measured from TOR to the lowest obstruction within six feet (6'-0") of the track centerline, in either direction.

II. GENERAL SUBMISSION REQUIREMENTS

A. A construction work plan is required to be submitted by the Agency or its Contractor, for review and acceptance, prior to accessing or performing any work with Potential to Foul.

B. The Agency or its representative shall submit six (6) sets of plans, specifications, supporting calculations, and detailed means and methods procedures for the specific proposed work activity.

C. Construction submissions shall include all information relevant to the work activity, and shall clearly and concisely explain the nature of the work, how it is being performed, and what measures are being taken to ensure that railroad property and operations are continuously maintained.

D. All construction plans shall include a map of the work site, depicting the CSX tracks, the CSX right of way, proposed means of access, proposed locations for equipment and material staging (dimensioned from nearest track centerline), as well as all other relevant project information. An elevation drawing may also be necessary in order to depict clearances or other components of the work.

E. Please note that CSX will not provide pricing to individual contractors involved in bidding projects. Bidding contractors shall request information from the agency and not CSX.

F. The Contractor shall install a geotextile fabric ballast protection system to prevent construction or demolition debris and fines from fouling ballast. The geotextile ballast protection system shall be installed and maintained by the Contractor to the satisfaction of the Engineer.

G. The Engineer shall be kept aware of the construction schedule. The Contractor shall provide timely communication to the Engineer when scheduling the work such that the Engineer may be present during the work. The Contractor's schedule shall not dictate the work plan review schedule, and flagging shall not be scheduled prior to receipt of an accepted work plan.

H. At any time during construction activities, the Engineer may require revisions to the previously approved procedures to address weather, site conditions or other circumstances that may create a potential hazard to rail operations or CSX facilities. Such revisions may require immediate interruption or termination of ongoing activities until such time the issue is resolved to the Engineer's satisfaction. CSX and its GEC shall not be responsible for any additional costs or time claims associated with such revisions.

I. Blasting will not be permitted to demolish a structure over or within CSX's right-of-way. When blasting off of CSX property but with Potential to Foul, vibration monitoring, track settlement surveying, and/or other protective measures may be required as determined by the Engineer.

J. Blasting is not permitted adjacent to CSX right-of-way without written approval from the Chief Engineer, CSX.

K. Mechanical and chemical means of rock removal must be explored before blasting is considered. If written permission for the use of explosives is granted, the Agency or Contractor must submit a work plan satisfying the following requirements:

1. Blasting shall be done with light charges under the direct supervision of a responsible officer or employee of the Agency or Contractor.

2. Electronic detonating fuses shall not be used because of the possibility of premature explosions resulting from operation of two-way train radios.

3. No blasting shall be done without the presence of an authorized representative of CSX. Advance notice to the Engineer is required to arrange for the presence of an authorized CSX representative and any flagging that CSX may require.

4. Agency or Contractor must have at the project site adequate equipment, labor and materials, and allow sufficient time, to clean up debris resulting from the blasting and correct any misalignment of tracks or other damage to CSX property resulting from the blasting. Any corrective measures required must be performed as directed by the Engineer at the Agency's or Contractor's expense without any delay to trains. If Agency's or Contractor's actions result in the delay of any trains including passenger trains, the Agency or Contractor shall bear the entire cost thereof.

5. The Agency or Contractor may not store explosives on CSX property.

6. At any time during blasting activities, the Engineer may require revisions to the previously approved procedures to address weather, site conditions or other circumstances that may create a potential hazard to rail operations or CSX facilities. Such revisions may require immediate interruption or termination of ongoing activities until such time the issue is resolved to the Engineer's satisfaction. CSX and its GEC shall not be responsible for any additional costs or time claims associated with such revisions.

III. HOISTING OPERATIONS

A. All proposed hoisting operations with Potential to Foul shall be submitted in accordance with the following:

1. A plan view drawing shall depict the work site, the CSX track(s), the proposed location(s) of the lifting equipment, as well as the proposed locations for picking, any intermediate staging, and setting the load(s). All locations shall be dimensioned from centerline of the nearest track. Crane locations shall also be dimensioned from a stationary point at the work site for field confirmation.

2. Computations showing the anticipated weight of all picks. Computations shall be made based upon the field-verified plans of the existing structure. Pick weights shall account for the weight of concrete rubble or other materials attached to the component being removed; this includes the weight of subsequent rigging devices/components. Rigging components shall be sized for the subsequent pick weight.

3. All lifting equipment, rigging devices, and other load bearing elements shall have a rated (safe lifting) capacity that is greater than or equal to 150% of the load it is carrying, as a factor of safety. Supporting calculations shall be furnished to verify the minimum capacity requirement is maintained for the duration of the hoisting operation.

4. Dynamic hoisting operations are prohibited when carrying a load with the Potential to Foul. Cranes or other lifting equipment shall remain stationary during lifting. (i.e., no moving picks).

5. For lifting equipment, the manufacturer's capacity charts, including crane, counterweight, maximum boom angle, and boom nomenclature is to be submitted.

6. A schematic rigging diagram must be provided to clearly call out each rigging component from crane hook to the material being hoisted. Copies of catalog or information sheets shall be provided to verify rigging weights and capacities.

7. For built-up rigging devices, the contractor shall submit the following:

i. Details of the device, calling out material types, sizes, connections and other properties.

ii. Load test certification documents and/or design computations bearing the seal and signature of a Professional Engineer. Load test shall be performed in the configuration of its intended use as part of the subject demolition procedure.

iii. Copies of the latest inspection reports of the rigging device. The device shall be inspected within one (1) calendar year of the proposed date for use.

8. A detail shall be provided showing the crane outrigger setup, including dimensions from adjacent slopes or facilities. The detail shall indicate requirements for bearing surface preparation, including material requirements and compaction efforts. As a minimum, outriggers and/or tracks shall bear on mats, positioned on level material with adequate bearing capacity.

9. A complete written narrative that describes the sequence of events, indicating the order of lifts and any repositioning or re-hitching of the crane(s).

IV. DEMOLITION PROCEDURE

A. The Agency or its Contractor shall submit a detailed procedure for a controlled demolition of any structure on, over, or adjacent to the ROW. The controlled demolition procedure must be approved by the Engineer prior to beginning work on the project.

B. Existing Condition of structure being demolished:

1. The Contractor shall submit as-built plans for the structure(s) being demolished

.

2. If as-built plans are unavailable, the Contractor shall perform an investigation of the structure, including any foundations, substructures, etc. The field measurements are to be made under the supervision of the Professional Engineer submitting the demolition procedure. Findings shall be submitted as part of the demolition means and methods submittal for review by the Engineer.

3. Any proposed method for temporary stabilization of the structure during the demolition shall be based on the existing plans or investigative findings, and submitted as part of the demolition means and methods for review by the Engineer.

C. Demolition work plans shall include a schematic plan depicting the proposed locations of the following, at various stages of the demolition:

1. All cranes and equipment, calling out the operating radii.

2. All proposed access and staging locations with all dimensions referenced from the center line of the nearest track

.

3. Proposed locations for stockpiling material or locations for truck loading

.

4. The location, with relevant dimensions, of all tracks, other railroad facilities; wires, poles, adjacent structures, or buried utilities that could be affected, showing that the proposed lifts are clear of these obstructions.

5. Note that no crane or equipment may be set on the CSX rails or track structure and no material may be dropped on CSX property.

D. Demolition submittal shall also include the following information:

1. All hoisting details, as dictated by Section III of this document.

2. A time schedule for each of the various stages must be shown as well as a schedule for the entire lifting procedure. The proposed time frames for all critical subtasks (i.e., torch/saw cutting various portions of the superstructure or substructure, dismantling splices, installing temporary bracing, etc.) shall be furnished so that the potential impact(s) to CSX operations may be assessed and eliminated or minimized.

3. The names and experience of the key Contractor personnel involved in the operation shall be included in the Contractor's means and methods submission.

4. Design and supporting calculations shall be prepared, signed, and sealed by the Professional Engineer for items including the temporary support of components or intermediate stages shall be submitted for review. A guardrail will be required to be installed in a track in the proximity of temporary bents or shoring towers, when located within twelve feet (12'-0") from the centerline of the track. The guardrail will be installed by CSX forces, at the expense of the Agency or its contractor.

E. Girders or girder systems shall be stable at all times during demolition. Temporary bracing shall be provided at the piers, abutments, or other locations to resist overturning and/or buckling of the member(s). The agency shall submit a design and details of the proposed temporary bracing system, for review by the Engineer. Lateral wind forces for the temporary conditions shall be considered in accordance with AREMA, Chapter 8, Section 28.6.2. The minimum lateral wind pressure shall be fifteen pounds per square foot (15 psf).

F. Existing, obsolete, bridge piers shall be removed to a minimum of three feet (3'-0") below the finished grade, final ditch line invert, or as directed by the Engineer.

G. A minimum quantity of twenty five (25) tons of CSX approved granite track ballast may be required to be furnished and stockpiled on site by the Contractor, or as directed by the Engineer.

H. The use of acetylene gas is prohibited for use on or over CSX property. Torch cutting shall be performed utilizing other materials such as propane.

I. CSX's tracks, signals, structures, and other facilities shall be protected from damage during demolition of existing structure or replacement of deck slab.

J. Demolition Debris Shield

1. On-track or ground-level debris shields (such as crane mats) are prohibited for use by CSX.

2. Demolition Debris Shield shall be installed prior to the demolition of the bridge deck or other relevant portions of the structure. The demolition debris shield shall be erected from the underside of the bridge over the track area to catch all falling debris. The debris shield shall not be the primary means of debris containment.

i. The demolition debris shield design and supporting calculations, all signed/sealed by a Professional Engineer, shall be submitted for review and acceptance.

ii. The demolition debris shield shall have a minimum design load of 50 pounds per square foot (50 psf) plus the weight of the equipment, debris, personnel, and all other loads.

iii. The Contractor shall verify the maximum particle size and quantity of the demolition debris generated during the procedure does not exceed the shield design loads. Shield design shall account for loads induced by particle impact; however the demolition procedure shall be such that impact forces are minimized. The debris shield shall not be the primary means of debris containment.

iv. The Contractor shall include installation/removal means and methods for the demolition debris shield as part of the proposed Controlled Demolition procedure submission.

v. The demolition debris shield shall provide twenty three feet (23'-0") minimum vertical clearance, or maintain the existing vertical clearance if the existing clearance is less than twenty three feet (23'-0").

vi. Horizontal clearance to the centerline of the track should not be reduced unless approved by the Engineer.

vii. The Contractor shall clean the demolition debris shield daily or more frequently as dictated either by the approved design parameters or as directed by the Engineer.

K. Vertical Demolition Debris Shield

1. This type of shield may be required for substructure removals in close proximity to CSX track and other facilities, as determined by the Engineer.

2. The Agency or its Contractor shall submit detailed plans with detailed calculations, prepared, signed, and sealed by a Professional Engineer, of the protection shield.

V. ERECTION PROCEDURE

A. The Agency or its Contractor shall submit a detailed procedure for erection of a structure with Potential to Foul. The erection procedure must be approved by the Engineer prior to beginning work on the project.

B. Erection work plans shall include a schematic plan depicting the following, at all stages of the construction:

1. All proposed locations of all cranes and equipment, calling out the operating radii.

2. All proposed access and staging locations with all dimensions referenced from the center line of the nearest track.

3. All proposed locations for stockpiling material or locations for truck loading.

4. The location, with relevant dimensions, of all tracks, other railroad facilities; wires, poles, adjacent structures, or buried utilities that could be affected, showing that the proposed lifts are clear of these obstructions.

C. No crane or equipment may be set on the CSX rails or track structure and no material may be dropped on CSX property.

D. For erection of a structure over the tracks, the following information shall be submitted for review and acceptance by the Engineer, at least thirty (30) days prior to erection:

1. As-built beam seat elevations – field surveyed upon completion of pier/abutment construction.

2. Current Top of Rail (TOR) elevations – field measured at the time of as-built elevation collection.

3. Computations verifying the anticipated minimum vertical clearance in the final condition which accounts for all deflection and camber, based upon the current TOR and as-built beam seat elevations. The anticipated minimum

vertical clearance shall be greater than or equal to that which is indicated by the approved plans. Vertical clearance (see definitions) is measured from TOR to the lowest point on the overhead structure at any point within six feet (6'-0") from centerline of the track. Calculations shall be signed and sealed by a Professional Engineer.

E. Girders or girder systems shall be stable at all times during erection. No crane may unhook prior to stabilizing the beam or girder.

1. Lateral wind forces for the temporary conditions shall be considered in accordance with AREMA, Chapter 8, Section 28.6.2. The minimum lateral wind pressure shall be fifteen pounds per square foot (15 psf).

2. Temporary bracing shall be provided at the piers, abutments, or other locations to resist overturning and/or buckling of the member(s). The agency shall submit a design and details of the proposed temporary bracing system, for review by the Engineer.

3. Temporary bracing shall not be removed until sufficient lateral bracing or diaphragm members have been installed to establish a stable condition. Supporting calculations, furnished by the Professional Engineer, shall confirm the stable condition.

F. Erection procedure submissions shall also include the following information:

1. All hoisting details, as dictated by Section III of this document.

2. A time schedule for each of the various stages must be shown as well as a schedule for the entire lifting procedure. The proposed time frames for all critical subtasks (i.e., performing aerial splices, installing temporary bracing, installation of diaphragm members, etc.) shall be furnished so that the potential impact(s) to CSX operations may be assessed and eliminated or minimized.

3. The names and experience of the key Contractor personnel involved in the operation shall be included in the Contractor's means and methods submission.

4. A guardrail will be required to be installed in a track in the proximity of temporary bents or shoring towers, when located within twelve feet (12'-0") from the centerline of the track. The guardrail will be installed by CSX forces, at the expense of the Agency or its Contractor.

5. Design and supporting calculations prepared by the Professional Engineer for items including the temporary support of components or intermediate stages shall be submitted for review.

VI. TEMPORARY EXCAVATION AND SHORING

A. The Agency or its Contractor shall submit a detailed design and procedure for the installation of a sheeting/shoring system adjacent to the tracks. Shoring protection shall be provided when excavating with Potential to Foul, or as otherwise determined by CSX. Shoring shall be provided in accordance with the AREMA, except as noted below.

B. Shoring may not be required if all of the following conditions are satisfied:

1. The excavation does not encroach within the Theoretical Live Load Influence Zone. Please refer to Figure 1.

2. The track structure is situated on level ground, or in a cut section, and on stable soil.

3. The excavation does not adversely impact the stability of a CSX facility (i.e., signal bungalow, drainage facility, undergrade bridge, building, etc), or the stability of any structure on, over, or adjacent to CSX property with potential to foul.

4. Shoring is not required by any governing federal, state, local or other construction code.

C. Shoring is required when excavating the toe of an embankment. Excavation of any embankment which supports an active CSX track structure without shoring will not be permitted.

D. Trench boxes are not an acceptable means of shoring. Trench boxes are prohibited for use on CSX property or within the Theoretical Railroad Live Load Influence Zone.

E. Shoring shall be a cofferdam-type, which completely encloses the excavation. However, where justified by site or work conditions, partial cofferdams with open sides away from the track may be permissible, as determined by the Engineer.

F. Cofferdams shall be constructed using interlocking steel sheet piles, or when approved by the Engineer, steel soldier piles with timber lagging. Wales and struts shall be included when dictated by the design.

G. The use of tiebacks can be permissible for temporary shoring systems, when conditions warrant. Tiebacks shall have a minimum clear cover of 6'-0", measured from the bottom of the rail. Upon completion of the work, tiebacks shall be grouted, cut off, and remain in place.

H. All shoring systems on, or adjacent to CSX right-of-way, shall be equipped with railings or other fall protection, compliant with the governing federal, state or local requirements. Area around pits shall be graded to eliminate all potential tripping hazards.

I. Interlocking steel sheet piles shall be used for shoring systems qualifying one or more of the following conditions:

1. Within 18'-0" of the nearest track centerline
2. Within the live load influence zone
3. Within slopes supporting the track structure
4. As otherwise deemed necessary by the Engineer.

J. Sheet piles qualifying for one or more of the requirements listed in Section VI.I (above) of this document shall not be removed. Sheet piles shall be left in place and cut off a minimum of 3'-0" below the finished grade, the ditch line invert, or as otherwise directed by the Engineer. The ground shall be backfilled and compacted immediately after sheet pile is cut off.

K. The following design considerations shall be considered when preparing the shoring design package:

1. Shoring shall be designed to resist a vertical live load surcharge of 1,880 lbs. per square foot, in addition to active earth pressure. The surcharge shall be assumed to act on a continuous strip, eight feet six inches (8'-6") wide. Lateral pressures due to surcharge shall be computed using the strip load formula shown in AREMA Manual for Railway Engineering, Chapter 8, Part 20.

2. Allowable stresses in materials shall be in accordance with AREMA Chapter 7, 8, and 15.3.

3. A minimum horizontal clearance of ten feet (10'-0") from centerline of the track to face of nearest point of shoring shall be maintained, provided a twelve feet (12'-0") roadbed is maintained with a temporary walkway and handrail system.

4. For temporary shoring systems with Potential to Foul, piles shall be plumb under full dead load. Maximum deflection at the top of wall, under full live load, shall be as follows:

i. One-half (1/2) inch for walls within twelve feet (12'-0") of track centerline (Measured from centerline of the nearest track to the nearest point of the supporting structure).

ii. One (1) inch for walls located greater than twelve feet (12'-0") from track centerline

L. Shoring work plans shall be submitted in accordance with Section II of this document, as well as the following additional requirements:

1. The work plan shall include detailed drawings of the shoring systems calling out the sizes of all structural members, details of all connections. Both plan and elevation drawings shall be provided, calling out dimensions from the face of shoring relative to the nearest track centerline. The elevation drawing shall also show the height of shoring, and track elevation in relation to bottom of excavation.

2. Full design calculations for the shoring system shall be furnished.

3. A procedure for cutting off the sheet pile, backfilling and restoring the embankment.

VII. TRACK MONITORING

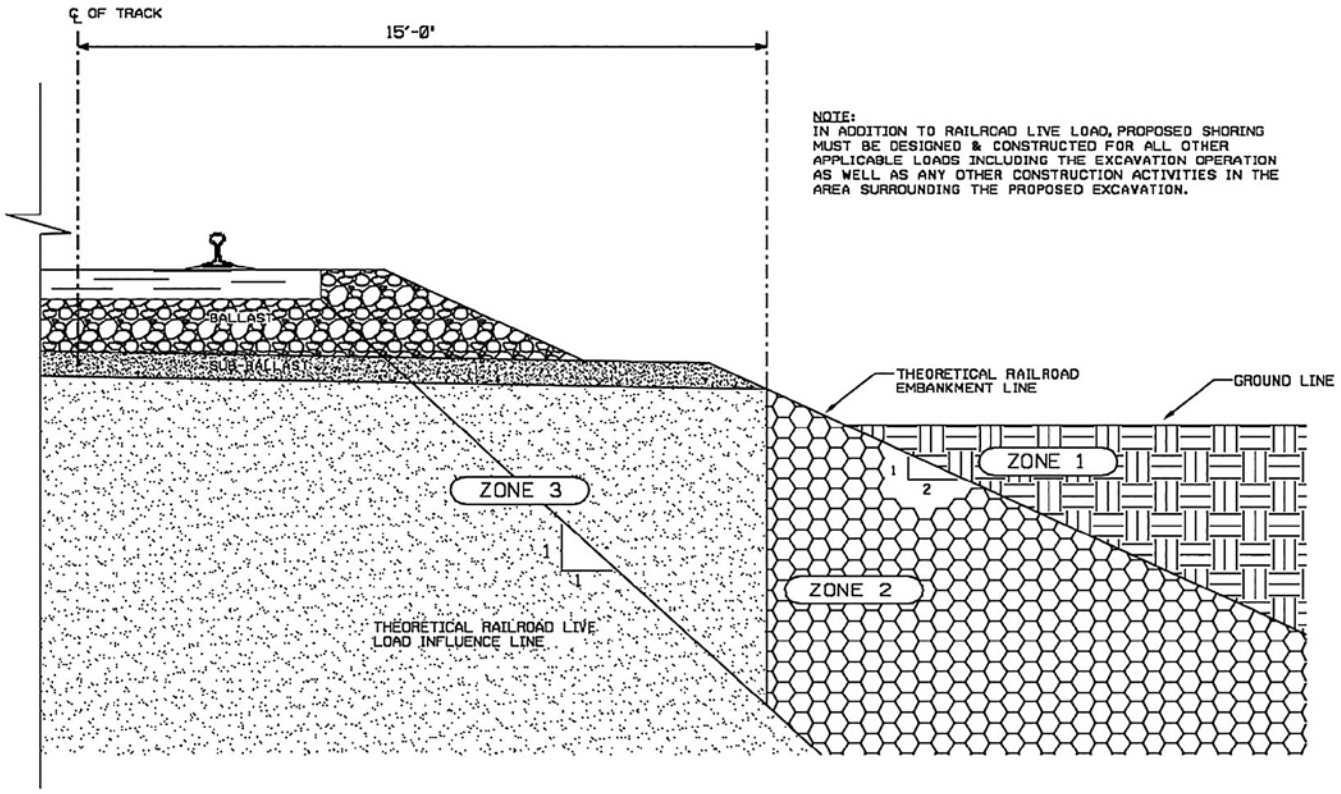
A. When work being performed has the potential to disrupt the track structure, a work plan must be submitted detailing a track monitoring program which will serve to monitor and detect both horizontal and vertical movement of the CSX track and roadbed.

B. The program shall specify the survey locations, the distance between the location points, and frequency of monitoring before, during, and after construction. CSX reserves to the right to modify the survey locations and monitoring frequency as necessary during the project.

C. The survey data shall be collected in accordance with the approved frequency and immediately furnished to the Engineer for analysis.

D. If any movement has occurred as determined by the Engineer, CSX will be immediately notified. CSX, at its sole discretion, shall have the right to immediately require all contractor operations to be ceased, have the excavated area immediately backfilled and/or determine what corrective action is required. Any corrective action required by CSX or performed by CSX including the monitoring of corrective action of the contractor will be at project expense.

FIGURE 1: Theoretical Live Load Influence Zone



NORMAL REQUIREMENTS FOR SHORING ADJACENT TO TRACK

ZONE 1 - EXCAVATIONS ABOVE AND OUTSIDE OF THE THEORETICAL RAILROAD EMBANKMENT LINE - DO NOT NORMALLY REQUIRE SHORING TO PROTECT RAILROAD ROADBED, SHORING MAY BE REQUIRED FOR OTHER REASONS.

ZONE 2 - EXCAVATIONS WHOSE BOTTOMS EXTEND INTO ZONE 2 REQUIRE SHORING, BUT THE SHORING MAY NORMALLY BE PULLED AFTER THE EXCAVATION HAS BEEN BACKFIELD.

ZONE 3 - EXCAVATIONS WHOSE BOTTOMS EXTEND INTO ZONE 3 WILL NORMALLY REQUIRE THE SHORING TO BE LEFT IN PLACE AND CUT-OFF 3' BELOW BASE OF RAIL. SHORING MUST BE DESIGNED FOR COOPER E80 LIVE LOAD

APPENDIX

CSX TRANSPORTATION

DRAINAGE CRITERIA

Public Projects Group
Jacksonville, FL
Date Issued: September 2024

INTRODUCTION

SECTION I: Definitions

SECTION II: CSX General Design Requirements

SECTION III: Plans

SECTION IV: Calculations & Reports

SECTION V: Construction Specifications

INTRODUCTION

CSX owns its right-of-way for the primary purpose of operating a railroad. All drainage occupancies shall therefore be designed and constructed so that rail operations and facilities are not interfered with, interrupted, or endangered. In addition, the proposed facility shall be located to minimize encumbrance to the right-of-way so that the railroad will have unrestricted use of its property for current and future operations. No drainage shall be directed towards CSX Right of Way.

The CSX Design & Construction Standard Specifications for Pipelines, last revised June 5, 2018 shall serve as the overarching authority for recommended practice in providing sufficient drainage and protective measures for projects on CSX property. The intent of this document is to provide criteria which supplements, modifies and/or supersedes the applicable sections of the AREMA Manual when designing a project which can affect drainage on or about the CSX ROW. Additionally, these requirements help guide an outside party through the necessary procedures for interacting with CSX and delivering an acceptable design.

I. DEFINITIONS

1. Agency – The project sponsor (i.e., State DOT, Local Agencies, Private Developer, etc.)

2. AREMA – American Railway Engineering and Maintenance-of-Way Association – the North American railroad industry standards group. The use of this term shall be in specific reference to the AREMA Manual for Railway Engineering.

3. Construction Submission – The Agency or its representative shall submit electronic plans and 1 hard copy, supporting calculations, and detailed means and methods procedures for the specific proposed activity. All plans, specifications, and supporting calculations shall be signed/sealed by a Professional Engineer as defined below.

4. Controlled Demolition – Removal of an existing structure or subcomponents in a manner that positively prevents any debris or material from falling, impacting, or otherwise affecting CSX employees, equipment or property. Provisions shall be made to ensure that there is no impairment of railroad operations or CSX's ability to access its property at all times.

5. Contractor – The Agency's representative retained to perform the project work.

6. Engineer – CSX Engineering Representative or a GEC authorized to act on the behalf of CSX.

7. Flagman – A qualified CSX employee with the sole responsibility to direct or restrict movement of trains, at or through a specific location, to provide protection for workers.

8. GEC – General Engineering Consultant who has been authorized to act on the behalf of CSX. GECs perform preliminary engineering, construction inspection, and monitoring under the direction of the CSX Engineering personnel. GEC personnel also perform day-to-day administration of certain types of projects.

9. Horizontal Clearance – Distance measured perpendicularly from centerline of any track to the nearest obstruction at any elevation between TOR and the maximum vertical clearance of the track.

10. Professional Engineer – An engineer who is licensed in State or Commonwealth in which the project is to occur. All plans, specifications, and supporting calculations shall be prepared by the Professional Engineer and shall bear his seal and signature.

11. Potential to Encroach – Work having the possibility of impacting CSX property or operations; defined as one or more of the following:

a. Any activity where access onto CSX property is required.

b. Any activity where work is being performed on CSX ROW.

c. Any excavation work adjacent to CSX tracks or facilities, within the Theoretical Railroad Live Load Influence Zone, or where the active earth pressure zone extends within the CSX property limits.

d. The use of any equipment where, if tipped and laid flat in any direction (360 degrees) about its center pin, can encroach within twenty five feet (25'-0") of the nearest track centerline. This is based upon the proposed location of the equipment during use, and may be a function of the equipment boom length. Note that hoisting equipment with the potential to foul must satisfy the 150% factor of safety requirement for lifting capacities.

e. Any work where the scatter of debris or other materials has the potential to encroach within twenty five feet (25'-0") of the nearest track centerline.

f. Any work where significant vibration forces may be induced upon the track structure or existing structures located under, over, or adjacent to the track structure.

g. Any other work which poses the potential to disrupt rail operations, threaten the safety of railroad employees, or otherwise negatively impact railroad property, as determined by CSX.

12. ROW – Right of Way; Refers to CSX Right-of-Way as well as all CSX property and facilities. This includes all aerial space within the property limits, and any underground facilities.

13. Submission Review Period - A minimum of 30 days will be required for the initial review response. Up to an additional 30 days may be required to review any/all subsequent submissions or resubmission.

14. Theoretical Railroad Live Load Influence Zone – A 1 horizontal to 1 vertical theoretical slope line starting at bottom corner of tie.

15. TOR – Top of Rail. This is the base point for clearance measurements. It refers to the crown (top) of the steel rail; the point where train wheels bear on the steel rails. Use the higher of the two rails when track is superelevated.

16. Track Structure – All load bearing elements which support the train. This includes, but is not limited to, the rail, ties, appurtenances, ballast, sub-ballast, embankment, retaining walls, and bridge structures.

17. Vertical Clearance – Distance measured from TOR to the lowest obstruction, within six feet (6'-0") of the track centerline, in either direction.

II. CSX GENERAL DESIGN REQUIREMENTS

A. Refer to CSX's Design & Construction Standard Specifications for Pipeline Occupancies, last dated June 5, 2018, for the design requirements for all pipes and drainage structures under the railroad.

B. All pipes, ditches, and other structures carrying surface drainage on CSX property and/or under CSX track(s) shall be designed to carry the run-off from the 100-year, 24-hour design storm without ponding of water against the roadbed.

C. Pipe(s) used to carry surface drainage on CSX's right-of-way shall have a minimum diameter of 36 inches (36").

D. When calculating the capacity of existing or proposed drainage structures, under CSX's track(s), the headwater calculation at the structure shall not be greater than one (1):

$HW/D \leq 1.$

E. Rate and quantity of storm water runoff from any proposed development shall not exceed the rate and quantity of runoff prior to development. This standard shall be maintained for all design storms up to the 100-year storm event.

F. Pipes (casing or carrier) placed under CSX tracks shall not be less than 5.5 (5½'-0") feet from base of rail to top of pipe at its shallowest point.

G. Pipelines laid longitudinally on CSX's right-of-way, 50 feet (50'-0") or less from centerline of track shall be buried not less than 4 feet (4'-0") from ground surface to top of pipe. Where the pipeline is laid more than 50 feet (50'-0") from centerline of track, the minimum cover shall be at least 3 feet (3'-0").

H. Erosion prevention methods shall be used to protect railroad ditches and other drainage facilities during construction on and adjacent to CSX's right-of-way.

I. Permanent erosion and sediment pollution control facilities shall be designed for the 100-year storm. Provide calculations and details of any riprap outlet protection and channel linings as needed within CSX right-of-way.

J. Pipes and culverts within the live load influence shall conform to current AREMA Recommendations and ASTM Specifications. All such structures shall be designed to carry Cooper's E-80 loading with diesel impact. Refer to CSX's Design & Construction Standard Specifications for Pipeline Occupancies approved material types and specifications.

K. CSX right-of-way shall not be utilized for retention, detention or settling basins. Also, the railroad embankment must not be used as any part of a detention pond structure.

L. Track roadbed fills shall not be used as dams or levees for retention of runoff.

M. Temporary sediment basins/traps shall not be constructed against track roadbed fill.

N. Formal approval of the proposed design, by the appropriate governmental agency having jurisdiction, shall be submitted to CSX for their review and acceptance.

O. Pipes and culverts are not to be located within the limits of a turnout or nor closer than 45 feet (45'-0") to any railroad bridge, building or any other important structure.

P. When excavation for a pipeline or other structure will be within the theoretical railroad embankment line of an adjacent track, interlocking steel sheet piling will be required to protect the track(s). Trench Boxes are prohibited for use on CSX within the Theoretical Railroad Live Load Influence Zone. Please refer to the CSX Transportation, Construction Submission Criteria for further details regarding sheeting.

Q. Blasting is not permitted on or adjacent to CSX right-of-way without prior written approval from the Chief Engineer – Design & Construction.

R. Crossing of tracks at grade by equipment and personnel is prohibited except by prior arrangement with and as directed by, CSX.

S. Temporary Track Supports may be required when jacking, boring or tunneling method of installation is used, and depending upon the size and location of the drainage crossing. The Agency's contractor shall furnish and supply the CSX approved track supports, with the installation and removal performed by CSX employees. The Agency shall reimburse CSX for all costs associated with the installation and removal of the track supports.

T. Plans submitted to CSX for approval shall be prepared by a Professional Engineer and should indicate design, suitable topographic plan, and outline of total drainage area.

U. If the drainage is to discharge into an existing drainage channel on CSX's right-of-way and/or through a drainage structure under CSX's track(s), the computations must include the hydraulic analysis of any existing ditch and/or structure.

V. Extension of pipes, culverts and other drainage structures previously installed under CSX owned track shall be made with culvert or drainage structure having the same size, shape, and dimensions, as the existing pipe. In no case shall the existing drainage structure be extended so that the hydraulic capacity is decreased or obstructed. In some cases, it may be necessary to extend existing outlets with pipe or culvert of a larger size. Details of connections to mismatched culverts shall be submitted for CSX approval.

W. Agency may be required to provide corrective measures to alleviate an existing drainage problem within CSX property which may be affected by the proposed development. It shall be the responsibility of the Agency to obtain all drainage easements and permits. CSX shall be indemnified and held harmless of any liability.

X. Agency is to provide information on groundwater recharge if infiltration is proposed adjacent to CSX property. Soils testing and certification by a registered professional engineer shall be required.

Y. Emergency spillways discharging onto CSX property are to be designed and constructed so that the basin berm is protected against erosion.

Z. Energy dissipating devices are to be placed at all outlets discharging to CSX property.

AA. Concrete end walls shall be placed at outlets discharging to CSX property. All concrete outlet pipes on CSX property must be equipped with a trash rack.

BB. Under no conditions shall any person be allowed to modify, alter or change a previously approved storm water management (SWM) facility discharging to CSX property unless an approved alternate facility is approved by CSX.

CC. Design of the drainage system, including alterations of the existing drainage system on CSX right-of-way, is the responsibility of the Agency. Drainage shall not be diverted, directed toward CSX, or increased in quantity without prior approval and agreement with CSX.

DD. Supporting calculations must be provided for all proposed drainage and storm water management facilities that discharge onto or impact CSX property.

EE. Occupancies shall be designed, and their construction shall be accomplished, so that adequate and uninterrupted drainage of CSX's rights-of way is maintained.

FF. If, in the course of construction, it may be necessary to block a ditch, pipe, or other drainage facility, temporary pipes, ditches, or other proposed drainage facilities shall be installed to maintain adequate drainage, as approved by CSX. Upon completion of the Project, the temporary facilities shall be removed and the permanent facilities restored.

GG. Temporary and permanent erosion control and sedimentation (E&S) devices must be provided to prevent the flow of sediment onto and adjacent to CSX property.

HH. The design shall take into account and provide upstream areas within the entire watershed in computing discharge, sizing of pipes, inlets, and other structures.

II. When applicable, Agency is to provide maintenance and operation of E&S/Storm water facilities.

III. PLANS

A. Plans shall include the following, but not limited to:

1. Existing property boundaries, easements, etc.

2. Existing drainage features and topography

3. Existing utility locations

4. Existing structures, tracks, roads, features, etc.

5. Existing topography including wetlands and all environmental features

6. Delineate & Dimension proposed property acquisition or property easements

7. Dimension distances from all temporary and proposed E&S and storm water management facilities to CSX's property line and/or easement

8. Dimension distances from all temporary and proposed E&S and storm water management facilities to CSX's tracks

9. Dimension all temporary and proposed encroachments within CSX's property

10. Show existing contours

11. Provide TOR elevations

12. Provide proposed contours, site grading and drainage facilities

13. Provide proposed improvements, including easements and property lines and limit of disturbance

14. Details for all temporary and proposed drainage structures, SWM and E&S Best Management Practices (BMP) devices

15. Detail proposed E&S, SWM, drainage collection & conveyance systems (pipes, ditches, etc.)

    i. Provide location, size, slope & type of pipe.

    ii. Ditch cross sections

    iii. Invert elevations

    iv. Grate and rim elevations

16. If applicable, identify the 100-year floodplain if project is within a specified flood zone.

17. Provide E&S Plans in compliance with all State and Local requirements.

18. Seal and signature of a Professional Engineer who is licensed in the Commonwealth, District, Province, or State in which the project is to occur.

IV. CALCULATIONS & REPORTS

A. Design Calculations:

1. Pre and post development Drainage Area Maps

    i. Provide soils boundary lines & soil types

    ii. Delineate drainage areas

    iii. Time of Concentration (Tc) flow path

    iv. Provide weighted CN and c-values (as applicable to design method)

2. Pre-development 100-year runoff volume and flows for all facilities draining to or on CSX ROW

3. Post-development 100-year runoff volume and flows for all facilities draining to or on to CSX ROW

    i. Verify no increase in rate or quantity of runoff to CSX property from Pre-Development conditions

    ii. Provide hydraulic analysis (depth and velocity calculations) for all facilities draining to or on CSX ROW (existing and proposed) and verify sufficient capacity for proposed flow is provided.

4. Design of proposed collection & conveyance systems (pipes, ditches, etc.)

    i. CSX requires capacity for a 100-year, 24 hour storm

    ii. CSX requires a minimum diameter of 36-inches for pipes within CSX ROW

5. Provide all temporary and permanent E&S and SWM BMP calculations

6. Seal and signature of a Professional Engineer who is licensed in the Commonwealth, District, Province, or State in which the project is to occur.

B. Project narrative/summary describing proposed improvements, drainage design, SWM and E&S methodologies, site soil and geological conditions (if known), flooding characteristics (if applicable) and State and Local requirements used to produce designs.

C. Recommended: Photographs of the site and adjacent CSX property, as well as discharge locations and drainage facilities on CSX property to receive runoff from the proposed development.

V. CONSTRUCTION SPECIFICATIONS

A. Construction shall be in accordance to the CSX Design & Construction Standard Specifications for Pipeline Occupancies, last revised June 5, 2018 or latest revision, under the Construction Requirements section.

B. All work on or near CSX property shall be conducted in accordance with CSX safety rules and regulations. Specifically all Agency's employees and Contractors, while on CSX property, shall be required to wear a hard hart, safety glasses with side shields, 6" lace up boots with a distinct heel, shirts with sleeves, and long pants; additional personal protective equipment may be required based on certain operations. The Contractor and its employees shall comply with the CSX safety rules at all times while occupying CSX's property. Operations will be subject to CSX inspection at any and all times. All personnel operating equipment must be qualified on it to perform task at hand.

C. For the installation of temporary or permanent shoring systems, including but not limited to soldier piles and lagging, and interlocked steel sheeting on or adjacent to CSX's right-of-way, the contractor may be required to submit a detailed track monitoring program for CSX's approval prior to performing any work near CSX's right-of-way. Please refer to CSX Transportation, Construction Submission Criteria for additional information.

D. When water is known or expected to be encountered all plans and specifications must be submitted to the Engineer for approval before the process begins. Pumps of sufficient capacity to handle the flow shall be maintained at the site, provided the contractor has received approval from CSX to operate them. Pumps in operation shall be constantly attended on a 24-hour basis until, in the sole judgment of CSX, the operation can be safely halted. When dewatering, a process for monitoring for any settlement of track or structures must be in place.

E. If any track movement has occurred as determined by the Engineer, CSX will be immediately notified. CSX, at its sole discretion, shall have the right to immediately require all contractor operations to be ceased, have the excavated area immediately backfilled and/or determine what corrective action is required. Any corrective action required by CSX or performed by CSX including the monitoring of corrective action of the contractor will be at project expense.

F. Installation by the open cut method is not approved under CSX's mainline tracks, tracks carrying heavy tonnage or tracks carrying passenger trains. Also, open cut shall not be used within the limits of a highway/railroad grade crossing or its approaches, 25 feet (25'-0") either side of traveled way, where possible.

