COMMONWEALTH OF MASSACHUSETTS



CONTRACT DOCUMENTS AND SPECIAL PROVISIONS

PROPOSAL NO.	609187-130387
P.V. =	\$4,501,000.00
PLANS	YES

FOR

FAP No. STP(BR-OFF)-003S(822)X Bridge Replacement, H-24-003, Williamsville Road over the Burnshirt River

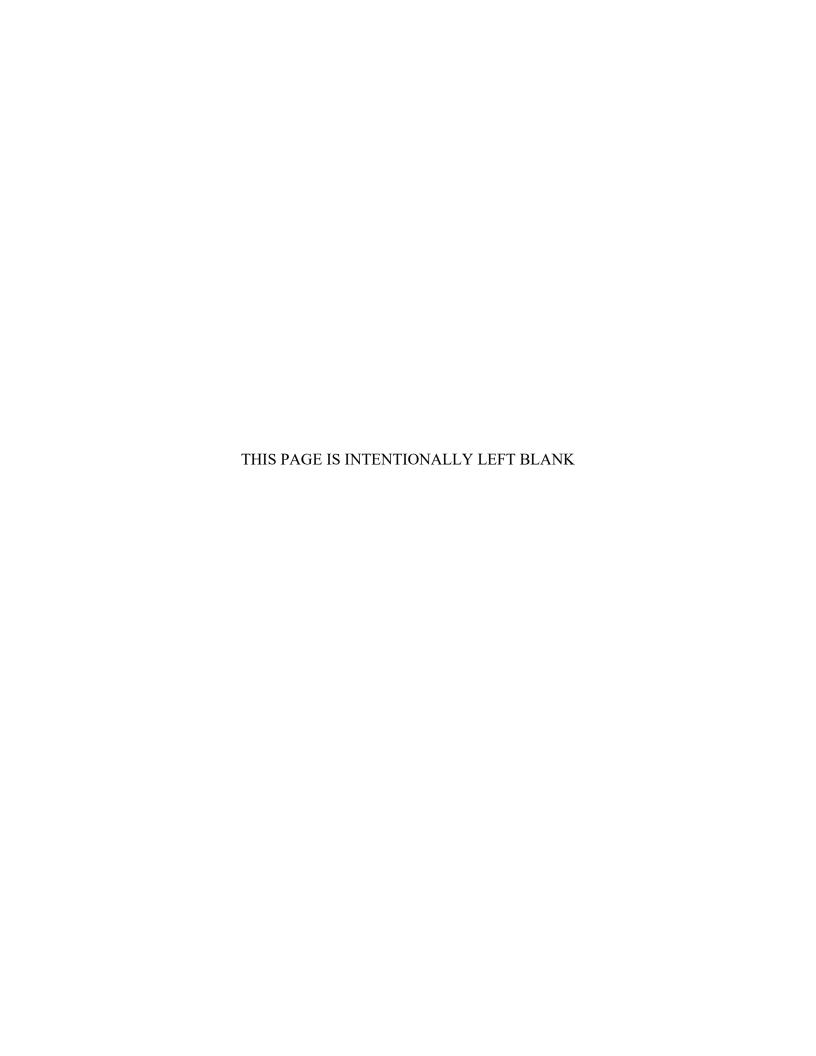
in the Town of

HUBBARDSTON

In accordance with the STANDARD SPECIFICATIONS for HIGHWAYS and BRIDGES dated 2025

This Proposal to be opened and read:

TUESDAY, JUNE 24, 2025, at 2:00 P.M.





DOCUMENT 00010

TABLE OF CONTENTS

DOCUMENT 00010 TABLE OF CONTENTS	00010-1 through 4
DOCUMENT 00104 NOTICE TO CONTRACTORS	00104- 1 through 4
DOCUMENT 00210 REQUIREMENTS OF MASSACHUSETTS GENERAL LAWS CHAPTER 30 SECTION 39R; CHAPTER 30, SECTION 39O	00210-1 through 4
DOCUMENT 00331 LOCUS MAP	00331-1 through 2
DOCUMENT 00439 CONTRACTOR PROJECT EVALUATION FORM	00439-1 through 2
DOCUMENT 00440 SUBCONTRACTOR PROJECT EVALUATION FORM	00440-1 through 2
DOCUMENT 00710 GENERAL CONTRACT PROVISIONS	00710-1 through 2
DOCUMENT 00719 SPECIAL PROVISIONS FOR PARTICIPATION BY DISADVANTAGED BUSINESS ENTERPRISES	00719-1 through 18
DOCUMENT 00760 REQUIRED CONTRACT PROVISIONS FOR FEDERAL-AID CONSTRUCTION CONTRACTS	00760-1 through 14
DOCUMENT 00811 MONTHLY PRICE ADJUSTMENT FOR HOT MIX ASPHALT (HMA) MIXTURES	00811-1 through 2
DOCUMENT 00812 MONTHLY PRICE ADJUSTMENT FOR DIESEL FUEL AND GASOLINE	00812-1 through 2
DOCUMENT 00813 PRICE ADJUSTMENT FOR STRUCTURAL STEEL AND REINFORCING STEEL	00813-1 through 4
DOCUMENT 00814 PRICE ADJUSTMENT FOR PORTLAND CEMENT CONCRETE MIXES	00814-1 through 2
DOCUMENT 00820 THE COMMONWEALTH OF MASSACHUSETTS SUPPLEMENTAL EQUAL EMPLOYMENT OPPORTUNITY, NON-DISCRIMINATION AND AFFIRMATIVE ACTION PROGRAM	00820-1 through 6
DOCUMENT 00821 ELECTRONIC REPORTING REQUIREMENTS CIVIL RIGHTS PROGRAM AND CERTIFIED PAYROLL	· ·



TABLE OF CONTENTS (Continued)

CONTRACTOR/SUBCONTRACTOR CERTIFICATION FORM	
DOCUMENT 00860 COMMONWEALTH OF MASSACHUSETTS PUBLIC EMPLOYMENT LAWS	
DOCUMENT 00861 STATE PREVAILING WAGE RATES	00861-1 through <i>Pending</i>
DOCUMENT 00870 STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS	
DOCUMENT 00875 TRAINEE SPECIAL PROVISIONS	
DOCUMENT 00880 MINIMUM WAGES FOR FEDERAL AND FEDERALLY ASSISTED CONTRACTS	00880-1 through 44
DOCUMENT A00801 SPECIAL PROVISIONS	A00801-1 through 172
DOCUMENT A00802 DETAIL SHEETS	A00802-1 through 16
DOCUMENT A00803 DRAWINGS AND SKETCHES	A00803-1 through 8
DOCUMENT A00808 PROJECT UTILITY COORDINATION FORM	A00808-1 through 6
DOCUMENT A00810 MASSDOT HERBICIDE USE REPORT	A00810-1 through 2
DOCUMENT A00811 WATERING LOG FOR MASSDOT PLANTINGS	A00811-1 through 2
DOCUMENT A00820 REQUEST FOR RELEASE OF MASSDOT AUTOCAD FILES FORM	A00820-1 through 2
DOCUMENT A00831 ARMY CORPS OF ENGINEERS SELF-VERIFICATION NOTIFICATION	A00831-1 through 98
DOCUMENT A00840 MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION WATER QUALITY CERTIFICATE APPLICATION	A00840-1 through 200
DOCUMENT A00841 MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION WATER QUALITY CERTIFICATE	
DOCUMENT A00842 WATERSHED PROTECTION ACT APPLICABILITY DECISION	A00842_1 through 10



TABLE OF CONTENTS (Continued)

UNITED STATES DEPARTMENT OF THE INTERIOR FISH AND WILDLIFE SERVICE CONCURRENCE VERIFICATION LETTER	
DOCUMENT A00871 UNITED STATES DEPARTMENT OF THE INTERIOR FISH AND WILDLIFE SERVICE LIST OF THREATENED AND ENDANGERED SPECIES	A00871-1 through 10
DOCUMENT A00872 BAT HABITAT INSPECTION	
DOCUMENT A00873 NORTHERN LONG-EARED BAT ACOUSTIC SURVEY REPORT	
DOCUMENT A00875 POLICY DIRECTIVE P-22-001 AND POLICY DIRECTIVE P-22-002	A00875-1 through 8
DOCUMENT A00881 MASSDEP CHECKLIST FOR STORMWATER REPORT	
DOCUMENT A00882 SOILS AND FEMA INFORMATION	
DOCUMENT A00883 SUPPORTING CALCULATIONS	
DOCUMENT A00884 HYDRAULIC AND HYDROLOGIC DATA	
DOCUMENT A00885 STORMWATER MANAGEMENT SYSTEM OPERATION AND MAINTENANCE (O&M) PLAN AND LONG-TERM POLLUTION PREVENTION PLAN (LTPPP)	A00885-1 through 12
DOCUMENT B00420 PROPOSAL	B00420-1 through 14
DOCUMENT B00853 SCHEDULE OF PARTICIPATION BY DISADVANTAGED BUSINESS ENTERPRISES (DBEs)	B00853-1 through 2
DOCUMENT B00854 DISADVANTAGED BUSINESS ENTERPRISES (DBE) PARTICIPATION LETTER OF INTENT	B00854-1 through 2
DOCUMENT B00855 DBE JOINT CHECK ARRANGEMENT APPROVAL FORM	B00855-1 through 2
DOCUMENT B00856 JOINT VENTURE AFFIDAVIT	B00856-1 through 4



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DOCUMENT 00104



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, JUNE 24, 2025, at 2:00 P.M. ** HUBBARDSTON

Federal Aid Project No. STP(BR-OFF)-003S(822)X
Bridge Replacement, H-24-003, Williamsville Road over the Burnshirt River
**Date Subject to Change

PROJECT VALUE = \$4,501,000.00

Bidders must be pre-qualified by the Department in the <u>BRIDGE -CONSTRUCTION</u> 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 \$635.00 per ton, Portland cement \$425.53 per ton, diesel fuel \$2.650 per gallon, and gasoline \$2.378 per gallon, and Steel Base Price Index 348.3. MassDOT posts the **Price Adjustments** on their Highway Division's website at

https://www.mass.gov/massdot-contract-price-adjustments

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

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

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

BY: Monica G. Tibbits-Nutt, Secretary and CEO, MassDOT Jonathan L. Gulliver, Administrator, MassDOT Highway Division SATURDAY, MAY 24, 2025

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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.

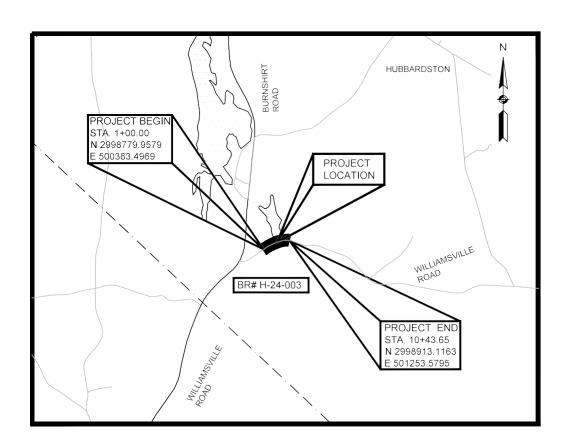


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DOCUMENT 00331

LOCUS MAP

HUBBARDSTON FAP No. STP(BR-OFF)-003S(822)X Bridge Replacement, H-24-003, Williamsville Road over the Burnshirt River



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Final Report □	
Interim Report □	ĺ

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 1	Number:			
Bid Price:				Notice to	Proceed:			
Funds: State:				Current C	ontract C	ompletion	n Date:	
Date Work Started:				Date Wor	k Comple	eted*:		
Contractor's Superinter	ndent:							
Division: (indicates cla	ss of work) H	ighway:		Bridge:		Maintena	ince:	
*If work was NOT con	npleted within	specified tim	ne (including e	extensions) gi	ve reason	s on follo	wing pag	e.
	Excellent 10	Very Good 9	Average 8	7	Fair 6	5	Poor 4	% Rating
. Workmanship			Ţ.	·				x 2=
. Safety								x 2=
. Schedule								x 1.5=
. Home Office Support								x 1=
. Subcontractors Performance								x 1=
. Field Supervision/ Superintendent								x 1=
. Contract Compliance								x 0.5=
. Equipment								x 0.5=
. Payment of Accounts								x 0.5=
use back for additional omments)						Overal	l Rating:	
(Give explanation of its additional sheets if nec		9 on the follo	owing page in	numerical or	der if ove	rall ratin	g is below	, 80%. Use
District Construction E	Engineer's Sign	nature/Date		Resident	Engineer	's Signat	ure/Date	
Contractor's Signature	Acknowledgi	ng Report/Da	ite					
Contractor Requests M	leeting with th	e District: No	o 🗆	Yes □	Date l	Meeting I	Held:	
Contractor's Comment	s/Meeting No	tes (extra she	ets may be ad	ded to this for	m and no	ted here i	f needed)	<u>:</u>



CONTRACTOR PROJECT EVALUATION FORM (Continued)

Date:	Contract Number:
NFORMATION FOR DISTRICT HIGH	HWAY DIRECTORS RELATING TO PREQUALIFICATION
A deduction shall be recommended f	for unsatisfactory performance if computed overall rating is under 80%. For this project being completed late due to the Contractor's fault.
ECOMMENDATIONS FOR DEDUCT Write Yes or No in space provided)	TIONS FROM CONTRACTORS' ASSIGNED FACTOR
recommend a deduction for Contractor'	's unsatisfactory performance:
recommend a deduction for project com	npleted late:
	Signed:
	District Highway Director
EXPLANATION OF RATINGS 1 – 9:_	
WORK NOT COMPLETED WITHIN S	PECIFIED TIME:





Final Report	
Interim Report	

SUBCONTRACTOR PROJECT EVALUATION FORM

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

				Da	ite:			
City/Town:				Su	bcontractor: _			
Project:				Ac	ldress:			
F.A. No.:				Co	ontract Number	r:		
Prime Contractor				Cu	rrent Contract	Completion	n Date:	
Date Work Starte	d:			Da	te Work Com	pleted*:		
Subcontractor's S	Superintendent	::						
Type of Work Pe	rformed by Su	bcontractor:						
*If work was NO	T completed v	within specifie	ed time (includ	ling extensi	ons) give reas	ons on follo	wing page.	
	Excellent 10	Very Good 9	Average 8	7	Fair 6	5	Poor 4	% Rati
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)						O	verall Rating:	
(Give explanation additional sheets		rough 8 on the	e following pa	ge in numei	rical order if o	overall ratin	g is below 809	%. Use
District Construct	tion Engineer'	s Signature/D	ate	Residen	nt Engineer's S	Signature/D	ate	
Contractor Signat	ture Acknowle	edging Report	/Date	Subcon	tractor Signat	ure Acknow	ledging Repo	rt/Date
Subcontractor Re	quests Meetin	g with the Dis	strict: No 🗆	Yes □	Dat	te Meeting l	Held:	
Subcontractor's C	Comments / M	eeting Notes (extra sheets n	nay be adde	ed to this form	and noted h	nere if needed)):
Contractor's Con	nments:							



SUBCONTRACTOR PROJECT EVALUATION FORM (Continued)

Date:	Contract Number:	
INFORMATION FOR DIST	TRICT HIGHWAY DIRECTORS RELATING TO PREQUALIFICAT	ION
	commended for unsatisfactory performance if computed overall rating is commended for this project being completed late due to the Contractor's	
RECOMMENDATIONS FO Write Yes or No in space pr	OR DEDUCTIONS FROM CONTRACTORS' ASSIGNED FACTOR ovided)	
I recommend a deduction for	Contractor's unsatisfactory performance:	
I recommend a deduction for	project completed late:	
	Signed:	
	Signed: District High	way Director
EXPLANATION OF RATII	NGS 1 – 8:	
WORK NOT COMPLETE	AWITHIN CRECIEIED THAT	
WORK NOT COMPLETED	WITHIN SPECIFIED TIME:	

Revised: 04/28/17



DOCUMENT 00710 GENERAL CONTRACT PROVISIONS Revised: 04-16-25

NOTICE OF AVAILABILITY

The STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES dated 2025, 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 00719

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

SPECIAL PROVISIONS FOR PARTICIPATION BY DISADVANTAGED BUSINESS ENTERPRISES

(IMPLEMENTING TITLE 49 OF THE CODE OF FEDERAL REGULATIONS, PART 26)

Sec	ction: Pa	ige 00719-
PC	DLICY	2
1.	DEFINITIONS	3
2.	DBE PARTICIPATION	5
	a. Goal	5
	b. Bidders List	5
3.	CONTRACTOR ASSURANCES	6
4.	REQUIRED SUBCONTRACT PROVISIONS	
5.		
	a. Massachusetts DBE Directory	6
	b. DBE Certification	6
	c. Joint Venture Approval	7
6.	COUNTING DBE PARTICIPATION TOWARDS DBE PARTICIPATION GOAL	_S7
	a. Commercially Useful Function	7
	b. Counting Participation Toward The Contract Participation Goal	7
	c. Joint Check Policy	9
	d. Joint Check Procedure(s)	10
7.	AWARD DOCUMENTATION AND PROCEDURES	11
8.	COMPLIANCE	13
9.	SANCTIONS	16
10	. FURTHER INFORMATION; ENFORCEMENT, COOPERATION	AND
	CONFIDENTIALITY	
11	. LIST OF ADDITIONAL DOCUMENTS	18



POLICY

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

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

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

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

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

1. DEFINITIONS

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

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

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

"Contract" shall mean the Contract for work between the Contractor and MassDOT.