APPENDIX

CSX TRANSPORTATION

SOIL AND WATER MANAGEMENT POLICY

Public Projects Group
Jacksonville, FL
Date Issued: September 2024

Any CSX environmental costs associated with a public project shall be borne by the Agency.

Public projects that generate soils from CSX property must adhere to CSX's soil management policies. CSX requires soils generated from its property to either be properly disposed in a CSX approved disposal facility or reused on CSX property. The management of soils generated from CSX property should be planned for and properly permitted (if applicable) prior to initiating any work on CSX property.

- Soil Reuse: CSX Environmental Department must review and approve reuse of soil on CSX property.

- Soil Disposal: If the soil cannot be reused on CSX property, it must be properly disposed at a CSX approved disposal facility. CSX prohibits any contractor from taking soils for off property reuse. CSX Environmental Department will handle waste characterization and profiling into an approved disposal facility. CSX prohibits any environmental sampling on its property unless granted through a written Environmental Right of Entry or approved in writing by the CSX Environmental Department. For access or right-of-entry issues for outside parties (Right-of-Entry) on CSX property please see: https://www.csx.com/index.cfm/customers/value-added-services/property-real-estate/. All analytical analyses must be completed at a CSX approved laboratory.

If Agency has arrangements with a disposal facility not approved by CSX, Agency can request CSX to evaluate the disposal facility. Request to evaluate alternate disposal facilities should take place prior to work being initiated on CSX property. Contact the CSX Manager Environmental Programs at (904) 366-4174 for assistance.

- If dewatering is planned for a public project, CSX Environmental Department must review and approve the dewatering plan prior to work being initiated on CSX property. CSX prohibits the discharge of water onto its property without prior approval. CSX prohibits environmental sampling of groundwater or surface water unless granted through a written Environmental Right of Entry or approved in writing by the CSX Environmental Department. Contact the Manager Environmental Programs at (904) 359-4833 for assistance.

All waste must be removed from the project site in a timely manner. It is the policy of CSX that all materials discarded by or on behalf of CSX will be managed in accordance with local, state and federal regulations as well as CSX's best management practices and sustainability goals. To ensure that these goals are achieved, CSX has mechanisms in place to monitor waste management activities, capture the information necessary to ensure 100% compliance with local, state and federal requirements 100% of the time, and track progress in the CSX sustainability program. These mechanisms also allow CSX to complete reporting requirements to federal and state regulatory agencies and document CSX's progress toward its sustainability goals.

Prior to disposal, recycling, or reuse, a CSX authorization number for transportation and disposal of all waste types (i.e. – hazardous, non-hazardous, special, etc.) must be obtained from the CSX Manager Environmental Programs and included on the disposal manifest or Bill of Lading (BOL). Promptly forward completed hazardous waste, non-hazardous waste, special waste manifests, BOLs, analytical, and profiles to the CSX Project Manager with copies to CSX's Manager Environmental Programs to wastedisposal@csx.com.

Containment system, clean up and disposal of all paint and other material removed from a bridge: The clean-up and disposal of material from the surface preparation for painting and the actual painting must comply with all appropriate regulations and CSX's policies and procedures. The materials removed during the surface preparation must not impact the surrounding area including ground, water, or air impacts. Materials must not be stored on CSX property.

A list of the CSX approved laboratories and disposal/recycling facilities can be obtained from the Manager Environmental Programs at wastedisposal@csx.com.


CSX

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DOCUMENT A00808

PROJECT UTILITY COORDINATION FORM

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Is 'enabling' (prep) work, by the Contractor, necessary prior to the start of the first series of utility relocations:	Yes	No
	X	

Has any of the Utility work been identified to work concurrently	Yes	No
		X

8/17/2026
PRINTED

massDOT Massachusetts Department of Transportation Highway Division

Proposal No. 607420-136650

A00808 - 3

RESPONSIBLE PARTY: C = Contractor	RESPONSIBLE PARTY: U = Utility Co.	DESCRIPTION - Utility Relocation Phases, Tasks and Activities	Estimated Duration (Work Days) by Utilities (Lead time not included)	Concurrent / Exclusive Utility Work: Exclusive Utility on site — Utility working with no other Utilities in vicinity	Concurrent / Exclusive Utility Work: Concurrent Utilities — Utility working with other Utilities on site	Concurrent / Exclusive Utility Work: Contractor Off-Site — No Contractor physical construction operations on-site (while Utility is working)	Concurrent / Exclusive Utility Work: Contractor Concurrent — Contractor and Utility are working on-site - but NOT in the same vicinity	Access Restraint & Limitations of Operations Notes: Potential Access Restraint (Yes/No)	Access Restraint & Limitations of Operations Notes: Reason/Note (optional)
		Contractor note: In planning and executing the work, the information in these 4 columns is intended to supplement any related Access Restraints that are described in the Special Provisions.						Should an AR be considered for the Contractor ?	
C		Enabling' work by the Contractor - Schedule a utility walk-through after pre-construction meeting. Complete test pits to locate MWRA sewer lines & install geotechnical monitoring equipment, as shown in the plans and outlined in the Special Provisions and 8M Investigative Permit included in the contract. Upon verification of sewer line locations, MassDOT Design Engineer to complete final design of soldier pile & lagging retaining walls, and submit subsequent 8M Permit for approval of wall construction in the vicinity of MWRA sewer lines. Subsequent 8M Permit to be submitted by Design Engineer after test pits to the east of Boden Lane are completed. It is anticipated, but not certain, that MWRA will grant conditional approval for design of western retaining walls prior to test pits on west side of Boden Lane (exact location of sewer lines to west of Boden Lane to be verified prior to construction). Contractor to construct eastern retaining walls after completion of the test pits to the east of Boden Lane. Construction of the western retaining wall may begin upon verification of MWRA sewer line locations & placement of geotechnical monitoring devices via test pits on western side of Boden Lane. If MWRA will not grant conditional approval of western retaining wall based on test pits to the east of Boden Lane only, an additional 8M Permit must be submitted by Design Engineer & approved by MWRA following test pits to the west of Boden Lane prior to construction of western retaining walls. The retaining walls along the east side of Boden Lane need to be constructed prior to relocation of utility poles. Coordinate with MassDOT Survey to locate pole locations. "Caissons" are to be installed for the utility poles placed closest to the bridge on either side, at approximately STA. 14+13 RT & STA. 15+88 RT, to protect them during installation of the highway guardrail transitions. Contractor to begin access coordination with MBTA immediately after NTP. Coordinate with MBTA/Keolis for relocation of service lines running from UPL 20 to handhole at track level. Coordinate relocation of PTC cables (attached to existing north abutment), bungalow, power case & salt storage bin (located near existing south abutment) with MBTA/Keolis prior to bridge demolition. Contractor is to install both temporary & permanent conduit for PTC cable, Keolis will pull & splice fiber. Contractor is responsible for the relocation of existing & installation of new street lights mounted to utility poles per Town of Natick specifications.							
		OVERHEAD OPERATIONS							
Task: 1		***Eversource Electric***							
	U	Relocate 4 poles	8	X			X	N	
	U	Install 1 new pole	2	X			X	N	
	U	Replace 1 pole with associated pushbrace	2	X			X	N	
	U	Install ancors with guys in 7 locations	5	X			X	N	
	U	Install 3-477 spacer six sections (831')	6	X			X	N	
	U	Remove 5 sections of 3-1/0Al spacer five sections (794')	2	X			X	N	
	U	Install 6 sections of 3x4/0Al secondary (831')	3	X			X	N	
	U	Remove 5 sections of 3x3/0Al secondary (794')	1	X			X	N	
	U	Relocate one loadbreak switch	2	X			X	N	
	U	Relocate one set of underslungs	1	X			X	N	
	U	Relocate one overhead transformer	2	X			X	N	
	U	Secondary breaker work as specified	1	X			X	N	
	U	Switching	1	X			X	N	
		Sub-Total	**36**						
Task: 2		***Astound/RCN***							
	U	Rebuild Coax	6	X			X	N	
	U	Replace 24 & 96 Fiber	6	X			X	N	
	U	Wreck Out	3	X			X	N	
		Sub-Total	**15**						
Task: 3		***Comcast***							
	U	Scheduling MBTA flagger for strand / coaxial work	6	X			X	N	
	U	Building strand and lashing coaxial cable and conduit sleeve over railroad	4	X			X	N	
	U	Cutting over new aerial coaxial plant (Nigth Time cut)	4	X			X	N	
	U	Delashing of aerial fiber spans and prepping for fiber swing	2	X			X	N	
	U	Scheduling MBTA flagger for fiber work	8	X			X	N	
	U	Relashing of aerial Fiber to support strand / coaxial cable.	8	X			X	N	
	U	Scheduling MBTA flagger for fiber work	8	X			X	N	
	U	Wreckout of old aerial strand / coaxial / fiber spans	7	X			X	N	
		Sub-Total	**47**						
Task: 4		***Verizon Business/MCI***							
	U	Place aerial cable	5	X			X	N	
	U	Splice	2	X			X	N	
	U	Remove old cable	1	X			X	N	
		Sub-Total	**8**						
Task: 5		***Verizon***							
	U	Verizon to place new strand and guying and rod and rope	6	X			X	N	

Proposal No. 607420-136650

A00808 - 4

	RESPONSIBLE PARTY		DESCRIPTION - Utility Relocation Phases, Tasks and Activities	Estimated Duration (Work Days) by Utilities (Lead time not included)	Concurrent / Exclusive Utility Work Contractor note: In planning and executing the work, the information in these 4 columns is intended to supplement any related Access Restraints that are described in the Special Provisions.				Access Restraint & Limitations of Operations Notes Should an AR be considered for the Contractor ?	
					Exclusive Utility on site	Concurrent Utilities	Contractor Off-Site	Contractor Concurrent		
	C = Contractor	U = Utility Co.			Utility working with no other Utilities in vicinity	Utility working with other Utilities on site	No Contractor physical construction operations on-site (while Utility is working)	Contractor and Utility are working on-site - but NOT in the same vicinity	Potential Access Restraint (Yes/No)	Reason/Note (optional)
		U	verizon to place new fiber cables	4	X			X	N	
		U	Verizon to splice new fiber cables and trim out old cables	10	X			X	N	
		U	Verizon to remove old copper and fiber cable	10	X			X	N	
		U	Verizon to remove old guying	1	X			X	N	
		U	Verizon to remove old poles	5	X			X	N	
			Sub-Total	**36**						
	C		Enabling' work by the Contractor - Ensure that electric lines spanning the MBTA tracks are de-energized prior to beginning bridge work. Construct new bridge as shown in plans. Existing 10" CI water main being carried by the temp. pedestrian bridge is to remain active until proposed 10" DI water main is installed, and active, on the new bridge. Once deactivated, existing water main may then be removed & disposed of as part of bridge demolition. Coordinate with Eversource Gas for required utility supports on new bridge. Eversource Gas to supply 4" gas pipe, 6" steel casing, roller system, link seals, rubber end seals & other gas-related materials for connection to bridge. Contractor to install roller system and supply & install utility supports & 10" steel sleeve through abutment walls. Eversource Gas to install casing & pipe on bridge with support from Contractor. Eversource Gas to install gas in road and connect to existing stubs at the north and south approaches.							
			UNDERGROUND OPERATIONS							
Task: 6			***Eversource Gas - Bridge Work***							
		U	Required Notice to Eversource Gas (days prior to Mobilizing)	0	X			X	N	
		U	Mobilize & Materials Delivery and Project Planning	5	X			X	N	
		U	Install ~110' of 6" CS Casing across bridge	9	X			X	N	
		U	Install 140' of 4" PL main through casing within Phase 2	8	X			X	N	
		U	Pressure test new Main	2	X			X	N	
		U	Site Restoration, Clean-up and Demobilize	1	X			X	N	
			Sub-Total	**25**						
Task: 7			***Eversource Gas - South of Bridge***							
		U	Required Notice to Eversource Gas (days prior to Mobilizing)	0	X			X	N	
		U	Mobilize & Materials Delivery and Project Planning	5	X			X	N	
		U	Main Install ~470' of 4" PL main	10	X			X	N	
		U	Pig new main	2	X			X	N	
		U	Pressure test new Main	2	X			X	N	
		U	Main Tie-in and prep	3	X			X	N	
		U	Site Restoration, Clean-up and Demobilize	1	X			X	N	
			Sub-Total	**23**						
Task: 8			***Eversource Gas - North of Bridge***							
		U	Required Notice to Eversource Gas (days prior to Mobilizing)	0	X			X	N	
		U	Mobilize & Materials Delivery and Project Planning	5	X			X	N	
		U	Main Install ~350' of 4" PL main	8	X			X	N	
		U	Pig new main	2	X			X	N	
		U	Pressure test new Main	2	X			X	N	
		U	Main Tie-in and prep	3	X			X	N	
		U	Site Restoration, Clean-up and Demobilize	1	X			X	N	
			Sub-Total	**21**						
	C		Enabling' work by the Contractor - Complete construction of new bridge. Coordinate relocation of PTC cables, bungalow, power case & salt storage bin to permanent locations with MBTA/Keolis. Notify Eversource Electric to re-energize electric lines spanning the MBTA tracks once bridge construction is complete.							
			OVERHEAD OPERATIONS							
Task: 9			***Eversource Electric***							
		U	Remove temporary breakers	1	X			X	N	
		U	Switching	1	X			X	N	
			Sub-Total	**2**						

IMPORTANT BASIS NOTES - FOR CONTRACTOR

1	Unless otherwise specified in the MassDOT Construction Contract, or unless specifically noted within this PUC form, the Utility durations shown herein are to be planned (within the CTD and by the Contractor) as unimpeded access to the Utility company to perform Utility relocations.
2	"Concurrent Utilities" operations noted herein, are to signify those Utility Company operations that can be worked concurrently - MassDOT and the Contractor are to prepare NTPs to Utilities accordingly.
3	"Potential Access Restraints" noted within this PUC Form are for planning purposes. See MassDOT Contract for Contractual Access Restraints (refer to Subsections 8.02, 8.03, and/or 8.06 for Design Bid Build Contracts and Volume II Section 9 for Design Build Contracts).
4	Utility non-work periods - For planning purposes, the durations above contain some non work days (contingency) for New England conditions (precipitation, high temperatures, low temperatures, snow, ice). Gas line work however, typically has a seasonal restriction and can NOT be installed from 15-November to 15-March. Municipally Owned Electric and Gas Utilities are also restricted from proceeding from 15-November to 15-March. The Contractor shall (and the CTD plan) reflect this calendar restriction within the schedule (unless otherwise note).
5	Access - Unless otherwise noted in the Contract, and in addition to the 'enabling' notes above, the Contractor must provide safe and unimpeded access (for trucks, lifts, cranes, etc.) to the Utilities, to allow for the proposed relocation(s) - including but not limited to snow removal, clearing and grubbing, guard rail removal, barrier removal, tree removal, and grading.

DESCRIPTION - Utility Relocation Phases, Tasks and Activities

	RESPONSIBLE PARTY (C = Contractor, U = Utility Co.)	Estimated Duration (Work Days) by Utilities (Lead time not included)		Concurrent / Exclusive Utility Work Contractor note: in planning and executing the work, the information in these 4 columns is intended to supplement any related Access Restraints that are described in the Special Provisions.			Access Restraint & Limitations of Operations Notes
		Utility working with no other Utilities in vicinity	Utility working with other Utilities on site	Exclusive Utility on site	Concurrent Utilities	Contractor Off-Site No Contractor physical construction operations on-site (while Utility is working)	Contractor Concurrent Contractor and Utility are working on-site - but NOT in the same vicinity	Potential **Access Restraint** (Yes/No) Reason/Note (optional)	Should an AR be considered for the Contractor ?
6	For all MassDOT construction contracts issued after January 2014, the new Utility Coordination/documentation specification is required. This is Section 8.14 in Design-Bid-Build Contracts (see Design-Build index reference for applicable section #).								
7	Prior to starting any and all enabling work for Utilities, the Contractor is to plan in advance with submittals and approved durations.								
8	* Potential District Initiated Early Utility Relocation - if noted herein, the District reserves the right to initiate early utility relocation in advance of the Contract NTP. In submitting a bid price and in the development/basis of the Baseline Schedule, the Contractor shall not plan the Work with the potential benefit of this early utility relocation. As a requirement of the Baseline submission, unless otherwise noted in this Specification, the earliest that the first Utility company is to receive the 30 days advance notification to mobilize to the site, will be 7 calendar days after the pre-construction meeting and never sooner than 7 days after the Contract NTP.								

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DOCUMENT A00810

MassDOT Herbicide Use Report

Proposal No. 607420-136650

MassDOT Herbicide Use Report

Date Submitted:

Use multiple sheets for multiple application techniques or sites as needed.

Contractor Performing Work:

Project or Contract No:

Town/s:

Associated Route:

Project Description:

MDAR ALERT*:

Treatment Description:

Area Treated (as applicable)

Acres: **Sq Yds:** **Miles:**

Weeds Targeted:

Gallons Formula Used:

Application Method:

Date/Time Began:

Date/Time End:

Product Used:

Name: _____	Name: _____	Name: _____
EPA Reg. No: _____	EPA Reg. No: _____	EPA Reg. No: _____
% Active Ingredient	% Active Ingredient	% Active Ingredient
Dry: _____	Dry: _____	Dry: _____
Liquid: _____	Liquid: _____	Liquid: _____
Formulation (dilution rate): _____	Formulation (dilution rate): _____	Formulation (dilution rate): _____

Additional products used (surfactants, etc.) or other information:

Applicators: **License Numbers:**

* Please note:
EDRR Species (MAM, Hogweed, Pepperweed, Kudzu, etc.)
Tree of Heaven 1) stands of >20 trees; 2) >5 trees near nursery, landscape company, or highway rest area where trucks stop

Upon completion, please submit form to MassDOT District Engineer and Landscape Design Section in Boston office.

07/18/2018

DOCUMENT A00811

WATERING LOG
for
MassDOT Plantings

Watering Log for MassDOT Plantings

Project Description:

Contract No:

Project No:

Plant Locations/s: (Attach planting plan/s as necessary)

Notes:

	Separate logs shall be kept to track areas or plants with different watering schedules. Trees shall receive a minimum of 10 gallons with each watering and shrubs a minimum of 5 gallons. Provide note that if watering is not performed as scheduled due to rain. Record date of rainfall and amount.												
Date Watered													
Landscape Contractor Initial													
Prime Contractor Initial													
Date Watered													
Landscape Contractor Initial													
Prime Contractor Initial													

Each week, following watering, Log shall be submitted to the MassDOT Engineer.
6/15/2018

MBTA FLAGGING REQUEST FORM

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Massachusetts Bay Transportation Authority

massDOT Massachusetts Department of Transportation Rail & Transit Division

Flagging Request

Date:_____

Company/Agency: _____

Project Name: _____

Project Location: _____

Point of Contact: _____

Email: _____ Phone: _____

Project Number: _____ Funding Source: _____

RAILROAD OPERATIONS TRACKING NUMBER _____

Date Needed:_____

Start/Finish:_____

Flaggers Required:_____

Scope of Work:

(Attach additional SOW, if necessary.)

Schedule:

(Attach additional info, if necessary.)

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DOCUMENT A00813

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

SPECIAL INSTRUCTIONS

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MBTA SPECIAL INSTRUCTIONS
April 1, 2003
PAGE 1

APPENDIX M
MBTA SPECIAL INSTRUCTIONS
MARCH 2003

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MBTA SPECIAL INSTRUCTIONS

APRIL 2003

LETTER OF TRANSMITTAL REGARDING SPECIAL INSTRUCTIONS

The Subway Operations, Bus Operations, Safety, Systemwide Maintenance & Improvements, Operations Support, and the Design and Construction Departments of the MBTA have determined that certain limitations regarding Contractor's activities are required while working on a construction project.

These Supplementary Conditions are included herein to augment the MBTA Standard Specifications, Division I - General Requirements, Section 00700 - General Conditions, Article 6 - Prosecution and Progress, Paragraph 6.04 - Limitations of Operations with additional information, which is applicable to construction projects.

However, for non-MBTA construction projects where Division I does not apply, such as in the case of rights to construct on MBTA property granted under a lease or license agreement, the enclosed Special Instructions are still applicable unless otherwise directed.

Contract drawings and specifications for non-MBTA construction projects, relative to all work that will be performed within or directly adjacent to MBTA property, must be submitted to the Authority's Chief Engineer of Design and Construction, Director of Subway Operations, Director of Bus Operations, Director, of Systemwide Maintenance & Improvements, Director of Operations Support, Director of Safety, and the Director of Real Estate. The addresses and phone numbers are listed on. the next page. The, special instructions contain information to be complied with by the owner, contractors, and others associated with the project.

Applicable provisions of the special instructions plus additional requirements from other MBTA departments must be included in the contract specifications as instructions to the contractor when performing work on or adjacent to MBTA property. Permission to perform work on MBTA property will be granted by the Director of Real Estate only when contract plans and specifications are approved by the MBTA.

The enforcement of any of the following conditions shall not be construed as waiving any of the rights of the Authority in any of the other conditions of an MBTA contract.

A meeting to further discuss MBTA requirements may be arranged by contacting the offices of those listed in Article l.a. and/or b. herein.

1. ACCESS TO AUTHORITY PROPERTY

A. For MBTA Contractors Only: An owner or Contractor who wishes permission to enter upon or perform work over, on, under or adjacent to Authority property shall submit to the offices of the Authority's Chief Engineer of Design and Construction, the Director of Bus Operations, the Director of Subway Operations, Director of Systemwide

Maintenance & Improvements, and the Director of Operations Support, a request in writing, a minimum of forty-two (42) days prior to the owner or the Contractor's planned commencement of any of the above stated activities. Addresses of the above are as follows:

MBTA' s Chief Engineer of Design and Construction
6th Floor
10 Park Plaza
Boston, MA 02116
617 222-3116

Director of Systemwide Maintenance & Improvements
500 Arborway
Jamaica Plain, MA 02130
617 222-5454

Director of Subway Operations
10th Floor
45 High Street
Boston, MA 02110
617 222-4554

Director of Bus Operations
10th Floor
45 High Street
Boston, MA 02110
617 222-3368

Director of Operations Support
10th Floor
45 High Street
Boston, MA Q2110
617 222-5460

Director of Safety
2nd Floor
21 Arlington Avenue
Charlestown, MA 02129
617 222-4244

B. Non-MBTA Construction Contractors For Lessees or Licenses of the MBTA Only: An owner or Contractor who wishes permission to enter upon or perform work over, on, under or adjacent to Authority property shall submit to the offices of the MBTA's designated representative for real estate listed below, a request in writing, a minimum of forty-two (42) days prior to the owner or the Contractor's planned commencement of any of the above stated activities. The designated representative will distribute plan sets to the above MBTA departments and will coordinate departmental approvals. Application forms and instructions for obtaining access to MBTA property

can be obtained by visiting the designated representative's website listed below and selecting "MBTA" and "Licensing."

License Administrator
Massachusetts Realty Group
20 Park Plaza, Suite 1120
Boston, MA 02116
617-316-1654
www.mbtarealty.com

The designated representative reports directly to:

MBTA Director of Real Estate
5th Floor
10 Park Plaza
Boston, MA 02116
617 222-3255

C. Requests shall specify the name of the owner or the contractor, the reasons for entering the property, where the property will be entered, each individual location where work of a different nature is to be performed, the nature of such work, and the number of days, including time schedule, the owner or the contractor intends to remain on the property at each location. The Authority will process such requests and meet with the owner or contractor to work out a schedule and phasing .for the work plus other arrangements including financial. The Authority shall request a list of the names of each individual who will enter upon or perform work on Authority property.

D. The owner or contractor shall. notify the representative of the Design and Construction Department and the appropriate Operations Director at least seventy-two (72) hours prior to entering the property as agreed upon earlier with the Authority. The owner or contractor shall notify the Design and Construction, and Operations Departments immediately if the job is to be closed down unexpectedly and shall again notify the Authority as specified above when work will commence.

E. The owner or contractor shall make all necessary arrangements with the Authority before entering upon the property and perform the work in accordance with an MBTA approved work schedule. The owner or contractor shall not enter MBTA property or perform any work on Authority property without the presence of an assigned MBTA representative from the Design and Construction Department or the Operations Department who is responsible for monitoring the work of that owner or contractor for the Authority. Working on Authority property without an assigned MBTA representative present shall be cause for immediate eviction from the property.

F. The owner or contractor must have in place a method of payment for all Authority support services such as flagging, work trains, power shut offs, etc., prior to commencement of any work. This will be processed through a written force account agreement between the Authority and the owner or contractor prior to commencement of work. Direct billing to contractors for Authority support services requires the contractor's authorized representative to agree in writing that the company will reimburse the Authority for those support services, including overhead and fringe benefits. Once the Authority receives the signed statement from the contractor, the General Accounting

Office will open a reimbursable account for specific Authority department(s) to charge costs, and the contractor will be billed directly.

G. The work associated with this project, except as hereinafter expressly provided, will be done without interruption of or change in the regular work or operation of vehicles of the Authority. No work shall be done affecting the operations of vehicles or operations of stations until the contractor has submitted details of his procedures to the Design and Construction and the applicable Operations representatives thirty (30) working days prior to start of work and has secured written permission to proceed.

H. The Authority reserves the right to require work affecting the safety of the operations to be performed at prescheduled non-operating periods from approximately 1:30 a.m. to 5:00 a.m. daily (1:30 a.m. - 4:30 a.m. effective); 1:30 a.m. to 6:00 a.m. Sunday (1:30 a.m.-5:30 a.m. effective). The contractor will not be permitted to remain within the track right-of-way after 5:00 am. (6:00 a.m. Sunday). The Authority may, during emergencies or at times when the Authority work forces are required to work in the area of the contractors work, order the contractor to cease work and remove his work forces and equipment from the property leaving the right-of-way in a safe operating condition. The Authority also reserves the right to stop or postpone any contractor's previously approved work if, in the Authority's opinion, such work is being performed in a manner that will endanger and/or delay the Authority's regular work or operations.

I. The owner or contractor shall make their own provisions for electric power, compressed air, water, ventilation, and disposal of seepage water. No use of existing MBTA utilities will be permitted unless approved in advance by the Authority.

J. The owner or the contractor's attention is directed to other projects that will be ongoing simultaneously in the work area. The Authority will determine priorities for site access between this project and others.

K. The Authority reserves the right to deny the contractor access to the right of way because of operational requirements, adverse weather conditions or emergency track, signal, and power repairs. The contractor shall reasonably expect to be denied access to the site a total of 10 (ten) days per calendar year, this does not include the following holidays; New Year's Day, President's Day, Patriot's Day, Memorial Day, Bunker Hill Day, Independence Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving Day, and Christmas Day. In addition, right of way access may be denied on days when various Special Events impact service as well as during Red Sox home games on the Green Line.

Furthermore, the contractor shall also expect to have his access to the site delayed a total of 4 (four) times per month. Each delay shall be 60 (sixty) minutes or less. The contractor shall make allowances for these possible events in their bid. Due to increased stopping distances associated with slippery rail conditions, non-emergency access will not be allowed within ten (10) feet of the centerline of the track under adverse weather conditions.

L. The contractor shall perform his work at all times so as to cause no interruption of service during operating hours and shall at all times after performing work during either operating hours or non-operating hours leave the Authority's property in a clean and safe operating condition.

M. On occasion, the Authority will operate work cars, test trains, security trains, and/or hirait Vehicles in, the area of the work. At no time during these occurrences will the contractor be allowed to work on the right-of-way, except with the approval of the Authority or the Authority personnel providing protection services as defined in Protection Services.

2. INSURANCE REOUIREMENTS

A. The owner or Contractor's for MBTA Construction Contracts insurance requirements shall conform to the latest version of MBTA Standard Specifications, Division 1 - General Requirements, Section 00700 - General Conditions, Article *5* - Legal Relations and Responsibility to the Public, Paragraph *5.04* - Insurance Requirements. Owners or Contractors under a lease or license agreement with the MBTA shall provide insurance in accordance with the requirements of said agreement.

3. SUBMITTAL OF SPECIFICATIONS DRAWINGS. DESIGN AND METHODS OF CONSTRUCTION

(Applies to non-MBTA Construction Contracts. MBTA Construction Contracts are covered under Division I)

A. An owner or contractor or others performing a non-MBTA construction contract that requires performing construction over, on, under or adjacent to the Authority's property shall submit to both the Design and Construction Department and to the appropriate Operations Department two (2) sets each of contract drawings and specifications at the 30%, 60%, 90% and 100% phases of design of the project. 100% drawings and specifications must be submitted forty-two (42) days prior to the planned commencement of any work.

B. The contractor's drawings and specifications shall define the work in detail and a Professional Engineer registered in the Commonwealth of Massachusetts shall stamp the final drawings. The contractor or owner shall also submit a crane or heavy equipment location, if used, with dimensions to the face of abutments and structures and calculations of crane equipment loading on Authority structures showing no adverse effect on any structures. All calculations shall be stamped by a Professional Engineer registered in the Commonwealth of Massachusetts. The drawings must include any excavation support systems, shoring, underpinning, protective shielding, or any work required for the protection of MBTA property.

C. Unless otherwise agreed to in advance, the owner or contractor's structures shall not attach to, be placed against, pass through, or impose any loads upon any structures or facilities owned by the MBTA.

D. All construction work shall be performed in strict conformity with final plans and specifications that have been reviewed and approved by the MBTA. Any changes requested by the owner or contractor which affect MBTA property or operations must be submitted to the MBTA for review and approval at least 30 days prior to the planned commencement of the work. Approvals or rejections shall be submitted by the MBTA within thirty (30) days following submission to the MBTA for review.

E. The owner or the contractor performing construction work over, on, under, or adjacent to Authority property shall submit to the Director of Design four (4) sets each of the design, drawings and specifications of any earth support system, shoring, underpinning, protective shielding, or any work required for the protection of the Authority's facilities and property, a minimum of forty-two (42) working days prior to the planned commencement of any of the above work. The design, drawings and specifications shall define in detail the methods of construction and materials to be used. The design and drawings shall be stamped and signed by a Professional Engineer registered in the Commonwealth of Massachusetts.

F. Unless otherwise agreed to in advance, earth support structures or shoring systems shall not be attached to any structure owned by the MBTA, nor shall MBTA structures be use to support loadings or be used for excavation support.

G. Engineering drawings of MBTA structures are available for reference or duplication at the MBTA Plan Room, 500 Arborway, Jamaica Plain, MA 02130. For information call the Technical Librarian at 617-222-5285.

4. OPERATIONAL RESTRICTIONS

A. The owner or contractor is made aware that the work will be performed adjacent to or over operating tracks, signal lines, communication lines, power lines, cables and other facilities belonging to the Authority. The owner or contractor is to take all due precautions to protect the Authority's facilities, utilities, and operations during the course of his work. When in the opinion of the Authority's Chief Engineer of Design and Construction, Director of Subway Operations, Director of Systemwide Maintenance & Improvements, Director of Operations Support, or their representatives, the contractor's work would cause hazard to the Authority's facilities, infrastructure, or to the safe operation of the transit system, the Authority will assign qualified personnel deemed necessary to protect the property, facilities and operations, all at the expense of the contractor.

B. The contractor is specifically prohibited from conducting any operations next to or over the right-of-way that have the potential to adversely impact the operations of Authority revenue service during normal operating hours (approximately 5:00 a.m. to 1:30 a.m.). Certain work adjacent to the right-of-way, described below as hazardous work, may take place during restricted revenue hours at the discretion of the Chief of Orange, Red, Green, or Blue Line Operations as applicable and require flagmen present.

C. Access to the MBTA right-of-way, which encompasses all MBTA property (fence to fence, wall to wall, and property line to property line over which Authority vehicles operate, including sidings and yards), is. contingent upon Owner or Contractor compliance with the "MBTA Right-of-Way Safety Rulebook" that outlines Right-of-Way Safe Practices for Access on or Near the Right-Of-Way.

As specified in the Right of Way Safety Rulebook, all persons who access the MBTA right of way must attend a one-day, eight-hour training class conducted by Subway Operations Training and the Safety Department Attendees must successfully complete the Right of Way Safety Training in order to

receive a Right of Way license. The license is valid for a two-year period after which the person must attend the Authority's Right of Way re-certification class. To register for the "Right of Way Safety" class, contact:

Supervisor and Chief Rules Examiner of Training
Cabot RTL Training
275 Dorchester Avenue, 2nd floor
South Boston, MA 02127
Telephone: (617) 222-5377

D. The Authority will consider the property; facilities and operations fouled or subject to hazard when the following occurs:

1. When any object or operation is or can be brought nearer than ten (10) feet to the centerline of operating track.
2. When an object or excavation is brought nearer than four (4) feet to a signal or communication line.
3. When an object or excavation is brought nearer than ten (10) feet to a power line or cable.
4. When explosives are used in the vicinity of the premises. Explosives shall not be used on or adjacent to the Authority's property or facilities without written consent of the Authority's Chief Engineer of Design and Construction and then shall be used only by a licensed blaster, licensed in the Commonwealth of Massachusetts, at times and under conditions acceptable to the Authority.
5. When cranes, trucks, power shovels, pile driver or any other equipment are working in positions that failure with or without load could occur nearer than 10 feet to the centerline of an operating track.

It shall be the responsibility of the contractor to inform the Chief of Orange, Red, Green, or Blue Line Operations as applicable in writing thirty (30) working days prior to all times when they intend to perform hazardous work as described above. Submittal must include a site plan, the reasons for entering the property, where the property will be entered, each individual location where work of a different nature is to be performed, the nature of such work, and number of days, including time schedule, the contractor intends to remain on the property at each location. Failure of the contractor to provide the appropriate Line Chief with the specified advanced notice of hazardous work will result in the stoppage of work by the Authority.

D. The Contractor will be allowed on the right-of-way only after normal revenue service (approximately 1:30 a.m. to 5:00 a.m.). On occasion, the Authority will operate work cars in the area of the project work during non-revenue hours. At no time during these occurrences will the contractor be allowed to work on the right-of-way except with the approval of the Authority. The contractor shall coordinate their schedule at least twenty-four (24) hours in advance with the Authority.

E. No weekday/weekend transit service interruptions will be allowed on this project. The contractor must schedule all work requiring a shutdown of revenue service and/or station and/or platform operations during non-revenue hours.

F. Prior to the contractor leaving any work site, at the completion of each workday, the contractor shall ensure that the site is in proper condition to permit normal transit operations to resume. If, in the opinion of the Authority, the site is not suitable for normal transit operations due to conditions caused by the contractor, the Authority will allocate a suitable number of personnel to rectify the site. The owner or his contractor shall be charged full costs of such personnel and necessary equipment, including the full cost of replacement services during the cleanup period.

G. In the event that the contractor does not adhere to the work period limitations of the special conditions and causes delay in returning the right-of-way to revenue service at the end of any work period, the owner or his contractor shall pay the Authority for substitute bus service a sum not to exceed $120.00 per hour per bus for the entire duration of the delay and including mobilization and demobilization of the bus service. The minimum charge shall be (3) hours per bus per delay... The owner or the 'contractor will reimburse the Authority for the hourly costs of personnel used during such delays (egg., supervisors, officials, gatepersons, flagpersons, and automotive). The required number of buses to adequately accommodate all Authority customers who are inconvenienced by the delay shall be at the sole discretion of the Authority's Bus Operations Department. Whatever sum of money may become due and payable to the Authority by the owner or his contractor under this article may be retained out of money belonging to the contractor in the hand and possession of the Authority. This article shall be construed and treated by the parties to the contract not as imposing a penalty upon the contractor for failing fully to complete the work within the periods as specified herein, but as liquidation damages to compensate the Authority for additional costs incurred by the Authority because of the failure of the contractor to fully complete said work within the work periods specified.

H. The contractor shall assume full responsibility for the safety of all their work. They shall perform the work in a manner that will ensure the safety of both personnel and property. The contractor shall prevent against safety hazards, and the exposure of persons and equipment to hazardous and/or potentially hazardous conditions. All, work in the construction of the project shall comply with the requirements of the Authority, Department of Labor, Occupational Safety and Health Administration (OSHA) provisions, as well as those of state and local regulations. Safe breathing levels must conform to the Massachusetts Department of Environmental Protection (DEP) standards. In the case of conflict of regulations, the most stringent will apply. If the standards are not met, the Authority has the right to stop the work until such time as the contractor is in compliance with standards.

5. PROTECTION SERVICES

A. When the contractor is performing work in the vicinity of Authority rights-of-way or public areas, the Authority will require the contractor to have at the site such authorized and qualified personnel as may be required to adequately protect the Authority's customers, employees, property, facilities and operations from hazardous conditions.

B. The need for protection services is outlined and described in the Authority's Right-of-Way Safety Rulebook. The appropriate Line Chief, or their representative, shall determine what protection services are required and assign flagging personnel, officials, supervisors, coordinators or any other such personnel as may be required to ensure the safety of the Authority's operations. Personnel shall be provided from the Authority's workforce in such numbers as the Line Chief determines.

Costs for all protection services and supplies shall be the responsibility of the owner or contractor. No work will be allowed if flagmen are required, but not on duty.

C. When it is determined that protection services are required, the contractor must notify the Authority twenty-four (24) hours in advance and before 10.00 a.m. on the workday preceding the day that protection services will be required. Requests for protection services for weekends and/or holidays, must be made on the preceding Friday before 10.00 a.m., or before 10.00 a.m. on the workday preceding the holiday.

Requests for protection services for Non-Operating hours 1.30 *a.m.—5.00* a.m. and in order for the work to be included on the Night Orders you must contact the:

Planning and Scheduling Coordinator
Maintenance of Way
617-222-5419.

Requests for protection services for Operating hours 5.00 a.m.-l.30 a.m. and in order for the work to be included on the Day Orders, you must contact:

Orange, Red, Green, or Blue Line Superintendent as applicable.
617-222-5844 (Orange); 617-222-5099(Red);
617-222-5982 (Green); 617-222-5532 (Blue).

It will be at the sole discretion of the Authority whether the contractor will be allowed to perform work on any particular day or night.

D. The contractor will be required to provide each flagperson on duty with properly functioning safety equipment as approved by the Authority's Safety Department. This equipment includes but is not limited to: orange safety cones, red, yellow, and green flags, airhoms, hardhats, safety goggles, and hearing protection. The contractor will not be allowed on or adjacent to the right-of-way if flagging personnel are not equipped with required safety personal protective equipment.

E. The contractor will supply properly functioning Authority-frequency portable radios to each flagperson on duty on a daily basis.. The contractor will be responsible for storing and maintaining radios throughout the life of the contract.

F. All workers employed by the contractor who are to work within the Authority's stations, track area, right-of-way or adjacent to the traction power system or any high voltage electrical cables, shall be required to attend a safety awareness course at the Authority's Subway Operations Training School. The course is to make the contractor's personnel aware of the particular hazards related to the Authority's operations.

G. All personnel working on the project site in the immediate vicinity of, or within the right-of-way, are required to wear orange reflective safety vests, similar to standard Authority equipment as specified in the Right-of-Way safety Rulebook.

H. Work activities necessitating the traction power system (third rail and catenary) deenergization will require the services of an Authority power lineperson on site at all times and the contractor is responsible for any. costs incurred by the Authority as. a result of this action.

I. Prior to the implementation of the contracted work, and throughout the life of the contract, the contractor will be required to supply professionally rendered signs, as directed by the Authority's Marketing Department. These signs will include, but are not limited to, the following:

1. Informational signs for revenue service diversion.
2. Station directional and stairway, platform, exit closing signs.
3. General project informational signs for Authority customers.

J. Upon the direction of the Authority's Chief Engineer of Design and Construction, Director of Safety, and or Director of Subway Operations or their representatives, the contractor will be required to supply and install partitions and wooden barricades to cordon off the work site; such partitions and barricades shall be maintained and remain graffiti free by the contractor for the duration of the project.

K. Upon direction from the Authority's Chief Engineer of Design and Construction and / or Director of Subway Operations or their representatives, the contractor will supply the following when site conditions warrant:

1. Emergency and temporary lighting.
2. Exhaust fans of sufficient size and numbers to adequately ventilate the work site, tunnel and or adjacent stations.
3. Fire and / or garden hose for the purpose of dust control.

L. It shall be the responsibility of the contractor to keep the Authority informed prior to all times when they intend to perform hazardous work. Failure of the contractor to provide the Authority with suitable advance notice of hazardous work will result in the stoppage of the work by the Authority until such time as sufficient numbers of protection personnel are on duty at the site.

6. ANNUAL CERTIFICATION OF HI-RAIL EQUIPMENT

A. All equipment used by the contractor on Authority property shall be inspected by the Maintenance of Way engineer and/or the MBTA Safety Department for clearance and safety standards, and shall not be used if considered unsafe. All contractor/ subcontractor equipment (including hi-rail) operators must be trained, certified, and properly licensed. Documentation of same must be readily available and provided to the Authority upon request. If the contractor equipment is involved in a derailment or near miss incident or an accident, which caused injury or exposed personnel to injury and or caused damage to Authority property, that equipment will be subject to the Impound Policy Procedure.

B. Contractor equipment to be .used on or in the vicinity of the track shall be in first class condition, so as to positively prevent any failure that would cause delay in Authority operations or damage to its property or compromise the health and safety of personnel working on the project. Equipment shall not be placed or operated within the fouling distance of track without first obtaining the permission of the Authority.

C. The contractor shall not, at any time, operate equipment or machinery over Authority's right-of-

way without the use of hi-rail gear. All equipment that the contractor proposes to operate shall 'be modified to operate over the Authority's track and special work (e.g., switches, crossover frogs third rail, and restraining rail). Qualified Authority personnel shall control the movement of all hi-rail equipment at all times while operating on the Authority right-of-way. The contractor shall supply a portable radio for each hi-rail vehicle entering the Authority's right-of-way. No hi-rail equipment will be allowed on Authority's property without a functioning portable radio tuned to an Authority frequency.

D. The contractor shall furnish hi-rail equipment capable of operating within the strict confines of the right-of-way. No Authority owned equipment is available for the contractor's use. In addition to equipment necessary to complete the work on a regular basis, the contractor shall be required to have on site sufficient standby equipment capable of: a) removing disabled equipment from the right-of way, and b) replacing disabled equipment in order to return the right-of-way to normal operating status by the end of the designated work period. As part of the pre-qualification statement, the contractor shall furnish an itemized list of all equipment to be used on the project, including:

1. Type of equipment (e.g., pickup, flatbed or dump trucks, excavator, cranes, etc.).
2. Make, model and date of manufacture.
3. Ownership.
4. Present use and date of availability.
5. Location where equipment may be inspected by Authority personnel during the prequalification period.

E. The contractor shall have proof of competency for hi-rail operators (e.g., documentation, that the operator of hi-rail equipment is certified to operate that specific piece of equipment). The Authority reserves the right to review the lesson plan and audit the training class. The hi-rail operator will be responsible for ensuring and documenting that the vehicle is safe for operation and that all required equipment is present and properly secured. This must be done on a daily basis prior to operating the equipment.

F. The contractor is required to have an Annual Certification of hi-rail equipment (separate form the Registry Inspection) signed by a competent person (e.g. Manufacturer's representative) asserting to the fact that the equipment is Original Equipment Manufacturer (OEM), that it conforms to the latest standards, was installed per the manufacturer's specification, and is functioning properly.

G. The contractor must keep a copy of the Manufacturer's Operating Manual or instructions onboard the hi-rail equipment at all times.

H. The operator shall operate the hi-rail equipment at a reasonable speed for the existing conditions, being alert for another vehicle (or any other obstruction along the right of way).
In addition, said operator must maintain a safe spacing of traveling equipment.

I. The contractor's hi-rail vehicles must be equipped with a horn (warning device), and an exhaust gas purifier.

J. All equipment when used in tunnels and or darkness must conform to the Authority's standards for

headlights and marker lights. In addition, when vehicles are operating in tandem such as rail carts; flat cars, etc., such vehicles must be equipped with a flashing/strobe light when the lead vehicle is other than the operating vehicle. Diesel powered equipment only will be allowed in the tunnel and shall be removed from the tunnel each night unless otherwise permitted by the Director of Subway Operations.

K. Contractors must comply with the Authority's Propane Gas policy.

L. Contractor's doing "hot work" must have appropriate permits and follow all applicable rules and procedures for same.

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MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

CONSTRUCTION SAFETY

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SECTION 01568

CONSTRUCTION SAFETY

PART 1 - GENERAL

1.1 DESCRIPTION

A. This Section specifies requirements to establish a practical, sound, and effective program for the prevention of construction accidents, and to assign specific responsibilities to Contractors for program compliance.

B. Contractors and their supervisors must control hazardous activities and conditions within their respective areas of contract responsibility.

1.2 SUBMITTALS

A. Safety and Health Plan: The contractor shall, within thirty (30) days after receipt of the award of a contract, submit for approval to the MBTA, a detailed operational Safety and Health Plan.

B. Safety Supervisor: The Contractor shall within thirty (30) days after receipt of the award of a contract submit the resume of the qualifications and work experience of the designated Safety Supervisor proposed for assignment to the Project. No construction work shall begin until the project Safety Supervisor has been approved by the MBTA. The Safety Supervisor shall have a minimum of 5 years of experience in construction safety or a related field.

C. Monthly Accident Experience Summary: The Contractor shall submit an Accident Experience Report monthly during the course of construction to the MBTA.

D. Industrial Industry Records: Prior to start of work, the Contractor shall submit their Injury/Illness Record**s** for the previous 3 years. In addition, the Contractor shall submit annually to the MBTA all subsequent Illness/Injury Reports for the duration of the project.

PART 2 - PRODUCTS

None

PART 3 - EXECUTION

3.1 SAFETY AND HEALTH PLAN

A. The Contractor shall submit a project Safety and Health Plan. At a minimum, the plan shall include the following sections:

i. Emergency Action Plan
ii. First Aid Facilities
iii. Serious Accidents
iv. Emergency Telephone Numbers
v. Protection of the Public
vi. Site Visits
vii. Substance Abuse/Prevention/Testing

3.2 SAFETY SUPERVISOR

A. Complete daily safety inspections of the job site and contiguous public areas, and take any corrective actions to eliminate unsafe conditions.

B. Establish and implement a project safety training program for supervisors and employees as applicable to their job.

C. Attend project safety meetings.

D. Review Foreman accident and investigation reports, and initiate corrective action to prevent reoccurrence.

E. Maintain copies of all Contractor Safety Reports.

F. Assist Foremen in accident investigations.

G. Encourage establishment of incentive programs designed to recognize individual employee safety efforts and contributions towards improved safety.

H. Prepare a Safety Audit Checklist and complete the checklist each week during the course of construction. The completed Audit Checklists shall be submitted to the Authority weekly.

I. The Safety Supervisor needs to be on the project site when major work tasks are being performed. During work periods when the Contractor is not performing contract work, the Safety Supervisor can be absent from the project site with permission from the Authority.

3.3 ACCIDENT INVESTIGATION

A. Serious accidents shall be reported immediately to the MBTA Resident Engineer. Contractors shall issue standing orders to all supervisors directly in charge of operations that the scene of the accident shall not be disturbed, except for rescue or other emergency measures, until otherwise directed. Contractor's forces either witnessing or party to the accident shall be detained at the site to provide detailed accounting of facts.

B. All reports shall be submitted to the MBTA. The accident investigation shall generate appropriate recommendations for corrective actions to prevent similar recurrence of similar accidents.

C. The requirements of MBTA Safety Procedure 7.3 Contractor Safety Violation Program shall be followed by the Contractor when completing an accident report.

3.4 FIRST AID FACILITIES

A. In formulating the Health and Safety Plan, the Contractor shall provide for the establishment and staffing of appropriate first aid facilities for the treatment of on the job injuries.

B. Off-site medical treatment of employee injuries shall be performed at medical facilities named in the Contractor's Safety Submittal.

3.5 EMERGENCY TELEPHONE NUMBERS

To ensure that emergency actions are promptly taken, Contractors shall post emergency telephone numbers in conspicuous places.

3.6 ORIENTATION PROGRAM

A. The Contractor shall establish and maintain an orientation program for new employees which shall include:

i. For each individual the hazards present in their work assignment and in the general area in which he will be working.
ii. Personal protective equipment required.
iii. Instruction in the proper procedure for reporting unsafe job conditions which he/she may encounter.

3.7 RIGHT OF WAY SAFETY AWARENESS

A. All Contractor and sub-contractor personnel shall complete either the MBTA Rapid Transit right-of-way safety training or the MBCR Commuter Rail right-of-way safety training prior to entering the project site. ROW safety training will be required on all MBTA property including the RR track, stations, parking garages and maintenance car houses. Personnel will not be allowed on the job site unless they have attended a Right-of-Way Safety Awareness training session. Workers are required to carry their certification card while on site.

3.8 OSHA

A. The Contractor shall comply with the OSHA 1926 Construction Safety Standards that apply to the project work. The Contractor shall meet the reporting requirements, and employers with eleven (11) or more employees must meet recordkeeping requirements.

B. All Contractor and Sub-Contractor personnel shall possess an OSHA 10 Hour Certification card when working on the project site.

C. All fatality cases and/or serious accidents and illness shall be reported to OSHA immediately by phone to an Occupational Safety and Health Area Office. Employers must report immediately all blasting accidents.

D. Part of the OSHA requirements is that each employer must post in a prominent location the "Safety and Health Protection on the Job" poster. The poster briefly states the intent and coverage of the Act. Failure to post this document is a citable offense under the Act.

3.9 PROSECUTION OF THE WORK

A. The Contractor shall take all reasonable precautions in the performance of the work to protect the safety and health of its employees and members of the public and shall comply with all applicable MBTA, Local, State and Federal safety and health regulations and associated reporting requirements.

B. The Contractor Safety Supervisor is charged with sole responsibility of on-site safety management under the direction of the Contractor Project Superintendent. All potential safety hazards identified shall be promptly corrected. The Safety Supervisor shall complete daily reviews of the project site and document then results on the inspection.

C. The MBTA shall notify the Contractor of any non-compliance and of the corrective action required. This notice, when delivered the Contractor or the Contractor's representative at the site of the work, shall be deemed sufficient notice of the non-compliance and corrective action required after receiving the notice, the contractor shall immediately take corrective action. If the contractor fails or refuses to take corrective action promptly, the MBTA may, without prejudice to other legal or contractual rights, issue an order stopping all or part of the work; and may subject contractor to safety violation assessments as deemed appropriate by the MBTA. Resumption **of work** may be issued by the MBTA Safety Department.

D. The Contractor shall maintain an accurate record of exposure data on all accidents and incidents occurring under this contract and report this data in a manner prescribed by the MBTA.

E. The Contractor shall be responsible for all its lower-tier sub-contractor's and vendor's compliance.

F. Contractor management shall make a commitment for accident prevention and fire prevention. Safety shall take precedence over schedule and production. Enforcement action is mandatory.

3.10 WORK AUTHORIZATIONS

A. The following work authorizations will be issued by the MBTA:

i. Excavation

ii. Hot Work

iii. Confined Space Entry

iv. Cranes and Suspended Platforms

3.11 WORKING NEAR THE THIRD RAIL

A. When working on or near the third rail, when the power is off, the contractor must have a third rail high-voltage warning device on the job site approved by the MBTA Power Department. This device will warn work crews if the third rail becomes energized at any time during work activity involving the right-of-way.

3.12 HAZARDOUS SUBSTANCES

A. Any Contractor who uses substances on the hazardous substances list to which workers might be exposed under either normal work conditions or reasonable foreseeable emergency conditions resulting from work place operations must provide those workers with the required hazardous substance information.

3.13 PERSONAL PROTECTIVE EQUIPMENT

A. All Contractor personnel must wear the required personal protective equipment when on the job site. Personal protective equipment includes hard hats, safety vest, safety glasses and proper footwear.

3.14 PROTECTION OF THE PUBLIC

A. All necessary precautions to prevent injury to the public or damage to property of others shall be taken. The public is defined as all persons not employed by or under contract or subcontract to the MBTA. Installation of temporary barriers and/or fencing designated to protect the public shall be reviewed and approved by the MBTA. Precautions shall include but not be limited to the following:

B. Work shall not be performed in any area occupied by the public unless specifically permitted by the contract or in writing by the MBTA.

3.15 SUBSTANCE ABUSE/PREVENTION/TESTING PROGRAM

A. The Contractor shall establish a substance abuse policy and testing program that includes the following elements:

☐ Deterrence

☐ Treatment and Rehabilitation
☐ Detection
☐ Enforcement

The MBTA reserves the right to approve the proposed substance abuse program prior to commencing the contract.

3.16 CONDUCT OF TOURS

A. Group tours must be cleared through the MBTA, allowing maximum advance notice and in compliance with MBTA Policy and Procedures.

B. MBTA will coordinate the tour arrangements and ensure notification to the Contractors Project Manager.

3.17 HOUSEKEEPING

A. A basic concept in any effective accident prevention program is "good housekeeping." No one item has a great impact on the overall success of a safety program for a construction project. The importance of good housekeeping is such that it must be planned from the beginning of the job and carefully supervised through the final cleanup.

B. During the course of construction, work areas, passageways and stairs, in an around buildings and structures, shall be kept clear of debris. Construction materials shall be stored in an orderly manner. Storage areas and walkways on the site shall be maintained free of depressions, obstructions and debris.

PART 4 - MEASUREMENT AND PAYMENT

A. No separate measurement or payment will be made for work required under this Section.

UNITED STATES DEPARTMENT OF LABOR

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- **Part Title:** Safety and Health Regulations for Construction
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- **Title:** Table of Contents

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Appendix C to Subpart CC of part 1926--Operator Certification--Written Examination--Technical Knowledge Criteria

APPENDIX A TO PART 1926 -- DESIGNATIONS FOR GENERAL INDUSTRY STANDARDS INCORPORATED INTO BODY OF CONSTRUCTION STANDARDS.

SOURCE: 44 FR 8577, Feb. 9, 1979; 44 FR 20940, Apr. 6, 1979, unless otherwise noted.

EDITORIAL NOTE: At 44 FR 8577, Feb. 9, 1979, and corrected at 44 FR 20940, Apr. 6, 1979, OSHA reprinted without change the entire text of 29 CFR Part 1926 together with certain General Industry Occupational Safety and Health Standards contained in 29 CFR Part 1910, which have been identified as also applicable to construction work. This republication developed a single set of OSHA regulations for both labor and management forces within the construction industry.

Editorial Note: The Federal Register of August 2, 1995, page 39254 issued a Final Rule; correcting amendment. OSHA will maintain the existing fall protection requirements for steel erection activities pending rulemaking that addresses the steel erection industry. This affected 1926.104, 1926.105, 1926.107, 1926.500, and 1926.753.

[55 FR 42328, Oct. 18, 1990; 55 FR 47687, Nov. 14, 1990; 58 FR 26627, May 4, 1993; 58 FR 35077, June 30, 1993; 59 FR 215, Jan. 3, 1994; 59 FR 36695, July 19, 1994; 59 FR 40729, Aug. 9, 1994; 59 FR 40964, Aug. 10, 1994; 60 FR 5131, Jan. 26, 1995; 60 FR 39254, Aug. 2, 1995; 61 FR 5507; Feb. 13, 1996; 61 FR 9227, March 7, 1996; 61 FR 31427, June 20, 1996; 61 FR 46025, Aug. 30, 1996; 62 FR 1493, Jan. 10, 1997; 63 FR 1152, Jan. 8, 1998; 63 FR 1919, Jan. 13, 1998; 63 FR 3813, Jan. 27, 1998; 63 FR 13338, March 19, 1998; 63 FR 17093, April 8, 1998; 63 FR 20098, April 23, 1998; 63 FR 33450, June 18, 1998; 63 FR 35137, June 29, 1998; 64 FR 18810, April 16, 1999; 66 FR 5265, Jan. 18, 2001; 70 FR 76985, Dec. 29, 2005; 71 FR 2885, Jan. 18, 2006; 71 FR 16675, April 3, 2006; 75 48130, Aug. 9, 2010]

Next Standard (1926 Subpart A)

DOCUMENT A00815

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

RAILROAD OPERATIONS DIRECTORATE

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MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

RAILROAD OPERATIONS DIRECTORATE

The attached Specifications are required for any construction and/or related activities on, over, under, within or adjacent to railroad property owned or controlled by the Massachusetts Bay Transportation Authority. They are intended to provide general guidelines and safeguards. Attachment "A" of Construction Guidelines and Procedures contains a summary of MBTA Railroad Operations Specifications which may be required. It is the responsibility of the Contractor to obtain all the necessary specifications for each project.

AUGUST 2014

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

RAILROAD OPERATIONS DIRECTORATE

GUIDELINES AND PROCEDURES

FOR CONSTRUCTION ON

MBTA RAILROAD PROPERTY

AUGUST 2014

SECTION 1. SCOPE

1.01 These specifications provide general safeguards to railroad property owned or controlled by the Massachusetts Bay Transportation Authority and to railroad operations upon that property during the performance of construction and/or related activities on, over, under, within or adjacent to the railroad property. They are intended as guidelines and do not represent all legal requirements which are or may be associated with construction and/or related activities. The MBTA reserves the right to require additional information and clarification and to make unilateral changes to these specifications at any time, at its sole discretion.

SECTION 2. DEFINITIONS

MBTA

Massachusetts Bay Transportation Authority; Massachusetts Realty Group, Designated Representative of MBTA Real Estate

RAILROAD COMPANY

The particular reference for the purpose of these specifications is the railroad company which maintains and/or operates or has trackage rights on the subject MBTA Railroad Property, including, but not limited to:

- Massachusetts Bay Transportation Authority (MBTA")
- Keolis Commuter Services
- Providence and Worcester Railroad (PW)
- National Railroad Passenger Corporation ("Amtrak")
- CSX Transportation ("CSX")
- Pan Am Railways (PAR) and subsidiaries The Boston and Maine Corporation (BM), The Springfield Terminal Railway Company (ST), its affiliates, successors and assigns
- Bay Colony Railroad Corporation (BLCR)

MBTA RAILROAD PROPERTY

All railroad rights of way and adjacent owned and/or controlled by the MBTA.

OWNER

The individual, utility, government, or corporation having title to the structure to be constructed upon, over or adjacent to the railroad property owned or controlled by the MBTA.

UTILITY

Public or private communication, water, sewer, electric, gas and petroleum companies or other entity governed by the Massachusetts Department of Public Utilities.

GOVERNMENT

Federal, State, Town, City, County and other forms of government.

CORPORATION

Any firm duly incorporated under laws of a state government.

INDIVIDUAL

Any party not defined by "Owner, Utility, Government or Corporation".

CONTRACTOR

The individual, partnership, firm, corporation or any combination thereof, or joint venture, contracting with a Utility. Government, Firm, Company, Corporation or Individual for work to be done on, over, under, within or adjacent to MBTA Railroad Property.

OWNER OR ITS CONTRACTOR

As used in these specifications, does not affect the responsibilities of either party for work conducted on, over, under, within or adjacent to MBTA Railroad Property.

CONSTRUCTION DRAWINGS

Original drawings, submitted to the Engineer by the Contractor pursuant to the Work, including, but not limited to: stress sheets, working drawings, diagrams, illustrations, schedules, performance charts, brochures, erection plans, falsework plans, framework plans, cofferdam plans, bending diagrams for reinforcing steel, or other supplementary plans or similar data which are prepared by the Contractor or a Subcontractor, manufacturer, supplier or distributor, and which the Contractor is required to submit for review and approval by the MBTA. Working Drawings: Contractor prepared plans for temporary

structures and facilities. Working Drawings for elements of work which may affect safety of persons or property included but are not limited to Contractor's plans for temporary structures such as decking, temporary bulkheads, support of utilities, and for such other work as may be required for construction but which do not become an integral part of completed project.

SECTION 3. SUBMITTALS

3.01 INITIAL CONTACT

A. The MBTA owns the majority of the railroad lines in eastern Massachusetts. Many of these railroad lines are operated for passenger service, using a Railroad Company as an operating and maintaining Contractor. Some of the railroad lines are used for freight-only service, operated and maintained by other Railroad Company(s). In most instances, both passenger and freight service are operated over the same railroad lines.

B. All of the MBTA railroad lines are maintained by a designated Railroad Company(s), excepting rapid transit and light rail lines. The maintaining Railroad Company(s) has rights and responsibilities, in addition to the MBTA's property owner's rights.

C. To obtain further information concerning License Agreements, Easements, Licenses for Entry and performance of construction related activities which affect MBTA Railroad Property, a written request may be forwarded to:

License Administrator
Massachusetts Realty Group
20 Park Plaza, Suite 1120
Boston, MA 02116

or you may access the website at www.mbtarealty.com

The License Administrator is also the contact person for information concerning rapid transit and light rail lines.

SECTION 4. PLANS AND SPECIFICATIONS

4.01 SCOPE: It is the intent of the MBTA to eliminate or minimize any risk involved with construction or related activities on, over, under, within or adjacent to MBTA Railroad Property. Therefore, MBTA approval and

frequently one or more Railroad Company(s) approval of construction plans and specifications for all phases of a proposed project affecting MBTA Railroad Property is required.

4.02 GENERAL: If requested by the License Administrator, the applicant must provide six (6) sets of plans and specifications to the License Administrator. These plans and specifications must meet the approval of the Railroad Company(s) and the MBTA prior to the start of construction. These plans are to be prepared in sizes as small as possible (no smaller than 11" x 17") and are to be folded to an 8-1/2 inch by 11 inch size (folded dimensions) with a 1-1/2 inch margin on the left side and a 1 inch margin on the top.

A. After folding, the title block and other identification of the plans shall be visible at the lower right corner, without the necessity of unfolding. Each plan shall bear an individually identifying number and an original date, together with subsequent revision dates, clearly identified on the plan.

B. All plans are to be individually folded or rolled and where more than one plan is involved, they shall be assembled into complete sets before submission to the MBTA.

4.03 PLANS: The plans are to show all the work which may affect MBTA Railroad Property, and contain a location map and plan view of the project, with appropriate cross sections and sufficient details. The proposed construction or related activities must be (orated with respect to top of rail (vertical) and center line of track (horizontal). The plan must also include railroad stationing, property lines and subsurface soil conditions. The subsurface information is to be in the form of boring logs with the borings located on the plan view. The plans must be stamped by a Professional Engineer registered in the state of Massachusetts. (The purchase of railroad valuation plans may be arranged by contacting MBTA Engineering offices at (617) 222-6178).

4.04 SPECIFICATIONS: The specifications summarized on Attachment "A" attached hereto are the Standard Specifications of the MBTA Railroad Operations Department and apply to all types of construction work affecting MBTA Railroad Property.

A. In addition to "Maintenance and Protection of Railroad Traffic" and "Insurance Specifications" which are required for all work on, over, under, within or adjacent to MBTA Railroad Property, certain other Specifications contained in Attachment "A" shall be incorporated into construction/engineering submittals when deemed necessary by the MBTA and/or Railroad Company(s). (The purchase

of additional specifications may be arranged by contacting MBTA offices at (617) 222-3448 or visiting Massachusetts Realty Group website at www.mbtarealty.com.

SECTION 5. SUBMISSION REVIEW

5.01 An initial submission of six (6) sets of plans and specifications for MBTA review must be forwarded to the License Administrator, along with a completed MBTA Application for Entry (Attachment "B"). The submission will be circulated for review and comment to MBTA departments which may be impacted by the proposed project. If approved by the MBTA, the Railroad Company(s) will review.

5.02 The applicant is advised that the MBTA's initial review process requires a minimum forty-five (45) day period, prior to the Railroad Company(s) involvement, and additional processing time may be required for specific documents (See Section 9).

SECTION 6. INSPECTIONS/PAYMENTS

6.01 The MBTA may inspect all projects affecting MBTA Railroad Property at least twice, at the applicant's sole expense. The actual number of MBTA inspections will depend on the size and complexity of the project.

6.02 The MBTA may utilize Railroad Company inspectors and flagmen for daily inspection and protection of rail traffic during the term of the construction period or related activities. The Owner or Contractor will be responsible for advance payment of all associated fees.

6.03 Advance payments to the MBTA for construction/engineering review of plans and specifications by MBTA staff must be submitted when initial contact is made with the License Administrator. Payments shall be in the form of check or money order, made payable to the Massachusetts Bay Transportation Authority.

6.04 Advance payments covering the services for Railroad Company(s) construction/engineering review of plans and specifications, or services of an inspector or flagman, will be paid directly to the Railroad Company(s). The MBTA will advise when such services are required, and the Railroad Company(s) will advise of the amount of the required advance payment.

SECTION 7. EXAMINATION OF PLANS OR PROPERTY

7.01 The Contractor/Applicant shall have no claim for any differences between MBTA valuation plans and the actual conditions encountered in the field.

SECTION 8. INSURANCE AND INDEMNIFICATION

8.01 Prior to entry upon MBTA Railroad Property, insurance will be provided to and approved by the MBTA and affected Railroad Company(s), as outlined in “Insurance Specifications."

8.02 Additionally, all MBTA Licenses and Letters of Authorization contain a clause for Indemnifying MBTA and the Railroad Company(s) from and against any and all liabilities, losses, damages, costs, expenses, causes of action, suits, claims, demands and/or judgments of any nature whatsoever that may be imposed upon or incurred by or asserted against the MBTA or the Railroad Company(s).

SECTION 9. LEGAL DOCUMENTS FOR TEMPORARY AND PERMANENT INSTALLATIONS

9.01 The nature of entry upon or installation within MBTA Railroad Property will determine the authorizing document to be issued. Listed below are brief descriptions of MBTA documents:

A. **License for Entry**: Authorizes short-term entry for purposes of survey, Inspection, test borings, access, etc. One time administrative/ engineering/legal review and access fees.

B. **License Agreement**: Authorizes installations, subject to termination clause, if Applicant chooses not to pursue an Easement. One time administrative/engineering/legal review fee as well as annual rental fee.

C. **Easement**: Authorizes permanent installations in form suitable for recording at Registry Deeds. All easements are non-exclusive and subject to relocation at the Owner's expense, for Mass transportation purposes:

1. Easements must receive MBTA Board of Directors approval, which involves considerable time. Once approved by the Board of Directors and upon payment in full to the MBTA, a License for Construction is issued. Upon final inspection and acceptance of the installation by the MBTA the Easement document is issued.

2. Permanent Subsurface Easement widths are limited to a maximum three-foot distance on either side of the occupation.

3. a) A one-time administrative/engineering/legal review fee, in addition to value of easement, as established by independent appraisal conducted at the Applicant's expense.

   b) If easement size is minimal, as determined by the MBTA, a fixed fee, encompassing administrative/engineering/legal review fee.

D. **Letter of Authorization**: Authorizes installations and construction activities in association with Master License Agreements. One-time administrative/engineering/legal review as well as access and/or annual fees.

ATTACHMENT "A"

SUMMARY OF MBTA RAILROAD OPERATIONS SPECIFICATIONS

I. GUIDELINES AND PROCEDURES FOR CONSTRUCTION ON MBTA RAILROAD PROPERTY

This general specification outlines the immediate design requirements and methodology for progressing construction activities on MBTA Railroad Property.

II. MAINTENANCE AND PROTECTION OF RAILROAD TRAFFIC

This specification will be included in ALL work requirements on MBTA Railroad Property, and covers rules, requirements, and protective services or any construction-related activity on MBTA Railroad Property. Supplemental specifications are listed below.

III. INSURANCE SPECIFICATIONS

This specification details the required insurance coverages and limits of the MBTA and Railroad Company(s).

IV. PIPELINE OCCUPANCY SPECIFICATIONS

This specification details requirements for all pipeline borings/jacking's and open cuts on or adjacent to MBTA Railroad Property, as well as requirements for Drawing submittals.

V. SPECIFICATIONS FOR WIRE CONDUIT AND CABLE OCCUPATIONS

This specification details requirements for clearances and installations of parallel and overhead crossings on MBTA Railroad Property, as well as requirements for Drawing submittals.

VI. BRIDGE ERECTION DEMOLITION AND HOISTING OPERATIONS

This specification details plan preparation for demolition and/or hoisting and erection of structures on and over MBTA Railroad Property.

VII. TEMPORARY SHEETING AND SHORING

This specification details requirements for plan preparation and calculations necessary for sheeting and shoring for construction on or adjacent to MBTA Railroad Property.

VIII. BLASTING SPECIFICATIONS

This specification outlines submittals, details and requirements for blasting on or adjacent to MBTA Railroad Property.

IX. TEMPORARY PROTECTION SHIELDS FOR DEMOLITION AND CONSTRUCTION

This specification outlines criteria for plan preparation related to protection of MBTA Railroad Property when work takes place on overhead structures.

X. INDUSTRIAL SIDE TRACK SPECIFICATIONS

This specification outlines minimal requirements for materials and installation submission for private railroad side tracks up to MBTA property line and/or clearance point. Other provisions, site-specific, may be required, including signal protection maintenance and protection of railroad traffic.

XI. RIGHT OF WAY FENCING SPECIFICATIONS

This specification details the requirements for the materials, construction and installation of standard right of way fence.

XII. TEST BORING SPECIFICATIONS

This specification outlines procedures and requirements for the performance of test borings on MBTA Railroad Property.

XIII. FIBER OPTIC CABLE SPECIFICATIONS

This specification details requirements for design and installation of fiber optic cables on MBTA Railroad Property; and is modified by site-specific requirements, including the construction methodology, location and type of fiber optic cables and protection conduits.

XIV. RAILROAD OPERATIONS BOOK OF STANDARD PLANS, TRACK AND ROADWAY, MW-I SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF TRACK

Certain construction activities may require obtaining this comprehensive package if rail construction details and requirements are related to the track operation.

XV. COMMUTER RAIL DESIGN STANDARDS

ATTACHMENT "B"

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
APPLICATION FOR ENTRY UPON MBTA RAILROAD, TRANSIT,
OR OTHER PROPERTY

Date_____

1. Name of Applicant: _____

2. Type of Entity (Partnership, Corporation, Proprietorship, Public Authority, etc.):

   _____

3. Mailing Address: _____

4. Contact info:_____

5. If incorporated, state of incorporation:_____

6. Proposed license term commencement date:_____

7. Agents for applicant for service of notice or process: _____

   _____

   _____

8. Administrative Fee: 1,000.00 paid with application

9. *If plan reviews by The MBTA Design and Construction are deemed necessary the following fee shall apply:*

   Design and Construction Plan Review Fee: 1,600.00 Paid with Application Fee

10. Applicant shall submit Drawings in pdf form and one set of paper Drawings to License Administrator

11. If applicant is self-insured, please provide limits of self-insurance and attach copies of authorizing legislation or certification thereof:_____

    _____

12. If applicant is authorized by public authority to enter into such license agreement, please provide:

    Motion, Resolution, or Ordinance No.: _____

    Date of Adoption: _____

Adopted by: _____

13. Is the applicant seeking permission to perform environmental testing and/or assessment on Authority property?

_____

a) Is the proposed testing and/or assessment required by the Massachusetts Contingency Plan ("MCP")?

_____

b) What is the Release Tracking number and current status of the MCP work?

_____

_____

_____

_____

14. Name, title and email of applicant's officer authorized to sign agreement: _____

_____

_____

Project Description

1. Brief description of construction (including types of pipes and other attachments or ancillary facilities to be installed on MBTA Railroad Property): _____

_____

_____

_____

_____

2. Brief description of purpose of entry and/or installation: _____

_____

_____

_____

Space Requirements
[*To Be Provided*]

Technical Information

1. Is this occupancy within the limits of a public road? _____
   Attach copies of applicant's franchise to occupy such space.

2. If occupancy is under, over, though, or attached to undergrade or overhead bridge, who owns such bridge? _____

   _____

3. Type of occupancy (facility):
   a) Exact Length of MBTA Railroad Property to be burdened by occupancy: ____

   _____

   b) Width of excavation facility on MBTA Railroad Property:

   _____

   c) Number of manholes: _____

   A. Aerial or underground wire and cable:

   (1) Telephone and other communication cables:

   Number of cables: _____

   Number of pairs/cable: _____

   Are these composite coaxial cables? _____

   (2) Power Cables:

   Number of cables/size: _____

   Number of volts per conductor: _____

   Are these pipe-type cables consisting of one or more high voltage cables encased in steel pipe under inert oil pressure? _____

   (3) Fiber optic cables:

   Number of cables: _____

   Number of distribution cables: _____

   Number of transmission cables: _____

   Number of strands in each cable: _____

Number of repeater stations on MBTA Railroad Property: _____

Systems (check one):

Transmission _____

Distribution _____

Sensor _____

(4) Number of spare or unoccupied ducts to be installed: _____

B. Pipes and Sewers

(1) Circular line carrying no pressure:

Number of pipes: _____

Number of inches of inside nominal diameter per pipe: _____

(2) Circular lines under pressure and carrying non-flammable, non-explosive, or non-combustible supporting materials, except coal and slurry:

Number of pipes: _____

Number of inches of inside nominal diameter per pipe: _____

(3) Circular lines under pressure and carrying flammable, explosive, or combustible supporting material:

Number of pipes: _____

Number of inches of inside nominal diameter per pipe: _____

(4) Non-circular pipe: _____

(5) Will a pipe tunnel be constructed? _____

(6) Will pipe be supported by MBTA structures, bridges, etc.? _____

Explain: _____

_____

(7) Will pipe be attached to MBTA structures, bridges, etc.? _____

Explain: _____

_____

C. Ancillary Facilities

Number of wooden poles to be installed on MBTA Railroad Property:

_____

Other wooden supporting structures: _____

_____

Steel supporting structures: _____

Explain: _____

Number of braces, stub poles: _____

Number of guy wires anchored on MBTA Railroad Property: _____

Number of span guy wires crossing MBTA Railroad Property: _____

D. Attachments

(1) Attachment of aerial wires and cables to poles or other structures of MBTA used in wire line construction or support:

Number of wires attached to MBTA cross-arm: _____

Voltage of wire: _____

Number of wires attached to applicant's cross-arm or bracket: ____

Voltage of wire: _____

Number of cross-arms or brackets attached to MBTA poles: _____

(2) Attachment of aerial wires and cables to building or structures other than those used in wire line construction or support:

Number of wires or cables attached to MBTA's building or structures:

_____

(3) Attachment of cable terminals to poles, buildings, or structures including highway bridges, railroad bridges over highways, or other bridges of MBTA:

Number of cable terminals, loading coils, transformers, or like devices attached:

_____

Explain: _____

E. Guy wire crossings and overhanging cross-arms and power wires of pole lines outside MBTA right-of-way.

Number of guy wires crossing MBTA Railroad property but not anchored thereon: _____

Number of cross-arms overhanging MBTA Railroad Property from poles located outside thereof: _____

Number of cross-arms on any poles: _____

It is hereby understood and agreed that the undersigned applicant will bear any and all costs associated with MBTA's preliminary and final engineering review in connection with this application. Any charges in excess of the initial advance payment will be billed directly to the address indicated in Item #3 above.

Agent: _____

For: _____
Name of Applicant

By: _____
(Title)

_____
(Date)

REVENUE ENFORCEMENT AND PROTECTION PROGRAM CERTIFICATION

Pursuant to M.G.L. Ch. 62C, Sec. 49A, I certify under penalties of perjury that I (my company), to my best knowledge and belief, have (has) filed all state tax returns and paid all state taxes required under law.

_____ _____

Social Security Number or
Federal Identification Number

Signature of Individual or Corporate Name

By: _____
Corporate Officer
(If applicable)

Date: _____

EMPLOYER'S CERTIFICATE OF COMPLIANCE WITH MASSACHUSETTS EMPLOYMENT SECURITY LAW

Pursuant to G. L. C. 151A, Sec. 19A (b), I _____

on behalf of (Name of Employer) _____,

D.E.T. ID Number _____, certify under the penalties of perjury[1] that the aforementioned employer has complied with all laws of the Commonwealth relating to contributions and payments in lieu of contributions.

Signed under the penalties of perjury this _____ day of _____, 20__.

_____
Name of Employer

_____
Signature

_____
Name (Printed)

_____
Title (Printed)

[1] The employer may certify its compliance if it has entered into and is complying with a repayment agreement satisfactory to the Commissioner or there is a pending adjudicatory proceeding or court action contesting the amount due pursuant to G. L. C. 161A, Sec. 19A(c).

STATEMENT REGARDING BENEFICIAL INTEREST

In compliance with the provisions of Chapter 7, Sec. 40J of the General Laws, I hereby state, under the penalties of perjury, that the true names and addresses of all persons who have or will have a direct or indirect beneficial interest in the real property subject to this Application dated _____, 20__,

between _____ as applicant/tenant, for premises in the building (on the site) know as _____, and located at _____ _____ are listed below.

Name and residence of all persons with beneficial interests:

1. _____
2. _____
3. _____
4. _____
5 _____
6. _____

Signed: _____

Title: _____

Date: _____

ATTACHMENT "C"

REFERENCED STANDARDS AND SPECIFICATIONS

A. Wherever standards or specifications issued by a recognized industry association or regulatory body are referenced in these Specifications, the reference shall be interpreted as incorporating the referenced standard or specification in total into these Specifications as applicable. In the event of a difference between referenced standard or specifications and these Specifications, the latter shall govern.