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

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

"<u>Disadvantaged Business Enterprise</u>" or "<u>DBE</u>" shall mean a for-profit, small business concern:

- (a) that is at least fifty-one (51%) percent owned by one or more individuals who are both socially and economically disadvantaged, or, in the case of any corporation, in which at least fifty-one (51%) percent of the stock is owned by one or more such individuals; and
- (b) where the management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

2. DBE PARTICIPATION

a. Goal

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

\times	Design-Bid-Build Projects: DBE Participation Goal 12 %
	(One half of this goal shall be met in the form of Subcontractor construction activity)
	Design-Build Projects: DBE Design Participation Goal% and DBE Construction Participation Goal%
	(One half of the Construction Goal shall be met in the form of Subcontractor construction activity)
	b. Bidders List

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

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

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

3. CONTRACTOR ASSURANCES

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

4. REQUIRED SUBCONTRACT PROVISIONS

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

5. ELIGIBILITY OF DBES

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

a. Massachusetts DBE Directory

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

Contractors are encouraged to make use of the DBE Directory maintained by SDO on the Internet. This listing is updated daily and may be accessed at the SDO's website at: https://www.diversitycertification.mass.gov/BusinessDirectory/BusinessDirectorySearch.aspx

b. DBE Certification

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



c. Joint Venture Approval

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

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

6. COUNTING DBE PARTICIPATION TOWARDS DBE PARTICIPATION GOALS

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

a. Commercially Useful Function

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

b. Counting Participation Toward The Contract Participation Goal

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

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

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

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

c. Joint Check Policy

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

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

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

Other factors MassDOT may consider:

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

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

d. Joint Check Procedure(s)

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

7. AWARD DOCUMENTATION AND PROCEDURES

- **a.** The two lowest bidders/the two bidders with the lowest price per quality score point, shall submit, by the close of business on the third (3rd) business day after the bid opening, a completed Schedule of Participation by DBEs (Document B00853) which shall list:
 - (1) The full company name, address and telephone number of each DBE with whom the bidder intends to make a commitment.
 - (2) The contract item(s), by number(s) and quantity(ies), if applicable, or specific description of other business activity to be performed by each DBE as set forth in the Letters of Intent. The Bidder shall list only firms which have the capacity to perform, manage and supervise the work proposed in accordance with the requirements of 49 CFR Part 26 and Section 6.b of these Special Provisions.
 - (3) The total dollar amount to be paid to each DBE. (Bidders are cautioned that at least one half of the participation goal must be met with construction activity work.)
 - (4) The total dollar amount to be paid to each DBE that is eligible for credit toward the DBE participation goal under the counting rules set out in Section **6.b**.
 - (5) The total creditable DBE participation as a percentage of the total bid price.
- **b.** All firms listed on the Schedule must be currently certified.
- c. The two lowest bidders/the two bidders with the lowest price per quality score point, shall each submit, with their Schedules of Participation, fully completed, signed Letters of Intent (Document B00854) from each of the DBEs listed on the Schedule. The Letters of Intent shall be in the form attached and shall identify specifically the contract activity the DBE proposes to perform, expressed as contract item number, if applicable, description of the activity, NAICS code, quantity, unit price and total price. In the event of discrepancy between the Schedule and the Letter of Intent, the Letter of Intent shall govern.
- **d.** Evidence of good faith efforts will be evaluated by MassDOT in the selection of the lowest responsible bidder.
 - All information requested by MassDOT for the purpose of evaluating the Contractor's efforts to achieve the participation goal must be provided within three (3) calendar days and must be accurate and complete in every detail. The apparent low bidder's attainment of the DBE participation goal or a satisfactory demonstration of good faith efforts is a prerequisite for award of the Contract.
- e. Failure to meet, or to demonstrate good faith efforts to meet, the requirements of these Special Provisions shall render a bid non-responsive. Therefore, in order to be eligible for award, the bidder (1) must list all DBE's it plans to employ on the Schedule of Participation; and provide the required Letters of Intent for, DBE participation which meets or exceeds the Contract goal in accordance with the terms of these Special Provisions or (2) must demonstrate, to the satisfaction of MassDOT, that good faith efforts were made to achieve the participation goal. MassDOT will adhere to the guidance provided in Appendix A to 49 CFR Part 26 on the determination of a Contractor's good faith efforts to meet the DBE participation goal(s) set forth in Section 2 herein.

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

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

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

8. COMPLIANCE

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

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

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

n. Prompt Payment.

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

9. SANCTIONS

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

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

10. FURTHER INFORMATION; ENFORCEMENT, COOPERATION AND CONFIDENTIALITY.

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

- (1) If you are a firm that does not meet the eligibility criteria of 49 CFR, Parts 26.61 to 26.73 ("subpart D"), that attempts to participate in a DOT- assisted program as a DBE on the basis of false, fraudulent, or deceitful statements or representations or under circumstances indicating a serious lack of business integrity or honesty, MassDOT or FHWA may initiate suspension or debarment proceedings against you under 49 CFR Part 29.
- (2) If you are a firm that, in order to meet DBE Contract participation goals or other DBE Program requirements, uses or attempts to use, on the basis of false, fraudulent or deceitful statements or representations or under circumstances indicating a serious lack of business integrity or honesty, another firm that does not meet the eligibility criteria of subpart D, FHWA may initiate suspension or debarment proceedings against you under 49 CFR Part 29.
- (3) In a suspension or debarment proceeding brought either under subparagraph a.(1) or b.(2) of this section, the concerned operating administration may consider the fact that a purported DBE has been certified by a recipient. Such certification does not preclude FHWA from determining that the purported DBE, or another firm that has used or attempted to use it to meet DBE participation goals, should be suspended or debarred.
- (4) FHWA may take enforcement action under 49 CFR Part 31, Program Fraud and Civil Remedies, against any participant in the DBE Program whose conduct is subject to such action under 49 CFR Part 31.
- (5) FHWA may refer to the Department of Justice, for prosecution under 18 U.S.C. 1001 or other applicable provisions of law, any person who makes a false or fraudulent statement in connection with participation of a DBE in any DOT-assisted program or otherwise violates applicable Federal statutes.
- **b.** Pursuant to 49 CFR Part 26.109, the rules governing information, confidentiality, cooperation, and intimidation or retaliation are as follows:
 - (1) Availability of records.
 - (i) In responding to requests for information concerning any aspect of the DBE Program, FHWA complies with provisions of the Federal Freedom of Information and Privacy Acts (5 U.S.C. 552 and 552a). FHWA may make available to the public any information concerning the DBE Program release of which is not prohibited by Federal law.
 - (ii) MassDOT shall safeguard from disclosure to unauthorized persons information that may reasonably be considered as confidential business information, consistent with Federal and Massachusetts General Law (M.G.L. c. 66, § 10, M.G.L. c. 4, §7 (26), 950 CMR 32.00).
 - (2) Confidentiality of information on complainants. Notwithstanding the provisions of subparagraph b.(1) of this section, the identity of complainants shall be kept confidential, at their election. If such confidentiality will hinder the investigation, proceeding or hearing, or result in a denial of appropriate administrative due process to other parties, the complainant must be advised for the purpose of waiving the privilege. Complainants are advised that, in some circumstances, failure to waive the privilege may result in the closure of the investigation or dismissal of the proceeding or hearing.

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

11. LIST OF ADDITIONAL DOCUMENTS.

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

FHWA-1273 - Revised October 23, 2023

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

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

ATTACHMENTS

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

I. GENERAL

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

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

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

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

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

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

- 3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.
- 4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).
- II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

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

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

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

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

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

- 1. Equal Employment Opportunity: Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (see 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:
- a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).
- b. The contractor will accept as its operating policy the following statement:
 - "It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."
- 2. **EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.
- 3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:
- a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.
- b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.
- c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women

- d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.
- e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.
- 4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.
- a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.
- b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.
- c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.
- **5. Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:
- a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.
- b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.
- c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.
- d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action

Proposal No. 609187-130387

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

6. Training and Promotion:

- a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.
- b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).
- c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.
- d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.
- 7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:
- a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.
- b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.
- c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.
- d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide

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

- 8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.
- 9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.
- a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.
- b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurances Required:

- a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.
- b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:
 - (1) Withholding monthly progress payments;
 - (2) Assessing sanctions;
 - (3) Liquidated damages; and/or
- (4) Disqualifying the contractor from future bidding as nonresponsible.
- c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.
- 11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.
- a. The records kept by the contractor shall document the following:

Proposal No. 609187-130387

- (1) The number and work hours of minority and nonminority group members and women employed in each work classification on the project;
 - (2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and
 - (3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.
- b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

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

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

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

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

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

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

1. Minimum wages (29 CFR 5.5)

- a. Wage rates and fringe benefits. All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act (40 U.S.C. 3141(2)(B)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH-1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.
- b. Frequently recurring classifications. (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in 29 CFR part 1, a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:
 - (i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

- (ii) The classification is used in the area by the construction industry; and
- (iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.
- (2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.
- c. Conformance. (1) The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:
 - (i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
 - (ii) The classification is used in the area by the construction industry; and
 - (iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
- (2) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.
- (3) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to DBAconformance@dol.gov. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30–day period that additional time is necessary.
- (4) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to <code>DBAconformance@dol.gov</code>, 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

- Proposal No. 609187-130387
- 2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:
- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
 - (2) A contracting agency for its 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, <u>31</u> 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 Actscovered 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

Proposal No. 609187-130387

the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

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

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

- **5. Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.
- **6. Subcontracts**. The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 29 CFR 5.5.
- **7. Contract termination: debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.
- **8. Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.
- 9. Disputes concerning labor standards. As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.
- **10. Certification of eligibility**. a. By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of <u>40</u> 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, $\underline{18}$ 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 $\underline{29\ CFR\ part\ 1}$ or $\underline{3}$;
- b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or 29 CFR part 1 or 3;
- c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or 29 CFR part 1 or 3; or
- d. Informing any other person about their rights under the DBA, Related Acts, this part, or 29 CFR part 1 or 3.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

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

- 1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.
- 2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1. of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages shall be computed with respect to each individual laborer or

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

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

3. Withholding for unpaid wages and liquidated damages

- a. Withholding process. The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this section on this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.
- b. *Priority to withheld funds*. The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:
- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
 - (2) A contracting agency for its 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, <u>31</u> U.S.C. 3901–3907.
- **4. Subcontracts.** The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the

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

- **5. Anti-retaliation.** It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:
- a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;
- b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;
- c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or
- d. Informing any other person about their rights under CWHSSA or this part.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

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

- 1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).
- a. The term "perform work with its own organization" in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)
- the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
 - (2) the prime contractor remains responsible for the quality of the work of the leased employees;

- (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
 - (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.
- b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.
- 2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.
- 3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.
- 4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).
- 5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VII. SAFETY: ACCIDENT PREVENTION

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

- 1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.
- 2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and

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

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

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

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

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

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

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

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

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

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

Proposal No. 609187-130387

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

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

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

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

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

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

1. Instructions for Certification – First Tier Participants:

- a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.
- b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.
- c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.
- d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

- e. The terms "covered transaction," "debarred,"
 "suspended," "ineligible," "participant," "person," "principal,"
 and "voluntarily excluded," as used in this clause, are defined
 in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200.
 "First Tier Covered Transactions" refers to any covered
 transaction between a recipient or subrecipient of Federal
 funds and a participant (such as the prime or general contract).
 "Lower Tier Covered Transactions" refers to any covered
 transaction under a First Tier Covered Transaction (such as
 subcontracts). "First Tier Participant" refers to the participant
 who has entered into a covered transaction with a recipient or
 subrecipient of Federal funds (such as the prime or general
 contractor). "Lower Tier Participant" refers any participant who
 has entered into a covered transaction with a First Tier
 Participant or other Lower Tier Participants (such as
 subcontractors and suppliers).
- f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.
- g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 180.300.
- h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (https://www.sam.gov/). 2 CFR 180.300, 180.320, and 180.325.
- i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

* * * * *

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

- a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:
- (1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;.
- (2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;
- (3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800: and
- (4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).
- (5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and
- (6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).
- b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

* * * * *

3. Instructions for Certification - Lower Tier Participants:

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

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

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

- c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.
- d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).
- e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.
- f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 1200.220.
- g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (https://www.sam.gov/), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.
- h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily

Proposal No. 609187-130387

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

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

- a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:
- (1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;
- (2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and
- (3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)
- b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT **FUNDS FOR LOBBYING**

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

- 1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:
- a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or

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

- 2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.
- 3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

XII. USE OF UNITED STATES-FLAG VESSELS:

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

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

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

- 1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.
- 2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B) This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

- 1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:
- a. To the extent that qualified persons regularly residing in the area are not available.
- b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.
- c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.
- 2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.
- 3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.
- 4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above
- 5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.
- 6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.



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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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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SPECIAL PROVISIONS

PRICE ADJUSTMENTS FOR STRUCTURAL STEEL AND REINFORCING STEEL

May 15, 2025

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

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

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

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

Price adjustments will <u>not</u> 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:

<u>Base Prices</u> 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.