B. Technical Reference Abbreviations - References are made to recognized standards by use of the acronyms listed below. Addresses are included for convenience, and the accuracy of the addresses is not warranted:

AA The Aluminum Association
900 19th Street NW
Washington, DC 20006

AAR The Association of American Railroads
American Railroads Building
50 F Street NW
Washington, DC 20001

AASHTO American Association of State Highway and Transportation Officials
444 North Capitol Street NW
Suite 249
Washington, DC 20001

ACGIH American Conference of Governmental Industrial Hygienists
1330 Kemper Meadow Drive
Cincinnati, OH 45240

ACI American Concrete Institute
P. O. Box 19150
Detroit, MI 48219

AFPA American Forest and Paper Association
1111 19th Street, NW
Suite 700
Washington, DC 20036

AIA	American Insurance Association 1130 Connecticut Avenue NW Washington, DC 20036
AISC	American Institute of Steel Construction Inc. 1 East Wacker Drive Suite 1300 Chicago, IL 60601
AISI	American Iron and Steel Institute 1101 17th Street NW Suite 1300 Washington, DC 20036-4700
AITC	American Institute of Timber Construction 7012 South Revere Parkway Suite 140 Englewood, CO 80112
ANSI	American National Standards Institute 11 West 42nd Street New York, NY 10036
APA	American Plywood Association P. O. Box 11700 Tacoma, WA 98411
APHA	American Public Health Association 1015 15th Street NW Washington, DC 20005
AREA	American Railway Engineering Association 50 F Street NW Washington, DC 20001
ASCE	American Society of Civil Engineers 345 East 47th Street New York, NY 10017
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers 1791 Tullie Circle, NE Atlanta, GA 30329
ASME	American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017

ASTM	American Society for Testing and Materials 1916 Race Street Philadelphia, PA 19103
AWPA	American Wood Preservers' Association P. O. Box 286 Woodstock, MD 21163-0286
AWS	American Welding Society 550 NW 42nd Avenue Miami, FL 33126
AWWA	American Water Works Association, Inc. 6666 W. Quincy Avenue Denver, CO 802350
CSI	Construction Specifications Institute 601 Madison Avenue Alexandria, VA 22314-1791
FHA	Federal Highway Administration 400 7th Street SW Washington, DC 20590
FRA	Federal Railroad Administration 403 7th Street SW Washington, DC 20590
ICBO	International Conference of Building Officials 5360 Workman Mill Road Whittler, CA 90601
IIA	Incinerator Institute of America 60 East 42nd Street New York, NY 10017

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

RAILROAD OPERATIONS DIRECTORATE

II

MAINTENANCE AND PROTECTION OF RAILROAD TRAFFIC

AUGUST 2014

SECTION 1. GENERAL

1.01 The Contractor should note that these specifications govern proposed work that involves construction on, over, under, within or adjacent to MBTA Railroad Property. Requirements must be strictly observed whenever the tracks, structures, or properties of the MBTA are involved or affected.

1.02 If the tracks or other facilities of the MBTA are endangered, the Contractor shall immediately perform such work as directed by the Railroad Company(s), and upon failure of the Contractor to carry out such orders immediately, the Railroad Company(s) may take whatever steps are necessary to restore safe conditions. The cost and expense to the Railroad Company(s) and/or MBTA of restoring safe conditions or of any damage to the MBTA's trains, tracks, or other facilities caused by the Contractors' or subcontractors' operations, shall be at the sole expense of the Contractor and will be collected as appropriate. This cost shall be paid for by the Contractor and may be deducted from any monies due and that may become due to the Contractor.

1.03 Before entering upon MBTA Railroad Property:

A. The Owner or its Contractor shall be fully informed of all requirements of the MBTA pertaining to the specific project and shall conduct all their work accordingly. Any questions relating to the requirements of the MBTA should be directed to the Director of Engineering for MBTA Railroad Operations or their authorized representative.

B. The Owner or its Contractor shall execute an MBTA License for Entry, and shall provide the MBTA and Railroad Company(s) with the information required in the "Insurance Specifications".

C. The Owner or its Contractor shall take note that if an excavation is to be made within a 2 to 1 slope line commencing 5.5 feet from the centerline of track, they shall be required to submit the proposed method of soil stabilization for approval by the Director of Engineering for MBTA Railroad Operations.

D. The Owner or its Contractor shall furnish detailed plans for falsework, bracing, sheeting, or other supports adjacent to the tracks for approval by the Director of Engineering for MBTA Railroad Operations and the Railroad Company(s), and the work shall be performed in accordance with temporary “Sheeting and Shoring". All plans and calculations shall be stamped by a Registered Professional Engineer.

E. The Owner or its Contractor shall give written notice to the Director of Engineering for MBTA Railroad Operations and the applicable

Railroad Company(s) at least 21 days in advance of starting work or locating equipment at the site.

F. The Owner or its Contractor shall make all necessary arrangements with the MBTA before entering upon MBTA Railroad Property.

1.04 After entering upon MBTA Railroad Property:

A. The Owner or its Contractor shall have, in their possession on the job site, the contract plans and specifications which bear the stamp of approval of the Director of Engineering for MBTA Railroad Operations or Railroad Company(s). The Owner or its Contractor shall conduct all their work according to these plans and specifications.

B. All work shall be performed and completed in a manner fully satisfactory to the MBTA Chief Engineering Officer or authorized representative(s). Railroad Company(s) inspection of the work shall be conducted at any time and the Owner or its Contractor shall cooperate fully with the MBTA and Railroad Company(s) representatives.

C. All equipment used by the Owner or its Contractor on MBTA Railroad Property may be inspected by the Railroad Company(s) and shall not be used if considered unsatisfactory by the Railroad Company(s) representative. Equipment of the Owner or its Contractor to be used adjacent to tracks shall be in first class condition so as to positively prevent any failure that would cause delay in the operation of trains or damage to MBTA or railroad facilities. Equipment shall not be placed or put into operation adjacent to a track without first obtaining the permission of the Railroad Company(s).

D. Operators of such equipment must be properly licensed and may be examined by the Railroad Company(s) representative to determine their fitness. If it is determined that they are unfit to work, then the Owner or its Contractor shall remove them from MBTA Railroad Property.

E. If the Director of Engineering for MBTA Railroad Operations deems it necessary, the Owner or its Contractor shall furnish and erect in close proximity to the site of the work a suitable, furnished shelter with lights, heat, telephone, etc., for use by Railroad Company(s) personnel providing services to the Owner's or Contractor’s work.

F. The Owner or its Contractor's work shall be performed in such manner that the tracks, train operations and appurtenances of the MBTA and the Railroad Company(s) will be safeguarded.

G. Open excavations shall be suitably planked and safeguarded when construction operations are not in progress.

H. Blasting will be permitted under or adjacent to tracks only after proof that blasting is required and all methods have been approved by the Director of Engineering for MBTA Railroad Operations and the Railroad Company(s). All blasting operations must comply with the MBTA's "Blasting Specifications".

I. The Owner or its Contractor shall be fully responsible for all damages arising from their failure to comply with the requirements of these specifications. Failure to comply may result in their removal from MBTA Railroad Property, at the MBTA's sole discretion.

SECTION 2. RULES, REGULATIONS, AND REQUIRMENTS.

2.01 Railroad traffic shall be maintained at all times with safety and continuity, and the Contractor shall conduct all operations on, over, under, within or adjacent to MBTA Railroad Property within the rules, regulations, and requirements of the Railroad Company(s) and/or MBTA. The Contractor shall be responsible for acquainting themselves with such requirements as the Railroad Company(s) and/or MBTA may demand.

2.02 The Contractor shall obtain verification of the time and schedule of track occupancy from the Railroad Company(s) before proceeding with any construction or demolition work on, over, under, within or adjacent to MBTA Railroad Property. The work shall not proceed until the plans and method of procedure have been approved by the Director of Engineering for MBTA Railroad Operations or their authorized representative.

2.03 All work to be done on, over, under, within or adjacent to MBTA Railroad Property shall be performed by the Contractor in a manner satisfactory to the MBTA and the Railroad Company(s), and shall be performed at such times and in such manner, as to not interfere with the movement of trains or operations upon the tracks of the MBTA. The Contractor shall use all necessary care and precaution in order to avoid accidents, delays or interference with the MBTA's trains or other property.

2.04 The Contractor shall give written notice to the Railroad Company(s) at least twenty- one (21) days prior to the commencement of any work, or any portion of the work, by the Contractor or their subcontractors on, over, under, within or adjacent to MBTA Railroad Property, in order that necessary arrangements may be made by the Railroad Company(s) to protect railroad operations.

2.05 If deemed necessary by the Railroad Company(s), it may assign an inspector and/or engineer who will be placed on the work site during the time the Contractor or any subcontractor is performing work on, over, under, within or adjacent to MBTA Railroad Property. The cost and expense will be paid directly by the contracting party with an advance deposit to the Railroad Company(s), unless otherwise approved.

2.06 Before proceeding with any construction or demolition work, on, over, under, within or adjacent to the MBTA's Railroad Property, a pre-construction meeting shall be held at which time the Contractor shall submit for approval of the MBTA and Railroad Company(s), Drawings, computations, and a detailed description of the method for accomplishing the construction work, including methods of protecting railroad operations. Such approval shall not serve in any way to relieve the Contractor of complete responsibility for the adequacy and safety of the referenced methods.

2.07 During any demolition procedure, the Contractor must provide an approved shield to prohibit all debris from falling onto MBTA Railroad Property. A protective fence must be erected at both ends of the project to prohibit trespassers from entering MBTA Railroad Property.

2.08 Cranes, shovels, or any other equipment shall be considered to be fouling the track when located in such position that failure of same with or without load brings the equipment within the fouling limit. The Contractor's employees and equipment will not be permitted to work near overhead wires or apparatus.

2.09 The Contractor shall conduct their work and handle their equipment and materials so that no part of any equipment should foul an operated track or wire line without the written permission of the Railroad Company(s). When it becomes necessary for the Contractor to foul any track, they must give the Railroad Company(s) written notice of their intentions twenty-one (21) days in advance, so that if approved, arrangements may be made for proper protection of the Railroad Company(s).

2.10 The Contractor's equipment shall not be placed or put into operation adjacent to tracks without first obtaining permission from the Railroad Company(s). Under no circumstances shall any equipment or materials be placed or stored within fifteen (15) feet from the centerline of the closest track.

2.11 Materials and equipment belonging to the Contractor shall not be stored on MBTA Railroad Property without first having obtained permission from the Railroad Company(s), and such permission will be on the condition that the MBTA and/or Railroad Company(s) will not be liable for damage to such materials and equipment from any cause. The Contractor shall keep the

tracks adjacent to the site clear of all refuse and debris that may accumulate from construction operations, and shall leave the MBTA Railroad Property in the condition existing before construction commencement. Equipment repair, refueling or extended storage is prohibited on MBTA Railroad Property.

2.12 The Contractor shall consult the Railroad Company(s) in order to determine the type of protection required to insure safety and continuity of railroad operations. The railroad field engineer may assign track foremen, flagmen, signalmen or other employees deemed necessary for protective services by the Railroad Company(s), to insure the safety of trains and MBTA Railroad Property. The cost of same shall be paid directly by the contracting party with an advance deposit to the Railroad Company(s), unless otherwise approved.

2.13 The provision of such protective services, and other precautionary measures, shall not relieve the Contractor from liability for the cost of any and all damages caused by their operations.

2.14 The Railroad Company(s) will require protection during all periods when the Contractor is working on, over, under, within or adjacent to MBTA Railroad Property or as may be deemed necessary. When protection is required, the Contractor shall make the request in writing to the Railroad Company(s) at least twenty-one (21) days before such protection is required.

2.15 The Contractor shall not bill the Railroad Company(s) or MBTA for any work which they are proposing to perform, unless the Railroad Company(s) or MBTA authorizes the said work in writing. This work must be to the benefit of the MBTA or Railroad Company(s).

2.16 The Contractor, subcontractor and respective employees who will come within the limits of the MBTA Railroad Property, must first attend the Railroad Company(s) Safety Orientation Class. They are required to comply with the Railroad Company(s) Safety Requirements throughout the entire construction period. All costs associated with compliance of the Railroad Company(s) Safety Requirements will be at the sole expense of the Contractor and subcontractors.

A. The Contractor for the project must appoint a qualified person who will be designated as a Safety Representative. They must be approved by the Railroad Company(s) Safety Representative. The Contractor's designee will be responsible to give Safety Orientation to the Contractor's/subcontractor's employees who will come onto the MBTA's Railroad Property for short periods of time after the initial Safety Orientation Class has been given by the Railroad Company(s). The Contractor's designee will keep the Railroad Company(s) Safety Representative informed of the temporary employees who received Safety Orientation. The Railroad Company(s)

Safety Orientation Class will be repeated when employee turnover or groups of Contractor's and subcontractor's employees are such that another Railroad Company(s) Safety Orientation Class is justified.

B. All Contractors shall follow established safety procedures and remain 15 feet or more from the closest rail of the closest track. When it becomes necessary for Contractors to encroach on this 15 foot limitation, the proper fouling procedures will be arranged with the Railroad Company(s).

C. Contractors will establish the 15 foot foul line by installing stakes and taping off the area prior to beginning work.

2.17 Upon completion of the work, the Contractor shall remove from the MBTA Railroad Property, all machinery, equipment, surplus materials, falsework, rubbish, temporary buildings and other property of the Contractor, or any subcontractor, and shall leave MBTA Railroad Property in a condition satisfactory to the MBTA and Railroad Company(s). Failure to comply will result in Railroad Company(s) forces restoring MBTA Railroad Property at the Contractor's expense.

2.18 The Contractor will pay the Railroad Company(s) directly, for all protective services unless otherwise approved. The services are performed to insure safe operation of trains when construction work would, in the Railroad Company(s) opinion, be a hazard.

SECTION 3. DEFINITION OF HAZARD

3.01 Protection Services will be required whenever the Contractor is performing work on, over, under, within or adjacent to MBTA Railroad Property. This will include excavating, sheeting, shoring, erection, removal of forms, handling material, using equipment which by swinging or by failure could foul the track, and when any other type of work being performed, in the opinion of the Railroad Company(s), requires such service.

3.02 Railroad operations will be considered subject to hazard when explosives are used in the vicinity of MBTA Railroad Property during the driving or pulling of sheeting for footings adjacent to a track, when erecting structural steel across or adjacent to a track, when operations involve swinging booms or chutes that could in any way come closer than 5 feet to the center line of a track or wire line. None of these or similar operations, shall be carried on without Railroad Company(s) protective services personnel on site.

3.03 A signal line or communication line shall be considered fouled and subject to hazard when any object is brought closer than ten (10) feet to any wire or cable. An electrical supply line shall be considered fouled and subject to hazard when any object is brought closer than ten (10) feet to any

wire of the line.

3.04 As excavation approaches pipes, conduits, or other underground structures on or adjacent to MBTA Railroad Property, digging by machinery shall be discontinued and the excavation shall continue by means of hand tools. All existing pipes, poles, wires, fences, property line markers, and other structures, which the MBTA and/or Railroad Company(s) decides must be preserved in place, shall be carefully protected from damage by the Contractor or its Owner. Should such items be damaged, they shall be restored by the Railroad Company(s), at the Owner's or Contractor's sole expense to the original condition prior to construction commencement. If any excavation is taken beyond the work limit indicated on the approved Drawings or prescribed herein, the Owner or its Contractor shall backfill and compact to the satisfaction of the Railroad Company(s) at the Contractors expense.

SECTION 4. BACKFILL

4.01 Backfilling

A. All backfill material adjacent to any Railroad Company(s) facility shall be approved by the Railroad Company(s). Backfill material shall be free from hard lumps and clods larger than 3 inches in diameter, and free from large rocks or stumps. Uniformly fine material shall be placed next to any pipe liable to dent or break.

B. All backfill material shall be compacted at or near optimum moisture content, in layers not exceeding 6 inches in compacted thickness by pneumatic tampers, vibrator compactors, or other approved means to the base of the railroad subgrade. Material shall be compacted to not less than 95 percent of AASHTO T 99, Method C. The Contractor will be required to supply to the job site, ballast stone (AREA #4) to be installed by the Railroad Company(s).

4.02 Certification

The Owner or its Contractor shall provide testing, through the use of a testing lab or Professional Engineer, to insure that the in place density of the backfill meets or exceeds the requirements of Section 4.01(B). Written certification of the tests shall be given to the Railroad Company(s) immediately upon completion of the test.

4.03 Alternate

In the case of an open cut crossing of the MBTA Railroad Property, the Owner or its Contractor may backfill with concrete having a three-day compressive strength of 1000 psi to the base of the track subgrade. This

may be used in lieu of providing the certification of proper compaction when using gravel backfill. The Owner or its Contractor will be required to supply to the job site, ballast stone (AREA #4) to be installed by the Railroad Company(s).

SECTION 5. CLEARANCES

5.01 Staging falsework or forms shall at all times be maintained with a minimum vertical clearance of 226" above top of the high rail and a minimum horizontal clearance of 15' from the center line of track.

SECTION 6. PROTECTION SERVICES

6.01 The MBTA shall require railroad inspection and may require railroad flagging. Prior to the start of any work on MBTA Railroad Properly, the Owner or its Contractor shall submit a deposit to the amount required by the Railroad Company(s). If Railroad Company(s) expenses are greater than the amount of deposit, the Owner or its Contractor shall reimburse the Railroad Company(s) for the balance when billed, and, if the Railroad Company(s) expenses are less than the amount of deposit, the Railroad Company(s) will refund the balance to the Owner or its Contractor. The Railroad Company(s) reserves the right to request additional deposits as project work progresses.

6.02 If the MBTA or Railroad Company(s) determines that flagmen are necessary, the number required shall be on duty at the site during the hours of hazard described under Section 3. No work shall be performed if flagmen are required but are not on duty.

6.03 It shall be the responsibility of the Owner or its Contractor to keep the MBTA and Railroad Company(s) informed at all times when the Owner or its Contractor shall be working on, over, under, within or adjacent to MBTA Railroad Property and creating the hazards described under Section 3. Failure of the Owner or its Contractor to give the MBTA and Railroad Company(s) suitable advance notice of hazardous operation shall result in the shutdown of the work by the Railroad Company(s), until such time as sufficient numbers of flagmen are on duty at the site. If this becomes a repeat occurrence, the Contractor will be removed from the project.

6.04 The Railroad Company(s) will make its best effort to provide protective services personnel. Should the situation arise where such personnel are not available, Contractor operations must cease. The Railroad Company(s) is not liable for any monetary claims incurred during the absence of protective services personnel.

SECTION 7. INSPECTION

7.01 If deemed necessary by the Director of Engineering for MBTA Railroad Operations, the MBTA will furnish and assign an engineer(s) for inspection and the Railroad Company(s) will furnish an appropriate inspector for general inspection purposes or for general protection of MBTA Railroad Property and operations during construction. All protection services will be at the expense of the Owner or its Contractor.

SECTION 8. EXTRA-CONTRACT SERVICES

8.01 Temporary and permanent changes of tracks and all railroad utilities made necessary by the work of the Contractor, will be made by the MBTA or Railroad Company(s) at the expense of the Owner or its Contractor.

8.02 All other changes made or services furnished by the Railroad Company(s), at the request of the Owner or its Contractor, will be at the Owner's or its Contractor's expense.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

RAILROAD OPERATIONS DIRECTORATE

III

INSURANCE SPECIFICATIONS

The insurance outlined in these Specifications is required of the Owner or Contractor, and shall be provided by or in behalf of all subcontractors performing any portion of the work. The Owner or Contractor shall be responsible for any modifications, deviations or omissions of the required insurance as it applies to subcontractors.

All insurance policies, unless otherwise specified under Railroad Protective Liability Insurance, are to be written either on an occurrence basis or, if a claims-made form, applicable renewals must have a date retroactive to the construction start date and shall be maintained in force for one year following the acceptance of the work by the MBTA or its duly authorized representative.

With the exception of Railroad Protective Liability Insurance, all insurance policies must name the MBTA as an additional insured as its interest appears and waive any rights of subrogation against the MBTA.

Certificates of Insurance evidencing (1) either the claims-made or occurrence form coverage, (2) work description/location, (3) Owner or Contractor's corporate name, and (4) individual, company, government agency or municipality for which the work is being performed, are to be furnished to the MBTA prior to work commencement, and within fifteen (15) days of expiration of the insurance coverage, when applicable.

All policies must contain a minimum thirty (30) day written notice of cancellation clause, and provide that the Insurance Company shall notify the Owner, Contractor, MBTA and Railroad Company(s), via registered mail, of any cancellation, change or expiration of the policy.

Original Insurance Certificate(s) shall be received and approved by the MBTA before the Owner or Contractor will be allowed entry upon MBTA Railroad Property. Certificates, including any required endorsements, shall be furnished to the MBTA, c/o Risk Manager, Office of the Treasurer-Controller, Ten Park Plaza, Room 8450, Boston, MA 02116, and shall provide stated coverage and a provision that Notice of Accident (occurrence) and Notice of Claim shall be given to the Insurance Company as soon as practicable after notice to the insured(s).

Original Insurance Binders reflecting Railroad Protective Insurance shall be received and approved by the MBTA and the appropriate Railroad Company(s) prior to entry upon MBTA Railroad Property. Mailing addresses for transmittal of original Insurance Binders to the named insured Railroad Company(s) are contained on Page Four of these Specifications.

The Owner or Contractor shall indemnify, defend and save harmless the MBTA and the appropriate Railroad Company(s) from and against any and all liabilities, losses (including losses of revenue), claims, costs, damages and expenses (including reasonable attorney's fees and expenses) that may be asserted against or incurred by the MBTA and the Railroad Company(s) arising from or as a result of the Owner or Contractor's work, or its use of adjacent land. Said indemnification shall include claims, whether covered by insurance or not, including, but not limited to

Workers Compensation and similar insurance.

The Owner or Contractor shall maintain, during the life of the contract, from company (s} authorized to do business in the Commonwealth of Massachusetts and satisfactory to the MBTA:

A. **COMMERCIAL GENERAL LIABILITY INSURANCE** for personal injury, bodily injury and property damage in an amount not less than $1,000,000 per occurrence and $3,000,000 in the aggregate covering all work performed on over or adjacent to MBTA Railroad Property (the “work"), including:

1. All operations;

2. Contractual liability;

3. Coverage for the so-called "X, C, U" hazards, i.e., collapse of building, blasting, and damage to underground property;

4. Asbestos abatement, when applicable.

B. **AUTOMOBILE LIABILITY INSURANCE** including the use of all vehicles owned, non-owned, leased and hired, in an amount not less than $1,000,000 combined single limit covering all the work.

C. **WORKER'S COMPENSATION INSURANCE** including Employees, Liability Insurance, as provided by Massachusetts General Laws, Chapter 152, as amended, covering all the work.

D. **UMBRELLA LIABILITY COVERAGE** in an amount not less than $10,000,000 per occurrence covering all the work.

E. **HAZARDOUS MATERIALS INSURANCE** if the work involves hazardous materials, the following coverage is required:

1. **Pollution Liability insurance** for sudden and gradual occurrences in an amount not less than $1,000,000 per occurrence and $5,000,000 in the aggregate arising out of the work, including but not limited to all hazardous materials identified in the contract.

2. When applicable, the Owner or Contractor shall designate the disposal site and furnish a Certificate of Insurance from the Disposal Facility for Environmental Impairment Liability Insurance for (a) sudden and accidental occurrences in an amount not less than $3,000,000 per occurrence and $6,000,000 in the aggregate and (b) non-sudden occurrences in an amount not less than $5,000,000 per occurrence and $10,000,000 in the aggregate.

3. Certificates of insurance shall clearly state the hazardous materials exposure work being performed.

F. **RAILROAD PROTECTIVE LIABILITY INSURANCE** is specifically designed for insuring Railroads, and is purchased by the Owner or Contractor in the name of the MBTA and the Railroad Company(s). **The Railroad Company(s) is the named insured on the policy.** Railroad Protective Liability Insurance is required for any work performed within fifty (50) feet from center line of the nearest railroad track; it is not a substitute for any types of insurance outlined in these Specifications. Required limits are:

Bodily injury: not less than $5,000,000 for all damages arising out of bodily injuries to or death of one person, and subject to that limit for each person, a total limit of $6,000,000 for all damages arising out of bodily injury to or death of two or more persons in any one accident;

Property Damage: not less than $10,000,000 or all damages arising out of injury to or destruction of MBTA property in any one accident, and subject to that limit per accident, a total of $10,000,000 in the aggregate for all damages arising out of injury to or destruction of MBTA property.

Questions regarding insurance should be directed to MBTA's Risk Manager at (617) 222-3064.

Questions regarding train counts and train speeds should be directed to the appropriate Railroad Company(s) listed on Page Four.

PROOF OF INSURANCE

MAILING ADDRESSES:

MBTA	Risk Manager c/o Treasurer-Controller 10 Park Plaza Boston, MA 02116 cc: Massachusetts Realty Group
National Railroad Passenger Corporation (Amtrak)	Boston Division Office c/o Division Engineer 2 South Station 5th Floor Boston, MA 02110
CSX Transportation Inc.	500 Water St. Jacksonville, FL 32202
Bay Colony Railroad Corporation	General Manager 4 Freight House Road East Wareham, MA 02571

Boston and Maine Corporation and Springfield Terminal Railway Co.	Chief Engineer 402 Amherst Street Suite 300 Nashua, NH 03063-1287
Providence and Worcester Railroad Company	P. O. Box 1188 Worcester, MA 01601
Keolis Commuter Services	Chief Engineering Officer 470 Atlantic Ave. Boston, MA 02110

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

RAILROAD OPERATIONS DIRECTORATE

IV

PIPELINE OCCUPANCY SPECIFICATIONS

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SECTION 1. GENERAL REQUIREMENTS

1.01 DESCRIPTION OF WORK AND LOCATION

These specifications apply to the design and construction of pipelines carrying flammable and non-flammable substances and to casings over 4-inches in diameter containing wires and cables, under, across or along MBTA Railroad Property, facilities and tracks.

1.02 LICENSE TO ENTER RAILROAD PROPERTY

A. Entry upon MBTA Railroad Property for the purpose of conducting surveys, field inspections, obtaining soil information, or any other purpose associated with the design and engineering of the proposed occupancy, will be authorized by an MBTA License for Entry (See "Guidelines and Procedures for Construction on MBTA Railroad Property").

B. Issuance of the License does not constitute authority to proceed with the actual construction.

1.03 WORK ON RAILROAD PROPERTY

A. The safety and continuity of train operations shall be the first priority. The Applicant shall arrange the work so that the trains will be protected and safeguarded at all times. Whenever the work may affect the safety and movement of trains, the method, sequence and time schedule of performing such work shall be submitted to the Director of Engineering for MBTA Railroad Operations or their authorized representative for approval.

B. The Applicant waives all claims against the Railroad Company(s) and/or the MBTA for delays or any interference occasioned by railroad traffic or railroad maintenance.

C. All Applicant-designed temporary construction on MBTA Railroad Property shall be designed in accordance with the appropriate railroad criteria and all construction performed on, over, under, within or adjacent to MBTA Railroad Property will be subject to the inspection and approval of the Railroad Company(s) and/or MBTA.

D. A minimum of fourteen (14) days advance written notice shall be given to the Railroad Company(s) prior to construction related activities.

E. The Railroad Company(s) will furnish such qualified flagmen, signalmen or protection men as may be required to insure complete

protection of train operations and railroad facilities. The need for this type of service will be determined by the Railroad Company(s) on the basis of railroad regulations and the Applicant's approved construction schedule. No work shall proceed without proper protection on the site.

F. All expenses incurred in connection with protection of railroad facilities by Railroad Company(s) employees will be borne by the Applicant. Billings for such service or expense, including labor, materials and equipment will be made directly to the Applicant for payment.

G. During construction, railroad traffic shall be maintained at all times without interruption, except when approved in advance, in writing, by the Director of Engineering for MBTA Railroad Operations or their authorized representative.

H. All construction operations shall be conducted so as not to interfere with, interrupt, or endanger the operation of trains, nor damage, destroy, or endanger the integrity of railroad facilities. All work on or near MBTA Railroad Property shall be conducted in accordance with the Railroad safety rules and regulations. The Applicant shall secure and comply with the Railroad safety rules and shall give written acknowledgment to the Railroad Company(s) that they have been received, read, and understood by the Applicant and their employees. Construction operations will be subject to Railroad Company(s) inspection at any and all times.

I. All cranes, lifts, or other equipment that will be operated in the vicinity of the MBTA's electrification and power transmission facilities shall be electrically grounded as directed by the Railroad Company(s).

J. At all times when the work is progressing, a field supervisor for the work with no less than twelve (12) months experience in the operation of the equipment being used shall be present. Certification of the above must be submitted to the Railroad Company(s).

K. Whenever equipment or personnel are working closer than fifteen (15) feet to the closest rail of an adjacent track, that track shall be considered as being obstructed. As best possible, all construction operations shall be conducted no less than this distance. Construction operations closer than fifteen (15) feet to the closest rail of a track shall be conducted only with the permission of, and as directed by, a qualified Railroad Company(s) employee present at the work site.

L. Crossing of tracks at grade by equipment and personnel is prohibited except by prior arrangement with, and as directed by, the Director of

Engineering for MBTA Railroad Operations or their authorized representative.

M. All tunneling, jacking and boring operations within railroad influence lines will be done on a 24 hour per day basis to minimize Railroad exposure to construction hazards.

1.04 COORDINATION

The Applicant shall coordinate the work with their Contractors, subcontractors, utility companies, governmental units, and any affected Railroad Company(s) with regard to site access, establishment and use of temporary facilities, work schedules, and other elements of the specified work which require interfacing with others.

1.05 LAYOUT OF WORK

The Applicant shall lay out their work true to lines and grades indicated on the Drawings and shall be responsible for all measurements in connection therewith. The Applicant will be held responsible for the execution of the work to such lines and grades indicated on the approved construction Drawings or such other lines and grades as may be directed or established by the Director of Engineering for MBTA Railroad Operations or their authorized representative.

1.06 INDEMNIFICATION AND INSURANCE

See requirements in "Guidelines and Procedures for Construction on MBTA Railroad Property" and "Insurance Specifications."

1.07 SCIENTIFIC OR HISTORIC ARTIFACTS

The Applicant shall immediately notify the Director of Engineering for MBTA Railroad Operations of the discovery of scientific or historical artifacts and shall protect same until identified and removed by the appropriate Authorities exercising jurisdiction.

1.08 RECORD DOCUMENTS

A. The Applicant shall furnish the Railroad Company(s) and the MBTA with one reproducible "As Built" copy of each approved Construction Drawing, marked to indicate all changes and deviations from same.

B. All project record documents shall be received and accepted by the MBTA and the Railroad Company(s) prior to final inspection.

SECTION 2. SUBMITTALS

2.01 APPLICATION FOR OCCUPANCY

The Applicant must agree, upon approval of the construction details by the Director of Engineering for MBTA Railroad Operations, to execute the MBTA Pipeline Occupancy Agreement and pay any required fees and/or rentals outlined therein. Refer to "Guidelines and Procedures for Construction on MBTA Railroad Property" for application policy.

2.02 SUBMISSION OF CONSTRUCTION DRAWINGS AND SPECIFICATIONS

A. Six (6) sets of Drawings and specifications for proposed pipeline occupations shall be submitted to the AGM for Real Estate and Asset Development and meet the approval of the Railroad Company(s) and the MBTA prior to the start of construction. These plans are to be prepared in sizes as small as possible arid are to be folded to an 8-1/2 inch by 11-inch size (folded dimensions) with a 1-1/2 inch margin on the left side and a 1-inch margin on the top.

1. After folding, the title block and other identification of the Drawings shall be visible at the lower right corner, without the necessity of unfolding. Each Drawing shall bear an individually identifying number and an original date, together with subsequent revision dates, clearly identified on the Drawing.
2. All Drawings are to be individually folded or rolled and where more than one Drawing is involved, they shall be assembled into complete sets before submission to the MBTA.

B. Drawings shall be to scale and show the following (see attached Plates).

1. Plan view of proposed pipeline in relation to all railroad facilities.
2. Location of pipe (in feet) from nearest railroad milepost, centerline of a railroad bridge (giving bridge number), or centerline of an existing or former passenger station, or other fixed point. In all cases, the name of the City or Town and County in which the proposed facilities are located must be shown.
3. Profile of ground on centerline of pipe from field survey showing relationship of pipe and casing to ground level, tracks and other facilities. For longitudinal occupations, the profile of adjacent track(s) must be shown.

4. All MBTA property lines. If pipeline is in a public highway, the limits of the right-of-way for the highway shall be clearly indicated with dimensions from centerline.
5. The angle of crossings in relation to centerline of tracks.
6. Location of valves or control stations of the pipeline.
7. "Pipe Crossing Data Sheet" completed and out on Plan.

C. The Drawing must be specific (both on MBTA Railroad Property and under tracks that are not on MBTA Railroad Properly) as to:

1. Method of installations.
2. Size and material of casing pipe.
3. Size and material of carrier pipe.

These items shall not have an alternative.

D. Once an application is approved by the Director of Engineering for MBTA Railroad Operations or their authorized representative, proposed variances from the approved plans, specifications, method of construction, etc., will be resubmitted for approval.

E. Location and dimensions of jacking, boring, or tunneling pits shall be shown with details of their sheeting and shoring. If the bottom of the pit excavation nearest the adjacent track intersects a line from a point 5.5 feet horizontally from center line of adjacent track at the plane of the base of fall drawn on a slope of 2 horizontal to 1 vertical, submit design and details of the pit construction to the MBTA for approval complete with computations prepared by a Registered Professional Engineer. In any event, the face of the pit shall be no less than 25 feet from adjacent track, unless otherwise approved by the Director of Engineering for MBTA Railroad Operations or their authorized representative. Pits shall be fenced, lighted, and otherwise protected as directed by the Railroad Company(s).

F. All Drawings and computations, including those submitted by Contractors, must bear the seal of a Registered Professional Engineer.

G. Computations for all structures involving the support or protection of railroad track, embankment and facilities must be prepared by and bear the seal of a Registered Professional Engineer and shall be submitted within the construction Drawings.

H. When computer calculations are included with design calculations, the following documentation shall be furnished:

1. A synopsis of the computer program(s) stating briefly required input, method of solution, approximations used, second order analysis incorporated, specifications or codes used, cases considered, output generated, extent of previous usage of certification of program(s) and program(s) author.

2. Identification by number, indexing and cross-referencing of all calculation sheets, including supplemental "long-hand" calculation sheets.

3. Fully identified, dimensioned, and annotated diagram of each member or structure being considered.

4. Clear identification and printing of all input and output values, including intermediate values if such values are necessary for orderly review.

5. Identification of the processing unit, input/output devices, storage requirements, etc., if such supplemental information is significant and necessary for evaluation of the submittal.

I. Specifications shall conform to Construction Specifications Institute (CSI) 16 Division, 3-part Section Format.

J. If other than American Railway Engineering Association (AREA), American Society for Testing and Materials (ASTM), or American National Standards Institute (ANSI) specifications are referred to for design, materials or workmanship on the Construction Drawings and specifications for the work, then copies of the applicable sections of such other specifications referred to shall accompany the Construction Drawings and specifications for the work.

SECTION 3. TEMPORARY FACILITIES AND CONTROLS

3.01 REQUIREMENTS OF REGULATORY AGENCIES

Applicant shall:

A. Obtain and pay all costs for required permits for installation and maintenance of temporary facilities and controls.

B. Comply with all applicable Federal, State and local codes, regulations and ordinances.

C. Comply with regulations and requirements of all utility or service companies from which temporary utilities or services are obtained, and pay all costs incurred therewith.

3.02 INSTALLATION AND COORDINATION - GENERAL

Applicant shall:

A. Install all temporary facilities and controls in a neat and orderly manner.

B. Make all temporary facilities structurally and functionally sound throughout.

C. Construct temporary facilities and controls to give continuous service and to provide safe working conditions.

1. Enforce conformance with applicable standards
2. Enforce safe practices.

D. Modify, extend or relocate temporary facilities and controls as work progress requires.

E. Locate temporary facilities and controls to avoid interference with, or hazards to:

1. Work or movement of railroad personnel or traffic.
2. Vehicular traffic.
3. General Public.
4. Work of other contracts.
5. Railroad Passengers.

F. Obtain easements as may be required across non-MBTA Railroad Property.

G. Provide materials for temporary facilities and controls for the purpose intended and shall not violate requirements of applicable codes and shall not create unsafe conditions.

3.03 SANITARY FACILITIES

Prior to the start of work, the Applicant shall furnish necessary toilet conveniences, secluded from public observation. They shall be kept in a clean and sanitary condition and comply with the requirements and regulations of the area in which the work is performed.

3.04 LIGHT AND POWER

Applicant shall make their own arrangements for obtaining temporary light and power as required for the work, and shall maintain such temporary facilities in a proper and safe condition, including compliance with applicable codes.

3.05 TEMPORARY WATER

Applicant shall make their own arrangements for obtaining all temporary water service as required for the work.

3.06 TEMPORARY TRAFFIC CONTROLS

Applicant shall cooperate with the directives of the MBTA and/or Railroad Company(s) regarding vehicular traffic control and provide any temporary controls or devices required to eliminate or minimize congestion or obstruction of vehicular traffic caused by the work, including use of designated routes of ingress and egress from the work area.

3.07 TEMPORARY WORK AND STORAGE AREAS

A. The areas designated by the MBTA as the temporary parking, work and storage area(s) will be provided to the Applicant in accordance with the terms of the MBTA License Agreement.

B. All designated temporary parking, work and storage areas used by the Applicant shall be restored to their original condition prior to completion of the work, subject to inspection and approval of the MBTA and the Railroad Company(s).

3.08 POLLUTION ABATEMENT CONTROLS

Applicant shall:

A. Conduct operations in a manner to minimize pollution of the environment surrounding the area of work by every means possible. Specific controls shall be provided as follows:

1. Vehicles: All vehicles and material transport trucks leaving the site and entering paved public streets shall be cleaned of mud and dirt clinging to the body and wheels of the vehicle. Trucks arriving at or leaving the site with materials shall be loaded in a manner which will prevent dropping of materials or debris on the streets. Spills of materials in public areas shall be removed immediately at no cost to the MBTA or Railroad Company(s).

2. Waste Materials: No waste or erosion materials shall be allowed to enter natural or man-made water or sewage removal systems. Erosion materials from excavations, borrow areas or stockpiled fill shall be contained within the work area. The Applicant shall develop methods for control of waste and erosion which shall include such means as filtration, settlement and manual removal to satisfy the above requirements. Do not dispose of machinery lubricants, fuels, coolants and solvents on the site. If hazardous waste is encountered, the Applicant shall dispose of it in accordance with all federal, state and local codes. Verification of proper disposal must be provided, in writing, to the MBTA and the Railroad Company(s).

3. Burning: No burning of waste shall be allowed without prior written permission. In cases where permission is granted, burning shall be conducted in accordance with the regulations of the appropriate jurisdictional agency.

4. Dust Control: The Applicant shall at all times control the generation of dust by their operations. Control of dust is mandatory and shall be accomplished by water sprinkling or by other methods approved by the MBTA or Railroad Company(s).

5. Noise Control: The Applicant shall take every action possible to minimize the noise caused by their operation. When required by agencies having jurisdiction, noise producing work shall be performed during less sensitive hours of the day or week as directed by the MBTA or Railroad Company(s) or as required by local ordinance.

6. Environmental: All local and state environmental laws will be strictly adhered to. All applications, permits, licenses, approvals, etc., will be the sole responsibility of the Applicant.

B. Submit a program for pollution control with applicable licenses and permits for all piping carrying non-potable liquids, gases or other pollutants.

3.09 PROTECTION OF PERSONS AND PROPERTY

A. Safety Requirements

1. The Applicant must adhere to the most stringent provisions of the applicable statutes and regulations of the political subdivision in which the work is being performed. The Applicant must also observe the Department of Labor-

Occupational Safety, Health Administration provision, pertaining to the safe performance of the work, and further, the methods of performing the work must not involve undue danger to the personnel employed thereon, Railroad Company(s) employees, the public, or to public and private property. Should charges of violation of any of the above be issued to the Applicant in the course of the work, a copy of each charge shall immediately be forwarded to the Railroad Company(s). The Applicant shall pay all fines and penalties levied against him.

2. The Applicant shall erect and maintain, as required by existing conditions and progress of the work, all reasonable safeguards for safety and protection. This includes posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent utilities.

B. Safety of Persons and Property - The Applicant shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury or loss to:

1. All employees on the work site and all other persons who may be affected.

2. All materials and equipment, whether in storage on or off the site, under the care, custody or control of the Contractor or any of their subcontractors.

3. Other property at the site or adjacent thereto, including walks, pavements, roadways, structures, and utilities not designated for removal, relocation or replacement in the course of construction. Any damage to such items shall be restored to original condition by the Applicant at no cost to the MBTA or Railroad Company(s).

C. First Aid

The Applicant shall maintain adequate first aid supplies at the site as prescribed by Federal, State or Local codes and regulations.

D. Use of Explosives

Non blasting methods are preferred. See "Blasting Specifications."

E. Site Security

The Applicant shall:

1. Maintain a secure work site protecting the MBTA and the Railroad Company(s) interests and property from claims arising from trespass, theft and vandalism.

2. Permit access to the work site only to employees, Contractors and those persons having business related to the work.

3. Provide security measures as required to protect Contractor or subcontractor's tools, equipment and property from damage, theft or vandalism.

4. Assume all costs for any MBTA and/or local police details required by the work.

3.10 VERMIN CONTROL

A. Do not permit food scraps, lunch bags, food wrappers or other items which would attract rats or other vermin to be left lying around the site. Deposit such items in closed, rat-proof metal containers for disposal on a regular basis.

B. The Applicant must provide vermin control as required by the MBTA or Railroad Company(s).

3.11 RUBBISH AND DEBRIS REMOVAL

A. Rubbish and debris resulting from the work must be neatly piled in a single location and legally disposed of at least once a week. If rubbish or debris interferes with railroad activities, or creates a fire or safety hazard, it must be removed on a more frequent basis.

B. Volatile waste such as mineral spirits, oil, or paint thinner shall not be disposed of in storm or sanitary drains, streams or waterways or any location upon the site.

SECTION 4. PIPELINE OCCUPANCY GENERAL CRITERIA

GENERAL:

4.01 METHOD OF INSTALLATION:

A In a public way:

1. No work shall be done without a Railroad Company(s) Inspector present.

2. Open cuts will not be allowed in or immediately adjacent to an at

grade crossing. Sleeves will be installed by the jerking method, unless otherwise approved by the Director of Engineering for MBTA Railroad Operations.

3. Jerking is the preferred method of installation in or immediately adjacent to and at grade crossing. The sleeve may be installed by the open cut method with the Applicant paying for the complete rebuilding of the crossing, pending approval of the Director of Engineering for MBTA Railroad Operations. Approval will be given only under very unusual circumstances.

4. Jacking is the preferred method of installation in or immediately adjacent to and at grade crossing scheduled for rebuilding. The sleeve may be installed by the open cut method within seven (7) calendar days of the scheduled date of the crossing reconstruction. In the case of any open cut, strict adherence shall be made to the backfill specifications which provide the MBTA with written certification from a testing lab or Professional Engineer, that the backfill density requirements of the MBTA specifications have been met or exceeded.

B. Not within a Public Way:

The preferred method of crossing the railroad is by jacking of a pipe sleeve under the railroad. Only upon written request, will an alternate of open cut be given consideration. The engineering decision shall be based upon, but not limited to, the following: (1) track usage, (2) depth of cut, (3) soil conditions, (4) physical restraints. In the event an open cut is allowed, the following items shall be adhered to, and (5) any other circumstances which may necessitate an open cut.

1. The installation is to be a continuous operation and performed according to an MBTA approved schedule.

2. No work shall be done without a Railroad Company(s) Inspector present.

3. MBTA backfill specifications by the Owner or its Contractor.

4. The Owner or its Contractor may be required to provide a non-refundable lump sum payment for "after the fact maintenance." The determination of this amount is based on the individual situation. No work will be allowed until this payment is received. This payment is not to be confused with payments for Drawings and specification review, flagging, inspection, etc. (also required from the Owner or its Contractor before they enter upon MBTA property.)

4.02 GENERAL REQUIREMENTS

A. Pipelines under or across MBTA tracks on rights-of-way shall be encased in a larger pipe or conduit called the casing pipe as indicated in Plate II.

B. Casing pipe will be required for all pipelines carrying oil, gas, petroleum products, or other flammable, highly volatile substances which, from their nature or pressure, might cause damage if escaping on or near MBTA Railroad Property.

C. For non-pressure sewer or drainage crossings where the installation can be made without interference to railroad operations, the casing pipe may be omitted when the pipe strength is capable of withstanding railroad loading. This type of installation must be approved by the Director of Engineering for MBTA Railroad Operations.

D. The casing pipe shall be laid across the entire width of the right-of-way. Casing pipe shall extend beyond the right-of-way when the right-of-way line on either side of the tracks is less than the minimum length of casing specified in Section 6, Para. 6.01(E).

E. Pipelines laid longitudinally on railroad right-of-way shall be located in accordance with Plate III. If located within 25 feet of the closest rail of any track or closer than 45 feet to nearest point of any bridge, building or other structure, the carrier pipe shall be encased.

F. Where practicable, pipelines shall be located to cross the tracks at approximate right angles, but preferably at not less than 45 degrees.

G. Pipelines shall not be placed within a culvert, under railroad bridges, or closer than 45 feet to any portion of a railroad bridge, building, or other structure, except in special cases, and then by special design, as approved by the Director of Engineering for MBTA Railroad Operations.

H. Pipelines carrying liquefied petroleum gas shall, where practicable, cross the railroad where tracks are carried on embankment.

I. Any replacement or modification of an existing carrier pipe and/or casing shall be considered a new installation, subject to the requirements of these Specifications.

J. Where laws or orders of public authority prescribe a higher degree of protection than specified herein, the higher degree so prescribed shall be deemed a part of these Specifications.

K. Pipelines and casings shall be suitably insulated from underground conduits carrying electric wires on MBTA Railroad Property.

4.03 INSPECTION AND TESTING

For pipelines carrying flammable or hazardous materials, ANSI Codes B 31.8 and B 31.4, current at time of constructing the pipeline, shall govern the inspection and testing of the facility on MBTA Railroad Property, except that proof-testing of strength of carrier pipe shall be in accordance with the requirements of ANSI Code B 31.4, as applicable, for all pipelines carrying all liquefied petroleum gas, natural or manufactured gas, and other flammable substances.

4.04 CATHODIC PROTECTION

A. Cathodic protection shall be applied to all pipelines and casings carrying flammable substances.

B. Where casing and/or carrier pipe is cathodically protected by other than anodes, the Director of Engineering for MBTA Railroad Operations shall be notified and suitable testing shall be made. This testing shall be witnessed by the Railroad Company(s) to insure that other railroad structures and facilities are adequately protected from the cathodic current in accordance with the recommendations of Reports of Correlating Committee on Cathodic Protection, current issue by the National Association of Corrosion Engineers.

4.05 SOIL INVESTIGATIONS

A. Soil borings (or other soil investigations approved by the Railroad Company(s) will be performed to determine the nature of the underlying material for all pipe crossings under tracks. See Test Boring Specifications.

B. Borings shall be made on each side of the tracks, on the centerline of the pipe crossing, and as close to the tracks as practicable.

C. Soil borings shall be in accordance with the current issue of the American Railway Engineering Association Specifications, Chapter 1, Part 1, "Specifications for Test Borings". Soils shall be investigated by the split- spoon and/or thin-walled tube method and rock shall be investigated by the Boring method specified therein.

D. Soil boring logs shall clearly indicate all of the following:

1. Boring number as shown on boring location Drawing.

2. Elevation of ground at boring, using same datum as the pipeline Construction Drawings.

3. Description or soil classification of soils and rock encountered.

4. Elevations or depth from surface for each change in strata.

5. Identification of where samples were taken and percentage of recovery.

6. Location of ground water at time of sampling and, if available, subsequent readings.

7. Natural dry density in lbs./sq.ft. for all strata.

8. Unconfined compressive strength in tons/sq.ft., for all strata.

9. Water content (percent). Liquid limit (percent) and plastic limit (percent).

10. Standard penetration in blows/ft.

E. The location of the carrier pipe and casing shall be superimposed on the boring logs before submission to the Director of Engineering for MBTA Railroad Operations.

F. Soil investigation by auger, wash, or rotary drilling method is not acceptable.

G. Soil boring logs shall be accompanied by a Drawing drawn to scale showing location of borings in relation to the tracks and the proposed pipe location, the elevation of around surface at each boring, and the elevation of the base of rail of the tracks.

4.06 GROUND STABILIZATION

Soil stabilization shall take place prior to the start of jacking. Stabilization shall be achieved by dewatering, grouting or a combination of both to maintain the stability of the face of the heading.

A. The Owner or its Contractor shall lower and maintain the ground water level a minimum of two (2) feet below the invert at all times during construction by well points, vacuum well points, or deep wells to prevent inflow of water and/or soil into the heading. Ground water observation wells shall be installed in the area to be dewatered to demonstrate that the dewatering requirements are being complied with.

B. The grouting Contractor shall be a specialist in the field with a minimum

of five (5) continuous years of successfully grouting soils. All granular soils (silty sands, sand or sand and gravel) shall be stabilized by injection of a cement or chemical grout from the ground surface or from the pipe heading. The stabilization shall extend as far as necessary outside the periphery of the casing pipe in order to maintain a stable face at the heading.

C. Railroad Company(s) forces will survey the crossing prior to, during and after construction. If it is necessary to align or surface the tracks as a result of construction, the Railroad Company(s) will perform the work at the expense of the Owner or the Owner's Contractor.

4.07 SUPPORT OF TRACKS

A. When jacking, boring, or tunneling, temporary track support structures shall be installed. The track support structures shall be provided by the Applicant and installed by the Railroad Company(s) at the Applicant's expense. The Contractors proposed type of temporary track support structures shall be subject to the approval of the Railroad Company(s)'

B. All work involving rail, signals, ties and other track material will be performed by the Railroad Company(s) at the Applicant's expense.

C. The Applicant shall deliver the track support structures to a site approved by the Railroad Company(s). Provisions for unloading shall be provided by the Applicant at no expense to the Railroad Company(s) and the Applicant shall provide the necessary labor to handle the material for pre-installation inventory.

4.08 GEOTECHNICAL MONITORING

THE FOLLOWING SPECIFICATIONS ARE REQUIRED FOR ALL PIPE JACKING OPERATIONS.

A. Jacking shall be performed on a continuous basis, 24 hours per day, and 7 days per week.

B. The monitoring points shall be set up one week before the jacking operation begins. The MBTA and Railroad Company(s) shall be notified. Elevation readings shall begin two days prior to the start of jacking and continue for a minimum of two weeks after the completion of the jacking operation. Initial readings immediately after any surfacing operations shall serve as new baseline figures. All future elevation readings shall be compared to the adjusted baseline. If the

track deviates to a condition not acceptable to the MBTA or Railroad Company(s), corrections shall be made at the proponent's expense.

C. Elevation readings shall be taken from the top rail of each track.

D. Elevation readings shall be taken every four hours or two times per shift, i.e., six times per day. The readings shall be faxed to the MBTA and Railroad Company(s) on a daily basis and all information is to be presented in legible print. Additional readings may be required by the MBTA or Railroad Company(s).

E. Stations shall be spaced at 15-1/2 foot intervals. The number of stations required shall be determined by the depth of the pipe. There shall be a minimum of two stations on either side of the centerline jacking. Additional stations may be required at the discretion of the MBTA or Railroad Company(s),

F. Elevation readings must show the date, time, weather conditions and temperature. Each reading must also provide the following information: track number, compass direction, station number, base elevation (with date), static elevation, change in elevation (recorded in hundredths and in inches), dynamic reading and total deflection in inches. See sample sheet attached.

G. Station "0" shall be located at the centerline of the pipe jacking with Stations 1 and being to the right and Stations -1 and -2 being to the left when standing in the gauge of the near track and looking at the receiving pit. In multiple track areas the stations as determined herein are to be carried across each track perpendicular to the near track.

H. Elevation readings taken from the top of the rail for static measurement and the dynamic readings shall be combined and the sum compared to the adjusted baseline. This reading will demonstrate the difference in elevation caused by the jacking operation.

I. The MBTA requires that the truck be maintained at all times within established criteria for the specific track classification. At the completion of the project the requirement for tamping and realigning the tracks, caused by the settlement from the construction activity, remains with the Contractor for the duration as specified by the MBTA in their initial review of the work plans. This tamping and track realignment will be performed by the MBTA or Railroad Company(s) at the sole expense of the Contractor.

4.09 PIPELINES ON BRIDGES

A. Pipelines carrying flammable or non-flammable substances which by their nature might cause damage if escaping on or near railroad facilities or personnel shall not be installed on bridges over railroad tracks or bridges carting railroad tracks.

B. The Director of Engineering for MBTA Railroad Operations may approve such an installation when it is demonstrated that no practicable alternative is available.

C. When allowed by the Director of Engineering for MBTA Railroad Operations, pipelines on bridges shall be located in a way to minimize the possibility of damage from vehicles, railroad equipment, vandalism and other external causes. Pipelines on bridges may be installed in a utility bay that is constructed between the girders of the bridge. The utility bay shall be protected from the environment by a removable shield bolted to the girders. This will allow utility companies to comply with the Code of Federal Regulations for Periodic Inspection.

D. In the event of pipe relocation due to the reconstruction of a bridge, the installation of the new pipe must comply with the requirements in these Specifications.

4.10 BONDING AND GROUNDING OF PIPELINES IN ELECTRIFIED TERRITORY

A. Carrier pipe shall be enclosed in a metal casing that is isolated from carrier pipe by approved insulators having a dielectric value of not less than 25 kV that provide an air gap between carrier pipe and casing of not less than 2 inches.

B. Carrier pipe supporting hangers, mountings or cradles shall provide an insulation value of not less than 25 kV and an air gap of not less than 2 inches between casing and any portion of mounting assembly.

C. Any grounding or isolation methods used must have a minimum dielectric of 25,000 volts.

4.11 ABANDONED PIPELINES OR FACILITIES

A. For all pipeline occupations on the railroad right-of-way, the owner of the pipeline shall notify the MBTA, in writing, of the intention to abandon the pipeline. Upon abandonment the carrier pipe shall be removed and the casing shall be filled with cement grout, compacted sand or other material approved by the Director of Engineering for

MBTA Railroad Operations. If it is impractical to remove the carrier pipe, then the carrier must be filled along with the annular space between the casing and carrier.

B. Facilities other than pipelines shall be removed or altered at abandonment to the satisfaction of the Director of Engineering for MBTA Railroad Operations.

4.12 DRAINAGE

A. Occupancies shall be designed, and constructed, so that adequate and uninterrupted drainage of railroad right-of-way is maintained. If it becomes necessary to block a ditch, pipe or other drainage facility, the applicant shall install temporary pipes, ditches or other drainage facilities as required to maintain adequate drainage, as approved by the MBTA or Railroad Company(s). Upon completion of the work, the temporary drainage facilities shall be removed and the permanent facilities restored.

B. Water may not be pumped or disposed of onto railroad rights-of-way unless discharged into an existing drainage facility, providing discharge does not cause erosion or leave sediment.

C. When water runoff is disposed of onto MBTA Railroad Property, it must be demonstrated to the Railroad Company(s) that the existing drainage facility can accommodate the increased runoff. Drainage calculations stamped by a Registered Professional Engineer must accompany all requests to use railroad culverts or drainage ditches.

D. If in the estimation of the Director of Engineering for MBTA Railroad Operations or their authorized representative, the railroad culvert or drainage ditch has to be cleaned in order to allow the increased flow to safely pass through the culvert, it must be cleaned at the expense of the applicant.

SECTION 5. CARRIER PIPE

GENERAL:

5.01 DESIGN CRITERIA

A. If the maximum allowable stress in the carrier pipe on either side of the occupancy of MBTA Railroad Property is less than specified herein, the carrier pipe on MBTA Railroad Property shall be designed at the same stress as the adjacent carrier pipe.

B. Requirements for carrier pipe under railroad tracks shall apply for a minimum distance equal to that of the casing pipe.

C. Carrier pipes within a casing shall be designed for railroad live loads as if they were not encased.

D. All pipes, ditches and other structures carrying surface drainage on MBTA Railroad Property and/or crossing under railroad tracks shall be designed to carry the run-off from a one hundred (100) year storm. Computations indicating this design and suitable topographic plans, prepared by a Registered Professional Engineer, shall be submitted to the Director of Engineering for MBTA Railroad Operations, or their authorized representative, for approval. If the drainage is to discharge into an existing drainage channel on railroad right- of-way and/or under railroad tracks, the computations should include the hydraulic analysis of any existing structures. Submitted with the computations should be formal approval of the proposed design by the appropriate governmental agency.

PRODUCTS:

5.02 GENERAL

A. All pipes shall be designed for the external and internal loads to which they will be subjected. The dead load of earth shall be considered 120 pounds per cubic foot. Railroad live loading shall be Cooper's E-8O with 50% added for impact. On railroad right-of-way or where railroad loading will be experienced, the following shall be the minimum requirements for carrier pipes:

1. Reinforced concrete pipe - ASTM Spec. C-76, Class V, Wall C.
2. Ductile Iron Pipe - For Culverts and Gravity Sewers - ASTM Spec, A-142 Extra Heavy.

5.03 OIL AND GAS PIPES

A. Pipelines carrying oil, liquefied petroleum gas, natural or manufactured gas and other flammable products shall conform to the requirements of the current ANSI B 31.4, with Addenda, "Liquefied Petroleum Transportation Piping Systems," ANSI B 31.8, "Gas Transmission and Distribution Piping Systems," and other applicable ANSI codes, except that the minimum allowable stresses for the design of steel pipe shall not exceed the following percentages of the specified minimum yield strength (multiplied by the longitudinal joint factor) of the pipe as defined in the ANSI Codes:

1. Steel pipe within a casing under, across and longitudinally on MBTA Railroad Property. (The following percentages apply to hoop stress):

   a. Seventy-two percent for installation on oil pipelines.

   b. Fifty percent for pipelines carrying liquefied petroleum gas and other flammable Liquids with low flash point.

   c. Sixty percent for installations on gas pipelines.

2. Steel pipe without a casing laid longitudinally on MBTA Railroad Property. (The following percentages apply to hoop stress):

   a. Sixty percent for installations on oil pipelines.

   b. Forty percent for pipelines carrying liquefied petroleum gas and other flammable Liquids with low flash point.

   c. Forty percent for installations on gas pipelines.

B. Design computations showing compliance with the requirements of Paragraph 5.03(A) above, and prepared by a Registered Professional Engineer, shall accompany the application for occupancy.

5.04 CAST IRON PIPE: For water and other materials under pressure shall conform to the current ANSI specifications A-21 Series 21/45 Iron strength with plain end, compression type or mechanical joints. The strength to sustain external railroad and other loadings shall be computed in accordance with the current ANSI A-21.1 “Thickness Design of Cast Iron Pipe."

5.05 VITRIFIED CLAY PIPE: ASTM Spec C-700, Extra Strength.

5.06 CORRUGATED METAL PIPE: AREA Spec Chapter I, Part 4

5.07 ASBESTOS CEMENT PIPE (Non-pressure): ASTM Spec. C-428, C1. 5000 Min. Pressure: AWWA Spec. C400, C1. 150 Min.

5.08 OTHER: Other miscellaneous piping not specified above shall be submitted to approval by the Director of Engineering for MBTA Railroad Operations.

5.09 SHUT-OFF VALVE

A. Provide accessible emergency shut-off valves at each side of the railroad within distances and at locations as directed by the Chief Engineering Officer.

B. Where pipelines are provided with automatic control stations and within distances approved by the Director of Engineering for MBTA Railroad Operations, no additional valves will be required.

5.10 SIGNS

A. Prominently identify all pipelines at rights-of-way by durable, weatherproof signs located over the centerline of the pipe. Mark pipelines at under crossings on both sides of track. Signs shall display the following:

1. Name and address of pipeline Owner.
2. Contents of Pipe.
3. Pressure in Pipe.
4. Depth below grade at point of sign.
5. Emergency telephone in event of pipe rupture.
6. Railroad File Number.

B. For pipelines running longitudinally on MBTA Railroad Property, place signs over the pipe (or offset and appropriately mark) at all changes in direction the pipeline. Locate signs so that when standing at one sign, the next adjacent marker in either direction is visible. In no event shall pipeline identification signs be placed more than 500 feet apart, unless otherwise directed by the Director of Engineering for MBTA Railroad Operations.

C. Submit details of signs (materials, size, methods of support, etc.) to the Director of Engineering for MBTA Railroad Operations for approval.

EXECUTION:

5.11 INSTALLATION:

A. Install carrier pipes in accordance with approved Construction Drawings, requirements of this specification, and all applicable codes and ordinances.

B. Install carrier pipes with sufficient slack so they are not in tension.

SECTION 6. CASING PIPE

GENERAL:

6.01 DESIGN CRITERIA

A. Casing pipe and joints shall be of metal and of leak-proof construction.

B. Casing pipe shall be designed for the earth and/or other pressures present, and for railroad live load. The dead load of earth shall be considered 120 pounds per cubic foot. Railroad Live load shall be Cooper E-80 with 50g added for impact.

C. The inside diameter of the casing pipe shall be such as to allow the carrier pipe to be removed subsequently without disturbing the casing or the roadbed. For carrier pipe less than six (6) inches in diameter, the inside diameter of the casing pipe shall be at least two (2) inches greater than the largest outside diameter of the carrier pipe joints or couplings. For carrier pipe six (6) inches and over in diameter, the inside diameter of the carrier pipe shall be at least four (4) inches greater than the largest outside diameter of the carrier pipe joints or couplings.

D. For flexible casing pipe, a minimum vertical deflection of 3 percent of its diameter, plus 1/2 inch, shall be provided so that no loads from the roadbed, track, traffic or casing pipe itself are transmitted to the carrier pipe. When insulators are used on the carrier pipe, the inside diameter of the flexible casing pipe shall be at least two (2) inches greater than the outside diameter of the carrier pipe for pipe less than eight (8) inches in diameter; at least 3-
1/4 inches greater for pipe 8 to 16 inches in diameter, and at least 4-1/2 inches greater for pipe 18 inches and over in diameter. In no event shall the casing pipe diameter be greater than is necessary to permit the insertion of the carrier pipe.

E. Casing pipe under railroad tracks and across MBTA Railroad Property shall extend the greater of the following distances, measured at right angles to centerline of track:

1. Across the entire width of MBTA Railroad Property.
2. Two (2) feet beyond ditch line.
3. Three (3) feet beyond toe of slope.
4. A minimum distance of 25 feet each side from centerline of outside track when casing is sealed at both ends.
5. A minimum distance of 45 feet from centerline of outside track when casing is open at both ends.

F. If additional tracks are constructed in the future, the casing shall be extended at the expense of the Applicant.

G. Table of Live Loads

LIVE LOADS, INCLUDING IMPACT, FOR VARIOUS HEIGHTS OF COVER FOR COOPER E- 80

COVER (FT) LOAD (PSF)	COVER (FT) LOAD (PSF)	COVER (FT) LOAD (PSF)
2 ….. 3800	10 1100	20 300
5 2400	12 800	30 100
8 1600	15 600	

6.02 PROTECTION AT ENDS OF CASING

A. Casings for carriers of flammable substances shall be sealed to the outside of the carrier pipe. Details of seals shall be shown on the Drawings.

B. Casings for carriers of non-flammable substances shall have both ends of the casing blocked in such a way as to prevent the entrance of foreign material, but allowing leakage to pass in the event of a carrier break.

C. Where ends of casing are at or above ground surface and above high water level, they may be left open, provided drainage is afforded in such a manner that leakage will be conducted away from railroad tracks and structures.

6.03 VENTS

A. Sealed casings for flammable substances shall be properly vented. Vent pipes shall be of sufficient diameter, but in no case less than two (2) inches in diameter, and shall be attached near each end of the casing and project through the ground surface at right-of-way lines or not less than 45 feet (measured at right angles from centerline of nearest track).

B. Vent pipes shall extend at least four (4) feet above the ground surface. Top of vent pipe shall have a down-turned elbow, properly screened, or a relief valve. Vents in locations subject to high water shall be extended above the maximum elevation of high water and shall be supported and protected in a manner approved by the Director of Engineering for MBTA Railroad Operations.

C. Vent pipes shall be at least four (4) feet from the closest aerial electric

wires.

D. When the pipeline is in a public highway, street-type vents shall be installed.

PRODUCTS:

6.04 STEEL PIPE

The minimum yield strength for steel pipe shall be 35,000psi. Smooth wall pipes with a nominal diameter greater than 70 inches require special approval by the Director of Engineering for MBTA Railroad Operations. See Plate V, "Table of Minimal Wall Thickness for Steel Casing Pipe."

6.05 CAST IRON PIPE

May be used for a casing, provided the method of installation is by open trench. Cast iron pipe shall conform to ASTM Specification A-142, Extra Heavy. The pipe shall be of the mechanical joint type or plain end type with compression type couplings.

6.06 CORRUGATED METAL PIPE AND CORRUGATED STRUCTURAL PLATE PIPE

May be used for casing only when emplaced by the open-cut method. Jacking or boring through railroad embankment is not permitted. Pipe shall be bituminous coated and shall conform to AREA Specifications Chapter 1, Part 4.

6.07 REINFORCED CONCRETE PIPE

Shall conform to ASTM Specification C 76, Class V, Wall C. It shall be used only in the open cut and jacking methods of installation. If concrete pipe is to be jacked into place, grout holes tapped for at least 1-1/2 inch pipe spaced at approximately 8 feet around the circumference and approximately 4 feet longitudinally shall be cast into the pipe at manufacture. Immediately upon completion of jacking operations, the installation shall be pressure grouted.

6.08 TUNNEL LINER PLATES

Shall be four flange and otherwise conform to American Railway Engineering Association Specifications Chapter 1, Part 4. In no event shall the liner plate thickness be less than 0.1046 inches. Tunnel liner plates are to be used only to maintain a tunneled opening until the carrier pipe is installed. After installation the annular space between the carrier and liner must be filled

with 1:6 cement grout or lined with 6 inches of concrete, reinforced with 6x6-6/6 wire mesh for tunnels up to 108 inches in diameter. Required thickness of lining for larger tunnels shall be determined by span and structural analysis. Manufacturer's Shop Detail Drawings and manufactures computations showing the ability of the tunnel liner plates to resist the jacking stresses shall be submitted to the Director of Engineering for MBTA Railroad Operations for approval.

EXECUTION:

6.09 DEPTH OF INSTALLATION:

A. Casing pipe under railroad tracks and across MBTA Railroad Property shall be at least 6-1/2 feet from top of rail to top of casing at its closest point. Under secondary or industrial tracks this distance shall be at least 5-1/2 feet. On other portions of MBTA Railroad Property where casing is not directly beneath any track, the depth from ground surface or from bottom of ditches to top of casing shall be at least four (4) feet, unless otherwise specified herein.

B. Pipelines laid longitudinally on MBTA Railroad Property 50 feet or less from centerline of track shall be buried not less than five (5) feet from ground surface to top of pipe. This applies to all pipelines carrying oil, gas, petroleum products, or other flammable or highly volatile substances under pressure, and all non-flammable substances which by their nature or presence in the judgment of the Director of Engineering for MBTA Railroad Operations may be hazardous to life or property. For pipelines carrying water, sewage and non-flammable substances, the distance from surface of ground to top of pipe shall not be less than four (4) feet.

C. Pipelines located within the line of track live load influence (as shown on Plates II and III) are subject to railroad loading and require a casing or are to be of special design approved by the Director of Engineering for MBTA Railroad Operations. All longitudinal occupation locations must be approved by the Chief Engineering Officer.

D. The minimum cover shall be at least three (3) feet when pipeline is laid more than 50 feet from center line of track.

E. Pipelines installed under or adjacent to any overhead structure must be a minimum of 29 feet from the bottom of the structure to the top of the casing. Such installations must comply with the above requirements.

6.10 METHOD OF INSTALLATION

A. The Owner or its Contractor shall submit to the Director of Engineering for MBTA Railroad Operations, data and information demonstrating that the Contractor or their subcontractors have had successful previous experience in jacking, or using the proposed method of installation, in similar situations.

B. Before any work is begun within the limits of jacking, the Owner or its Contractor shall have assembled all tools, materials, and equipment which will be required. When the Owner or its Contractor has started the jacking operation, they shall proceed in a continuous operation without stopping. This will minimize the tendency of the material to freeze around the pipe.

C. A jacking shield shall be used and jacked ahead of the casing pipe. The excavation within the jacking pipe should not advance beyond the head of the pipe shield. If the stability at the face needs to be maintained from raveling or running soil, suitable temporary bulkheads, struts, and bracing shall be required. After completion of the sleeve installation the annular space around it shall be completely grouted with cement grout under pressure.

D. Casing pipe ends shall be beveled with a single V-groove toe field welding. Pipe joints shall be butt welded and shall be a full penetration on the outside circumference of the pipe. The single V-groove butt weld shall conform to the latest A.W.S. Welding Code. All joints of the easing pipe shall be butt welded, by a certified welder, prior to being subject to the jacking operation.

Alternate method: The casing pipe may be jacked without being butt welded through the use of a continuous 1/2"x12" interior collar plate. The collar plate shall be welded completely upon completion of the jacking operation. All welding shall conform to the latest A.W.S. Welding Code, and shall be performed by a certified welder.

6.11 CONSTRUCTION:

A. The casing pipe shall be constructed so as to prevent leakage of any substance from the casing throughout its length, except where the ends are left open, or through vent pipes when the ends are sealed. The casing shall be installed so as to prevent the formation of a waterway under the railroad, shall have an even bearing throughout its length, and shall slope to one end (except for longitudinal occupancy).

B. Casing pipes shall be installed by the following methods:

1. Jacking

   a. This method shall be in accordance with the most current edition of the American Railway Engineering Association Specifications, “Jacking Culvert Pipe Through Fills." This operation shall be conducted without hand mining ahead of the pipe and without the use of any type of boring, auguring, or drilling equipment.

   b. Bracing and backstops shall be designed and jacks of sufficient rating used so that the jacking will be continuous.

2. Drilling

   This method employs the use of an oil field type rock roller bit or a plate bit made up of individual roger cutter units which are welded to the pipe casing being installed and which are turned as it is advanced. The pipe is turned for its entire length from the drilling machine to the ground being drilled. A high density slurry is injected through a small supply line to the head which acts as a cutter lubricant. This slurry is injected at the rear of the cutter units to prevent any jetting action ahead of the pipe. The drilling machine runs on a set of steel rails and is advanced (thus advancing the pipe) by a set of hydraulic jacks. The method is the same whether earth or rock is being drilled. Any other drilling methods shall be submitted to the Director of Engineering for MBTA Railroad Operations for approval.

3. Tunneling

   a. Tunneling operations shall be conducted as approved by the Railroad Company(s). Care shall be exercised in trimming the surface of the excavated section in order that the steel liner plates fit snugly against the undisturbed material. Excavation shall not be advanced ahead of the previously installed liner plates any more than is necessary for the installation of the succeeding liner plate. The vertical face of the excavation shall be supported as necessary to prevent sloughing. At any interruption of the tunneling operation, the heading shall be completely bulkheaded. Tunneling shall be conducted continuously, on a 24 hour basis until the tunnel liners extend at least one foot beyond the railroad line of influence.

   b. When tunneling, tight breasting must be maintained around the entire face. On any shutdowns (under or beyond railroad influence line, see Plate II), the entire

face shall be fully breasted and packed with hay.

c. The tail void shall be filled with pea stone (or other approved material) simultaneously with each advancement of the shield.

d. An ample supply of hay and/or sandbags must be kept at the site to fill any voids caused by the removal of large stones or other obstructions extending outside the shield.

e. A uniform mixture of 1:6 cement grout shall be placed under pressure behind the liner plates, in addition to the previously placed pea stone. Grout holes, tapped for at least 1-1/2 inch pipe and spaced 3 feet around the tunnel liner, shall be placed in every other ring. Grouting shall start at the lowest dole and proceed upwards. A threaded plug shall be installed in each grout hole as the grunting is completed at that hole.

f. Grouting shall be kept as close to the heading as possible, using grout stops behind the liner plates. If necessary, grouting shall proceed as directed by the Railroad Company(s), but in no event shall more than six lineal feet of tunnel be progressed beyond the grouting.

4. Tunneling Shields

a. All pipes 70 inches and larger in diameter shall be emplaced with the use of a tunneling shield, unless otherwise approved by the Director of Engineering for MBTA Railroad Operations. Pipes of smaller diameter may also require a shield when, at the sole discretion of the Director of Engineering for MBTA Railroad Operations, soil, or other conditions indicate its need.

b. The shield shall be of steel construction, designed to support railroad track loading as specified in Paragraph 6.01 B herein, in addition to other loadings it must sustain. The advancing face shall be provided with a hood, extending no less than 20 inches beyond the face and extending around no less than the upper 240 degrees of the total circumference. Installations made with linear plates shall be provided with a full 360 degree shield. It shall be of sufficient length to permit the installation of at least one complete ring of liner plates within the shield before it is advanced for the installation of the next ring of liner plates, It shall conform to and not exceed the outside dimensions of the pipe being emplaced by more than one inch at any point in the periphery.

c. The shield must be adequately braced and provided with necessary appurtenances for completely bulkheading the face with horizontal breastboards, and arrange so that the excavation can be benched as may be necessary. Excavation shall not be advanced beyond the edge of the hood, unless otherwise approved by the Railroad Company(s).

d. Manufacturer's Shop Detail Drawings and computations showing the ability of the tunnel liner plates to resist the jacking stresses shall be submitted to the Director of Engineering for MBTA Railroad Operations for approval.

e. For jacking reinforced concrete pipe, the shield shall be fabricated as a special section of reinforced concrete pipe with the steel cutting edge, hood, breasting attachments, etc., cast into the pipe. The wall thickness and reinforcing shall be designed for the jacking stresses.

f. Grout holes tapped for no less than 1-1/2 inch pipe, spaced at approximately 3 foot centers around the circumference of the shield (or the aforementioned special reinforced concrete section) and no more than 4 foot centers longitudinally shall be provided.

g. Detail Drawings sufficient to determine the adequacy of the shield, accompanied with design calculations prepared by a Registered Professional Engineer, shall be submitted to the Director of Engineering for MBTA Railroad Operations for approval and no work shall proceed until such approval is obtained.

5. Boring

a. This method consists of pushing the pipe into the fill with a boring auger rotating within the pipe to remove the spoil. When augers, or similar devices, are used for pipe emplacement, the front of the pipe shall be provided with mechanical arrangements or devices that will positively prevent the auger and cutting head from leading the pipe so that there will be no unsupported excavation ahead of the pipe. The auger and cutting head arrangement shall be removable from within the pipe in the event an obstruction is encountered. The over-cut by the cutting head shall not exceed the outside diameter of the pipe by more than one-half inch. The face of the cutting head shall be arranged to provide reasonable obstruction to the free flow of soft or poor material.

b. Drawings and descriptions of the auger stop arrangement to be used shall be submitted to the Director of Engineering for MBTA Railroad Operations for approval,

and no work shall proceed until such approval is obtained and the arrangement is inspected in the field by the Railroad Company(s).

c. The use of water or other Liquids to facilitate casing emplacement and/or spoil removal is prohibited.

d. Any method which employs simultaneous boring and jacking or drilling and jacking for pipes over 8 inches in diameter which does not have the above approved arrangement WILL NOT BE PERMITTED. For pipes 8 inches and less in diameter, augering or boring without this arrangement may be considered for use only as approved by the Director of Engineering for MBTA Railroad Operations.

C. If an obstruction is encountered during the installation which stops the forward action of the pipe, and it becomes evident that it is impossible to advance the pipe, operations shall cease and the pipe shall be abandoned in place and filled completely with grout, in accordance with Section 4, Paragraph 4.10.

D. Bored or jacked installations shall have a bored hole essentially the same as the outside diameter of the pipe plus the thickness of the protective coating. If voids should develop or if the bored hole diameter is greater than the outside diameter of the pipe (plus coating) by more than 1 inch, grouting or other methods approved by the Railroad Company(s) shall be employed to fill such voids.

E. Pressure grouting or freezing of the soils before or during jacking, boring, or tunneling may be required at the direction of the Railroad Company(s) to stabilize the soils, control water, prevent loss of material and prevent settlement or displacement of the embankment and/or tracks. Grout shall be cement, chemical or other special injection material selected to accomplish the necessary stabilization.

F. The materials to be used and the method of injection shall be prepared by a Registered Professional Engineer (Geotechnical), or by an experienced and qualified company specializing in this work and submitted for approval to the Railroad Company(s) before the start of work. Proof of experience and competency shall accompany the submission.

G. When water is expected to be encountered, pumps of sufficient capacity shall be provided and maintained at the site, and continually attended on a 24-hour basis, until in the sole judgment of the Railroad Company(s), their operation can be safely halted.