<u>Period Prices</u> 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	Туре	Price per Pound
1	ASTM A615/A615M Grade 60 (AASHTO M31 Grade 60 or 420) Reinforcing Steel	\$0.54
2	ASTM A27 (AASHTO M103) Steel Castings, H-Pile Points & Pipe Pile Shoes (See Note below.)	\$0.75
3	ASTM A668 / A668M (AASHTO M102) Steel Forgings	\$0.75
4	ASTM A108 (AASHTO M169) Steel Forgings for Shear Studs	\$0.77
5	ASTM A709/A709M Grade 36 / AASHTO M270M/M270 Grade 36 or 250 Structural Steel Plate	\$0.81
6	ASTM A709/A709M Grade 36 / AASHTO M270M/M270 Grade 36 or 250 Structural Steel Shapes	\$0.76
7	ASTM A709/A709M Grade 50 / AASHTO M270M/M270 Grade 50 or 345 Structural Steel Plate	\$0.81
8	ASTM A709/A709M Grade 50 / AASHTO M270M/M270 Grade 50 or 345 Structural Steel Shapes	\$0.76
9	ASTM A709/A709M Grade 50WT / AASHTO M270M/M270 Grade 50WT or 345WT Structural Steel Plate	\$0.84
10	ASTM A709/A709M Grade 50WT / AASHTO M270M/M270 Grade 50WT or 345WT Structural Steel Shapes	\$0.77
11	ASTM A709/A709M Grade 50W / AASHTO M270M/M270 Grade 50W 345W Structural Steel Plate	\$0.84
12	ASTM A709/A709M Grade 50W / AASHTO M270M/M270 Grade 50W or 345W Structural Steel Shapes	\$0.77
13	ASTM A709/A709M Grade HPS 50W / AASHTO M270M/M270 Grade HPS 50W or 345W Structural Steel Plate	\$0.88
14	ASTM A709/A709M Grade HPS 70W / AASHTO M270M/M270 Grade HPS 70W or 485W Structural Steel Plate	\$0.95
15	ASTM A514/A514M-05 Grade HPS 100W / AASHTO M270M/M270 Grade HPS 100W or 690W Structural Steel Plate	\$1.44
16	ASTM A992/A992M Grade 50S / AASHTO M270M/M270 Grade 50S or 345S Structural Steel Plate	\$0.84
17	ASTM A992/A992M Grade 50S / AASHTO M270M/M270 Grade 50S or 345S Structural Steel Shapes	\$0.77
18	ASTM A276 Type 316 Stainless Steel	\$4.34
19	ASTM A240 Type 316 Stainless Steel	\$4.34
20	ASTM A148 Grade 80/50 Steel Castings (See Note below.)	\$1.49
21	ASTM A53 Grade B Structural Steel Pipe	\$0.95
22	ASTM A500 Grades A, B, 36 & 50 Structural Steel Pipe	\$0.95
23	ASTM A252, Grades 240 (36 KSI) & 414 (60 KSI) Pipe Pile	\$0.75
24	ASTM 252, Grade 2 Permanent Steel Casing	\$0.75
25	ASTM A36 (AASHTO M183) for H-piles, steel supports and sign supports	\$0.79
25 26	ASTM A30 (AASHTO M183) for H-pites, steet supports and sign supports ASTM A328 / A328M, Grade 50 (AASHTO M202) Steel Sheetpiling	\$1.42
20 27	ASTM A528 / A528M, Grade 50 (AASTTO M202) Steel Sheetpilling ASTM A572 / A572M, Grade 50 Sheetpilling	\$1.42
		\$0.81
28	ASTM A570 G . 1 . 50	
29	ASTM A570, Grade 50	\$0.79
30	ASTM A572 (AASHTO M223), Grade 50 H-Piles	\$0.81
31	ASTM A1085 Grade A (50 KSI) Steel Hollow Structural Sections (HSS), heat-treated per ASTM A1085 Supplement S1	\$0.95
32	AREA 140 LB Rail and Track Accessories	\$0.49

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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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 <u>Construction Economics</u> section of *ENR Engineering News-Record* magazine or at the ENR website http://www.enr.com under <u>Construction Economics</u>. 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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THE COMMONWEALTH OF MASSACHUSETTS SUPPLEMENTAL EQUAL EMPLOYMENT OPPORTUNITY, NON-DISCRIMINATION AND AFFIRMATIVE ACTION PROGRAM

I. Definitions

For purposes of this contract,

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

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

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

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

II. Equal Opportunity, Non-Discrimination and Affirmative Action

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

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

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

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

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

III. Minority and Women Workforce Participation

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

IV. Liaison Committee

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

V. Reports and Records

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

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

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

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

VI. Access to Work Site

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

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

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

VIII. Sanctions

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

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

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

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

IX. Severability

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



X. Contractor's Certification

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

XI. Subcontractor Requirements

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

Rev'd 03/07/14

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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 co	ontractor shall submit this o	completed docu	ment 00859 to	MassDOT for each sub	bcontract.	
		(Contractor)	Date:		
				(Subcontractor)	☐ Dist	rict Approved ractor
Contra	act No: 130387	Project No.	609187	Fede	ral Aid <u>No.:</u>	STP(BR-OFF)-003S(822)X
Locati	on: HUBBARDSTON					
Projec	t Description: Bridge Re	placement, H-2	4-003, William	sville Road over the B	urnshirt Rive	er
the bealaws, and their and words Docum	1 CONTRACTOR CER st of my knowledge, informatiles, and regulations gove r employment practices, the omen employee workforce ment 00820 The Common mination and Affirmative a mentation indicated below (nation and belicerning fair labout the company participation renwealth of Maction Progran	ef, the company r and employm y will make goo atio goals and s assachusetts Su	y is in compliance with tent practices, that the od faith efforts to comp specific affirmative act applemental Equal Er	all applicable company with the name of the company with the name of the complex compl	le federal and state Il not discriminate minority employee stained in Contract Deportunity, Non-
indica	ner hereby certify, as an a ted below (as checked) havith the firm named above.				-	
	This is not a Federally-ai	ided construct	ion project			
Docur	nent # 00718 –Participation By M 00761 –Certification Rega 00820 – MA Supplement Program	ırding Debarme	ent, Suspension	, Ineligibility, and Volu	untary Exclus	
	00821 – Electronic Report 00859 – Contractor/Subco 00860 – MA Employment	ntractor Certifi			ied Payroll	
	00861 – Applicable State B00842 – MA Schedule o B00843 – MA Letter of In	f Participation intent – M/WBE	By Minority or s†	Women Business Ente	erprises (M/V	VBEs)†
		Subcontractor is	s a M/WBE; only	erforming work on-site r include these forms for t	he particular N	M/WBE Entity
	B00845 - Letter of Intent - B00846 - M/WBE or SDV B00847 - Joint Venture A	– SDVOBE VOBE Joint Ch		ent Approval Form		
	is <u>is</u> a Federally-aided cor nent #	struction proj	ject (Federal A	id Number is present	()	
	00719 – Special Provision 00760 - Form FHWA 127 Contracts					
	00820 – MA Supplementa Program	ıl Equal Emplo	yment Opportu	nity, Non-Discriminati	on and Affiri	native Action
	00821 – Electronic Report 00859 – Contractor/Subco 00860 – MA Employment	ntractor Certifi			ed Payroll	
	00870 – Standard Federal	Equal Employ: I CFR Parts 60	-4.2 and 60-4.3	ity Construction Contra (Solicitations and Equ		



schusetts Department Of Transportation	Massachusetts Department of Transportation Highway Division		
	Proposal No. 609187-130387		

Sig	**Does not apply to Material Sup † Applies only if Subcontractor is ned this Day of	ral wage rates from Contract Proposal** Subcontracts in excess of \$10,000 opliers, unless performing work on-site s a DBE; only include these forms for the particular DBE Entity, 20 Under The Pains And Penalties Of Perjury.			
	(Print Name and Title)	(Authorized Signature)			
that	t the required documents in Part 1 above w	PART 2 ITON: I hereby certify, as an authorized official of this company, ere physically incorporated in our Agreement/Subcontract with the many will fully comply or make every good faith effort to comply with			
1.	This company recognizes that if this is a Federal-Aid Project, then this Contract is covered by the equal employment opportunity laws administered and enforced by the United States Department of Labor ("USDOL"), Office of Federal Contract Compliance Programs ('OFCCP"). By signing below, we acknowledge that this company has certain reporting obligations to the OFCCP, as specified by 41 CFR Part 60-4.2.				
2.	This company further acknowledges that any contractor with fifty (50) or more employees on a Federal-aid Contract with a value of fifty-thousand (\$50,000) dollars or more must annually file an EEO-1 Report (SF 100) to the EEOC, Joint Reporting Committee, on or before September 30th, each year, as specified by 41 CFR Part 60-1.7a.				
3.	For more information regarding the federal reporting requirements, please contact the USDOL, OFCCP Regional Office, at 1-646-264-3170 or EEO-1, Joint Reporting Committee at 1-866-286-6440. You may also find guidance at: http://www.dol.gov/ofccp/TAguides/consttag.pdf or http://www.dol.gov/ofccp/TAguides/consttag.pdf or http://www.wdol.gov/dba.aspx#0 .				
4.	Opportunity clauses set forth in 41 CFR P	cipated in a previous contract or subcontract subject to the Equal Part 60-4 and Executive Order 11246, and where required, has filed rector of the Office of Federal Contract Compliance Programs or the applicable filing requirements.			
5.	and regulations and is not currently debarr	pplicable Federal and Commonwealth of Massachusetts laws, rules, red or disqualified from bidding on or participating in construction States. See:			

Rev'd 09/02/22



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

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.

Title

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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DOCUMENT 00870

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246) Revised April 9, 2019

- 1. As used in these specifications:
 - a. "Covered area" means the geographical area described in the solicitation from which this contract resulted:
 - b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority.
 - c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
 - d. "Minority" includes:
 - (i) Black (all persons having origins in any of the black African racial groups not of Hispanic origin);
 - (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
 - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
- 2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$ 10,000 the provisions of the specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.
- 3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.
- 4. The Contractor shall implement the specific affirmative action standards provided in Paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.
- 5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

- 6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.
- 7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:
 - a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
 - b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.
 - c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.
 - d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
 - e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.
 - f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
 - g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
 - h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

- i. Direct its recruitment efforts both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.
- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3
- l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
- m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
- n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
- o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
- p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.
- 8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.
- 9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).
- 10. The Contractor shall not use the goals and timetables of affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.
- 11 The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

- 12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
- 13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.
- 14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as many be required by the Government and keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
- 15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).



APPENDIX A

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

Area covered: Goal for Women apply nationwide

Goals and Timetables

Timetable Goals (percent)

From Apr. 1, 1980 until further notice 6.9



APPENDIX B-80

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

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

Economic Areas

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 9243 Worcester-Fitchburg-Leominster, MA	1.6 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 00875 TRAINEE SPECIAL PROVISIONS Revised October, 2016

THE REQUIRED NUMBER OF TRAINEES TO BE TRAINED UNDER THIS CONTRACT WILL BE 1

The contractor shall provide on-the job training aimed at developing full journeyworkers in the type of trade of job classification involved.

In the event that a contractor subcontracts a portion of the contract work, the General Contractor shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided, however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this training special provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeyworkers in the various classifications within a reasonable area of recruitment. Prior to commencing construction, the contractor shall submit to the Massachusetts Department Of Transportation (MassDOT) for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the contractor shall specify the starting time for training in each of the classifications. The contractor will be credited for each trainee employed on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeyworker status is a primary objective of the Training Special Provision. Accordingly, the contractor shall make every effort to enroll minority and women trainees (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent that such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that have been taken in pursuance thereof, prior to a determination as to whether the contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training.

No employee shall be trained under this Special Provision in any classification in which he or she has successfully completed a training course leading to journeyworker status or in which he or she has been employed as a journeyworker. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the contractor's records should document the finding in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the contractor and approved by the Massachusetts Department Of Transportation and the Federal The Massachusetts Department Of Transportation and the Federal Highway Highway Administration. Administration shall approve a program if it is reasonably calculated to meet the equal employment opportunity obligations of the contractor and to qualify the average trainee for journeyworker status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved but not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather that clerk-typist or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc. where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the Federal Highway Administration division office. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Reimbursement

Under these Training Special Provisions, reimbursement will be as follows:

The Contractor will only be reimbursed 80 cents for each hour of on the job training as specified in the approved Training Program.

The Contractor is advised and encouraged that it may train additional persons in excess of the number specified and will be reimbursed as stated above. Reimbursement will be made even though the contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other reimbursement.

If less than full training specified in the approved training programs is provided, payment to the contractor will be made at a rate of 80 cents for each hour of training completed under this contract. However, no payment shall be made to the contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyworker, is caused by the contractor and evidences a lack of good faith on the part of the contractor in meeting the requirements of this Training Special Provision.

Payment

Trainees will be paid:

- 1. Percentage (%) of the journeyworker's rate as provided in the existing programs approved by the Department of Labor or Transportation as of September 15, 1970.
- 2. For journeyworker programs submitted by the Contractor and approved by Massachusetts Department Of Transportation and the Federal Highway Administration at least 60 percent of the appropriate minimum journeyworker's rate specified in the contract for the first half of the training period, 75 percent for the third quarter if the training period, and 90 percent for the last quarter of the training period.
- 3. For skilled laborer programs, the minimum starting wage rate of unskilled laborer. At the conclusion of training, he or she will be paid the minimum wage rate of the Classification for programs submitted by the Contractor and approved by the Massachusetts Department Of Transportation and the Federal Highway Administration.
- 4. For the purposes of meeting the legal requirements of State Prevailing Wage Law, please be advised that no person may be paid the Apprentice wage rate as listed on a MA Prevailing Wage Rates schedule, unless that person and program is registered with the Department of Labor Standards/Division of Apprentice Standards (DLS/DAS). Any person or program not registered with DLS/DAS, regardless of whether or not they are registered with any other federal, state, local, or private entity must be paid the journeyworker's rate for the trade.

The contractor shall provide each trainee with a certification showing the type and length of training satisfactorily complete.

The contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

Form FHWA-1409, Federal-aid Highway Construction Contracting Semi Annual Training Report, shall be submitted as per instructions on the Form.

*** END OF DOCUMENT ***

DOCUMENT 00880

Revised January 12, 2022



DEPARTMENT OF LABOR

Employment Standards Administration

MINIMUM WAGES FOR FEDERAL AND FEDERALLY ASSISTED CONTRACTS

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General Decision Number: MA20250025 03/21/2025

Superseded General Decision Number: MA20240025

State: Massachusetts

Construction Type: Highway

County: Worcester County in Massachusetts.

HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally

required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658.

Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

contract in 2025. If the contract was awarded on . Executive Order 13658 or between January 1, 2015 and generally applies to the January 29, 2022, and the contract. contract is not renewed or The contractor must pay all extended on or after January covered workers at least 30, 2022: \$13.30 per hour (or the
<pre> or between January 1, 2015 and generally applies to the </pre>
<pre> or between January 1, 2015 and generally applies to the </pre>
January 29, 2022, and the
contract is not renewed or . The contractor must pay all extended on or after January covered workers at least
<pre>all extended on or after January covered workers at least</pre>
extended on or after January covered workers at least
applicable wage rate
listed on this wage
<pre>determination, </pre>
hours spent performing or
that contract in 2025.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the

Executive Orders and a classification considered necessary for

performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker

protections under the Executive Orders is available at http://www.dol.gov/whd/govcontracts.