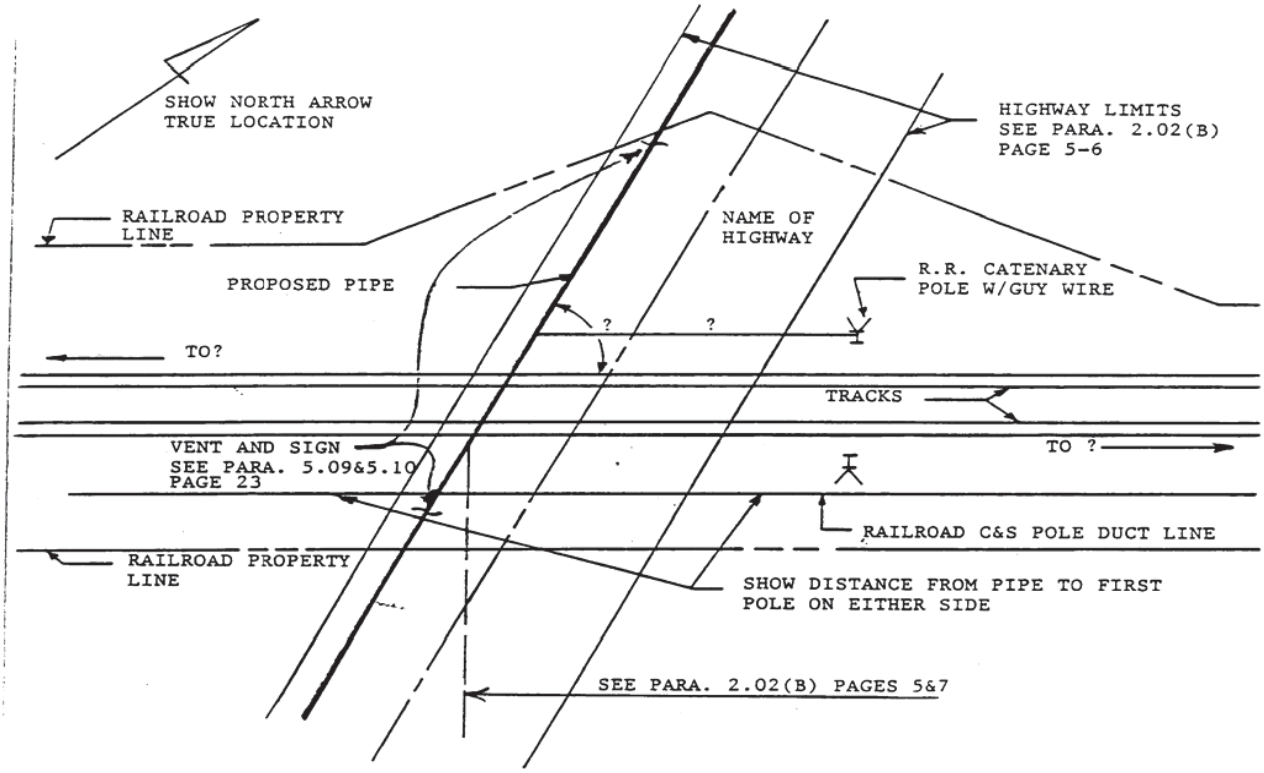
When dewatering, close observation shall be maintained to detect any settlement or displacement of railroad embankment, tracks, and facilities.

H. Proposed methods of dewatering must be submitted to the Railroad Company(s) for approval prior to implementation. The discharge from the dewatering operations in the vicinity of the railroad shall be carefully monitored. If in the opinion of the Railroad Company(s), there is an excessive loss of fine soil particles at any time during the dewatering process, the dewatering shall be halted immediately. The dewatering operation cannot resume until the unsatisfactory condition is remedied to the satisfaction of the Railroad Company(s).

PLATE I

PIPE CROSSING

INFORMATION TO BE SHOWN ON PLAN SECTION OF DRAWING



(SCALE OF DRAWING TO BE SHOWN)

NOTE:

IF MANHOLES ARE PLACED ON MBTA RAILROAD PROPERTY, DETAILS OF SAME, WITH CLEARANCES TO THE CENTERLINE OF THE NEAREST TRACK ARE TO BE SHOWN ON THE DRAWINGS.

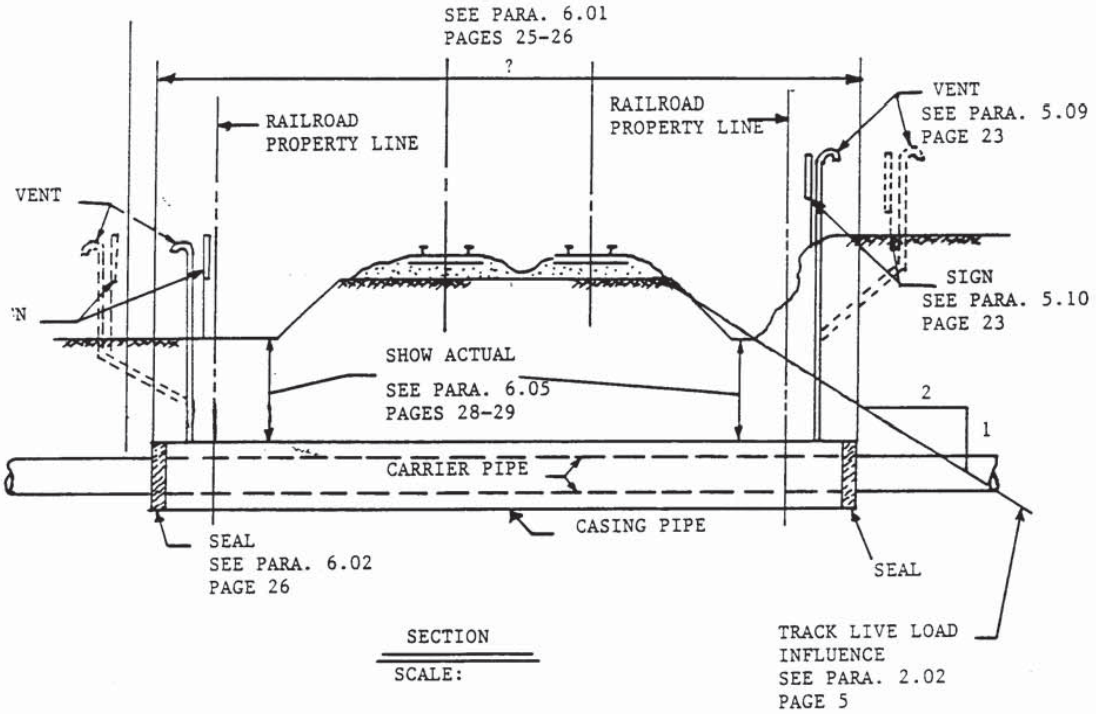
IF THE PROPOSED PIPE IS TO SERVE A NEW DEVELOPMENT, A MAP SHOWING THE AREA IN RELATION TO ESTABLISHED AREAS AND ROADS IS TO BE SENT WITH THE REQUEST.

THE PROPOSED PIPE IS NOT WHOLLY WITHIN HIGHWAY LIMITS, THE SAME INFORMATION IS REQUIRED AS SHOWN ON THIS PLATE.

PLATE II

PIPE CROSSING

INFORMATION TO BE SHOWN ON PROFILE SECTION OF DRAWING

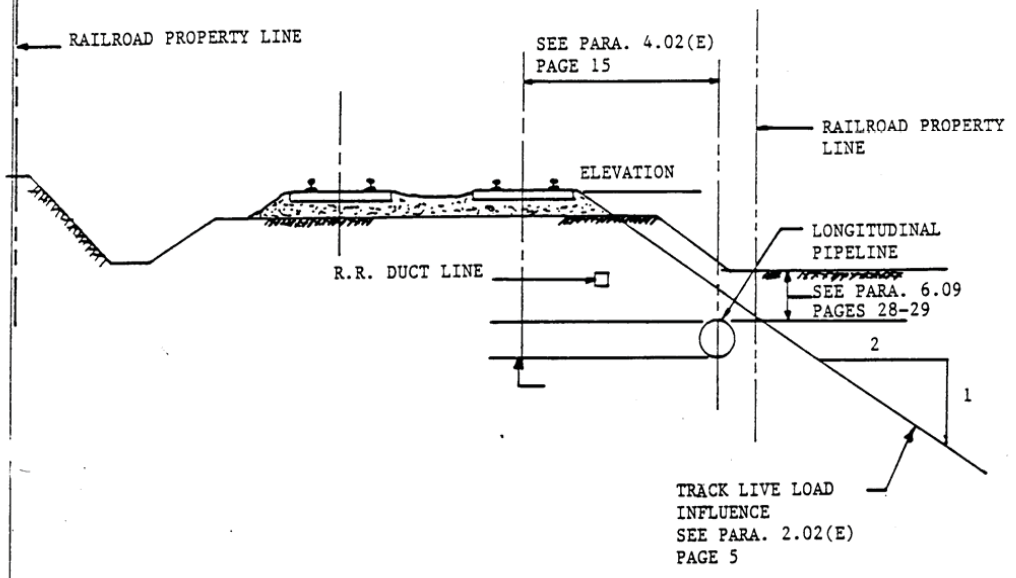


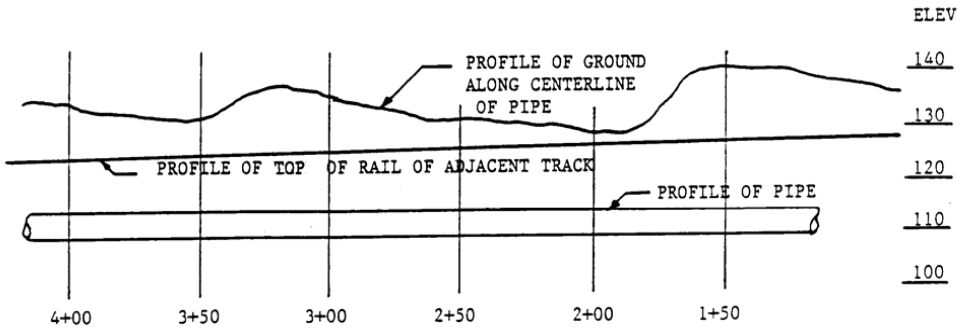
SECTION

SCALE:

PLATE III

LONGITUDINAL OCCUPANCY





STATIONING

PROFILE - SEE PARA. 2.02
PAGES 5-7

SCALE - HOR:
VER:

PIPE CROSSING DATA SHEET

PLATE IV

In addition to plan and profile of crossing, Drawings submitted for the Railroad Company(s) approval shall contain the following information:

	Pipe Date	
	Carrier Pipe	Casing Pipe
Contents To Be Handled		
Normal Operating Pressure		
Normal Size of Pipe		
O.S. Diameter		
I.S. Diameter Wall		
Thickness Weight		
Per Foot Material		
Process of Manufacture		
Specification		
Grade or Class		
Test Pressure		
Type of Joint		
Type of Coating		
Details of Cathodic Protection		
Details of Seal or Protection at Ends of Casing:		
Method of Installation		
Character of Subsurface: Material At the Crossing Location		
Approximate Ground Water Level		
Source of Information on Sub- surface conditions (Test Pits, Borings or Other)		

NOTE: Any soil investigation made on MBTA Railroad Property, or adjacent to tracks shall be carried on under the supervision of the Railroad Company(s).

PLATE V

TABLE OF MINIMUM WALL THICKNESS FOR STEEL CASING PIPE
(FOR INFORMATION ONLY)

PROTECTED WALL THICKNESS

PIPE SIZE (INCHES)	WALL THICKNESS (PROTECTED)
10	0.375
12	0.375
14	0.375
16	0.375
18	0.375
20	0.375
22	0.375
24	0.375
26	0.375
28	0.406
30	0.469
32	0.501
34	0.532
36	0.532
38	0.569
40	0.569
42	0.569
44	0.594
46	0.688
48	0.688
50	0.688
52	0.813
54	0.813
56	0.876
58	0.876
60	0.876
62	0.876
64	0.876
66	0.876
68	0.876
70	0.906

NOTE: FOR UNPROTECTED PIPE 26" AND UNDER ADD 0.032" TO PROTECTED WALL THICKNESS. FOR UNPROTECTED PIPE 28" AND OVER, ADD 0.063" TO PROTECTED WALL THICKNESS.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

RAILROAD OPERATIONS DIRECTORATE

V

SPECIFICATIONS FOR WIRE CONDUIT AND CABLE OCCUPATIONS

SECTION 1. SCOPE

1.01 These specifications apply to the design of electric transmission wires and cables (power and communication) which are to be located over, under, across or upon property, facilities, and tracks owned by the MBTA.

SECTION 2. LICENSE TO ENTER MBTA RAILROAD PROPERTY

2.01 Individuals, corporations, or municipalities desiring wire or cable occupations must agree, upon approval of the construction details by the Director of Engineering for MBTA Railroad Operations, to execute an appropriate occupational agreement and pay any required fees and/or rentals outlined therein.

2.02 Application for an occupancy shall be submitted in writing to:

AGM for Real Estate and Asset Development
MBTA, 10 Park Plaza
Boston, Massachusetts 02116

See "Guidelines and Procedures for Construction on MBTA Railroad Property."

2.03 All applications shall be accompanied with six (6) copies of all Construction Drawings, specifications and computations concerning the proposed occupancy.

SECTION 3. APPROVAL OF DRAWINGS

3.01 Entry upon MBTA Railroad Property for the purpose of conducting surveys, field inspections, obtaining soil information, or any other purpose associated with the design and engineering of the proposed occupancy will be permitted only with a proper entry permit prepared by the MBTA Real Estate Department. The issuance of such a permit does not constitute authority to proceed with the actual construction. Construction cannot begin until the proper insurance certificate is received and a formal agreement is executed by the MBTA and permission is received by the Railroad Company(s).

3.02 Drawings shall be drawn to scale and show the following: (See attached plates I -VI)

A. Plan view of crossing or occupation in relation to all Railroad Company(s) facilities. (See Plate 1)

B. Location of wire or cane (in feet) from nearest railroad mile post, center line of a railroad bridge (giving bridge number), or center line of a passenger station. In all cases, the name of the County and City or

Town in which the proposed facilities are located must be shown.

C. Profile of ground on center line of pole or tower line, showing clearances between top of rail and bottom of sag, as well as clearances from bottom wire or cable to top wire or cable of the MBTA's transmission, signal and communication lines and catenary. If none of these facilities are in existence at the point of crossing, the plan should so indicate. Actual under-clearances are to be shown. (See Plate V for the required clearances).

D. Show all known property lines. If wires, cables or conduits are within public highway limits, such limits should be clearly indicated with dimensions from center line.

E. The Drawing must be specific as to:

1. Base diameter, height, class and bury of poles. Poles shall be set no closer than 13' 6" from face of pole to center line of nearest track. When necessary, however, each location will be analyzed by the MBTA to consider speed, traffic, access, etc.

2. Number, size and material of power wires, as well as number of pairs in communication cables.

3. Nominal voltage of line, type of current and frequency.

4. Number, location, size and material of anchors and all guying for poles and arms.

NOTE: Double cross-arms are required on poles adjacent to track. Any tower designs must be accompanied by engineering computations and data.

SECTION 4. CONSTRUCTION REQUIREMENTS

4.01 Power and communication lines shall be constructed in accordance with "Safety Rules for the Installation and Maintenance of Electric Supply and Communication Lines, National Electrical Safety Code Handbook, Part 2" (current issue), with the following exceptions:

A. Item 3 (c), page 2.

B. Casing pipes to contain power or communication wires or cables having an outside diameter of over four (4) inches shall be constructed in accordance with the current issue of MBTA Railroad Operations "Pipeline Occupancy Specifications".

SECTION 5. LONGITUDINAL OCCUPATIONS

5.01 Wires and cables running longitudinally along railroad right-of-way shall be

constructed as close to MBTA property lines as possible in accordance with Plate III. For electrical power lines and cables with voltages of 34,500 or over and communication canes containing over 180 pairs, the following information must be submitted in addition to the detail of the pole top configuration as called for on Plate IV of these specifications:

A. Voltage of circuit(s) or number of pairs. B. Phase of electrical circuit(s).

B. Number of electrical circuits.

C. Size (AWG or CM) and material of wires and cables.

5.02 Any facilities overhanging MBTA Railroad Property must have approval of the MBTA and appropriate rental charges will be applied.

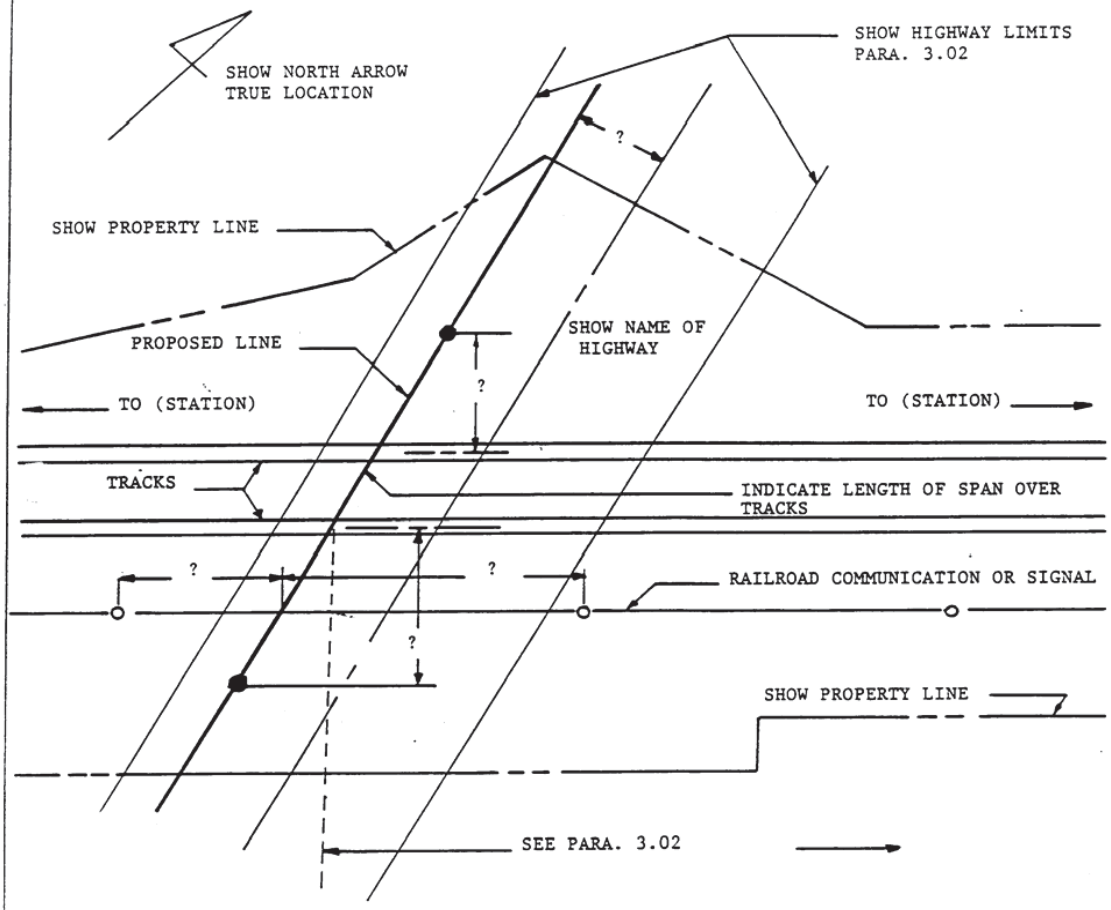
SECTION 6. INDUCTIVE INTERFERENCE

6.01 On agreements covering longitudinal occupations, provisions shall be included that hold the Applicant responsible to provide appropriate remedies, at their own expense, to correct any inductive interference with MBTA facilities.

PLATE I

PLAN VIEW

INFORMATION TO BE SHOWN ON PLAN SECTION OF DRAWINGS
WHEN FACILITY IS A CROSSING



SCALE OF DRAWING TO BE SHOWN

NOTE:

IF THE PROPOSED LINE IS TO SERVE A NEW DEVELOPMENT, A MAP SHOWING THE AREA IN RELATION TO ESTABLISHED AREAS AND ROADS IS TO BE SENT WITH THE REQUEST.

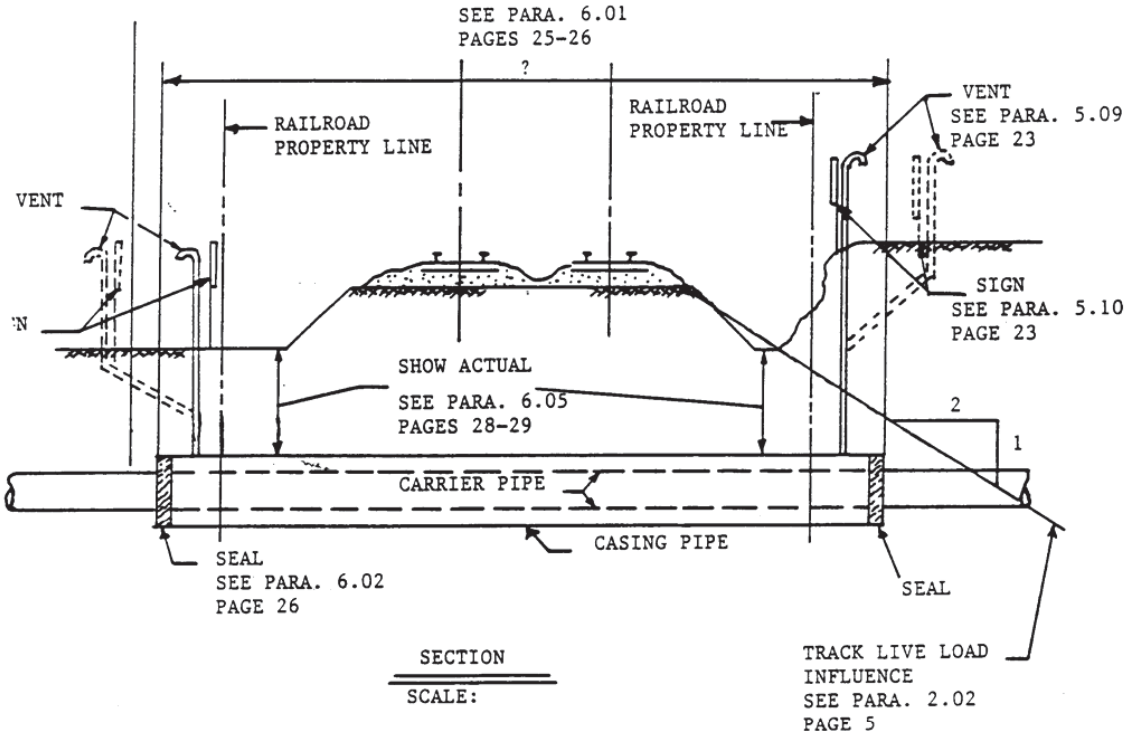
IF THE PROPOSED LINE IS NOT WHOLLY (OR PARTIALLY) WITHIN HIGHWAY LIMITS, THE SAME INFORMATION IS REQUIRED AS SHOWN ON THIS PLATE.

4

PLATE II

PIPE CROSSING

INFORMATION TO BE SHOWN ON PROFILE SECTION OF DRAWING



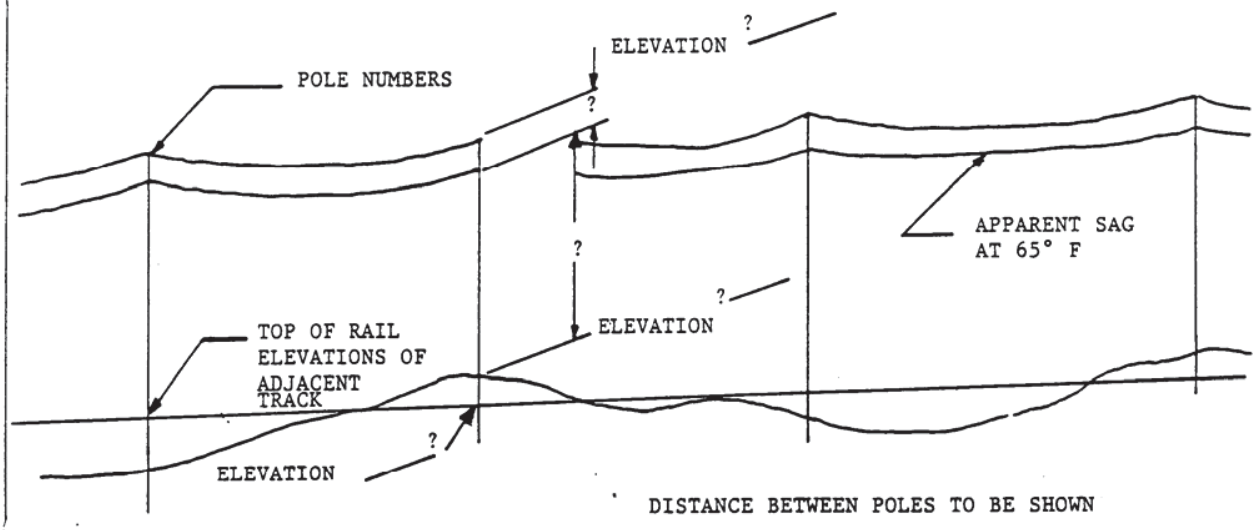
SECTION

SCALE:

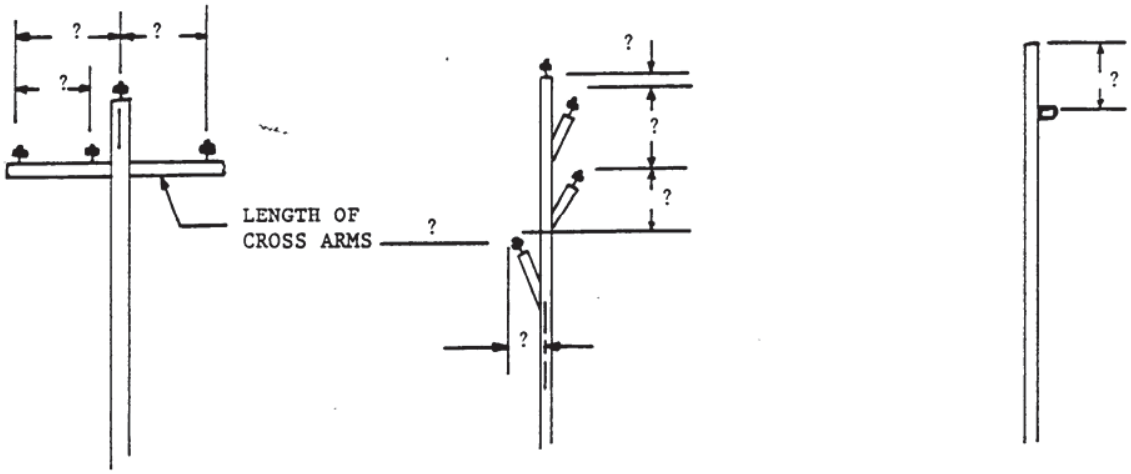
PLATE III

PROFILE VIEW

INFORMATION TO BE SHOWN ON PROFILE SECTION OF DRAWINGS
IN CASES OF LONGITUDINAL OCCUPATIONS



DISTANCE BETWEEN POLES TO BE SHOWN



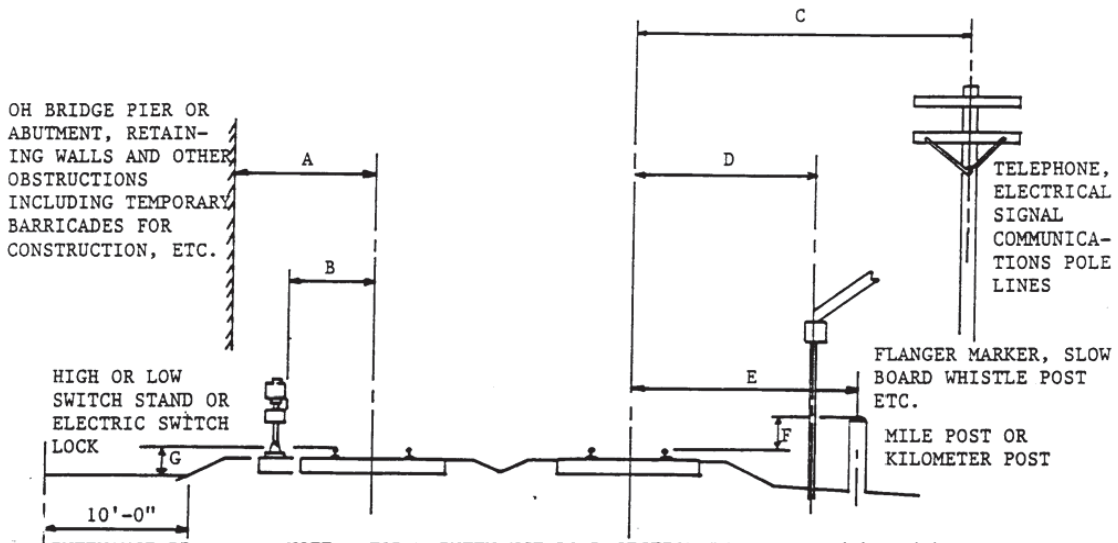
POLE TOP CONFIGURATION TO BE SHOWN SIMILAR TO SAMPLES ABOVE

NOTE: IF POWER LINE CROSSES ANY TRACK, THEN INFORMATION SHOWN ON PLATE II IS ALSO REQUIRED.

PLATE IV

STANDARD SIDE CLEARANCES - TANGENT TRACK

(FOR OBSTRUCTIONS OTHER THAN PASSENGER STATIONS)



NOTE: FOR MAINTENANCE ROAD SECTION DIMENSIONS (A) & (C) TO BE INCREASED ACCORDINGLY - DIMENSIONS (D) & (E) MAY BE REDUCED TO 8'-6" CLEARANCE.

DIMENSION	DESCRIPTION	
A	GENERAL MINIMUM SIDE CLEARANCE	8'-6"
	OVERHEAD BRIDGE PIERS & ABUTMENT, RETAINING WALLS & OTHER EXISTING STRUCTURES	8'-6"
B	LOW SWITCH STANDS (3'-0" MAX HEIGHT)	6'-6"
	HIGH SWITCH STANDS (OVER 3'-0" HEIGHT)	9'-0"
	ELECTRIC SWITCH LOCKS	6'-6"
C	POLE LINES - TELEPHONE, ELECTRIC, SIGNAL COMMUNICATIONS (MIN)	13'-6"
D	CENTERLINE WHISTLE POSTS, FLANGER MARKERS, SLOW OR SPEED BOARDS AND OTHRE WAYSIDE SIGNS	12'-0"
	AUTOMATIC HIGHWAY CROSSING PROTECTION (MIN)	8'-6"
	AUTOMATIC HIGHWAY CROSSING PROTECTION (DESIRED)	15'-0"
E	MILE POSTS - HORIZONTAL	13'-6"
F	MILE POSTS - VERTICAL	7'-0"
G	DEPRESSION OF MAINTENANCE ROAD	

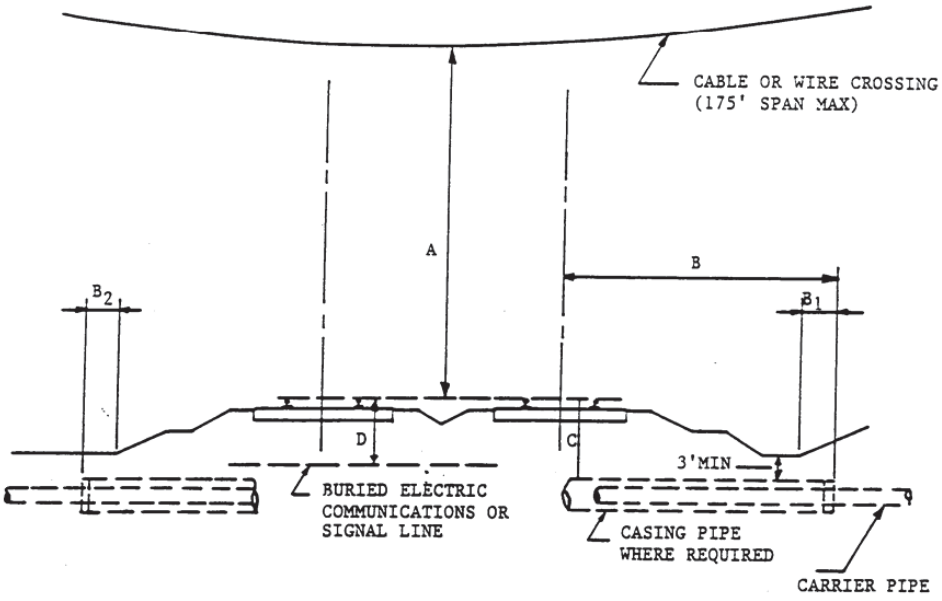
PLATE V

VOLTAGE	OVERHEAD CLEARANCE (Top of Rail to Bottom of Sag)	
0- 750	27'0"	At 120°F Ambient Temperature
750- 15,000	28'0"	
15,000 - 50,000	30'0"	
69,000	30'8"	
115,000	32'2"	
138,000	33'0"	
345,000	39'10"	
500,000	45'0"	
745,000	53'2"	
765,000	53'10"	
Other than power lines	27'0"	

(Calculation is 30'0" + 0.4" per 1,000 volts over 50,000 volts)

CLEARANCES FOR OVERHEAD AND BURIED UTILITY CROSSINGS

PLATE VI



DIMENSION	DESCRIPTION		
A	POWER LINES 0 TO 750V	27'-0"	At 120°F Ambient Temperature
	POWER LINES 750V to 15,000V	28'-0"	
	POWER LINES 15 to 50KV	30'-0"	
	OTHER THAN POWER LINES	27'-0"	
B	SEALED ENDED CASINGS	25'-0"	
	OPEN ENDED CASINGS	45'-0"	
B_1	END CASING DEYOND DITCH	2'-0"	
B_2	END CASING BEYOND SLOPE	3'-0"	
C	CASING PIPE	4'-6"	
	CARRIER PIPE WITHOUT CASING	6'-6"	
D	BURIED ELECTRIC LINES	6'-6"	
	RAILROAD SIGNAL LINES (220V)	2'-6"	
	COMMUNICATIONS LINES	3'-6"	

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MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

RAILROAD OPERATIONS DIRECTORATE

VI

BRIDGE ERECTION, DEMOLITION AND HOISTING OPERATIONS

Submittals for bridge erection, demolition, or other hoisting operations shall be prepared and stamped by a Registered Professional Engineer and must include the following:

1. Plan view showing locations of crane or cranes, operating radii, with delivery or disposal locations shown.

2. Crane rating sheets showing cranes to be adequate for 150% of the lift. Crane and boom nomenclature is to be indicated.

3. Drawings and computations showing weight of picks.

4. Location plan showing obstructions, indicating that the proposed swing is possible.

5. Data sheet listing type and size of slings or other connecting equipment. Include copies of catalog cuts or information sheets of specialized equipment. The method of attachment must be detailed on the erection plan. All lifting components must be adequate for 150% of the lift.

6. A complete procedure indicating the order of lifts and any repositioning or re-hitching of the crane or cranes.

7. Drawings detailing temporary support of any components or intermediate stages.

8. A time schedule (by hour and day) of the various stages, as well as a schedule for the entire lifting procedure.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

RAILROAD OPERATIONS DIRECTORATE

VII

TEMPORARY SHEETING AND SHORING

The following items are to be included in the design and construction procedures for all permanent and temporary facilities on, over, under, within or adjacent to MBTA Railroad Property:

1. Footings for all piers, columns, walls or other facilities shall be located and designed so that any temporary sheeting and shoring for support of adjacent track or tracks during construction will not be closer than toe of ballast slope. (See dimensions in the MBTA's Book of Standard Plans, #1000 and #1002 for tangent and curved track). Sheeting shall be required when excavation is inside of a line which extends horizontally from 5.5 feet off center line of adjacent track, then on a 2 (horizontal) to 1 (vertical) slope. This is known as the zone of influence.

2. Where physical condition of design impose insurmountable restrictions requiring the placing of sheeting closer than specified above, the matter must be submitted to the Director of Engineering for MBTA Railroad Operations for approval of any modifications.

3. When support of track or tracks is necessary during construction of above mentioned facilities, interlocking steel sheeting adequately braced and designed to carry E-80 live load plus 50% impact is required. Soldier piles and lagging will be permitted for supporting adjacent track or tracks only when required penetration of steel sheet piling cannot be obtained or when in the opinion of the Director of Engineering for MBTA Railroad Operations, or their authorized representative, steel sheet piling would be impracticable to place.

4. Exploratory trenches, three (3) feet deep and fifteen (15) inches wide in the form of an "H" with outside dimensions matching the outside of sheeting dimensions are to be hand dug, prior to placing and driving steel sheeting, in areas where railroad underground installations are known to exist. These trenches are for exploratory purposes only and are to be backfilled and compacted immediately. This work must be done in the presence of a railroad inspector.

5. Absolute use of track is required white driving sheeting adjacent to any track. Procedure for arranging the use of track shall be through the Railroad Company(s) representative on the project.

6. Cavities adjacent to sheet piling, created by driving of sheet piling, shall be filled with sand and any disturbed ballast must be restored and tamped immediately as required by the Railroad Company(s).

7. Sheet piling shall be cut off at top of tie during construction. After construction and backfilling has been completed, the piling within twelve (12) feet from centerline of track shall be cut off 24" below bottom of tie or 24" below finished grade, whichever is greater. Sheeting, used as a form on a permanent

structure, shall be cut as directed by the Railroad Company(s).

8. The excavation adjacent to the track shall be covered and protected by handrails and barricades, warning lights shall be provided by the Contractor as directed by the Railroad Company(s).

9. Graded backfill material shall be compacted at near optimum moisture content, in layers not exceeding 6 inches in compacted thickness, by pneumatic tampers, vibrator compactors, or other approved means to the base of the railroad subgrade. Material in the vicinity of sheet pile shall be compacted to not less than 95 percent of AASHTO T 99, Method C. The Contractor shall be required to supply, to the job site, ballast stone as prescribed herein to be installed by the Railroad Company(s).

10. The Contractor is to advise the Railroad Company(s) of the time schedule of each operation and obtain approval of the Railroad Company(s) for all work to be performed adjacent to MBTA tracks so that it may be properly supervised by railroad personnel.

11. AII Drawings for temporary sheeting and shoring shall be prepared and stamped by a Registered Professional Engineer and shall be accompanied by complete design computations when submitted for approval.

12. Particular care shall be taken to avoid erosion or filling of the Railroad Company(s) drainage facilities. Erosion and sediment control in the vicinity of the railroad shall be as approved by the Director of Engineering for MBTA Railroad Operations. Correction of disrupted Railroad Company(s) drainage facilities shall be at the Contractor's sole expense.

MBTA REQUIREMENTS FOR GEOTECHNICAL MONITORING

THE FOLLOWING SPECIFICATIONS ARE REQUIRED FOR ALL PILE DRIVING/EXCAVATING OPERATIONS:

1. Pile driving shall be on a continuous basis for each pile driven. Once a pile is started, it shall be driven or cut off at an elevation not to exceed the plane across the top of the rails of any track within 8'-6" plus 2" for each degree of curvature from centerline of track to the closest edge of the edge or excavation.