Fringes

Masachusetts Department of Transportation Highway Division

Proposal No. 609187-130387

Modification	Number

0

Publication Date 01/03/2025 03/21/2025

* CARP0336-004 03/01/2025

			Rates	F'ringes
CARPENTER	(Includes	Form	Work)\$ 49.10	31.20

* ELEC0103-007 03/01/2025

	Rates	Fringes
ELECTRICIAN	\$ 64.26	36.99

ENGI0004-030 12/01/2024

		_
POWER EQUIPMENT OPERATOR		
Group 1\$	57.03	33.20
Group 2\$	56.40	33.20

Rates

FOOTNOTE FOR POWER EQUIPMENT OPERATORS:

A. PAID HOLIDAYS: New Year's Day, Washington's Birthday,

Labor Day, Memorial Day, Independence Day, Patriot's Day, Columbus Day, Veteran's Day, Thanksgiving Day, Christmas Day

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

Group 1: Backhoe/Excavator/Trackhoe; Bobcat/Skid
Steer/Skid

Loader; Broom/Sweeper; Gradall; Loader; Paver (Asphalt, Aggregate, and Concrete); Post Driver (Guardrail/Fences) Group 2: Bulldozer; Grader/Blade; Roller

ENGI0004-031 12/01/2024

Rates Fringes

Massachusetts Department Of Transportation Proposal No.	chusets Department of Transportation tway Division 0. 609187-130387	Highway Division
POWER EQUIPMENT OPERATOR: (Milling Machine)	\$ 57.03	33.20
FOOTNOTE FOR POWER EQUIPMENT A. PAID HOLIDAYS: New Yea Birthday, Labor Day, Memorial Day, In Columbus Day, Veteran's Day	ar's Day, Washind ndependence Day,	Patriot's Day,
Day	y, inanksgiving	Day, CHIIStmas
IRON0007-028 03/16/2024		
	Rates	Fringes
IRONWORKER, STRUCTURAL	\$ 54.38	36.48
 IRON0007-029 03/16/2024		
	Rates	Fringes
IRONWORKER, ORNAMENTAL	\$ 54.68	36.48
 LABO0039-003 06/01/2018		
	Rates	Fringes
LABORER Asphalt, Includes Raker, Shoveler, Spreader and	,	
Distributor	\$ 33.25	22.92 22.92 22.92
 PAIN0035-023 07/01/2024		
	Rates	Fringes
		36.00

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER\$	56.70	21.08
IRONWORKER, REINFORCING\$	56.48	20.62
LABORER: Concrete Saw (Hand Held/Walk Behind)\$	41.78	18.37
LABORER: Landscape\$	40.39	17.68
OPERATOR: Crane\$	52.14	21.08
OPERATOR: Forklift\$	64.67	0.00
OPERATOR: Mechanic\$	48.14	17.02
OPERATOR: Piledriver\$	44.46	16.94
PAINTER: Spray (Linestriping)\$	48.00	0.00
PILEDRIVERMAN\$	45.65	23.33
TRAFFIC CONTROL: Flagger\$	23.00	20.44
TRAFFIC CONTROL: Laborer-Cones/ Barricades/Barrels -		
Setter/Mover/Sweeper\$	44.49	12.41
TRUCK DRIVER: Concrete Truck\$	33.69	15.79
TRUCK DRIVER: Dump Truck\$	30.38	7.20
TRUCK DRIVER: Flatbed Truck\$	48.53	0.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave

for Federal Contractors applies to all contracts subject to the

Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this

contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their

own illness, injury or other health-related needs, including

preventive care; to assist a family member (or person who is

like family to the employee) who is ill, injured, or has other

health-related needs, including preventive care; or for reasons

resulting from, or to assist a family member (or person who is

like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information

on contractor requirements and worker protections under the EO

is available at

https://www.dol.gov/agencies/whd/government-contracts.

Unlisted classifications needed for work not included within

the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses

(29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the 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: ${\tt UAVG-OH-0010~01/2024}$. ${\tt UAVG}$ 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-

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

General Decision Number: MA20250002 05/16/2025

Superseded General Decision Number: MA20240002

State: Massachusetts

Construction Type: Heavy

HEAVY CONSTRUCTION PROJECTS; AND

MARINE CONSTRUCTION PROJECTS

County: Worcester County in Massachusetts.

HEAVY CONSTRUCTION PROJECTS; AND MARINE CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally

required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658.

Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

		higher) for all hours
		spent performing on the
		contract in 2025.
 	_	
If the contract was awarded or	n .	Executive Order 13658
or between January 1, 2015 and	d	generally applies to the
January 29, 2022, and the		contract.
contract is not renewed or	.	The contractor must pay
all extended on or after January		covered workers at least
30, 2022:		\$13.30 per hour (or the
		applicable wage rate
listed		on this wage
<pre>determination, </pre>		if it is higher) for all
		hours spent performing on
		that contract in 2025.
 	_	

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the

Executive Orders and a classification considered necessary for

performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker

protections under the Executive Orders is available at http://www.dol.gov/whd/govcontracts.

Modification Number 0 1 2 3 4	Publication Dat 01/03/2025 03/07/2025 03/14/2025 03/21/2025 05/16/2025	e
ASBE0006-005 09/01/202	4	
	Rates	Fringes
Insulator/asbestos work Includes the appli of all insulating materials, protect coverings, coating finishes all types	cation live , and	
mechanical systems Includes the appli of all insulating materials, protect coverings, coating finishes to all ty mechanical systems	cation live , and pes of	
mechanical systems		
BOIL0029-001 01/01/202	5	
	Rates	Fringes
BOILERMAKER	\$ 50.6	2 28.82
BRMA0001-002 08/01/202	3	
SPRINGFIELD/PITTSFIELD	CHAPTER WORCEST	ER (Warren County)
	Rates	Fringes
Bricklayer, Cement Maso Plasterer & Stonemason.	•	1 32.27
 BRMA0001-014 08/01/202	3	

WORCESTER CHAPTER
WORCESTER (Auburn Barre, Blackstone, Berlin, Bolton,
Boylston,
the Brookfields, Charlton, Clinton, Douglas, Dudley,
Grafton,
Hardwick, Holden, Leicester, Mendon, Millbury, Milville,

New

Braintree, Northboro, Northbridge, Oakham, Oxford, Paxton, Rutland, Shrewbury, Southbridge, Spencer, Sturbridge, Sutton,

Upton, Uxbridge, Webster, Westboro, West Boylston, Worcester)

	Rates	Fringes
Bricklayer, Cement Mason, Plasterer & Stonemason	.\$ 60.26	33.71
BRMA0001-015 08/01/2023		

LOWELL CHAPTER

WORCESTER (Hopedale, Milford, Southboro)

]	Rates	Fringes
_	Cement Mason,		
Plasterer &	Stonemason\$	60.26	33.71

BRMA0001-023 08/01/2023

LOWELL CHAPTER

WORCESTER (Ashburhanm, Athol, Fitchburg, Gardner, Harvard, Hubbardston, Lancaster, Leominster, Lunenburg, Petersham, Phillipston, Princeton, Royalston, Sterling, Templeton, Westminster, Winchendon)

	F	Rates	Fringes
Bricklayer, C	ement Mason,		
Plasterer & S	tonemason\$	60.26	33.71

Wassachuseus Department Of Transportation	Proposal No. 609187-130387	Trigitway Division
BRMA0003-001 08/01/20	24	
	Rates	Fringes
Marble & Tile Finisher Marble, Tile & Terrazz		35.26
Workers TERRAZZO FINISHER	\$ 64.52	37.51 37.33
CARP0056-004 08/01/20	24	
	Rates	Fringes
DIVER TENDER	\$ 78.11	35.47 35.47
 CARP0056-008 08/01/20	24	
	Rates	Fringes
PILEDRIVERMAN	\$ 49.19	35.47
 CARP0336-002 03/01/20	25	
WORCESTER (Except Gilb Brookfield)	ertville, Harwick, Warre	en, West
	Rates	Fringes
Carpenter/Lather	\$ 49.10	31.20
 CARP0336-007 03/01/20	25	
WORCESTER (Gilbertvill	e, Hardwick, Warren, Wes	st Brookfield)
	Rates	Fringes
Carpenter/Lather	\$ 49.10	31.20

Proposal No. 609187-130387		
 CARP1121-004 01/06/2025		
Rat	es Fring	_{[es}
MILLWRIGHT\$ 43	.42 33	3.00
 ELEC0096-002 09/04/2022		
WORCESTER (Warren)		
Rat	es Fring	_{[es}
ELECTRICIAN\$ 45	.59 30	.92
ELEC0104-001 09/01/2024		
Rat	es Fring	es
Line Construction: Cableman	.65 26.7 .13 12.7 .41 30.1 Memorial Day; giving Day; Chris	72+A 70+A 9+A stmas
employed 5 working days prior to an holidays.	y one of the list	ed
 ELEV0041-002 01/01/2025		
Rat	es Fring	ſes
ELEVATOR MECHANIC\$ 66	.41 38.435+	-a+b
FOOTNOTE: a.Vacation: 6%/under 5 years based for	on regular hourly	rate



all hours worked. 8%/over 5 years based on regular hourly

rate for all hours worked.

b. PAID HOLIDAYS: New Year's Day; Memorial Day; Independence

Day; Labor Day; Veterans' Day; Thanksgiving Day; the Friday

after Thanksgiving Day; and Christmas Day.

ENGI0004-003 12/01/2024

WORCESTER (Except Athol, Barre, Brookfield, East Brookfield,

Hardwick, New Braintree, North Brookfield, Oakham, Petersham,

Phillipston, Royalston, Strutbridge, Templeton, Warren, West

Brookfield, Winchendon)

	Rates	Fringes
Power equipment operators:		
BUILDING, HEAVY & MARINE		
GROUP 1	\$ 48.73	29.25
Group 1	\$ 57.03	33.20
GROUP 2		29.25
Group 2	\$ 56.40	33.20
GROUP 3		29.25
Group 3	\$ 36.67	33.20
GROUP 4	\$ 39.89	29.25
Group 4	\$ 45.96	33.20
GROUP 5		29.25
Group 5	\$ 24.92	33.20
GROUP 6	\$ 27.64	29.25
Group 6	\$ 30.63	33.20

FOOTNOTE FOR POWER EQUIPMENT OPERATORS:

A. PAID HOLIDAYS: New Year's Day, Washington's Birthday,

Memorial Day, Independence Day, Labor Day, Patriot's Day, Columbus Day, Veteran's Day, Thanksgiving Day, Christmas Day



HOURLY PREMIUM FOR BOOM LENGTHS (Including Jib):

Over 150 ft. +2.18 Over 185 ft. +3.84 Over 210 ft. +5.39 Over 250 ft. +8.16 Over 295 ft. +11.29 Over 350 ft. +13.14

POWER EQUIPMENT OPERATORS CLASSIFICATIONS BUILDING AND HEAVY

CONSTRUCTION

GROUP 1: Power shovel; crane; truck crane; derrick; pile driver; trenching machine; mechanical hoist pavement breaker; cement concrete paver; dragline; hoisting engine;

three drum machine; pumpcrete machine; loaders; shovel dozer; front end loader; mucking machine; shaft hoist; steam engine; backhoe; gradall; cable way; fork lift; cherry picker; boring machine; rotary drill; post hole hammer; port hole digger; asphalt plant on job site; concrete batching and/or mixing plant on job site; crusher

plant on job site; paving concrete mixer; timber jack GROUP 2: Sonic or vibratory hammer; grader; scraper; tandem

scraper; bulldozer; tractor; mechanic - maintenance; York rake; mulching machine; paving screed machine; stationary steam boiler; paving concrete finishing machine; grout pump; portable steam boiler; portable steam generator; roller; spreader; asphalt paver; locomotives or machines used in place thereof; tamper (self propelled or tractor-draw); cal tracks; ballast regulator; rail anchor machine; switch tamper; tire truck

GROUP 3: Pumps (1-3 grouped); compressor; welding machines

(1-3 grouped); generator; sighting plant; heaters (power driven, 1- 5); syphon-pulsometer; concrete mixer; valves controlling permanent plant air steam, conveyor, wellpoint

system (operating)

GROUP 4: Assitant engineer (fireman)

GROUP 5: Oiler (other than truck cranes and gradalls)

GROUP 6: Oiler (on truck cranes and gradalls)

POWER EQUIPMENT OPERATORS CLASSIFICATIONS MARINE CONSTRUCTION

GROUP 1: Shovel; crane; truck crane; cherry picker; derrick;

pile driver; two or more drum machines; lighters; derrick boats; trenching machines; mechanic hoist pavement breakers; cement concrete pavers; draglines; hoisting engines; pumpcrete machines; elevating graders; shovel dozer; front end loader; backhoe; gradall; cable ways; boring machine; rotary drill; post hole hammer; post hole digger; fork lift; timber jack; asphalt plant (on site); concrete batching and/or mixing plant (on site); crusher plant (on site); paving concrete mixer

GROUP 2: Portable steam boiler; portable steam generator;

sonic or vibratory hammer; grader; scraper; tandem
scraper;

concrete pump; bulldozer; tractor; York rake; mulching
machine; roller; spreader; tamper (self-propelled or
tractor-drawn); asphalt paver; concrete mixer with side
loader; mechanic - maintenance; cal tracks; ballast
regulator; switch tamper; rail anchor machine; tire truck
GROUP 3: Pumps (1-3 grouped); comressor; welding
machines

(1-3 grouped); generator; lighting plant; heaters (power driven 1-5); syphon-pulsometer; concrete mixer; valves controlling permanent plant air or steam; conveyor; well point systems; auger (powered by independent engines and attached to pile drivers); hydraulic saws

GROUP 4: Fireman

GROUP 5: Assistant engineer (other than truck crane and gradall)

GROUP 6: Assistant engineer (on truck crane and gradall)

^{*} ENGI0098-005 12/01/2024

	I	Rates	Fringes
Group	ment operators: 1\$ 2\$	42.88	31.04+A 31.04+A
Group	3\$ 4\$ 5\$	39.12	31.04+A 31.04+A 31.04+A

Group	6\$	36.06	31.04+A
Group	7\$	54.38	31.04+A
Group	8\$	44.06	31.04+A
Group	9\$	44.37	31.04+A
Group	10\$	46.38	31.04+A
Group	11\$	47.38	31.04+A
Group	12\$	48.88	31.04+A
Group	13\$	49.88	31.04+A
Group	14\$	50.88	31.04+A
Group	15\$	52.38	31.04+A

HAZARDOUS WASTE PREMIUM \$2.00

FOOTNOTE FOR POWER EQUIPMENT OPERATORS: Group 8 and Group 9 are per day wages.

A. Paid Holidays: New year's Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day and Christmas Day

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

Group 1: Shovels; crawlers and truck cranes including all

tower; self-propelled hydraulic cranes 10 tons and over; draglines; clam shells; cableways; shaft hoists; mucking machines derricks; backhoes; bulldozers; gradalls; elevating graders; pile drivers; concrete pavers; trenching

machines; front end loaders- 5 1/2 cu yds and over; dual drum paver; automatic grader-excavator(C.M.I. or equal); scrapers towing pan or wagon; tandem dozers or push cats(2

units in tandem); shotcrete machine; tunnel boring
machine;

combination backhoe/loader 3/4 cu yd hoe or over; jet engine dryer; tree shredder; post hole digger; post hole hammer; post extractor; truck mounted concrete pump with boom; roto-mill; Grader; Horizontal Drilling Machine; John

Henry Rock Drill and similar equipment.

Group 2: Rotary drill with mounted compressor; compressor

house (3 to 6 compressors); rock and earth boring machines

(excluding McCarthy and similar drills); front end loaders

4 cu yds to 5 1/2 cu yds); forklifts-7 ft lift and over 3

ton capacity; scraper 21 yds and over (struck load); sonic

hammer console; reclaimers road planer/milling machine; cal

tracks; ballast regulators; rail anchor machines; switch tampers, asphalt pavers; mechanic; welder and transfer machine.

Group 3: Combination backhoe/loader up to 3/4 cu yd; scrapers up to 21 cu yd (struck load, self propelled or tractor drawn); tireman; front end loaders up to 4 yds; well drillers; engineer or fireman on high pressure boiler;

self-loading batch plant; well point operators electric pumps used in well point system; pumps, 16 inches and over

(total discharge); compressor, one or two 900 cu ft and over; powered grease truck; tunnel locomotives and dingys;

grout pumps; hydraulic jacks; boom truck; hydraulic
cranes-

up to 10 ton.

Group 4: Asphalt rollers; self-powered rollers and compactors; tractor without blade drawing sheepsfoot roller; rubber tire roller; vibratory roller or other type

of compactors including machines for pulverizing and aerating soil; york rake.

Group 5: Hoists; conveyors; power pavement breakers; self-powered concrete pavement finishing machines; two pag

mixers with skip; McCarthy and similar drills; batch plants

(not self loading); bulk cement plants; self-propelled material spreaders; three or more 10 KW light plants; 30 KW or more generators; power broom.

Group 6: Compressor (one or two) 315 cu ft to 900 cu ft; pumps 4 inches to 16 inches (total discharge).

Group 7: Compressors up to 315 cu ft; small mixers with skip; pumps up to 4 inches; power heaters; oiler; A-frame trucks; forklifts-up to 7 ft. lift and up to 3 ton capacity; hydro broom; stud welder.

Group 8: Truck crane crews

Group 9: Oiler

Group 10: Master Mechanic

Group 11: Boom lengths over 150 feet including jib

Group 12: Boom lengths over 200 feet including jib

Group	13:	Boom	lengths	over	250	feet	including	jib
Group	14:	Boom	lengths	over	300	feet	including	jib
Group	15:	Boom	lengths	over	350	feet	including	jib

IRON0007-012 03/16/2024

	Rates	Fringes
IRONWORKER	\$ 54.38	36.48

LABO0022-001 12/02/2024

	Rates	Fringes
Laborers: (HEAVY CONSTRUCTION)		
GROUP 1	\$ 38.95	29.70
GROUP 2	\$ 39.20	29.70
GROUP 3	\$ 39.70	29.70
GROUP 4	\$ 39.95	29.70
GROUP 5	\$ 39.70	29.70
GROUP 6	\$ 40.95	29.70

LABORERS CLASSIFICATIONS

GROUP 1: Laborers; carpenter tenders; cement finisher tenders, plasterer tenders

GROUP 2: Asphalt raker; fence and guard rail erector; laser

beam operator; mason tender; pipelayer; pneumatic drill operator; pneumatic tool operator; wagon drill operator, jack hammer operator, pavement breaker, carbide core drilling machine, chain saw operator, barco type jumping tampers, concrete pump, motorized mortar mixer, ride-on-motorized buggy

GROUP 3: Air track operator; block paver; rammer; curb setter, hydraulic and similar self powered drills

GROUP 4: Blaster; powderman

GROUP 5: Flagger

GROUP 6: Asbestos Abatement; Toxic and Hazardous Waste Laborers

LABO0022-003 12/01/2024

Rates Fringes

Plasterer tender

BARNSTABLE, BRISTOL,

DUKES, ESSEX, NANTUCKET,

MIDDLESEX (with the

exception of Arlington,

Belmont, Burlington,

Cambridge, Everett,

Malden, Medford, Melrose,

Reading, Somerville,

Stoneham, Wakefield,

Winchester, Winthrop and

Woburn); NORFOLK (with the

exception of Brookline

Dedham and Milton) COUNTIES.\$ 38.95

SUFFOLK COUNTY (Boston,

Chelsea, Revere, Winthrop,

Deer Island, Nut Island);

MIDDLESEX COUNTY

(Arlington, Belmont,

Burlington, Cambridge,

Everett, Malden, Medford,

Melrose, Reading,

Somerville, Stoneham,

Wakefield, Winchester,

Winthrop and Woburn only);

NORFOLK COUNTY (Brookline,

Dedham, and Milton only)....\$ 46.20

29.70

29.70

LABO0022-013 12/01/2024

Rates

Fringes

Laborers:

(FREE AIR OPERATION):

SHIELD DRIVEN AND LINER

PLATE IN FREE AIR)

Massachusetts Department Of Transportation Massachusetts Department of Transportation Proposal No. 609187-130387	Highway Division
GROUP 1\$ 50.50 GROUP 2\$ 50.50 (OPEN AIR CASSONS, UNDERPINNING AND TEST BORING INDUSTRIES):	29.70 29.70
TEST BORING & WELL DRILLING Driller\$ 50.20 Laborer\$ 46.20 (OPEN AIR CASSONS, UNDERPINNING AND TEST BORING INDUSTRIES):	29.70 29.70
OPEN AIR CASSON, UNDERPINNING WORK & BORING CREW Bottom man\$ 47.35 Laborers; Top man\$ 46.20 (TUNNELS, CAISSON & CYLINDER WORK IN	29.70 29.70
COMPRESSED AIR) GROUP 1	29.70 29.70 29.70 29.70 29.70 29.70
CAULKING TUNNEL (Both New & Existing) GROUP 1\$ 50.50 GROUP 2\$ 50.50 ROCK SHAFT, CONCRETE LINING OF SAME AND TUNNEL IN FREE AIR	29.70 29.70
GROUP 1	29.70 29.70 29.70 29.70 29.70

LABORERS CLASSIFICATIONS for TUNNELS, CAISSON & CYLINDER WORK

IN COMPRESSED AIR

Powder watchman; Top man on iron bolt; change house

attendant

GROUP 2: Brakeman; trackman; groutman; tunnel laborer; outside lock tender; lock tender; guage tender

GROUP 3: Motorman, miner

GROUP 4: Blaster

GROUP 5: Mucking machine operator

GROUP 6: Hazardous Waste work within the ""HOT"" zone. (A

premium of two dollars \$2.00 per hour over the basic wage rate.

LABORERS CLASSIFICATIONS for (FREE AIR OPERATION): SHIELD DRIVEN AND LINER PLATE IN FREE AIR

GROUP 1: Miner; miner welder; conveyor operator; motorman;

mucking machine operator; nozzle man; grout man-; pumps, shaft and tunnel steel and rodman; shield and erector arm operators, mole nipper, outside motorman, burner, TBM operator, safety miner; laborer topside; heading motormen;

erecting operators; top signal men

GROUP 2: Brakeman; trackman

LABORERS CLASSIFICATIONS FOR CLEANING CONCRETE AND CAULKING

TUNNEL (Both New & Existing)

GROUP 1: Concrete workers; strippers and form movers (wood &

steel), cement finisher

GROUP 2: Form erector (wood & steel and all accessories)

LABORERS CLASSIFICATIONS for ROCK SHAFT, CONCRETE LINING OF

SAME AND TUNNE IN FREE AIR

- GROUP 1: Change house attendants
- GROUP 2: Laborers, topside, bottom men (when heading is 50
 - ft. from shaft) and all other laborers
- GROUP 3: Brakeman; trackman; tunnel laborers; shaft laborers
- GROUP 4: Miner; cage tender; bellman
- GROUP 5: Hazardous Waste work within the ""HOT"" zone.
 - premium of two dollars \$2.00 per hour over the basic wage rate)

FOOTNOTE FOR LABORERS:

A. PAID HOLIDAYS: New Year's Day, Washington's Birthday, Patriot's Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving Day, and Christmas Day

LABO1421-003 12/02/2024

	Rates	Fringes
		_
Laborers: (WRECKING)		
Group 1	\$ 46.25	29.70
Group 2	\$ 47.00	29.70
Group 3	\$ 47.25	29.70
Group 4	\$ 42.25	29.70
Group 5	\$ 45.35	29.70
Group 6	\$ 46.25	29.70

Group 1: Adzeman, Wrecking Laborer.

Group 2: Burners, Jackhammers.

Group 3: Small Backhoes, Loaders on tracks, Bobcat Type Loaders, Hydraulic ""Brock"" Type Hammer Operators, Concrete Cutting Saws. Group 4: Yardman (Salvage Yard Only). Group 5: Yardman, Burners, Sawyers. Group 6: Asbestos, Lead Paint, Toxic and Hazardous Waste. PAIN0035-006 07/01/2024 Fringes Rates PAINTER NEW CONSTRUCTION: Bridge....\$ 56.76 36.00 Brush, Taper.....\$ 46.26 36.00 Spray, Sandblast.....\$ 47.66 36.00 REPAINT Bridge.....\$ 44.32 36.00 Brush, Taper.....\$ 44.32 36.00 Spray, Sandblast.....\$ 45.72 PAIN0035-021 07/01/2024 Rates Fringes GLAZIER....\$ 46.26 36.00 PLUM0004-002 03/01/2025 WORCESTER (Except Hopedale and Southboro) Fringes Rates Plumbers and Pipefitters.....\$ 55.00 30.17 PLUM0012-002 03/02/2025 WORCESTER (Hopedale and Southboro) Rates Fringes

Proposal N	0. 609187-130387	
PLUMBER	\$ 69.84	36.43
ROOF0033-001 02/01/2025		
	Rates	Fringes
		<u> </u>
Roofers: All Tear-off and/or removal of any types of roofing and all spudding sweeping, vacuuming and cleanup of any and all areas of any type where	or a	25.60
roof is to be relaid	\$ 52.03 	35.69
 SFMA0669-002 01/01/2025		
	Rates	Fringes
SPRINKLER FITTER	\$ 49.70	29.75
 SHEE0017-004 02/01/2025		
WORCESTER (Harvard, Lancaste:	c)	
	Rates	Fringes
Sheet metal worker		47.80
 SHEE0063-002 07/01/2024		
WORCESTER (Except Harvard & 1	Lancaster)	
	Rates	Fringes
Sheet metal worker		34.59
TEAM0379-003 06/01/2024		
	Rates	Fringes

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Group	1\$	39.78	35.24+a+b
Group	2\$	39.95	35.24+a+b
Group	3\$	40.02	35.24+a+b
Group	4\$	40.14	35.24+a+b
Group	5\$	40.24	35.24+a+b
Group	6\$	40.53	35.24+a+b
Group	7\$	40.82	35.24+a+b

TRUCK DRIVERS CLASSIFICATIONS

Group 1: Station wagons; panel trucks; and pickup trucks

Group 2: Two axle equipment; & forklift operator

Group 3: Three axle equipment and tireman

Group 4: Four and Five Axle equipment

Group 5: Specialized earth moving equipment under 35 tons

other than conventional type trucks; low bed; vachual; mechanics, paving restoration equipment

Group 6: Specialized earth moving equipment over 35 tons

Group 7: Trailers for earth moving equipment (double hookup)

POWER TRUCKS \$.25 DIFFERENTIAL BY AXLE TUNNEL WORK (UNDERGROUND ONLY) \$.40 DIFFERENTIAN BY AXLE HAZARDOUS MATERIALS (In Hot Zone Only) \$2.00 premium

FOOTNOTES: A. PAID HOLIDAYS: New Year's Day, Washington's

Birthday, Memorial Day, Independence Day, Labor Day, Patriot's Day, Columbus Day, Veteran's Day, Thanksgiving Day, & Christmas Day

B. PAID VACATION: Employees with 4 months to 1 year of service receive 1/2 day's pay per month; 1 week vacation for 1-5 years of service; 2 weeks vacation for 5-10 years of service; and 3 weeks vacation for more than 10 years of service

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave

for Federal Contractors applies to all contracts subject to the

Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this

contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their

own illness, injury or other health-related needs, including

preventive care; to assist a family member (or person who is

like family to the employee) who is ill, injured, or has other

health-related needs, including preventive care; or for reasons

resulting from, or to assist a family member (or person who is

like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information

on contractor requirements and worker protections under the EO

is available at

https://www.dol.gov/agencies/whd/government-contracts.

Unlisted classifications needed for work not included within

the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses

(29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the 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

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

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

General Decision Number: MA20250006 02/21/2025

Superseded General Decision Number: MA20240006

State: Massachusetts

Construction Type: Heavy Dredging

Counties: Massachusetts Statewide.

STATEWIDE

Massacusetts All Dredging, except self-propelled hopper dredges, on the Atlantic Coast & tributary waters emptying into the Atlantic Ocean.

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

|If the contract is entered |into on or after January 30, |2022, or the contract is |renewed or extended (e.g., an |. The contractor must pay |option is exercised) on or |after January 30, 2022:

- |. Executive Order 14026 generally applies to the contract.
 - all covered workers at least \$17.75 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025.

|If the contract was awarded on|. Executive Order 13658 |or between January 1, 2015 and| |January 29, 2022, and the |contract is not renewed or |extended on or after January 130, 2022:

- generally applies to the contract.
- . The contractor must pay all covered workers at least \$13.30 per hour (or the applicable wage rate listed| on this wage determination, if it is higher) for all hours spent performing on that contract in 2025.



The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at http://www.dol.gov/whd/govcontracts.

Modification Number Publication Date 0 01/03/2025 1 02/21/2025

STATEWIDE

	I	Rates	Fringes
Dredging:			
CLASS	A1\$	47.07	15.34+a+b
CLASS	A2\$	41.94	14.99+a+b
CLASS	B1\$	40.71	14.90+a+b
CLASS	B2\$	38.31	14.73+a+b
CLASS	C1\$	37.26	14.66+a+b
CLASS	C2\$	36.07	14.57+a+b
CLASS	D\$	29.96	14.15+a+b

CLASSIFICATIONS:

CLASS A1: Deck Captain; Mechanical Dredge Operator, Leverman, Licensed Tug Operator over 1000 HP.

CLASS A2: Crane Operator (360 swing).

CLASS B1: Derrick Operator (180 swing), Spider/Spill Barge Operator, Engineer, Electrician, Chief Welder, Chief Mate, Fill Placer, Operator II, Maintenance Engineer, Licensed Boat Operator, Licensed Crew Boat Operator.

CLASS B2: Certified Welder.

CLASS C1: Mate, Drag Barge Operator, Assistant Fill Placer, Welder, Steward.

CLASS C2: Boat Operator.

CLASS D: Oiler, Deckhand, Shoreman, Rodman, Scowman, Cook, Messman, Porter/Janitor.

INCENTIVE PAY: (Add to Hourly Rate)

Operator (NCCCO License/Certification) \$1.80 Licensed Tug Operator over 1000 HP (Assigned as Master) (USCG licensed

^{*} ENGI0025-001 10/01/2024

Master of Towing Vessels (MOTV) \$1.80; Licensed Boat Operator (Assigned as lead boat captain) USCG licensed boat operator \$1.30; Engineer (QMED and Tankerman endorsement or licensed engineer (USCG) \$1.80 Oiler (QMED and Tankerman endorsement (USCG) \$1.80; All classifications (Tankerman endorsement only) USCG \$1.55; Deckhand or Mate (AB with Lifeboatman endorsement (USCG) \$1.80; All classifications (lifeboatman endorsement only (USCG) \$1.55; Welder (ABS certification) \$1.55

FOOTNOTES APPLICABLE TO ABOVE CRAFTS:

a. PAID HOLIDAYS: New Year's Day, Martin Luther King, Jr.'s Birthday, Memorial Day, Good Friday, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day and Christmas Day b. VACATION: Eight percent (8%) of the straight time rate, multiplied by the total hours worked.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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

https://www.dol.gov/agencies/whd/government-contracts.

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

The body of each wage determination lists the 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:
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davisbaconinfo@dol.gov or by mail to:

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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.

END OF GENERAL DECISION

DOCUMENT A00801

SPECIAL PROVISIONS

HUBBARDSTON FAP No. STP(BR-OFF)-003S(822)X Bridge Replacement, H-24-003, Williamsville Road over the Burnshirt River

<u>Labor participation goals for this Project shall be 15.3% for minorities and 6.9% for women for each job category.</u> 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 2025 Standard Specifications for Highways and Bridges, the Construction Standard Details in effect as of March 12, 2025, the 1990 Standard Drawings for Signs and Supports, the 2015 Overhead Signal Structure and Foundation Standard Drawings, the 2009 Manual on Uniform Traffic Control Devices (MUTCD) with Revisions 1, 2, and 3 and the November 2022 Massachusetts Amendments to the MUTCD, the 1968 Standard Drawings for Traffic Signals and Highway Lighting, the latest edition of The American Standard for Nursery Stock, the Plans and these Special Provisions.

The work under this Contract consists of complete demolition and total reconstruction of Bridge H-24-003 Williamsville Road over the Burnshirt River, including the approaches, in the Town of Hubbardston. The work involves the demolition and removal of the existing abutments, wingwalls, and superstructure, construction of two (2) new bridge abutments with wingwalls, and a new superstructure.