2. The monitoring points shall be set up one week before the pile driving or excavation operations begin. The MBTA and the Railroad Company(s) shall be notified. Elevation readings to establish the initial baseline reading shall begin two days prior to the start of driving. Readings shall be for a minimum of two weeks after the completion of the driving or backfilling of the excavation, whichever is longer. Initial readings immediately after any surfacing operations shall serve as new baseline figures. All future elevation readings shall be compared to the adjusted baseline. If the track deviates to a condition that is unacceptable to the MBTA or Railroad Company(s), corrections shall be made at the Contractor's expense.

3. Elevation readings shall be taken from the top of each rail of each track within the "zone of influence" the excavation. See Section 1, Page 1 of this specification.

4. Elevation readings will be taken once per eight hour shift. The readings shall be faxed to the MBTA Railroad Company(s) on a daily basis and all information is to be presented in legible print. During excavation within the sheet pile protected area, the top of rail elevations shall be checked every hour. Additional readings may be required by the MBTA or Railroad Company(s).

5. Stations shall be spaced at 15-1/2 foot intervals. The number of distractions required will be determined by the length of the excavation parallel to the tracks. There will be four additional stations on each end of the pile driving/excavation operation along the track. Extra stations may be required by the MBTA or Railroad Company.

6. Elevation readings must show the date, time, weather conditions and temperature. Each reading must also provide the following information: track number, compass direction, station number, base elevation (with date), static elevation, change in elevation (recorded in hundredths and in inches), dynamic reading and total deflection in inches. See sample sheet attached.

7. Station "0" will be located at the centerline of the project with Stations 1, 2. 3, etc., being to the right and Stations -1, -2, -3, etc., being to the left when

standing on the near track and looking at the work. In multiple track areas the stations as determined herein are to be carried across each track located within any part of the zone of influence. See Plate I.

8. At each monitoring station a dynamic load measurement shall be taken. The dynamic load measurement device shall consist of a wooden stake placed firmly in the ballast and in initially in contact with the bottom of the rail. The loaded measurement is the resultant gap between the bottom of the rail and the top of the stake caused by the deflection of the rail under the load of a passing train. Based on field observations of the excavation, and at the option of the MBTA or railroad company(s), this requirement may be reduced.

9. Elevation readings taken from the top of rail for static measurement and the dynamic reading shall be combined and the sum compared to the adjusted baseline. This reading will demonstrate the difference in elevation caused by the excavation.

10. The MBTA requires that the track be maintained at all times within established criteria for the specific track classification. At the completion of the project the requirement for tamping and realigning the tracks, caused by the settlement from the construction activity, remains with the Contractor for the duration as specified by the MBTA in their initial review of the Construction Drawings. This tamping and track realignment will be performed by the MBTA or railroad company(s) at the sole expense of the Contractor.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

RAILROAD OPERATIONS DIRECTORATE

VIII

BLASTING SPECIFICATIONS

Blasting on, over, under, within or adjacent to MBTA Railroad Property will be permitted only in special cases where it is demonstrated to the Director of Engineering for MBTA Railroad Operations that there is no practicable alternative to perform the work.

In such cases when blasting is permitted, the Contractor must submit a detailed blasting program to the MBTA and Railroad Company(s) for approval prior to the commencement of any work. The blasting program must contain the following information:

a. Site plan with location of nearest MBTA structure.

b. Plan of each blast showing hole spacing and delay pattern. c. Diameter and depth of each hole.

c. Amount of explosives per hole.

d. Total pounds of explosives per day.

e. Total amount of explosives per blast.

f. Type of non-electric delays to be used. h. Amount of stemming in each hole.

g. Type of explosive to be used.

h. Soil and rock profile in blast zone.

i. Scaled distance to the nearest MBTA facility.

j. Type and location of seismograph to be used. m. Size of blasting mats to be used.

k. Safety precautions to be followed.

The following general requirements are to be adhered to:

a. Obtain the services of a qualified vibration and blasting consultant to monitor the blasting.

b. Use a non-electric detonation system whenever possible. If electric caps are used, a check must be made for stray currents, induced current and radio frequency energy to insure that this hazardous extraneous electricity is at an acceptable safe level.

c. Provide an open face for maximum relief of burden.

d. Limit the maximum peak particle velocity to 1 inch per second. Depending on existing conditions, this may be modified to 2 inches per second.

e. Maintain an initial scale distance of 60 ft. per 1-1/2 lbs. After initial blasting, scale distance may be modified to a minimum of 50 ft. per 1-1/2 lbs., if conditions permit.

Scale distance -- Distance from blast to structure (in feet)

Weight of explosives per delay (in pounds)

The Contractor shall provide for a pre-blast and post blast survey, including photographs. An inspection of all nearby MBTA facilities shall be made to determine any changes that may occur due to blasting operations.

The Contractor shall coordinate all blasting with the MBTA and Railroad Company(s) in advance to determine when the charges may be set. The Contractor is advised that the MBTA and Railroad Company(s) use two way radios for train control. The radios operate in the 160 MHz area. These radios cannot be turned off at any time.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

RAILROAD OPERATIONS DIRECTORATE

IX

TEMPORARY PROTECTION SHIELDS FOR DEMOLITION AND CONSTRUCTION

The Railroad Company(s) will determine when and where protection shields are required. The designated construction of temporary protection shields must adhere to the following specifications:

1. The construction of temporary protection shields shall be designed to prevent any dust, debris, concrete, formwork, paint, or tools from falling on MBTA Railroad Property below.
2. The temporary protection shields shall be erected prior to the start of work. The Railroad Company(s) will determine whether or not sufficient protection has been provided to perform the work over any particular area.
3. The temporary protection shields shall remain in place until all work over the railroad has been completed and shall be removed only when ordered by the Railroad Company(s).
4. To minimize the inconvenience to the users of any properties below and adjacent to the project, the Contractor shall be required to complete the actual erection and removal of the temporary shields within time limits acceptable to the Railroad Company(s).
5. The erected temporary protection shields shall not infringe on any existing minimum vertical clearance.
6. The Contractor shall be required to obtain the approval of the Railroad Company(s) before commencing any work beneath the shield. In certain areas, depending on the nature of the work, the Railroad Company(s) may require a specific method of protection.
7. The horizontal shield shall be designed to carry a live load of 100 pounds per square foot and a single concentrated load of 2,000 pounds located to produce maximum stress. The vertical shield shall be designed to carry a wide load of 30 pounds per square foot.
8. Prior to the start of construction, the Contractor shall be required to submit the details of the temporary protection shield to the Railroad Company(s), who will review and approve the details only as to the methods of erection and as to whether or not the proposed installation will provide the level of protection required at the various locations. It is the Contractor's responsibility to design these protections so that they are in conformance with all existing laws, regulations and specifications that govern this type of work. Shield plans must include a material list and shall be designed by a Registered Professional Engineer. The Drawings and calculations must bear their seal when they are submitted to the Railroad Company(s).
9. If during the actual construction, the Railroad Company(s) deems that the shield is not providing the desired level of protection or that the Contractor has failed to properly maintain the shield, all work at the

affected location shall cease until corrective measures acceptable to the Railroad Company(s) are instituted.

10. All temporary shields shall be constructed using new material.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

RAILROAD OPERATIONS DIRECTORATE

X

INDUSTRIAL SIDE TRACK SPECIFICATIONS

SECTION 1. GENERAL

1.01 All railroad track construction shall be performed under competent supervision of personnel experienced in railroad construction and shall conform to the standards of the MBTA. The MBTA and Railroad Company(s) will inspect and approve all side tracks prior to being put in service. This specification shall be used for side tracks directly on or within 15 feet of the MBTA property line. Any construction outside of the MBTA property line shall be in compliance with the standards of the serving freight railroad.

SECTION 2. MATERIALS

2.01 MATERIAL

Rails, ties, switches, frogs, etc. shall conform to the standards of the MBTA for various types of turnouts and track installations thereby insuring replacement availability.

2.02 RAIL

The rails shall be 100# ASCE Section or of a heavier rail section in common use, new or relay. Relay rails shall not have more than 1/4" top wear measured vertically along center line of rail and not more than 3/8" side wear measured horizontally 3/4" below the normal top of rail. Rails shall be free from kinks, excessive rust and excessive head flow. Rails having line or surface bends that cannot be spiked will be rejected. Rail shall be free of internal defects. Rail used on the limits of MBTA Railroad Property shall be equal in weight and in section to the attached main line.

2.03 CROSS TIES

Cross ties shall conform to MBTA specifications, minimum size shall be 7" x
8" x 8'6" and shall be treated with creosote in accordance with MBTA specifications. Relay ties may be approved after inspection by the MBTA and Railroad Company(s) prior to installation.

2.04 SWITCH TIMBER

Switch timber shall be new hardwood and conform to MBTA specifications 7" x 9" and of lengths required by MBTA standard turnout bill of materials. All timber shall be creosote treated as specified for cross ties. Relay timber as above.

Tie plates shall be new or relay at least 7-1/2" x 10-3/4", 1/2" thick,

double shoulder and should be canted. Tie plates must conform to MBTA specifications. Damaged plates or plates showing more than 25% reduction in section due to corrosion or wear will be rejected.

2.06 JOINT BARS

Joint bars shall be new or relay, 100% toeless, 24" long or equal and conform to MBTA specifications. Relay bars must be free from appreciable wear. Joint bars shall have a minimum of four holes and the holes are to fit the punching's of the rail. Holes to have a clearance of 1/16". Joint bars that cannot be drawn up to give a tight fit will be rejected. No fewer than 4 bolts per joint will be allowed.

2.07 BOLTS, NUTS AND WASHERS

Bolts and nuts shall be new and of a size to fit the rail punching's. They shall conform to AREA specifications for low carbon steel track bolts and nuts. Washers shall be new spring type of appropriate size and shall conform to MBTA specifications.

2.08 TRACK SPIKES

Track spikes shall be 6" long, 5/8" square with an oval head and conform to MBTA specifications for soft steel track spikes. Tangent track shall have at least 2 rail holding spikes per tie plate and all curves over 3" shall have 3 spikes per tie plate.

2.09 BALLAST

Ballast shall conform to MBTA Material Specification 9248.

2.10 BUMPING POSTS

Bumping posts shall be Hayes type, Durable "D" or equal, unless otherwise specified, and will conform to MBTA Material Specification 9206.

2.11 DERAIL

Type and quality of derail shall be specified for each individual side track requirement. Derail shall be connected into the railroad signal system, which will be performed by the Railroad Company(s) at the Owner's expense. Two pairs of insulated joints shall be installed by the Contractor at a location to be determined by the MBTA. Side tracks with a descending grade toward the main track shall require a split switch type derail.

SECTION 3. INSTALLATION

3.01 The track shall be properly installed with a standard gauge of 4'8-1/2" except on sharp curves. In cases of sharp curves, gauge will be specified by the MBTA or the Railroad Company(s).

3.02 Ballast shall be installed on top of subgrade for a depth of at least 6" below the bottom of tie and brought up to the top of the tie at the center and slope off to 1" below top of tie at the ends. It shall then extend 1' beyond the end of the tie at that height, at which point it shall slope off at a rate of 2:1 to the sub- ballast.

3.03 Cross ties shall be placed not more than 24" on center on tangent track and19 ½ " on center on curved track. When relay rails are used the unworn side shall be placed on the gauge side. Tie plates shall be installed on each cross tie. The center of the joint shall be installed so as to be suspended by two ties.

3.04 It shall be the responsibility of the builder of that portion of track designated as "property line to end" to connect to that portion of track designated as "clearance to property line" and provide the necessary joints or compromise joints with bolts as the weights of rail would dictate.

SECTION 4. BONDING

4.01 Where track bonding is necessary, it will be performed by the Railroad Company(s) in accordance with MBTA standards.

SECTION 5. APPROVAL

5.01 Plans for track installation must be approved by the MBTA and Railroad Company(s) before the design of the facility to receive rail service is finalized.

SECTION 6. CURVATURE OF TRACK

6.01 The recommended curvature shall be 8° or less. The maximum allowable degree of curve is not to exceed 12° 30', unless approved by the Director of Engineering for MBTA Railroad Operations.

SECTION 7. GRADE OF TRACK

7.01 The maximum allowable grade for all tracks shall not exceed 1.5% descending towards mainline or 3% descending from mainline using 100 foot vertical curves.

SECTION 8. ELEVATION

8.01 Super elevation shall not exceed 1 inch.

SECTION 9. SUBGRADE

9.01 Subgrade shall be prepared to a grade 18" - 20" below the proposed top of rail and shall be of a material that is compacted to 95% and provides for adequate drainage.

SECTION 10. ACCEPTANCE

10.01 Before track is placed into service to receive cars, it shall be inspected and approved by a qualified track inspector from the MBTA, the Railroad Company, and the freight carrier.

10.02 No exceptions to these specifications are authorized without the written approval of the Director of Engineering for MBTA Railroad Operations.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

RAILROAD OPERATIONS DIRECTORATE

XI

RIGHT OF WAY FENCING SPECIFICATIONS

SECTION 1. GENERAL

1.01 DESCRIPTION

This section specifies the furnishing and installing of new Type I galvanized steel or Type II aluminum coated steel chain link fence. Right of way fence shall be 6', 8' or 10’ as required by site specific conditions.

1.02 SUBMITTALS

Shop Drawings

1. Include cross sectional dimension of posts, braces, rails, fittings, accessories and gate frames, design of gates, and details of gate hardware.
2. Include a layout drawing showing the spacing of posts and location of all gates, abrupt changes in grade, and all corner, gate, anchor, end and pull posts.

SECTION 2. PRODUCTS

2.01 MATERIALS

A. General

1. Steel pipe dimensions and weights: ASTM A-53, Schedule 40 (except the hydrostatic testing requirement is waived). Dimensions specified are outside diameter (O.D.).
2. Provide post with accepted semi-steel or pressed steel tops, so designed as to fit securely over post and carry top rail or spring tension wire; the base of post top fitting shall fit over the outside of post and shall exclude moisture from post. All fittings and accessories shall be hot dipped galvanized in accordance with ASTM A-53.

B. Line Post: For all post heights, unless otherwise noted, Schedule 40, 2.375” O.D. pipe weighing 3.65 lbs./ft. ASTM A-53 with a 2 oz. hot dipped galvanized coating shall be used.

C. Gate post: Furnish post to support single gate leaf, or one leaf of a double gate installation, for the following gate widths:

Leaf Width	Gate Post	Sch. 40
up to 6'	2.875" O.D.	5.79 lb./ft.
6' to 12’	4.000" O.D.	9.11 lb./ft.
12' to 18'	6.625" O,D.	18.97 lb./ft.
18' to 32'	8.625" O.D.	28.55 lb./ft.

D. End, Corner and Intermediate Posts

For all post heights, unless otherwise noted, Schedule 40, 2.875" O.D. pipe weighing 5.79 lbs./ft. ASTM A-53 with a 2 oz. hot dipped galvanized coating shall be used.

E. Top rail and Spring Tension Wire

1. Top Rail

a. Schedule 40, 1.66" O.D, pipe weighing 2.27 lbs./ft. ASTM A-53 with a 2 oz. hot dipped galvanized coating.

b. Couplings and expansion sleeves: Outside sleeve type, minimum six inches long.

2. Spring tension wire: shall be marcelled (spiraled or crimped) #7 gauge (.177 inches) plus or minus 0.005 inches in diameter. ASTM A-824. 1.2 oz. zinc per sq. ft.

F. Braces and Tension Rods

1. Compression braces: Same type and size as top rail.

2. Tension rods: 3/8" round rods with drop forged turnbuckles or other approved type of adjustment.

G. Fence Fabric

1. Type I galvanized steel ASTM A-392 Class 2 coating 2 oz.

a. Typical-2" diamond mesh 6 gauge (192") 2 oz.

b. Hot dipped galvanizing after weaving.

2. Type II aluminum coated steel ASTM A-491 size 2. 3/8" mesh.

3. Selvages: All types

a. Fabric shall be knuckled at both selvages.

b. Fabric over 60 inches high: knuckled at one selvage and twisted and barbed at the other.

H. Fabric Bands, Brace Bands and Stretcher Bars

1. Fabric Bands: 12 gauge pressed steel 7/8 inch wide.

2. Brace Bands: 11 gauge pressed steel 1 inch wide.

3. Stretcher Bars: 3/16" x 3/4" galvanized steel.

I. Tie wire and miscellaneous Items

1. Tie Wire: Galvanized steel 6 gauge (.192") for post and rails.
2. Hog rings: Galvanized steel 6 gauge (.192") for spring tension wire.
3. Rail and Truss Cups: Galvanized semi-steel or pressed steel.

J. Barbed Wire and Extension Arms

1. Barbed Wire; ASTM AI21, 12-1/2 gauge, 4-point round barbs, Class 3 coating.
2. Extension Arms: Projecting at an angle of approximately 45 degrees, fitted with clips or other means of attaching three strands of barbed wire, the top outside wire approximately 12 inches from the fence line and the other wires spaced uniformly between the top outside wire and the fence fabric.

K. Gates

1. General: Furnish gates complete with necessary hinges, latches, and drop bar locking devices; corners shall be welded or fastened and reinforced with suitable fittings.
2. All gates fabricated from 1.90" O.D. Schedule 40 pipe weighing 2.72 lbs./ft. with a 2 oz. hot dipped galvanized coating.

L. Concrete: Class 2500 psi concrete consisting of aggregate passing the No. 8 sieve.

SECTION 3. EXECUTION

3.01 INSTALLATION

A. Place terminal post at each end, corner, gate post, pull post (minimum 500'), or any change in grade or direction greater than 30 degrees.

B. Line posts shall be spaced on a maximum of 10 foot centers. In determining the post spacing, measure parallel to slope of finished grade. All posts to be set plumb and in line. Post spacing on radius as follows:

200'- 500' radius 8' O.C.
100’ - 200' radius 6’ O.C.
less than 100’ radius 5' O.C.

C. When fencing is installed on the top of concrete structures, use galvanized sleeve and grout posts or install with suitable galvanized flange casing and galvanized anchor bolts. Set all other posts permanently in concrete.

D. Excavate post hole footings at least 12" in diameter for line post and I6" for terminal and gate posts up to 4" O.D. Larger gate posts require 18" diameter footings. All footings excavated to a depth of 42" with a minimum post embedment of 36". Crown top of concrete to shed water and allow curing for not less than 72 hours before proceeding with further work on the post.

E. Brace end, corner pull, and gate posts to the nearest line post with diagonal or horizontal brace rails used as compression chambers, and with truss rods with turnbuckles used as tension members. Brace line posts horizontally and truss in both directions as required, at approved intervals.

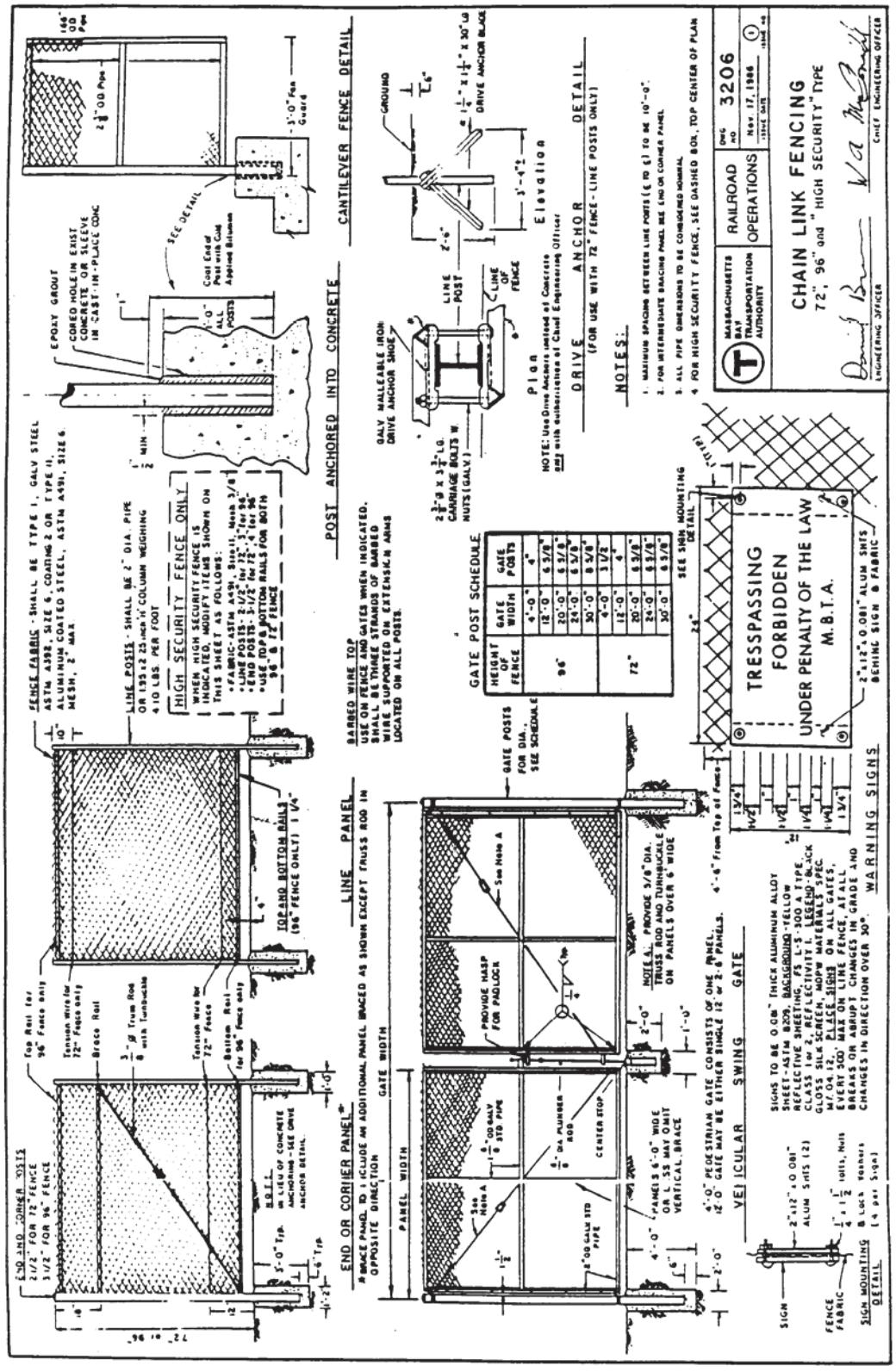
F. Install fabric on post side which best secures MBTA's Railroad Property. Pull fabric taut and tie to all line posts, rails, braces and spring tension wire spacing all ties at 12" intervals. Use hook shaped steel ties confined to the diameter of the pipe to which it is attached, clasping pipe and fabric firmly with both ends twisted at least 2 turns.

G. Barbed wire and tension wire must be taut and properly secured with brace bands at each terminal and gate post.

H. Electric Ground: Where a power line carrying more than 600 volts passes over fence, install ground rod at the nearest point directly below each point of crossing. Ground all substation fences and gates and perform other electrical grounding as indicated.

3.02 TOUCH-UP AND REPAIR WORK

Remove and replace fencing which is improperly located or is not true to line, grade and plumb within tolerances as indicated.


CHAIN LINK FENCING
72", 96" and "HIGH SECURITY" TYPE
MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
RAILROAD OPERATIONS
DWG NO 3206
Nov. 17, 1986
POST ANCHORED INTO CONCRETE
CANTILEVER FENCE DETAIL
HIGH SECURITY FENCE ONLY
WHEN HIGH SECURITY FENCE IS INDICATED, MODIFY ITEMS SHOWN ON THIS SHEET AS FOLLOWS:
FABRIC- ASTM A491, Size 11, Mesh 2"
LINE POSTS- 2-1/2" for 72", 3" for 96"
END POSTS- 3-1/2" for 72", 4" for 96"
USE TOP & BOTTOM RAILS FOR BOTH 96" & 72" FENCE
FENCE FABRIC - SHALL BE TYPE I, GALV STEEL ASTM A392, SIZE 6, COATING 2 OR TYPE II, ALUMINUM COATED STEEL, ASTM A491, SIZE 6 MESH, 2" MAX
LINE POSTS - SHALL BE 2" DIA. PIPE OR 1.95 x 2 25 inch H COLUMN WEIGHING 4.10 LBS PER FOOT
EPOXY GROUT
CORED HOLE IN EXIST CONCRETE OR SLEEVE IN CAST-IN-PLACE CONC
SEE DETAIL
Coat Ended Post with Cold Applied Bitumen
3'-0" Fan Guard
GALV MALLEABLE IRON DRIVE ANCHOR SHOE
LINE POST
LINE OF FENCE
GROUND
DRIVE ANCHOR DETAIL
(FOR USE WITH 72" FENCE - LINE POSTS ONLY)
Elevation
Plan
NOTE: Use Drive Anchors instead of Concrete only with authorization of Chief Engineering Officer
NOTES:
1. MAXIMUM SPACING BETWEEN LINE POSTS (C TO C) TO BE 10'-0".
2. FOR INTERMEDIATE BRACING PANEL SEE END OR CORNER PANEL
3. ALL PIPE DIMENSIONS TO BE CONSIDERED NOMINAL
4. FOR HIGH SECURITY FENCE, SEE DASHED BOX, TOP CENTER OF PLAN
GATE POST SCHEDULE
HEIGHT OF FENCE | GATE WIDTH | GATE POSTS
96" | 4'-0" | 4"
12'-0" | 6 5/8"
20'-0" | 6 5/8"
24'-0" | 6 5/8"
30'-0" | 8 5/8"
72" | 4'-0" | 3 1/2"
12'-0" | 4"
20'-0" | 6 5/8"
24'-0" | 6 5/8"
30'-0" | 6 5/8"
BARBED WIRE TOP
USE ON FENCE AND GATES WHEN INDICATED. SHALL BE THREE STRANDS OF BARBED WIRE SUPPORTED ON EXTENSION ARMS LOCATED ON ALL POSTS.
GATE POSTS FOR DIA. SEE SCHEDULE
SEE SIGN MOUNTING DETAIL
TRESSPASSING FORBIDDEN UNDER PENALTY OF THE LAW M.B.T.A.
END OR CORNER PANEL
LINE PANEL
VEHICULAR SWING GATE
WARNING SIGNS
PANEL WIDTH
GATE WIDTH
PROVIDE HASP FOR PADLOCK
CENTER STOP
SIGN
FENCE FABRIC
SIGN MOUNTING DETAIL

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

RAILROAD OPERATIONS DIRECTORATE

XII

TEST BORINGS SPECIFICATIONS

SECTION 1. GENERAL

All borings on MBTA Railroad Property are to be performed according to the following requirements:

1.01 Work on MBTA Railroad Property must be performed with a Railroad Company(s) inspector and/or flagman present.

1.02 Where access can only be gained by crossing the tracks, a temporary crossing must be used. This crossing shall adhere to the following:

A. The location and material must be approved in advance by the Chief Engineering Officer or Railroad Company(s).

B. The crossing will be constructed by Railroad Company(s) forces at the Contractor's expense.

C. The crossing must be protected at all times when not in use. Access shall be prohibited through the use of right-of-way gates which will be constructed by Railroad Company(s) forces at the Contractor's expense.

D. No crossing of the track shall be made without a railroad flagman and/or inspector present.

E. The crossing of tracks shall be kept to a minimum.

1.03 Boring locations, including positioning of the boring rig, shall be kept at least 8'-6" from the center line of track.

1.04 All borings must be cased to insure adequate return (of mud and water) and to avoid undermining of the track.

1.05 All holes shall be backfilled with cement grout to fill the voids and protect against an artesian condition.

1.06 The location of all utilities owned or private, shall be located and suitably marked by the Railroad Company(s) and/or the private owner at the Contractor’s expense to avoid damage to the utility and/or track structure.

1.07 Prior to entry upon the MBTA Railroad Property, all necessary contracts, insurance policies and financial obligations shall be provided in a form acceptable to the Railroad Company(s).

1.08 Work within the operating right-of-way that has potential to foul the tracks, shall be restricted to periods of non-peak passenger operations.

1.09 While performing the work, full cooperation with the inspector and flagman is essential. The work will be terminated immediately if the safety of all traffic and personnel is jeopardized in any way.

SECTION 2. TESTING

2.01 Soil borings shall be in accordance with the current issue of the American Railway Engineering Association Specifications, Chapter 1, Part 1, "Specifications for Test Borings". Soils shall be investigated by the split-spoon and/or thin-walled tube method and rock shall be investigated by the Coring method specified therein.

2.02 Soil boring logs shall clearly indicate all of the following:

1. Boring number as shown on boring location plan.
2. Elevation of ground at boring.
3. Description or soil classification of soils and rock encountered.
4. Elevations or depth from surface for each change in strata.
5. Identification of where samples were taken and percentage of recovery.
6. Location of ground water at time of sampling and, if available, subsequent readings.
7. Natural dry density in Ibs./sq. ft. for all strata.
8. Unconfined compressive strength in tons/sq. ft. for all strata.
9. Water content (percent). Liquid Limit (percent) and plastic limit (percent).
10. Standard penetration in blows/ft.

2.03 Soil boring logs shall be accompanied by a plan drawn to scale showing location of borings in relation to the tracks, the elevation of ground surface at each boring, and the elevation of the top of rail of the tracks.

2.04 Soil investigation by auger, wash, or rotary drilling method is not acceptable.

2.05 Borings shall be taken no more than two (2) feet from the field stake which marks the boring location. The stake should not be disturbed during boring operations. Lost stakes shall be reinstalled.

2.06 Unless a boring hole is actively being worked, it shall be securely covered or otherwise protected until permanently filled. When work at each boring hole is completed, the hole shall be properly filled.

2.07 Access to the boring locations must be approved by the Railroad

Company(s). When possible, access shall be from public roads. Licenses for Entry, Insurance and Flag Protection must be obtained by the Contractor in accordance with all applicable MBTA Specifications.

2.08 Boring operations shall be confined to each boring location to the extent possible.

The Contractor shall take necessary precautions to prevent damage to structures and facilities. The site shall be restored to a condition satisfactory to the Railroad Company(s).

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

RAILROAD OPERATIONS DIRECTORATE

XIII

FIBER OPTIC CABLE SPECIFICATIONS

SECTION 1. GENERAL

1.01 The purpose of the following standards is to provide basic information about the MBTA's requirements with respect to the design and construction of fiber optic cables on MBTA Railroad Property to fiber optic cable companies and their Contractors.

1.02 All work performed on or affecting MBTA Railroad Property must be designed and constructed in accordance with the Commuter Rail Design Standards (Vol. I and II), MBTA Book of Standards, Railroad Operations Specifications and the following standards. Additional job specific requirements will be contained in the MBTA's Fiber Optic License Agreement and can be obtained by contacting:

AGM for Real Estate and Asset Development
Ten Park Plaza
Boston, MA 02116

The Director of Engineering for MBTA Railroad Operations or their designated representative will be responsible for the approval of all work. No modifications, changes or deletions will be made without their approval.

SECTION 2. PROJECT REVIEW AND COORDINATION

2.01 All Drawings and specifications shall be reviewed and approved by the MBTA and Railroad Company(s) prior to construction. The MBTA must approve the construction schedule and sufficient Railroad Company(s) personnel must be available before work begins.

2.02 If another fiber optic cable company has previous or exclusive rights along the proposed route, the alignment and cable location must be approved in accordance with existing agreements.

2.03 The fiber optic cable companies must coordinate the construction with others to minimize the disruptions to the MBTA railroad operations.

SECTION 3. CONDUCT OF WORK

3.01 In order to minimize the manpower requirements of the Railroad Company(s) and afford better control, supervision, and protection, the Contractor will conduct their work sequentially and minimize the number of crews and their proximity. Crews should be confined geographically to an area that can be covered easily by a minimum number of Railroad Company(s) personnel. This can be accomplished by a block method of construction. A construction block will be used and is a 1-4 mile segment of right of way in which up to 3 fiber optic cable installation crews can work. The crews can work within the construction block, but cannot work outside of it. The construction block

must move as a unit along the right of way. The crews cannot work two blocks concurrently.

SECTION 4. CONSTRUCTION SCHEDULE

4.01 The fiber optic company or its Contractor will submit a schedule of work to the MBTA for approval. The schedule will be based on methods of construction acceptable to the MBTA and Railroad Company(s). No work shall begin prior to approval by the MBTA.

4.02 Any changes or modifications to the schedule proposed by the fiber optic company or its Contractor must be submitted to and approved by the MBTA prior to implementation. The MBTA, however, may be required to change or modify the construction schedule on account of its operations, maintenance requirements, or manpower shortages. In this event, the MBTA will give the fiber optic cable company as much advance notice as possible.

4.03 Construction schedules will be reviewed and updated every two (2) weeks or as required.

SECTION 5. ESTIMATE OF EXPENSES

5.01 An estimate of anticipated expenses will be provided based on durations provided by the fiber optic cable company or their Contractor and construction schedules approved by the Railroad Company(s). Any changes in the schedule will cause the estimate to be revised. The fiber optic cable company or their Contractor will be responsible for all of the costs incurred by the MBTA and Railroad Company(s) in support of the construction activities. This includes design review, engineering support, administration and supervision.

SECTION 6. BILLING

6.01 The fiber optic cable company or its Contractor will be required to pay for railroad protective services in advance of costs incurred.

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: NATICK Project File Number: 607420

Contract Number: 136650

Project Description: Bridge Replacement, N-03-012, Boden Lane over CSX/MBTA

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 A00825

MWRA 8 (m) PERMIT

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MASSACHUSETTS WATER RESOURCES AUTHORITY

PERMIT

8m Permit # 26-04-2514M

22-Apr-26

Massachusetts Department of
Transportation
10 Park Plaza
Boston, MA 02116

This Permit is subject to the 8(m) Permit Terms and Conditions, and the 8(m) Permit Special Terms and Conditions, if any, attached hereto and made a part hereof. Permittee agrees that it shall be bound by, and shall comply with, said Terms and Conditions.

The land is described as follows:

MWRA Section 677 and Section 634 (Boden Lane, Natick) Bridge over train tracks as depicted within "Natick Boden Lane Over the MBTA Railroad" 8m Permit Test Pit Locations - Plan View dated 3/23/26.

You may use the land for the purpose of:

Performing (4) tests pits to determine the exact location of MWRA infrastructure through the project site. Installation of vibration monitoring components and retaining wall on easterly side of project to accomadate utility pole relocation and maintain pedestrian safety at the site. Permittee shall utilize hand-digging or vacuum excavation within 2 ft. of MWRA infrastructure.

Approved as to Form:
Massachusetts Water Resources Authority

Christopher John
Law Division

Approved
Massachusetts Water Resources Authority

Deputy Chief OO, PP&P

This Permit is subject to the 8(m) Permit Terms and Conditions, and the 8(m) Permit Special Terms and Conditions, if any, attached hereto and made a part hereof. Permittee agrees that it shall be bound by, and shall comply with, said Terms and Conditions.

Permittee: Michael O'Dowd / _Michael O'Dowd, MassDOT Director
Signature Print Name

This Permit shall have no effect until such time as the Authority issues the fully executed original of this Permit.

Massachusetts Water Resources Authority
2 Griffin Way
Chelsea, MA 02150
Attn: Wastewater Operations - Permitting Department

8(m) PERMIT TERMS AND CONDITIONS

1. Permittee shall be responsible to stay apprised of and comply with all applicable federal, state and local laws, rules, and orders including, but not limited to, guidelines and requirements for construction sites, and all supplements, amendments and/or changes thereto and notices thereof. Prior to commencing work pursuant to this Permit, Permittee shall have obtained all other required permits, written approval(s) and necessary authorizations to perform the work. Failure to comply with the terms stated herein shall render this Permit null and void by the Authority, and Permittee shall bear all responsibility, liability, damages and costs arising from the Permittee's noncompliance.

2. Permittee's use of the permitted land shall at no time interfere with the Authority's activities or operations on the permitted land. The Authority has the right to review and approve all of the Permittee's work including such plans and specifications, as the Authority deems necessary. Any proposed future work beyond the scope of this Permit shall have the prior written approval of the Authority.

3. To the fullest extent permitted by law, the Permittee shall indemnify, defend with counsel acceptable to the Authority, keep and save harmless the Authority and its board members, officers, representatives, contractors, agents, employees, successors, and assigns, in both their individual and official capacities, against all suits, claims, liabilities, damages, losses (including but not limited to loss of use resulting therefrom) and expenses, including but not limited to attorney's fees, caused by, arising out of or resulting from any work or activity under this Permit and/or act, omission, breach or default of the Permittee or of any contractor, subcontractor of vendor of the Permittee or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.

4. The granting of this Permit shall in no way interfere with the rights of the Authority to exercise its existing rights in or over the permitted land. Permittee acknowledges that the Authority, within its sole discretion, may enter upon the permitted land at any time in order to carry out inspections, maintenance, repairs, replacements, or other activities.

5. The Authority may revoke this Permit at any time. The sale or disposition of the permitted land by its owner will cause this Permit to terminate without further notice. Permittee shall give the Authority at least 72 hours notice before commencing the operations as pursuant herein. This Permit shall not be assigned or transferred.

6. No blasting, drilling or other activity that could in any way affect the integrity or operability of the Authority's property or use of the permitted land shall be permitted without express prior written approval of the Authority.

7. The Permittee shall remove, at its own expense, within six months of the date of written notice from the Authority, any or all conduits and appurtenances installed by the Permittee under this Permit if, in the Authority's sole discretion, such removal is necessary for the operation, maintenance or replacement of the Authority's infrastructure.

8. To the fullest extent permitted by law, and in consideration of the issuance of this Permit, Permittee hereby releases the Authority and its board members, officers, representatives, contractors, agents, employees, successors, and assigns, in both their individual and official capacities, from all suits, claims, liabilities, damages, losses (including but not limited to loss of use resulting therefrom) and expenses, including but not limited to attorney's fees, caused by, arising out of or resulting from any work or activity under this Permit and/or act, omission, breach or default of the Permittee or of any

CONDITIONS (Cont'd)

contractor, subcontractor of vendor of the Permittee or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder. This release includes, but is not limited to, all suits, claims, liabilities, damages (including, but not limited to, direct, indirect, and consequential damages, economic loss, and loss of profits) and losses which are attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, including the loss of use resulting therefrom, together with all attorneys' fees, costs and expenses.

9. The Permittee shall conduct design, construction, and excavation in accordance with all federal, state and local safety regulations, including but not limited to, federal OSHA regulations (29 CFR 1926) and Massachusetts Department of Public Safety regulations (520 CMR 14.00). During construction, Permittee shall take appropriate sheeting and shoring measures to protect the integrity of the Authority's water and/or sewer mains. Permittee shall submit design plans stamped by a professional engineer licensed in Massachusetts to the Authority for approval prior to the start of construction.

10. The Permittee shall adjust any or all Authority frames and covers to grade within the limits of work in accordance with the plans referenced in this Permit. The Authority will provide the Permittee with new replacement Authority frames and covers that have been deemed unusable by the Authority.

11. If the Permittee is proposing to take borings and/or place test pits within the permitted land, the Permittee shall mark the proposed boring and test pit locations on the ground using paint and/or stakes and submit engineering documents to the Authority showing the proposed boring and test pit locations. Authority staff will review all boring and test pit locations at the site. Upon written clearance of the proposed boring and test pit locations by Authority staff and subject to Permittee providing the Authority with seventy-two (72) hours prior notice, Permittee may commence work at the site.

    The Permittee shall be responsible for the locations of proposed borings and test pits regardless of any act or omission of the Authority. The Permittee shall be responsible for repairing and/or replacing, at the Authority's election, the Authority's property or infrastructure, which is damaged as a result of the Permittee's, its contractors, agents, representatives, employees, and/or invitees activities pursuant to this Permit. The Permittee's obligations under this paragraph shall include payment to the Authority for all costs to repair all such damage caused to the Authority's property.

DOCUMENT A00844

U.S. FISH AND WILDLIFE SERVICE

NLAA CONCURRENCE VERIFICATION LETTER

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 3301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To: 10/24/2025 20:34:46 UTC
Project code: 2026-0008338
Project Name: 607420 NATICK- SUPERSTRUCTURE REPLACEMENT, N-03-012, BODEN LANE OVER CSX/MBTA

Subject: Not Likely to Adversely Affect Concurrence verification letter for the '607420 NATICK- SUPERSTRUCTURE REPLACEMENT, N-03-012, BODEN LANE OVER CSX/MBTA' project under the December 13, 2024, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat, Northern Long-eared Bat, and Tricolored Bat.

To whom it may concern:

This letter records the determination of effects to federally listed (or proposed) bat species anticipated to result from the 607420 NATICK- SUPERSTRUCTURE REPLACEMENT, N-03-012, BODEN LANE OVER CSX/MBTA (the Project). This determination is based upon information you entered into the assisted determination key (Dkey) associated with the above referenced Programmatic Biological Opinion/Conference Opinion (PBO/PCO) in the U.S. Fish and Wildlife Service's (Service) Information for Planning and Consultation (IPaC) system on the date listed above to verify that the Project may rely on the concurrence provided in the PBO/PCO to satisfy requirements under section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (16 USC 1536), as amended.

Ensuring Accurate Determinations When Using IPaC:

The Service developed the IPaC system and this Dkey in accordance with the ESA and based on the PBO/PCO. All information submitted by the project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in the Dkey invalidates this letter. Answers to certain questions in the Dkey commit the project proponent to implementation of conservation measures that must be followed for the ESA determinations to remain valid. Carefully review this letter, your ESA requirements are <u>NOT</u> yet complete.

Determinations:

Based on the information you provided (Project Description shown below), you have determined that the Project is within the scope and adheres to the criteria of the PBO/PCO, including the adoption of applicable avoidance and minimization measures. Based on your IPaC submission and the PBO/PCO, the Project is consistent with the following effect determinations:

Species	Listing Status	Determination
Northern Long-eared Bat (*Myotis septentrionalis*)	Endangered	NLAA
Tricolored Bat (*Perimyotis subflavus*)	Proposed Endangered	NLAA

The tricolored bat is proposed for listing as endangered under the ESA, but not yet listed. For actions that may affect a proposed species, agencies cannot consult, but they can confer under the authority of section 7(a)(4) of the ESA. Such conferences can follow the procedures for a consultation and be adopted as such if the proposed species is listed. Should the tricolored bat be listed, agencies must review projects that are not yet complete, or projects with ongoing effects within the tricolored bat range that previously received a no effect or not likely to adversely affect (NLAA) determination from the key to confirm that the determination is still accurate.

The Service has 14 calendar days to notify the lead Federal action agency or designated non-federal representative if we determine that the Project does not meet the criteria for a NLAA determination under the PBO/PCO. **If the Service does <u>not</u> notify the lead Federal action agency or designated non-federal representative within that timeframe, you may proceed with the Project under the terms of the NLAA concurrence provided in the PBO/PCO**. This verification period allows Service Field Offices to apply local knowledge to implementation of the PBO, as we may identify a small subset of actions having impacts that were unanticipated. In such instances, Service Field Offices may request additional information that is necessary to verify inclusion of the proposed action under the PBO/PCO.

If the Project is modified, or new information reveals that it may affect the Indiana bat, northern long-eared bat, or tricolored bat in a manner or to an extent not considered in the PBO/PCO, further review to conclude the requirements of ESA section 7(a)(2) may be required.

For Proposed Actions that include bridge/culvert or structure removal, replacement, and/or maintenance activities:

If your initial bridge, culvert, or structure assessment failed to detect Indiana bat, northern long-eared bat, or tricolored bat use or occupancy, yet bats are later detected prior to, or during construction, promptly notify the local Service Field Office within 2 working days of the discovery. In addition, please document whether incidental take occurred, and if so, the type (i.e. kill or harm) and amount (i.e. number of individuals) and submit documentation to the local Service Field Office within 5 working days from the completion of the bridge, culvert, or structure construction (use Appendix E - Post Assessment Discovery of Bats at Bridge/Culvert or Structure Form in the User's Guide). In these instances, potential incidental take of Indiana bats, northern long-eared bats, or tricolored bats may be exempted provided that the take is reported to

the Service. In these instances, potential incidental take of Indiana bats, northern long-eared bats, or tricolored bats may be exempted provided that the take is reported to the Service.

If the Project may affect any other federally listed or proposed species and/or designated critical habitat, additional consultation between the lead Federal action agency and this Service Field Office is required for those species/designated critical habitat. If the Project has the potential to take bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act may also be required. In either of these circumstances, please advise the lead Federal action agency to contact this Service Field Office

The following species may occur in your project area and **are not** covered by this determination:

- Monarch Butterfly *Danaus plexippus* Proposed Threatened

PROJECT DESCRIPTION

The following project name and description was collected in IPaC as part of the endangered species review process.

NAME

607420 NATICK- SUPERSTRUCTURE REPLACEMENT, N-03-012, BODEN LANE OVER CSX/MBTA

DESCRIPTION

607420 NATICK- SUPERSTRUCTURE REPLACEMENT, N-03-012, BODEN LANE OVER CSX/MBTA

Bridge N-03-012 is a steel through truss dating back to 1891. The superstructure rating was recently dropped from a 4 to a 3. There is 100% section loss to the lower chords and stringer seat angles. A 6 ton posting is proposed.

Monarch Butterfly: Proposed Species only. The project action will not jeopardize the continued existence of a proposed species.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.28333995,-71.39142715063846,14z



DETERMINATION KEY RESULT

Based on your answers provided, this project(s) may affect, but is not likely to adversely affect the Indiana bat, northern long-eared bat or tricolored bat, therefore, consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended 16 U.S.C. 1531 et seq.) is required. However, also based on your answers provided, this project may rely on the concurrence provided in the Programmatic Biological Opinion/Conference Opinion for Transportation Projects in the Range of the Indiana bat, northern long-eared bat, and tricolored bat, dated December 13, 2024.

QUALIFICATION INTERVIEW

1. Which Federal Agency is the lead federal agency the action?

   A) Federal Highway Administration (FHWA)

2. Does the Action Area intersect the species list area of the Northern long-eared bat?

   Automatically answered
   Yes

3. Does the Action Area intersect the species list area of the tricolored Bat (TCB)?

   Automatically answered
   Yes

4. [Semantic] Is any portion of the action area within a 0.5 mile radius of an entrance/opening to any known NLEB or TCB hibernacula?

   Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact the Field Office listed in the letterhead of this letter.

   Automatically answered
   No

5. Does your project's activities include raising the road profile above the tree canopy in documented habitat for the Indiana bat, NLEB, or TCB?

   Note: For the definition of documented habitat, refer to Appendix A: https://www.fws.gov/media/users-guide-range-wide-programmatic-consultation-indiana-bat-and-northern-long-eared-bat

   No

6. Is your project located within a karst area?

   No

7. Will the project include bridge, culvert, or structure removal, replacement, and/or alteration activities?

   Note: For definitions of bridge, culvert, and structure, refer to Appendix A: https://www.fws.gov/media/users-guide-range-wide-programmatic-consultation-indiana-bat-and-northern-long-eared-bat.

   Yes

8. Do your project's activities involve tree removal/trimming, temporary lighting, new/additional permanent lighting, ground disturbance, percussives that involves noise/vibration above existing background levels, vibrations, or slash pile burning?

   Yes

9. Is there suitable summer habitat for the Indiana bat, NLEB, or TCB within the project action area?

   Note: See the Service's summer survey guidance for current definitions of suitable habitat [https://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html].

   Yes

10. Have P/A surveys for the Indiana bat, NLEB, or TCB been conducted within the suitable summer habitat located within your project action area? This refers to mist-netting or acoustic surveys, not bridge assessments.

    Note: See the Service's survey guidance https://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html

    Yes

    SUBMITTED DOCUMENTS

    - *607420_Natick Acoustic-Bridge Report_102425.pdf https://ipac.ecosphere.fws.gov/project/64JTCFMOLJCM7E5Q4JZC5QSNII/projectDocuments/171998120*

11. Did the P/A surveys detect Indiana bats, NLEBs, or TCBs?

    Note: If Indiana bats, NLEBs, or TCBs are detected, the action area is considered **documented habitat.**

    No

12. Did the local Service Field Office verify that this P/A survey can be used to determine Indiana bat, NLEB, and TCB are **not likely to be present** within the suitable summer habitat located within your project area?

    Yes

13. Will the project include **bridge** removal, replacement, and/or alteration activities?

    Yes

14. Has a Bridge Bat Assessment been conducted **within the last 24 months** to determine if the bridge is being used by the Indiana bat, NLEB, or TCB? If yes, upload assessment.

    Note: Refer to the Service's current survey guidance for acceptable assessment practices and validity timeframe of bridge/culvert and structure bat assessments: https://www.fws.gov/library/collections/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

    SUBMITTED DOCUMENTS

    - *607420_Natick Acoustic-Bridge Report_102425.pdf https://ipac.ecosphere.fws.gov/project/64JTCFMOLJCM7E5Q4JZC5QSNII/projectDocuments/171998120*

15. Please select one of the following results of the Bridge Bat Assessment:

    ***c)** Indicates the **absence** of Indiana bats, NLEBs, or TCBs roosting in/under the bridge (no bats, guano, etc.)?*

16. Does the project include **culvert** removal, replacement, and/or alteration activities?

    No

17. Does the project include **structure** removal, replacement, and/or alteration activities?

    No

18. Does the Action Area intersect the species list area of the tricolored Bat (TCB)?

    Automatically answered
    Yes

19. Does the Action Area intersect the species list area of the northern long-eared bat (NLEB)?

    Automatically answered
    Yes

PROJECT QUESTIONNAIRE

1. Have you made a No Effect determinations for all other species included on the FWS IPaC generated species list?

   Yes

2. Have you made a May Affect determination for any other species on the FWS IPaC generated list?

   No

3. Please enter the date of the bridge assessment.

   7/9/2025

AVOIDANCE AND MINIMIZATION MEASURES (AMMS)

This determination key result includes the commitment to implement the following Avoidance and Minimization Measures (AMMs):

GAMM1

Ensure all operators, employees, and contractors working in areas of Indiana bat, NLEB, or TCB suitable habitat are aware of all Transportation Agency environmental commitments, including all applicable AMMs.

DETERMINATION KEY DESCRIPTION: FHWA, FRA, FTA PROGRAMMATIC CONSULTATION FOR TRANSPORTATION PROJECTS AFFECTING IBAT, NLEB, OR TCB

This key was last updated in IPaC on September 11, 2025. Keys are subject to periodic revision.

This decision key is intended for projects/activities funded or authorized by the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and/or Federal Transit Administration (FTA), which may require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 of the Endangered Species Act (ESA) and may affect the federally listed endangered Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), and/or federally proposed endangered tricolored bat (*Perimyotis subflavus*).

This decision key should only be used to verify project applicability with the Service's Programmatic Biological Opinion/Conference Opinion for Transportation Projects in the Range of the Indiana bat, northern long-eared bat, and tricolored bat, dated December 13, 2024. The programmatic consultation limited transportation activities that may affect the covered bat species and addresses situations that are both likely and not likely to adversely affect the covered bat species. This decision key will assist in identifying the effect of a specific project/activity and the applicability of the programmatic consultation. The programmatic consultation is not intended to cover all types of transportation actions. Activities outside the scope of the programmatic consultation, or that may affect ESA-listed species other than the Indiana bat, northern long-eared bat, or tricolored bat, or their designated critical habitat, may require additional ESA Section 7 consultation.

IPAC USER CONTACT INFORMATION

Agency: Massachusetts Department of Transportation
Name: Trevor Burns
Address: 10 Park Plaza
City: Boston
State: MA
Zip: 02116
Email trevor.b.burns@dot.state.ma.us
Phone: 8573010759

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Highway Administration

DOCUMENT A00875

POLICY DIRECTIVE P-22-001
AND
POLICY DIRECTIVE P-22-002

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massDOT Massachusetts Department of Transportation Highway Division

Number: P-22-001
Date: 9/23/22

POLICY DIRECTIVE

Jonathan Gulliver (signature on original)
HIGHWAY ADMINISTRATOR

Off-Site Stockpiling of Soil from MassDOT Construction Projects

Purpose

The purpose of this Policy Directive is to formally establish a policy and procedures for managing and stockpiling soil generated and transported from MassDOT construction projects. This Policy Directive does not supersede any Federal, State, or Local regulations.

Date of Effect

This Policy Directive is effective immediately for all projects, including active construction projects.

For active construction projects and for other projects advertised prior to October 15, 2022, changes to the contract documents needed to implement the requirements of this Policy Directive will be considered on a case-by-case basis and shall be approved by the District Highway Director, as necessary.

For projects advertised on or after October 15, 2022, MassDOT will include the requirements and implementation procedures of this Policy Directive in the construction contract documents.

Policy Requirements

This policy is intended to prevent the off-site relocation of excavated soil generated from MassDOT projects to areas near residential receptors and to control potential fugitive dusts and/or contaminants. To that end, excavated soil may not be moved from the project site without knowledge of the content of the material. Knowledge may include visual field observations for presence of staining, odor, and/or debris, screening with a photoionization detector (PID), laboratory analysis, and/or site history. Pavement millings and other non-soil materials are not subject to the requirements of this Policy Directive.

Moving soil from a MassDOT project site to a temporary off-site storage location must be approved in writing by the District Highway Director.

The Contractor must select a storage location that is at least 500 feet away from residential receptors, as defined herein to include, but not be limited to, residential dwellings, residentially

zoned property, schools, daycare facilities, playgrounds, parks, recreational areas, hospitals, elderly housing and convalescent facilities.

Temporary off-site storage of excavated soil from a MassDOT project is only permissible at a location approved and permitted by MassDOT. The temporary storage location should be located within the same municipality where the soil was excavated, where possible. Stockpiled soil must be securely covered, and appropriate measures must be taken to minimize fugitive dust and erosion.

Signs indicating the source of the soil, the date the soil was generated, and contact information must be erected and maintained until the stockpiled soils are transported to a disposal facility or reused on the project site.

Implementation Procedures

To ensure that off-site storage of excavated soils is managed properly on MassDOT projects, this policy requires the following:

1. **Off-Site Stockpile Storage Locations**
    a. The Contractor shall provide proposed off-site storage locations to the Engineer for approval at least 30 days prior to transporting soil off site. Off-site storage locations should be in the same municipality as the work site.
    b. The Contractor shall keep excavated soil on site until adequately characterized to the satisfaction of the Engineer.
    c. The Contractor shall provide notification of the approved off-site storage location to the local Board of Health and the Town Manager's/Mayor's Office at least 7-days prior to transporting soil off site.
    d. The Contractor shall provide the Engineer with at least 3-days' notice prior to transporting soil off site.
    e. For off-site storage locations on MassDOT property, the Contractor is required to obtain an Access Permit through the District Permits Office prior to storage of soil or other materials. MassDOT will issue these permits at no cost to the Contractor. Information to be submitted by the Contractor as part of the permit application shall include:
        i. A description of material to be stored off-site, including available analytical data;
        ii. A figure of the location with distances to residences and residential receptors; and
        iii. Anticipated duration of temporary storage.
    f. Stockpile locations should not be within 500 feet of residential receptors (e.g., residential dwellings, residentially zoned property, schools, daycare facilities, playgrounds, parks, recreational areas, hospitals, elderly housing and convalescent facilities).
        i. If the stockpile location must be within 500 feet of residential receptors, then soil must be less than RCS-1 (per 310 CMR 40.1600) and free of potentially hazardous or regulated items.

g. For off-site storage locations on non-MassDOT property, the Contractor must notify the property owner(s) at least 7 days prior to transporting material.
h. Exceptions to these rules will be reviewed by MassDOT and may be approved by the District Highway Director on a case-by-case basis.

2. Off-Site Stockpile Management

a. The Contractor shall keep soil stockpiles on impermeable surfaces (e.g., asphalt or concrete) or on 10-mil polyethylene sheeting.
b. The Contractor shall cover soil stockpiles with 10-mil polyethylene sheeting and surround with a berm made of hay bales, straw wattles, or similar.
    i. Piles that are actively being worked on must be covered and re-secured at the end of the work shift.
c. The Contractor shall label stockpiles with signs, including:
    i. Location of origin (including any Release Tracking Numbers)
    ii. Stockpile ID number (including MassDOT District office-assigned tracking ID, if different)
    iii. Date of initial accumulation
    iv. Applicable telephone numbers for the Contractor and MassDOT.
d. The Contractor shall mitigate fugitive dust at storage locations under the direction of an appropriately trained/certified environmental professional.
e. The Contractor shall remedy noncompliance with this policy within 48 hours.
f. The Contractor shall remedy noncompliance with this policy on the SAME DAY for potentially hazardous material, as determined by the Engineer.
g. The Contractor shall handle excavated soil according to federal, state, and local regulations.
h. The Contractor shall use appropriate shipping documents for all movements of excavated soil on public roadways (e.g., Bill of Lading, Material Shipping Record, Manifest, Asbestos Waste Shipment Record, etc.).

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massDOT Massachusetts Department of Transportation Highway Division

Number: P-22-002
Date: 9/23/22

POLICY DIRECTIVE

Jonathan Gulliver (signature on original)
HIGHWAY ADMINISTRATOR

Use of MassDOT Property for Staging and other Construction-Related Operations

Purpose

This Policy Directive is intended to address the use of MassDOT property by MassDOT Contractors for construction staging and other construction-related operations that are not specifically defined in the construction contract. Such use of MassDOT property will only be allowed if permitted by the District Office in accordance with 700 CMR 13.00, Approval of Access to MassDOT Highways and Other Property. This includes the use of MassDOT property for staging, laydown, and storage of equipment and materials, including soil excavated from a project site.

This Policy Directive requires the Contractor/applicant to obtain a Non-Vehicular Access Permit from MassDOT to use MassDOT property for these purposes.

This Policy Directive is effective immediately and applies to all MassDOT construction projects.

General Permit Considerations and Conditions

In addition to other normal MassDOT Access Permit procedures, MassDOT shall consider the following during the application, review, implementation and monitoring processes of Access Permits required by this Policy Directive:

- Storage and placement of the Contractor's equipment and materials should not be allowed within the clear zone of the roadway.
- Stockpiled soils should not be located within 500 feet of residential receptors, as defined herein to include, but not be limited to, residential dwellings, residentially zoned property, schools, daycare facilities, playgrounds, parks, recreational areas, hospitals, elderly housing and convalescent facilities.
- The Contractor/applicant shall identify the access/egress locations of the proposed storage areas. MassDOT will only approve locations determined to be safe for roadway users, construction workers and the general public.
- The Contractor may be required to submit a Traffic Management Plan and/or Lighting Plan for MassDOT review and approval as part of the permit application, depending on the proposed use of the area.

- The Contractor shall submit the permit application through MassDOT's online State Highway Access Permit System (SHAPS).
- MassDOT will waive the permit application fee for any application received from a MassDOT Contractor for any permit required by this Policy Directive and will waive any subsequent amendment and extension fees that may otherwise be required.
- MassDOT will review the permit application in accordance with applicable standard procedures and will apply standard permit terms and conditions, as necessary.
- The Resident Engineer will verify that the permit is approved before allowing the Contractor to use the affected area for the requested purpose.
- Areas permitted are for use by the approved applicant only and are not to be shared with or used by other vendors. Subcontractors specifically engaged with the applicant working on the specific MassDOT project will be allowed to use the area in accordance with the terms of the permit.
- Permits are issued on an annual basis and will require the Contractor to file for an extension each year to continue use.

Exemptions from Permit Requirements

Equipment and materials being used for active construction operations and located within the work zone of the construction contract are exempt from this permit requirement, provided they do not interfere with the safety or operation of the roadway or the work zone. Examples of these types of exempt uses are:

- Equipment and materials parked or stored within a protected (barriered) work zone.
- Materials placed in the work zone prior to same-day installation or use.
- Soils excavated temporarily and scheduled to be replaced, such as for trenching operations or for installation of drainage structures.

DOCUMENT B00420

PROPOSAL

NATICK

For: **Bridge Replacement, N-03-012, Boden Lane over CSX/MBTA**

COMMONWEALTH OF MASSACHUSETTS

LOCATION

The work referred to herein is in the Town of NATICK 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:

Boden Lane

Bridge BR# N-03-012
Beginning – Station 10+17.05 +/-
Ending –Station 19+20.80 +/-

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 **1150 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 # 607420	Contract # 136650			
Location : NATICK				
Description : Bridge Replacement, N-03-012, Boden Lane over CSX/MBTA				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
101.	1	CLEARING AND GRUBBING AT _____ PER ACRE		
102.3	16	HERBICIDE TREATMENT OF INVASIVE PLANTS AT _____ PER HOUR		
102.33	16	INVASIVE PLANT MANAGEMENT STRATEGY AT _____ PER HOUR		
102.511	10	TREE PROTECTION - ARMORING AND PRUNING AT _____ EACH		
102.521	850	TREE AND PLANT PROTECTION FENCE AT _____ PER FOOT		
102.533	775	TREE CARE - WATERING AT _____ PER GALLON		
102.55	16	ARBORIST AT _____ PER HOUR		
103.	20	TREE REMOVED - DIAMETER UNDER 24 INCHES AT _____ EACH		
104.	5	TREE REMOVED - DIAMETER 24 INCHES AND OVER AT _____ EACH		

Project # 607420	Contract # 136650			
Location : NATICK				
Description : Bridge Replacement, N-03-012, Boden Lane over CSX/MBTA				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
114.1	1	DEMOLITION OF SUPERSTRUCTURE OF BRIDGE NO. N-03-012 (29L) AT _____ LUMP SUM		
120.1	925	UNCLASSIFIED EXCAVATION AT _____ PER CUBIC YARD		
127.2	450	SUBSTRUCTURE REMOVAL AT _____ PER CUBIC YARD		
129.3	260	OLD PAVEMENT EXCAVATION AT _____ PER CUBIC YARD		
140.	2,700	BRIDGE EXCAVATION AT _____ PER CUBIC YARD		
141.	50	CLASS A TRENCH EXCAVATION AT _____ PER CUBIC YARD		
141.1	5	TEST PIT FOR EXPLORATION AT _____ PER CUBIC YARD		
142.	260	CLASS B TRENCH EXCAVATION AT _____ PER CUBIC YARD		
144.	10	CLASS B ROCK EXCAVATION AT _____ PER CUBIC YARD		

Project # 607420	Contract # 136650			
Location : NATICK				
Description : Bridge Replacement, N-03-012, Boden Lane over CSX/MBTA				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
146.	4	DRAINAGE STRUCTURE REMOVED AT _____ EACH		
150.	100	ORDINARY BORROW AT _____ PER CUBIC YARD		
151.	1,000	GRAVEL BORROW AT _____ PER CUBIC YARD		
151.2	1,350	GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES AT _____ PER CUBIC YARD		
154.	40	SAND BORROW AT _____ PER CUBIC YARD		
156.	525	CRUSHED STONE AT _____ PER TON		
160.2	10	CONTROLLED LOW-STRENGTH MATERIAL - MECHANICAL EXCAVATABLE (101-300 PSI) AT _____ PER CUBIC YARD		
170.	3,500	FINE GRADING AND COMPACTING - SUBGRADE AREA AT _____ PER SQUARE YARD		
180.01	1	ENVIRONMENTAL HEALTH AND SAFETY PROGRAM AT _____ LUMP SUM		

Project # 607420	Contract # 136650			
Location : NATICK				
Description : Bridge Replacement, N-03-012, Boden Lane over CSX/MBTA				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
180.02	40	PERSONAL PROTECTION LEVEL C UPGRADE AT _____ PER HOUR		
180.03	40	LICENSED SITE PROFESSIONAL SERVICES AT _____ PER HOUR		
181.11	5,400	DISPOSAL OF UNREGULATED SOIL AT _____ PER TON		
181.12	310	DISPOSAL OF REGULATED SOIL - IN-STATE FACILITY AT _____ PER TON		
181.13	310	DISPOSAL OF REGULATED SOIL - OUT-OF-STATE FACILITY AT _____ PER TON		
181.14	70	DISPOSAL OF HAZARDOUS WASTE AT _____ PER TON		
182.1	1	INSPECTION AND TESTING FOR ASBESTOS AT _____ LUMP SUM		
182.2	100	REMOVAL OF ASBESTOS AT _____ PER FOOT		
183.1	112,000	TREATMENT OF CONTAMINATED GROUNDWATER AT _____ PER GALLON		

Project # 607420	Contract # 136650			
Location : NATICK				
Description : Bridge Replacement, N-03-012, Boden Lane over CSX/MBTA				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
183.2	2,200	DISPOSAL OF GRANULAR ACTIVATED CARBON AT _____ PER POUND		
184.1	1	DISPOSAL OF TREATED WOOD PRODUCTS AT _____ PER TON		
191.6	6	TEST PIT AT _____ EACH		
201.	10	CATCH BASIN AT _____ EACH		
202.	20	MANHOLE AT _____ EACH		
209.	2	DROP INLET, TYPE D AT _____ EACH		
222.3	30	FRAME AND GRATE (OR COVER) MUNICIPAL STANDARD AT _____ EACH		
223.2	4	FRAME AND GRATE (OR COVER) REMOVED AND DISCARDED AT _____ EACH		
224.12	15	12 INCH HOOD AT _____ EACH		

Project # 607420	Contract # 136650			
Location : NATICK				
Description : Bridge Replacement, N-03-012, Boden Lane over CSX/MBTA				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
227.3	10	REMOVAL OF DRAINAGE STRUCTURE SEDIMENT AT _____ PER CUBIC YARD		
227.31	50	REMOVAL OF DRAINAGE PIPE SEDIMENT AT _____ PER FOOT		
244.12	1,200	12 INCH REINFORCED CONCRETE PIPE CLASS V AT _____ PER FOOT		
244.18	130	18 INCH REINFORCED CONCRETE PIPE CLASS V AT _____ PER FOOT		
271.12	70	12 INCH AND UNDER PIPE REMOVED AND STACKED AT _____ PER FOOT		
303.10	230	10 INCH DUCTILE IRON WATER PIPE (MECHANICAL JOINT) AT _____ PER FOOT		
309.	2,100	DUCTILE IRON FITTINGS FOR WATER PIPE AT _____ PER POUND		
350.10	1	10 INCH GATE AND GATE BOX AT _____ EACH		
358.	5	GATE BOX ADJUSTED AT _____ EACH		

Project # 607420	Contract # 136650			
Location : NATICK				
Description : Bridge Replacement, N-03-012, Boden Lane over CSX/MBTA				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
373.10	120	10 INCH WATER PIPE INSULATION AT _____ PER FOOT		
402.	320	DENSE GRADED CRUSHED STONE FOR SUB-BASE AT _____ PER CUBIC YARD		
440.	5,300	CALCIUM CHLORIDE FOR ROADWAY DUST CONTROL AT _____ PER POUND		
443.	20	WATER FOR ROADWAY DUST CONTROL AT _____ PER 1000 GALLONS		
450.221	140	SUPERPAVE SURFACE COURSE - 9.5 POLYMER (SSC - 9.5 - P) AT _____ PER TON		
450.23	160	SUPERPAVE SURFACE COURSE - 12.5 (SSC - 12.5) AT _____ PER TON		
450.31	180	SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC -12.5) AT _____ PER TON		
450.42	340	SUPERPAVE BASE COURSE - 37.5 (SBC - 37.5) AT _____ PER TON		
450.601	22	SUPERPAVE BRIDGE SURFACE COURSE - 9.5 POLYMER (SSC-B - 9.5 - P) AT _____ PER TON		

Project # 607420	Contract # 136650			
Location : NATICK				
Description : Bridge Replacement, N-03-012, Boden Lane over CSX/MBTA				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
450.701	22	SUPERPAVE BRIDGE PROTECTIVE COURSE - 9.5 POLYMER (SPC-B - 9.5 - P) AT _____ PER TON		
451.	475	HMA FOR PATCHING AT _____ PER TON		
452.	330	ASPHALT EMULSION FOR TACK COAT AT _____ PER GALLON		
453.	330	HMA JOINT ADHESIVE AT _____ PER FOOT		
458.71	7,160	EXPANDED SHALE LIGHTWEIGHT AGGREGATE AT _____ PER CUBIC YARD		
472.	50	TEMPORARY ASPHALT PATCHING AT _____ PER TON		
482.5	50	SAWCUTTING ASPHALT PAVEMENT FOR BOX WIDENING AT _____ PER FOOT		
506.	925	GRANITE CURB TYPE VB - STRAIGHT AT _____ PER FOOT		
506.1	160	GRANITE CURB TYPE VB - CURVED AT _____ PER FOOT		

Project # 607420	Contract # 136650			
Location : NATICK				
Description : Bridge Replacement, N-03-012, Boden Lane over CSX/MBTA				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
509.	60	GRANITE TRANSITION CURB FOR PEDESTRIAN CURB RAMPS - STRAIGHT AT _____ PER FOOT		
509.1	110	GRANITE TRANSITION CURB FOR PEDESTRIAN CURB RAMPS - CURVED AT _____ PER FOOT		
516.	15	GRANITE CURB CORNER TYPE A AT _____ EACH		
580.	320	CURB REMOVED AND RESET AT _____ PER FOOT		
620.12	500	GUARDRAIL, TL-2 (SINGLE FACED) AT _____ PER FOOT		
627.1	1	TRAILING ANCHORAGE AT _____ EACH		
627.82	1	GUARDRAIL TANGENT END TREATMENT, TL-2 AT _____ EACH		
628.24	2	TRANSITION TO BRIDGE RAIL AT _____ EACH		
628.302	2	PERMANENT IMPACT ATTENUATOR, NON-REDIRECTIVE, TL-2 AT _____ EACH		

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ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
630.2	1,300	HIGHWAY GUARD REMOVED AND DISCARDED AT _____ PER FOOT		
644.148	500	48 INCH CHAIN LINK FENCE (SPRING TENSION WIRE) VINYL COATED (LINE POST OPTION) AT _____ PER FOOT		
657.	2,500	TEMPORARY FENCE AT _____ PER FOOT		
657.5	2,500	TEMPORARY FENCE REMOVED AND RESET AT _____ PER FOOT		
665.	160	CHAIN LINK FENCE REMOVED AND STACKED AT _____ PER FOOT		
666.	190	CHAIN LINK FENCE REMOVED AND RESET AT _____ PER FOOT		
673.	2	ACCESS GATE REMOVED AND STACKED AT _____ EACH		
698.3	2,300	GEOTEXTILE FABRIC FOR SEPARATION AT _____ PER SQUARE YARD		
701.	1,000	CEMENT CONCRETE SIDEWALK AT _____ PER SQUARE YARD		

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701.2	210	CEMENT CONCRETE PEDESTRIAN CURB RAMP AT _____ PER SQUARE YARD		
701.3	120	TRAPEZOIDAL DELINEATOR AT _____ PER FOOT		
702.	170	HOT MIX ASPHALT SIDEWALK OR DRIVEWAY AT _____ PER TON		
722.2	1	SCHEDULE OF OPERATIONS (TYPE B) - FIXED PRICE $82,500 AT Eighty Two Thousand Five Hundred Dollars LUMP SUM	$82,500.00	$82,500.00
740.	38	ENGINEER'S FIELD OFFICE AND EQUIPMENT (TYPE A) AT _____ PER MONTH		
748.	1	MOBILIZATION AT _____ LUMP SUM		
751.	260	LOAM FOR ROADSIDES AT _____ PER CUBIC YARD		
756.	1	NPDES STORMWATER POLLUTION PREVENTION PLAN AT _____ LUMP SUM		
765.	1,244	SEEDING AT _____ PER SQUARE YARD		

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765.472	2	STEEP SLOPE MID-HEIGHT SEED MIX AT _____ PER POUND		
765.635	474	NATIVE SEED AND ESTABLISHMENT AT _____ PER SQUARE YARD		
767.121	625	SEDIMENT CONTROL BARRIER AT _____ PER FOOT		
769.1	240	PAVEMENT MILLING MULCH UNDER GUARD RAIL AT _____ PER SQUARE YARD		
772.331	27	CEDAR - RED - EMERALD SENTINEL 6-7 FEET AT _____ EACH		
783.045	7	SERVICEBERRY - AUTUMN BRILLIANCE 5-6 FEET AT _____ EACH		
784.103	25	TREE - CONTINGENCY AT _____ EACH		
785.739	12	INKBERRY - DENSA 30-36 INCH SPREAD / #5 AT _____ EACH		
790.634	41	DOGWOOD - REDOSIER - ARCTIC FIRE 2-3 FEET / #3 AT _____ EACH		

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794.732	14	SUMMERSWEET SHRUB - PINK SPIRES 18-24 INCH / #2 AT _____ EACH		
795.014	18	VIBURNUM - ARROWWOOD - NORTHERN BURGUNDY 3-4 FEET / #5 AT _____ EACH		
795.186	12	WITCH HAZEL - HARVEST MOON 5-6 FEET AT _____ EACH		
796.577	143	THUNDERCLOUD SWITCHGRASS 1 GALLON AT _____ EACH		
804.3	130	3 INCH ELECTRICAL CONDUIT TYPE NM - PLASTIC -(UL) AT _____ PER FOOT		
804.4	675	4 INCH ELECTRICAL CONDUIT TYPE NM - PLASTIC -(UL) AT _____ PER FOOT		
811.37	1	ELECTRIC HANDHOLE ADJUSTED AT _____ EACH		
816.	1	TRAFFIC SIGNAL REMOVED AND RESET AT _____ LUMP SUM		
823.12	5	HIGHWAY LIGHTING LUMINAIRE 400 WATT AT _____ EACH		

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823.70	1	HIGHWAY LIGHTING POLE AND LUMINAIRE REMOVED AND RESET AT _____ EACH		
832.	80	WARNING-REGULATORY AND ROUTE MARKER - ALUMINUM PANEL (TYPE A) AT _____ PER SQUARE FOOT		
833.7	10	DELINEATION FOR GUARD RAIL TERMINI AT _____ EACH		
847.1	10	SIGN SUP (N/GUIDE)+RTE MKR W/1 BRKWAY POST ASSEMBLY - STEEL AT _____ EACH		
850.41	340	ROADWAY FLAGGER AT _____ PER HOUR		
851.1	130	TRAFFIC CONES FOR TRAFFIC MANAGEMENT AT _____ PER DAY		
852.	875	SAFETY SIGNING FOR TRAFFIC MANAGEMENT AT _____ PER SQUARE FOOT		
852.11	1,560	TEMPORARY PEDESTRIAN BARRICADE AT _____ PER FOOT		
852.12	10	TEMPORARY PEDESTRIAN CURB RAMP AT _____ EACH		

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853.1	20	PORTABLE BREAKAWAY BARRICADE TYPE III AT _____ EACH		
853.2	750	TEMPORARY BARRIER (TL-2) AT _____ PER FOOT		
853.21	320	TEMPORARY BARRIER REMOVED AND RESET AT _____ PER FOOT		
853.8	10	TEMPORARY ILLUMINATION FOR WORK ZONE AT _____ PER DAY		
854.016	100	TEMPORARY PAVING MARKINGS - 6 INCH (PAINTED) AT _____ PER FOOT		
854.1	360	PAVEMENT MARKING REMOVAL AT _____ PER SQUARE FOOT		
856.096	380	ARROW BOARD (TYPE C) AT _____ PER DAY		
856.12	1,550	PORTABLE CHANGEABLE MESSAGE SIGN AT _____ PER DAY		
859.	76,700	REFLECTORIZED DRUM AT _____ PER DAY		

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860.112	50	12 INCH REFLECTORIZED WHITE LINE (PAINTED) AT _____ PER FOOT		
864.12	10	SYMBOLS (PF) AT _____ EACH		
864.13	10	ARROWS (PF) AT _____ EACH		
866.106	1,600	6 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC) AT _____ PER FOOT		
866.112	1,050	12 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC) AT _____ PER FOOT		
867.106	1,025	6 INCH REFLECTORIZED YELLOW LINE (THERMOPLASTIC) AT _____ PER FOOT		
874.	2	STREET NAME SIGN AT _____ EACH		
874.2	1	TRAFFIC SIGN REMOVED AND RESET AT _____ EACH		
874.4	10	TRAFFIC SIGN REMOVED AND STACKED AT _____ EACH		

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903.	5	3000 PSI, 1.5 INCH, 470 CEMENT CONCRETE AT _____ PER CUBIC YARD		
904.3	160	5000 PSI, 3/4 INCH, 685 HP CEMENT CONCRETE AT _____ PER CUBIC YARD		
910.1	68,615	STEEL REINFORCEMENT FOR STRUCTURES - EPOXY COATED AT _____ PER POUND		
945.011	2	30 INCH UTILITY POLE CAISSON AT _____ EACH		
950.2	1	TEMPORARY EXCAVATION SUPPORT AT _____ LUMP SUM		
975.1	540	METAL BRIDGE RAILING (3 RAIL), STEEL (TYPE S3-TL4) AT _____ PER FOOT		
975.12	735	METAL PEDESTRIAN RAILING (2 RAIL) ALUMINUM AT _____ PER FOOT		
975.3	540	PROTECTIVE SCREEN TYPE I AT _____ PER FOOT		
986.	250	MODIFIED ROCKFILL AT _____ PER TON		

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991.1	1	CONTROL OF WATER - STRUCTURE NO. N-03-012 AT _____ LUMP SUM		
994.01	1	TEMPORARY PROTECTIVE SHIELDING BRIDGE NO. N-03-012 AT _____ LUMP SUM		
995.01	1	BRIDGE STRUCTURE, BRIDGE NO. N-03-012 (CN4) AT _____ LUMP SUM		
996.4	1	SOLDIER PILE AND LAGGING RETAINING WALLS AT _____ LUMP SUM		
997.	1	VIBRATION MONITORING AT _____ LUMP SUM		
Total Qty:	327,136			