The work includes the following:

- Demolition and removal of the existing bridge superstructure and full removal of substructure as required for the proposed construction, including Temporary Protective Shielding.
- Installation of Water Control measures (two stages) for constructing the bridge and or the substructure, including wingwalls.
- Construction of excavation support systems to facilitate the demolition and complete removal of the existing abutment and wingwalls, and the construction of the proposed abutments and wingwalls.
- Installation of prestressed concrete NEXT 24 F Beams.
- Construction of a high performance (HP) concrete deck.
- Construction of approach slabs.
- Construction of high performance (HP) safety curbs.
- Installation of S3-TL4 Railing.
- Installation of sawcut and seal joints in asphalt pavement at bridge joints.
- Installation of precast concrete highway guardrail transitions.

SCOPE OF WORK (Continued)

- Construction of the work as shown on the Plans and as described in these Special Provisions.
- Installation of TTCP (traffic detoured) during construction.
- Clearing and grubbing, removal and protection of existing trees as required.
- Upgrading existing guardrail.
- Drainage improvements.
- Pavement markings
- Additionally, a temporary and permanent relocation of overhead utilities will be coordinated with private utilities.
- The bridge will be closed during construction and a temporary detour will be provided for abutters. Temporary construction easements will be required.

SUBSECTION 7.05 INSURANCE REQUIREMENTS

B. Public Liability Insurance

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

Paragraphs 1 and 2

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

PROSECUTION OF WORK

Before starting any work under this contract, the contractor shall submit a schedule of operation, coordinating with the work to be done by the public utilities or other agencies. The schedule submitted to the Engineer shall be sufficiently detailed so that the Contractor's method of dealing with all operations and their effect on one another is clearly stated.

The Contractor shall be responsible for inspecting and examining the site prior to bidding.

The Contractor shall be responsible for any damage to vehicles or property or injury to persons under and about the structure. The Contractor shall place or erect all necessary warning signs, cones and flags and furnish and keep all lights and barricades necessary to prevent any such injury or damage.

The Contractor shall order all materials and services required for the work immediately after Notice to Proceed. The contractor shall not start any operation until all materials required for the operation are at the site or as required by the Engineer in such order that there will be no interruption to continuous and efficient progress.



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.

ENVIRONMENTAL PERMITTING

The proposed work occurs in jurisdictional wetland resources subject to section 401 or section 404 of the Clean Water Act; therefore, a Water Quality Certification from the Massachusetts Department of Environmental Protection and/or authorization from the US Army Corps of Engineers has been obtained. The Contractor is advised that all terms and conditions within said permits shall be strictly adhered to. 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 3 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 3 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.

NORTHERN LONG-EARED BAT PROTECTION

The U.S. Fish and Wildlife Service (USFWS) has listed the northern long-eared bat (*Myotis septentrionalis*; NLEB) and tricolored bat (*Perimyotis subflavus*; TCB) as federally endangered or proposed endangered, respectfully, under the Endangered Species Act (ESA). USFWS has 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 for Transportation Projects in the Range of the Indiana Bat and Northern Long-Eared Bat revised February 5, 2018 and amended March 31, 2023.

On behalf of FHWA, the lead federal agency for Section 7 consultation, MassDOT has completed the consultation for the Endangered Species Act, (see **Documents A00870 and A00871**), whereby it was determined that this Project will have "No Effect" to the NLEB and TCB.

On 7/9/2024, the Wildlife and Endangered Species Unit 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 7/9/2026, assessment of the bridge for the presence of, or evidence of use by, bats shall be completed by the Wildlife and Endangered Species Unit prior to continuing bridge work. The Contractor shall notify the MassDOT Wildlife Unit no later than fourteen (14) days prior to 7/9/2026 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.

If the project scope changes (i.e., tree clearing, bridge work), additional review is required by the MassDOT Highway Division's Environmental Services Section. Contact MassDOT Environmental Services - Wildlife & Endangered Species Unit Supervisor (David Paulson, david.j.paulson@dot.state.ma.us, 857-262-3378).

2026 FIFA WORLD CUP – BOSTON, MASSACHUSETTS

The 2026 FIFA World Cup will be held at Gillette Stadium in Foxborough and related events will be held throughout the region. Matches and Fan Fest activities are scheduled from June 11, 2026 through July 19, 2026. MassDOT will impose work restrictions as necessary to minimize traffic impacts during FIFA events when the Contractor's operations could impact vehicular traffic, particularly on interstate highways and major arterials throughout the region and local roads near the event site. No additional compensation will be allowed for work restrictions except as determined under Subsection 8.10



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, the Contractor shall 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 $30\mu g/m3$.

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.

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 0.1 Million 18-kip (80-kn) ESALs.

PROTECTION OF UTILITIES AND PROPERTY

(Supplementing Subsection 7.13)

The bridge plans may indicate the location of existing known utilities in the vicinity of the work. Bidders are cautioned to verify this information, as its accuracy and completeness are not guaranteed in any manner.

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

The Contractor is responsible for the protection of vehicular and pedestrian areas on and under the bridges being worked on.

CONTAMINATED SOIL

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

SOIL STOCKPILING DIRECTIVE P-22-001

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



NOTICE TO OWNERS OF UTILITIES

(Supplementing Subsection 7.13)

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

Before commencing work on service connections, the Contractor shall be responsible for contacting the Electric Company servicing the area to obtain construction requirements, standards, and to give adequate notice of commencement of work. The Contractor's attention is further directed to the requirements of work in the immediate vicinity of certain underground structures and poles herein included in these Special Provisions.

A list of public and private utilities can be found on the MassDOT website at:

https://www.mass.gov/info-details/utility-contacts-by-district-and-municipality

Select District 3 on top of the webpage, select the town of Hubbardston

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

Town officials are shown at website http://www.mass.gov select "Cities & Towns" from "Your Government" Tab, then select City and town websites link, and then select town of Hubbardston and select Town officials.

State Police are shown at website http://www.mass.gov by entering "Troop Boundaries" in the search box and selecting the resulting "Massachusetts State Police Troop Boundaries" link. Select the area of jurisdiction to find the local station.

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

Superintendent, Department of Public Works or Town Engineer.

Superintendent, Water Department, Superintendent, Sewer Departments.

Police Department, Fire Department, Electric Company, Railroads.

A list of utility owners and their contact, current at the time of bid, are listed on the Project Utility Coordination form.

The following are the names of owners and representatives of the principal utilities affected, but completeness of this list is not guaranteed by the Department:

National Grid (Electric) 548 Haydenville Road Leeds, MA 01053 Manny Munoz 401-895-9726

manuel.munoz@nationalgrid.com



NOTICE TO OWNERS OF UTILITIES (Continued)

Verizon (Telephone) Karen Maeley 385 Myles Standish Boulevard 774-409-3160

Taunton, MA 02780 karen.m.mealey@verizon.com

Providence & Worcester R.R. David Cuthbertson 75 Hammond Street 508-755-4000

Worcester, MA 01601 david.cuthbertson@gwrr.com

Crown Castle Mark Bonanno 80 Central Street 508-616-7818

Boxborough, MA 01719 mark.bonanno@crowncastle.com

Charter Communications Rick Molnar 301 Barber Avenue 774-243-9789

Worcester, MA 01606 rick.molnar@charter.com

Hubbardston DPW Travis Brown 7 Main Street – Unit 6 978-298-1408

Hubbardston, MA 01452

NATIONAL GRID EMERGENCY TELEPHONE NUMBERS

ELECTRIC:

Outage/ Emergency: 1-800-465-1212 New Service: 1-800-375-7405

Customer Support: 1-800-322-3223

CONTRACTOR ACTIVITY ADJACENT TO WETLANDS

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

HOLIDAY WORK RESTRICTIONS

(Supplementing Subsection 7.09)

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

Below are the holiday work restrictions:

New Years Day (Federal Holiday)

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

Martin Luther King's Birthday (Federal Holiday)

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

President's Day (Federal Holiday)

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

Evacuation Day (Suffolk County State Holiday)

No work restrictions due to traffic concerns.

Patriot's Day (State Holiday)

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

Mother's Day

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

Memorial Day (Federal Holiday)

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

HOLIDAY WORK RESTRICTIONS (Continued)

Bunker Hill Day (Suffolk County State Holiday)

No work restrictions due to traffic concerns.

Juneteenth

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

Independence Day (Federal Holiday)

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

Labor Day (Federal Holiday)

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

Columbus Day (Federal Holiday)

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

Veterans' Day (Federal Holiday)

No work restrictions due to traffic concerns.

Thanksgiving Day (Federal Holiday)

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

Christmas Day (Federal Holiday)

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

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.

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.

<u>NOTE</u>: The requirements for manufactured products indicated in paragraph (2) above are not in effect for this contract.

WORK SCHEDULE

(Supplementing Subsection 8.02)

The Contractor shall perform all work in accordance with the Town of Hubbardston standard work hours for construction as follows: Monday through Friday (Excluding Holidays) 7:00 AM to 3:00 PM. No work that impacts the traveled way shall be permitted during peak hour traffic. Peak hours are defined as 7:00 - 9:00 AM and 3:00 - 6:00 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.

By December 31, 2025, 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.

Non-compliance with respect to a vehicle that is subject to 540 CMR 4.00 may subject the Contractor to statutory fines as established in M.G.L. c. 90, § 7 and/or contractual remedies up to and including termination of the contract.

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 shall 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.

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.

SUBSECTION 8.02 SCHEDULE OF OPERATIONS

Replace this subsection with the following:

An integrated cost and schedule controls program shall be implemented by the Contractor to track and document the progress of the Work from Notice to Proceed (NTP) through the Contractor Field Completion (CFC) Milestone. The Contractor's schedules will be used by the Engineer to monitor project progress, plan the level-of-effort required by the Department's work force and consultants and as a critical decision-making tool. Accordingly, the Contractor shall ensure that it complies fully with the requirements specified herein and that its schedules are both accurate and updated as required by the specification throughout the life of the project. Detailed requirements are provided in Division II, Section 722 Construction Scheduling.



SECTION 722 CONSTRUCTION SCHEDULING DESCRIPTION

722.20 General

The Contractor's approach to prosecution of the Work shall be disclosed to the Department by submission of a Critical Path Method (CPM) schedule and a cost/resource loaded Construction Schedule as defined by the schedule type set forth below. These requirements are in addition to any requirements imposed in other sections.

This section establishes the requirement for scheduling submissions. There are four schedule types identified as types A, B, C and D.

All schedules shall be prepared and submitted in accordance with this specification and the instructions contained in the Construction Schedule Toolkit located on the MassDOT-Highway Division website at https://www.mass.gov/info-details/massdot-highway-contractors-schedule-toolkit.

Type A -

- Schedule Planning Session
- Baseline CPM Schedule
- Monthly Update CPM Schedule
- Short-term Construction Schedule
- Contract Schedule Update Meeting
 - Cost-loaded & Resource Loaded CPM
- Resources Graphic Reporting
- Cash Flow Projections from the CPM
- Cash Flow Charts
- Monthly Projected Spending Report (PSR)
- Contractor-furnished CPM software and computer

Type B –

- Schedule Planning Session
- Baseline CPM Schedule
- Monthly Update CPM Schedule
- Short-term Construction Schedule
- Contract Schedule Update Meeting
- Cost-loaded & Resource Loaded CPM
- Monthly Projected Spending Report (PSR)
- Contractor-furnished CPM software and computer

Type C –

- Schedule Planning Session
- Baseline CPM Schedule
- Monthly Update CPM Schedule
- Short-term Construction Schedule
- Contract Schedule Update Meeting
- Monthly Projected Spending Report (PSR)
- Contractor-furnished CPM software and computer

Type D -

- Bar chart schedule updated monthly or at the request of the Engineer
- Short-term Construction Schedule
 - Monthly Projected Spending Report (PSR)

EQUIPMENT, PERSONNEL

722.40 General

A. Software Requirements

The Contractor shall use Primavera P6 computer scheduling software.

In addition to the requirements of Section 740 – Engineer's Field Office and Equipment, the Contractor shall provide to the Department one (1) copy of the scheduling software, one (1) software license and one (1) computer capable of running the scheduling software for the duration of the Contract. This computer and software shall be installed in the Engineer's Field Office. The computer and software shall be maintained and serviced at no additional cost to the Department.

B. Scheduler Requirements

The Scheduler shall be approved by the Engineer.

For Type A, B and C Schedules the name of the Contractor's Project Scheduler together with his/her qualifications shall be submitted to the Department for approval by the Engineer within seven (7) Calendar Days after NTP. The Project Scheduler shall have a minimum of five (5) years of project CPM scheduling experience, three (3) years of which shall be on projects of similar scope and value as the project for which the Project Scheduler is being proposed. References shall be provided from past projects that can attest to the capabilities of the Project Scheduler.

SCHEDULING METHODS

722.60 General

A. Schedule Planning Session

The Contractor shall conduct a schedule planning session prior to submission of the Baseline Schedule. This session will be attended by the Department and its consultants. During this session, the Contractor shall present its planned approach to the project including, but not limited to:

- 1. the Work to be performed by the Contractor and its subcontractors;
- 2. the planned construction sequence and phasing; planned crew sizes;
 - 3. summary of equipment types, sizes, and numbers to be used for each work activity;
- 4. all early work related to third party utilities;
- 5. identification of the most critical submittals and projected submission timelines;
 - 6. estimated durations of major work activities;
 - 7. the anticipated Critical Path of the project and a summary of the activities on that Critical Path:
 - 8. a summary of the most difficult schedule challenges the Contractor is anticipating and how it plans to manage and control those challenges;

9. a summary of the anticipated quarterly cash flow over the life of the project.

This will be an interactive session and the Contractor shall answer all questions that the Department and its consultants may have. The Contractor shall provide a written summary of the information presented and discussed during the session to the Engineer. The Contractor's Baseline Schedule and accompanying Schedule Narrative shall incorporate the information discussed at this Schedule Planning Session.

B. Schedule Reviews by the Department

- 1. Baseline Schedule Reviews
 - The Engineer will respond to the Baseline Schedule Submission within thirty (30) Calendar Days of receipt providing comments, questions and/or disposition that either accepts the schedule or requires revision and resubmittal. Rejected Baseline Schedules shall be resubmitted within fifteen (15) Calendar Days after receipt of the Engineer's comments.
- 2. Contract Progress Schedule / Monthly Update Reviews / Recovery Schedules
 The Engineer will respond to each submittal within twenty-one (21) Calendar Days.
 Rejected schedules shall be resubmitted by the Contractor within five (5) Calendar Days after receipt of the Engineer's comments.

The Engineer's review comments shall not be construed as direction to change the Contractor's means and methods. The review and acceptance of the CPM schedule does not relieve the Contractor of the responsibility for accomplishing the work within the contract required completion dates. Omissions and errors in the accepted CPM schedule shall not excuse performance less than that required by the Contract.

722.61 Schedule Content and Preparation Requirements

All schedules shall be prepared and submitted in accordance with the instructions contained in the Construction Schedule Toolkit located on the MassDOT-Highway Division website at:

<u>https://www.mass.gov/info-details/massdot-highway-contractors-schedule-toolkit</u> and the following:

A. LOGIC

The schedules shall divide the Work into activities with appropriate logic ties to show:

- 1. conformance with the requirements of this Section and Division I, Subsection 8.02 Schedule of Operations
- 2. the Contractor's overall approach to the planning, scheduling, and execution of the Work
- 3. conformance with any additional sequences of Work required by the Contract Documents, including, but not limited to, Subsection 8.03 Prosecution of Work and Subsection 8.06 Limitations of Operations.

B. ACTIVITIES

The schedule shall clearly define the progression of the Work from the Notice to Proceed (NTP) to Contractor Field Completion (CFC) by using separate activities, or including attributes within appropriate activities, to address each of the following:

- 1. Notice to Proceed
- 2. Work Breakdown Structure
- 3. The Critical Path is clearly defined and organized.
- 4. Float shall be clearly identified.
- 5. Detailed activities to satisfy permit requirements.
- 6. Subcontractor approvals at fifteen (15) Calendar Days from submittal to response
- 7. The preparation and submission of shop drawings, procedures, and other required submittals, with a planned duration that is to be demonstrated to the Engineer as reasonable.
- 8. The review and return of shop drawings, procedures, and other required submittals, approved or with comments, the duration of which shall be thirty (30) Calendar Days, unless otherwise specified or as approved by the Engineer.
- 9. Procurement of fabricated materials and equipment with long lead times, including time for review and approval of submittals required before procuring and fabricating.
- 10. Each component of the Work defined by specific activities.
- 11. Right-of-Way (ROW) takings that have been identified in the Contract.
- 12. Early Utility Relocation (by others) that has been identified in the Contract.
- 13. Interfaces with adjacent work, utility companies, other public agencies, sensitive abutters, and/or any other third-party work affecting the Contract.
- 14. Utility work to be performed in accordance with the Project Utility Coordination (PUC) Form as provided in Section 8.14 Utilities Coordination, Documentation and Monitoring Responsibilities
- 15. Access Restraints restrictions on access to areas of the Work that are defined by the Department in the bid package, in Subsection 8.06 Limitations of Operations or elsewhere in the Contract
- 16. Limitations of Work time of year restrictions and any other limitations identified in the contract
- 17. Traffic work zone set-up and removal, night work and phasing
- 18. Material Certifications
- 19. Milestones listed in Subsection 8.03 Prosecution of Work or elsewhere in the Contract Documents
- 20. For Type A and B Contracts only: All items to be paid for, including all Unit Price and Lump Sum pay items, shall be identified by activity. This shall include all non-construction activities such as engineering work; purchase of permanent materials and equipment, purchase of structural steel stock, equipment procurement, equipment delivery to the site or storage location and the representative amount of overhead/indirect costs that was included in the Contractor's Bid Prices.

- 21. Contractor's request for validation of FBU (ready to open to traffic)
- 22. Full Beneficial Use (FBU) Contract Milestone per the following requirements: The majority of contract Work has been completed and the asset(s) has been opened for full multi-modal transportation use, except for limited contract work items that do not materially impair or hinder the intended public use of the transportation facility. All anticipated lane takings have been completed, except for minor, short term work items and as defined in Subsection 8.03 Prosecution of Work
- 23. The Department's confirmation of completed work to allow for FBU.
- 24. Contractor's request for validation of Substantial Completion
- 25. Department generated punch list of twenty-one (21) Calendar Days
- 26. Substantial Completion Contract Milestone as defined in the standard specifications.
- 27. Punch list Completion Period of at least thirty (30) Calendar Days per the requirements of Subsections 5.11 Final Acceptance, 7.15 Claims Against Contractors for Payment of Labor, Materials and Other Purposes
- 28. Contractor confirmation that all punchlist work and documentation has been completed.
- 29. Physical Completion of the Work Contract Milestone per the requirements of Subsections 5.11 Final Acceptance and 8.03 Prosecution of Work
- 30. Documentation Completion per the requirements of Subsections 5.11 Final Acceptance and 8.03 Prosecution of Work
- 31. Contractor Field Completion Contract Milestone (which can also be considered the completion date) per the following requirements: All physical contract Work is complete including punchlist. The Contractor has fully de-mobilized from field operations and as defined in Subsection 5.11

C. EARLY AND LATE DATES

Early Dates shall be based on proceeding with the Work or a designated part of the Work exactly on the date when the corresponding Contract Time commences. Late Dates shall be based on completing the Work or a designated part of the Work exactly on the corresponding Contract Time, even if the Contractor anticipates early completion.

D. DURATIONS

Activity durations shall be in Work Days. Planned Original Durations shall be established with consideration of resources and production rates that correspond to the Contractor's Bid Price. Within all of the Department-required schedules, the Contractor shall plan the Work using durations for all physical construction activities of no less than one (1) Work Day and no greater than fourteen (14) Work Days, unless approved by the Engineer as part of the Baseline Schedule Review.

Should there be an activity with a duration that is determined by the Engineer to be unreasonable, the Contractor will be asked to provide a basis of the duration using bid documents, historic production rates for similar work, or other form of validation that is acceptable to the Engineer. Should the Contractor and the Engineer be unable to agree on reasonable activity durations, the Engineer will, at a minimum, note the disagreement in the Baseline Schedule Review along with a duration the Engineer considers reasonable and the basis for that duration. A schedule that contains a substantial number of activities with durations that are deemed unreasonable by the Engineer will not be accepted.

E. MATERIALS ON HAND

The Contractor shall identify in the Baseline Schedule all items of permanent materials (Materials On Hand) for which the Contractor intends to request payment prior to the incorporation of such items into the Work.

F. ACTIVITY DESCRIPTIONS

The Contractor shall use activity descriptions in all schedules that clearly describe the work to be performed using a combination of words, structure numbers, station numbers, bid item numbers, work breakdown structure (WBS) and/or elevations in a concise and compact label.

G. ACTIVITY IDENTIFICATION NUMBERS

The Contractor shall use the activity identification numbering system specified in the MassDOT Highway Division Contractor Construction Schedule Toolkit.

H. ACTIVITY CODES

The Contractor shall use the activity codes specified in the MassDOT Highway Division Contractor Construction Schedule Toolkit.

I. CALENDARS

Different calendars may be created and assigned to all activities or to individual activities. Calendars define the available hours of work in each Calendar Day, holidays and general or project-specific non-Work Days such as Fish Migration Periods, time-of-year (TOY) restrictions and/or area roadway restrictions. All calendars shall extend two years beyond the current project completion date.

Project Special Provisions identify specific calendar restrictions some examples of special calendars include, but are not limited to:

- Winter Shutdown Period, specific work is required by separate special provision to be performed during the winter. See Special Provision 8.03 (if applicable)
- Peak traffic hours on heavily traveled roadways. This shall be from 6:30 am to 9:30 am and from 3:30 pm to 7:00 pm, unless specified differently elsewhere in the Contract.
- Special requirements by sensitive abutters, railroads, utilities and/or other state agencies as defined in the Contract.
- Planting seasons for trees, shrubs and grasses and wetlands mitigation work.

- Cape Cod and the Islands Summer Roadway Work Restrictions: A general restriction against highway and bridge construction is enforced between Memorial Day and Labor Day, unless otherwise directed by the Engineer. Cape Ann Summer Roadway Work Restrictions: While there are no general restrictions for Cape Ann as there are for Cape Cod and the Islands, project-specific restrictions may be enforced.
- Turtle and/or Fish Migration Periods and/or other in-water work restrictions: Refer to the Project Special Provisions for specific restrictions.
- Working over Waterways Restricted Periods.
- Night-time paving and striping operations, traffic, and temperature restrictions.
- Utility Restrictions shall be as specified within the Contract.

J. FLOAT

For the calculation of float in the CPM schedule, the setting for *Retained Logic* is required for all schedule submissions, starting with the Baseline Schedule Submission. Should the Contractor have a reason to propose that an alternative calculation setting such as *Progress Override* be used, the Contractor shall obtain the Engineer's approval prior to modifying to this setting.

K. COST AND RESOURCE LOADING (Types A and B only)

For all Type A and B Schedules, the Contractor shall provide a cost and resource-loaded schedule with an accurate allocation of the costs and resources necessary to complete the Work. The costs and resources shall be assigned to all schedule activities in order to enable the Contractor to efficiently execute the Contract requirements and the Engineer to validate the original plan, monitor progress, provide cash flow projections, and analyze delays.

- 1. Each schedule activity shall have an assigned cost that accurately represents the value of the Work. Each schedule activity shall have its resources assigned to it by craft and the anticipated hours to accomplish the work. Each schedule activity's equipment resources shall be assigned to it by equipment type and hours operated. Front-loading or other unbalancing of the cost distribution will not be permitted.
- 2. The sum of the cost of all schedule activities shall be equal to the Contractor's Bid Price.
- 3. Indicating the labor hours per individual, per day, by craft and equipment hours/day will be acceptable.
- 4. The Engineer reserves the right to use the cost-loading as a means to resolve changes, disputes, time entitlement evaluations, increases or decreases in the scope of Work, unit price renegotiations and/or claims.
- 5. For all Type A and B Schedules, all subnets, fragnets, Proposal Schedules, and Recovery Schedules shall be cost and resource- loaded to help to quickly validate and monitor the duration of the Work to be performed.
- 6. For Type A Schedules, cost-loading of the schedule will also be used for cash flow projection purposes.
- 7. The cost-loading of each activity shall indicate the portion of the cost for that activity that is applicable to a specific bid item (cost account.) The total cost for each cost account must equal the bid item price.

L. NOT TO BE USED IN THE CONTRACTOR'S CPM SCHEDULE

- 1. Milestones or constraint dates not specified in the Contract.
- 2. Scheduled work not required for the accomplishment of a Contract Milestone
- 3. Use of activity durations, logic ties and/or sequences deemed unreasonable by the Engineer.
- 4. Delayed starts of follow-on trades.
- 5. Float suppression techniques.
- 6. Leads such as leads, lags, SS, SF, & FF relationships without the expressed permission of the Department.

722.62 Submittal Requirements

All schedules shall be prepared and submitted in accordance with the requirements listed below.

Each monthly Contract Progress Schedule submittal shall be uniquely identified.

Each Submission shall, at a minimum, include the following:

- a. Narrative
- b. Schedule submittals shall be signed by the Scheduler
- c. Schedule Printout All Activities
- d. Schedule Printout Critical Path Layout
- e. Schedule Printout Remaining Work
- f. Schedule Printout Top 3 Float Path
- g. Work Breakdown Structure (WBS) Summary
- h. Project Spending Report (PSR) in Portable Document Format (.PDF)
- i. Project Spending Report (PSR) in Microsoft Excel spreadsheet (.XLS)
- j. Oracle Primavera P6 Schedule File (.XER)

All digital file submittals will be labeled with the following information.

- Contract Number
- Project Number
- Project locations (i.e., town(s))
- Brief description
- Submittal description (i.e., UP07)
- Data Date (MM-DD-YY)
- File Description (i.e., Critical Path)

Example: C110464 (P606309) - Orange Route 2 over 202 - UP23 (07-15-22) - Critical Path

A. Narratives

A written narrative shall be submitted with every schedule submittal. The narrative shall:

- 1. itemize and describe the flow of work for all activities on the Critical Path in a format that includes any changes made to the schedule since the previous Contract Progress Schedule / Monthly Update or the Baseline Schedule, whichever is most recent.
- 2. provide a description of any specification requirements that are not being followed. Identify those that are improvements and those that are not considered to be meeting the requirements.

- 3. provide all references to any Notice of Delay that has been issued, within the time period of the Contract Progress Schedule Update, by letter to the Engineer. Note that any Notice of Delay that is not issued by letter will not be recognized by the Engineer. See Subsection 722.64.A Notice of Delay.
- 4. provide a description of each third-party utility's planned vs. actual progress and note any that are trending late or are late per the durations and commitments as provided in the PUC Form; provide a description of the five (5) most important responses needed from the Department and the need date for the responses in order to maintain the current Schedule of Record.
- 5. provide a description of all critical issues that are not within the control of the Contractor or the Department (third party) and any impact they had or may have on the Critical Path.
- 6. provide a description of any possible considerations to improve the probability of completing the project early or on time.
- 7. compare Early and Late Dates for activities on the Critical Path and describe reasons for changes in the top three (3) most critical paths.
- 8. describe the Contractor's plan, approach, methodologies, and resources to be employed for completing the various operations and elements of the Work for the top three (3) most critical paths. For update schedules, describe and propose changes to those plans and verify that a Proposal Schedule is not required.
- 9. describe, in general, the need for shifts that are not 5 days/week, 8 hours/day, the holidays that are inserted into each calendar and a tabulation of each calendar that has been used in the schedule.
- 10. describe any out-of-sequence logic and provide an explanation of why each out-of-sequence activity does not require a correction, if one has not been provided, and an adequate demonstration that these changes represent the basis of how these activities will be built, including considerations for resources, dependencies, and previously approved production rates.
- 11. identify any possible duration increases resulting from actual or anticipated unit price item quantity overruns as compared to the baseline duration, with a corresponding suggestion to mitigate any possible delays to the Critical Path. If the delay is anticipated to impact the Critical Path, refer to Subsections 4.06 Increased or Decreased Contract Quantities and 8.10 Determination and Extension of Contract Time for Completion and submit a letter to the Engineer notifying of a potential delay.
- 12. include a schedule log consisting of the name of the schedule, the data date and the date submitted.
- 13. include and describe any notifications, communications and coordination meetings with third-parties such as utility companies that occurred from the last update including personnel names, job titles and contact information, date of meeting(s)/correspondence(s), topics discussed, and reasons the third party provided for deviations from the PUC form.

B. CPM Bar Charts

One (1) timescaled bar chart containing all activities shall be prepared and submitted using a scale that yields readable plots and that meets the requirements of Subsection 722.61 – Schedule Content and Preparation Requirements Activities shall be linked by logic ties and shown on their Early Dates. Critical Paths shall be highlighted, and Total Float shall be shown for all activities.

A second timescaled bar chart shall also be prepared containing only the Critical Path or, if the Critical Path is not the longest path, the Longest Path using a scale that yields readable plots and that meets the requirements of Subsection 722.61 – Schedule Content and Preparation Requirements. Activities shall be linked by logic ties and shown on their Early Dates. Total Float shall be shown for all activities.

C. Detailed Activity Schedule Comparisons

A Detailed Activity Schedule Comparison (DASC) is a simple reporting tool in the format of a graphical report that will provide Resident Engineers with immediate, timely and up-to-date information. The DASC consists of an updated bar chart that overlays the current time period's bar chart onto the previous time period's bar chart for an easily read comparison of progress during the present and previous reporting periods.

D. Activity Cost Report and Monthly Cash Flow Projections (Type A only)

With each Contractor Quantity Estimate (CQE), the Contractor shall submit an Activity Cost Report and Cash Flow Projection that includes all activities grouped by Contract Bid Item.

The Activity Cost Report shall be generated from the Schedule of Record and shall be the basis of the Monthly Cash Flow Projection. Within each contract Bid Item, activities shall be sequenced by ascending activity identification number and shall show:

- 1. activity ID and description,
- 2. forecast start and finish dates for each activity and,
- 3. when submitted as a revised schedule, actual start, and finish dates for each completed activity.
- 4. any variance to the estimated contract quantity shall be shown.

E. Resource Graphs (Type A only)

Monthly and cumulative resource graphs for the remaining Contract period using the Early Dates and Late Dates in the Contract Progress Schedule shall be included as part of each schedule submittal.

F. Projected Spending Reports

A Projected Spending Report (PSR) shall be prepared and submitted monthly. The PSR shall indicate the monthly spending (cash flow) projection for each month from NTP to Contractor Field Completion (CFC). Each month's actual spending shall be calculated using all CQEs paid during that month. The Projected Spending Report (PSR) shall be depicted in a tabular format and provided in both an .XLS and .PDF.

722.63. Progress Schedule Requirements

A. Baseline Schedule

The Baseline Schedule shall be due thirty (30) Calendar Days after Notice to Proceed (NTP). The Baseline Schedule shall only reflect the Work awarded to the Contractor and shall not include any additional work involving Extra Work Orders or any other type of alleged delay. The Baseline Schedule shall be prepared and submitted in accordance with Subsections 722.61 - Schedule Content and Preparation Requirements and 722.62 - Submittal Requirements. Once the Baseline Schedule has been accepted by the Engineer, with or without comments, it shall represent the as-planned schedule for the Work and become the Contract Progress Schedule of Record until such time as the schedule is updated or revised under Subsections 722.63.C - Contract Progress Schedules / Monthly Updates, 722.64.C - Recovery Schedules and 722.64.D - Proposal Schedules.

The Cost and Resource-Loading information (Types A and B only) shall be provided by the Contractor within forty-five (45) Calendar Days after NTP.

The Engineer's review comments on the Baseline Schedule and the Contractor's responses to them will be maintained for the duration of the Contract and will be used by the Engineer to monitor the Contractor's work progress by comparing it to the Contract Progress Schedule / Monthly Update.

B. Interim Progress-Only Schedule Submissions

The first monthly update of the Contract Progress Schedule/Monthly Update is due within seventy (70) Calendar Days after Notice to Proceed (NTP.) The Baseline Schedule review period ends at sixty (60) Calendar Days after NTP, see Subsection 722.60.B - Schedule Reviews by the Department. If the Baseline Schedule has not been accepted within sixty (60) Calendar Days after NTP, an Interim Progress-Only Schedule shall be due within seventy (70) Calendar Days after NTP. The purpose of the Interim Progress-Only Schedule is to document the actual progress of all activities, including non-construction activities, from NTP until the Baseline Schedule is accepted.

C. Contract Progress Schedules / Monthly Updates

The first Contract Progress Schedule shall be submitted by the Contractor no later than seventy (70) Calendar Days after NTP. The data date for this first Progress Schedule shall be two months (approximately sixty (60) Calendar Days) after NTP. Subsequent Progress Schedules shall be submitted monthly.

Each Contract Progress Schedule shall reflect progress up to the data date. Updated progress shall be limited to asbuilt sequencing and asbuilt dates for completed and inprogress activities. Asbuilt data shall include actual start dates, remaining Work Days and actual finish dates for each activity, but shall not change any activity descriptions, the Original Durations, or the Original Resources (as planned at the time of bid), without the acceptance of the Engineer. If any activities have been completed out-of-sequence, the Contractor shall propose new logic ties for affected in-progress and future activities that accurately reflect the previously approved sequencing. Alternatively, the Contractor may submit to the Engineer for approval an explanation of why an out-of-sequence activity does not require a correction and an adequate demonstration that the changes accurately represent how the activities will be built, including considerations for resources, dependencies, and previously approved production rates. Once approved by the Engineer, the Contractor may incorporate the changes in the next Contract Progress Schedule/Monthly Update with the affected activities clearly identified and explained in the Schedule Narrative.

No revisions to logic ties, sequence, description, or duration of future activities; or planned resource costs shall be made without prior approval by the Engineer.

Any proposed logic changes for in-progress or future activities shall be submitted to the Engineer for approval before being incorporated into a Contract Progress Schedule. The logic changes must be submitted using a Proposal Schedule or a schedule fragnet submission. Once approved by the Engineer, the Contractor may incorporate the logic in the next Contract Progress Schedule/Monthly Update with the affected activities clearly identified and explained in the Schedule Narrative.

For any proposed changes to the original sequence, description or duration of future activities, the Contractor shall submit to the Engineer for approval an explanation of how the proposed description or duration change reflects how the activity will be progressed, including considerations for resources and previously approved production rates. Any description or duration change that does not accurately reflect how the activity will be progressed will not be approved by the Engineer. Once approved by the Engineer, the Contractor may incorporate the changes in the next Contract Progress Schedule/Monthly Update with the affected activities clearly identified and explained in the Schedule Narrative.

Contract Progress Schedules that extend performance beyond the Contract Time or beyond any Contract Milestone shall not be approved by the Engineer. The Contractor shall submit a Recovery Schedule, or a Time Entitlement Analysis, if any Contract Progress Schedule/Monthly Update indicates a failure to meet the Contract Dates.

D. Short-Term Construction Schedule

The Contractor shall provide a Short-Term Construction Schedule that details daily work activities, including any multiple shift work that the Contractor intends to conduct, in a spreadsheet format. The daily activities shall directly correspond to the Contract Progress Schedule activities, with a matching reference to the activity identification number in the Contract Progress Schedule and may be at a greater level of detail. The Short-Term Construction Schedule shall be submitted every two weeks. It shall display all work for a thirty-five (35) Calendar Day period consisting of completed work for the two (2) week period prior and all planned work for the following three (3) week period. The initial submission shall be provided no later than thirty (30) Calendar Days after NTP or as required by the Engineer.

The Contractor shall be prepared to discuss the Short-Term Construction Schedule, in detail, with the Engineer in order to coordinate field inspection staff requirements, the schedule of work affecting abutters and any corresponding work with affected utilities. Short-Term Construction Schedules shall be prepared and submitted in accordance with Subsections 722.61 - Schedule Content and Preparation Requirements and 722.62 - Submittal Requirements.

722.64 Impacted Schedule Requirements

A. Notice of Delay

The Contractor shall notify the Engineer in writing, with copies to the District and State Construction Engineers, within fifteen (15) of the start of any delays to the Critical Path that are caused by actions or inactions that were not within the control of the Contractor. Delay notifications that are not provided in a letter to the Engineer, such as a delay notification in the schedule narrative, will not be recognized as contractual notice in the determination of any Time Extension related to the impacts to the work associated with this specific alleged delay. Should such a delay continue for more than one (1) week, the Contractor shall note it in the Schedule Narrative until the delay is no longer impacting the Critical Path for the completion of the Contract Milestones. The Engineer will evaluate the alleged delay and its impact and will respond to the Contractor within ten (10) Calendar Days after receipt of a notice of delay.

B. Time Entitlement Analysis

A Time Entitlement Analysis (TEA) shall consist of a descriptive narrative, prepared in accordance with Subsection 722.62.A - Narratives, and an as-built CPM schedule, which may be in the form of a schedule fragnet that has been developed from the project's Contract Progress Schedule of Record, and illustrates the impact of a delay to the Critical Path, Contract Milestones and/or Contract Completion Date as required in Subsection 8.10 - Determination and Extension of Contract Time for Completion. TEAs shall also be used to determine the schedule impact of proposed Extra Work Orders (EWO) as also required in Subsection 8.10.

TEAs shall be prepared and submitted in accordance with the requirements of Subsections 722.61 - Schedule Content and Preparation Requirements and 722.62 - Submittal Requirements and shall be based on the Contract Progress Schedule of Record applicable at the start of the delay or impact from an EWO. A TEA fragnet must start with a specific new activity describing the work contained in either a Notice of Delay previously submitted to the Department per Subsection 722.64.A - Notice of Delay or an EWO.

TEAs shall be submitted:

- 1. as part of any Extra Work Order that may impact Contract Time,
- 2. with a request for a Time Extension,
- 3. within fifteen (15) Calendar Days after a request for a TEA by the Engineer for any other reason.

A TEA shall be submitted to the Engineer before any Time Extension is granted to the Contractor. Time Extensions will not be granted unless the TEA accurately reflects an evaluation of all past delays and the actual events that occurred that impacted the Critical Path. The TEA must also demonstrate a plan for the efficient completion of all of the remaining work through an optimized CPM Schedule. The analysis shall include all delays, including Contractor-caused delays, and shall be subdivided into timeframes and causes of delays.

TEAs shall incorporate any proposed activities, logic ties, resource considerations, and activity costs required to demonstrate the schedule impacts most efficiently in addition to detailing all impacts to existing activities, logic ties, the Critical Path, Contract Milestones, and the Contract Completion Date. In addition, TEAs shall accurately reflect any changes made to activities, logic ties, restraints, and activity costs, necessitated by an Extra Work Order or other schedule impact, for the completion of the remaining work. The Contractor shall provide TEAs that demonstrate that all delays have been mitigated to the fullest extent possible without requiring an Equitable Adjustment to the original bid basis.

All TEAs shall clearly indicate any overtime hours, additional shifts and the resources that are proposed to be incorporated in the schedule. The Engineer shall have final discretion over the use of overtime hours and additional shifts. The Engineer shall have the right to require that overtime hours and/or additional shifts be used to minimize the duration of Time Extensions if it is determined to be in the best interest of the Department to do so.

When accepted, the changes included in a TEA shall be incorporated into the next Contract Progress Schedule per the requirements of Subsection 722.63.C - Contract Progress Schedules / Monthly Updates. During the review of any TEA, all Contract Progress Schedules shall continue to be submitted as required.

The Engineer may request that the Contractor prepare a Proposal Schedule or a Recovery Schedule to further mitigate any delays that are shown in the accepted TEA or Contract Progress Schedule.

C. Recovery Schedules

The Contractor shall promptly report to the Engineer all schedule delays during the prosecution of the Work. Contract Progress Schedules that predict performance extended beyond the Contract Time or beyond any Contract Milestone shall not be approved as the schedule of record. This requirement is critical to the Department's ability to make informed decisions regarding Contract Time and costs.

The Contractor shall submit a Recovery Schedule within fifteen (15) Calendar Days of a Contract Progress Schedule submission that shows failure to meet the Contract Dates unless a recovery schedule is waived by the Department. Waiving the recovery schedule does not relieve the contractor of the responsibility for the delay. The Department may revoke the waiver of a Recovery Schedule, at which time a Recovery Schedule shall be submitted within fifteen (15) Calendar Days of the Contractor being notified.

Changes represented in accepted Recovery Schedules shall be incorporated into the next Contract

Progress

Schedule.

D. Proposal Schedules

A Proposal Schedule is an alternative schedule used to evaluate proposed changes to the Contract scope or significant alternatives to previously approved approaches to complete the Work, which may include changes to activity durations, logic, and sequence. For Types A and B Schedules, the Proposal Schedule shall be cost and resource loaded.

A Proposal Schedule may be requested by the Department at any time or may be offered by the Contractor. The Engineer may request that the Contractor prepare a Proposal Schedule to further mitigate any delays that are shown in an accepted TEA or Contract Progress Schedule.

The Contractor shall submit the Proposal Schedule within thirty (30) Calendar Days of a request from the Department.

The Proposal Schedule shall not be considered a Schedule of Record until the logic, durations, narrative, and basis of the Proposal Schedule have been accepted by the Engineer. If the Proposal Schedule took the form of a fragnet, it must be incorporated into the Contract Progress Schedule of Record showing the current progress of all other activities and the impacts/results of the changes made by the Proposal Schedule before the Proposal Schedule is accepted by the Department.

Proposal Schedules shall clearly indicate any proposed acceleration including overtime hours, additional shifts, and the resources that are proposed to be incorporated in the schedule. The Engineer shall have final discretion over the use of overtime hours and additional shifts. Proposal Schedules that contain a cost element shall be submitted with a separate Cost Proposal.

Changes represented in the accepted Proposal Schedules shall be incorporated into the next Contract Progress Schedule. During the review of any Proposal Schedule, all Contract Progress Schedules shall continue to be required every month.

E. Disputes

All schedules shall be submitted, reviewed, dispositioned, and accepted in the timely manner specified herein so as to provide the greatest possible benefit to the execution of this Contract.

The Contractor may dispute a decision by the Engineer by filing a claim notice within seven (7) days after the Contractor's request for additional time has been denied or if the Contractor does not accept the number of days granted in a time extension. The Contractor's claim notice shall include a revised time entitlement analysis that sufficiently explains the basis of the time-related claim. Failure to submit the required time entitlement analysis with the claim notice shall result in denial of the Contractor's claim. A determination on the Contractor's claim shall be in accordance with Subsection 7.16 Claims of Contractor for Compensation. Pending resolution of any dispute, the last schedule accepted by the Engineer will remain the Contract Schedule of Record.

722.65 Schedule Type D Requirements

This section is to detail the requirements for Type D Schedules and is separate from the requirements listed above. These schedules are intended for a project in which a more formal schedule would not be practical.

Schedules for Type D projects shall be submitted for each work assignment. The Schedule Type D shall be submitted electronically in .XLS and .PDF format and meet the following requirements.

The schedule requirements for work assignments that are anticipated to last three weeks or less shall conform to the requirements for Short-term Construction Schedules below.

Work assignments that are anticipated to last longer than three weeks shall submit a bar chart baseline and provided update schedules upon request of the engineer as required under Bar Chart Schedule below in addition to meeting the Short-term Construction schedule requirements.

A. Bar Chart Schedule

A Bar Chart that shall include the following:

- Work Assignment start date.
- Activities to identify.
 - o Major work operations broken down to be no longer than 14 days.
 - Procurement of fabricated materials and equipment with long lead times, including time for review and approval of submittals required before procuring and fabricating.
 - The preparation and submission of shop drawings, procedures, and other required submittals, with a planned duration that is to be demonstrated to the Engineer as reasonable.
 - o The review and return of shop drawings, procedures, and other required submittals, approved or with comments, the duration of which shall be shown as thirty (30) Calendar Days,
 - o Detailed activities to satisfy permit requirements.
 - o Subcontractor approvals at fifteen (15) Calendar Days from submittal to response
 - o Project Close out activities including a 21-calendar day creation of a punchlist activity and 30 calendar day minimum completion of punchlist activity.
- Interfaces with adjacent work, utility companies, other public agencies, sensitive abutters, and/or any other third-party work affecting the Contract.
- Access Restraints restrictions on access to areas of the Work
- Traffic work zone set-up and removal, night work and phasing
- Contract Milestones including Full beneficial Use, Substantial Completion and Contractor Field Completion

The Bar Char Schedule shall be provided at the beginning of the project and updated with each work order created for the project.

B. Short-Term Construction Schedule

The Contractor shall provide a Short-Term Construction Schedule that details daily work activities, including any multiple shift work that the Contractor intends to conduct, in a spreadsheet format. The daily activities shall directly correspond to the Contract Progress Schedule activities, with a matching reference to the activity identification number in the Contract Progress Schedule and may be at a greater level of detail. See schedule toolkit for suggested format.

The Short-Term Construction Schedule shall be submitted every two weeks. It shall display all work for a thirty-five (35) Calendar Day period consisting of completed work on the assignment for the two week period prior and all planned work for the following three week period. The initial submission shall be provided no later than thirty (30) Calendar Days after NTP or as required by the Engineer.

The Contractor shall be prepared to discuss the Short-Term Construction Schedule, in detail, with the Engineer in order to coordinate field inspection staff requirements, the schedule of work affecting abutters and any corresponding work with affected utilities.

C. Project Spending Report (PSR)

A Projected Spending Report (PSR) shall be prepared and submitted monthly. The PSR shall be for all active work assignments, broken down by work assignment. The PSR shall indicate the monthly spending (cash flow) projection for each month from NTP to Contractor Field Completion (CFC). Each month's actual spending shall be calculated using all CQEs paid during that month. The Projected Spending Report (PSR) shall be depicted in a tabular format and provided in both an .XLS and .PDF

COMPENSATION

722.80 Method of Measurement

Schedule of Operations (Type A, B and C)

The project bid documents specify the fixed-price amounts to be paid to the Contractor for the Project Schedule requirements contained herein. Each bidder shall include this fixed price bid item amounts in their bid. Failure to do so may be grounds for the rejection of the bid.

This fixed price amount is for payment purposes only and is separate from what the Department considers to be the Contractor's General Condition costs. If the Contractor deems it necessary to include additional costs to provide all of the requirements of this section, these additional costs shall be included in the Contractor's overall bid price.

All required schedule-related work, including, but not limited to computers, computer software, the planning and coordination with utilities, training, schedule preparation and schedule submittals will be paid for under the fixed price amount.

Twenty percent (20%) of this pay item will be paid upon the Engineer's acceptance of the Contractor's Baseline Schedule, prepared and submitted in accordance with Subsection 722.63.A.

The remaining eighty percent (80%) of this pay item will be paid in equal monthly installments distributed across the Contract Duration from Notice to Proceed (NTP) to Contractor Field Completion (CFC), less the 2 months required for the submittal and review of the Baseline Schedule in accordance with the following formula:

The Schedule of Operations pay item will be adjusted to pay for only the actual quantity of schedules that have been submitted in accordance with this section.

Should there be a Time Extension granted to the Contractor, the Engineer may provide an Equitable Adjustment for additional Contract Progress Schedule Updates at intervals directed by the Engineer. The monthly payment will be the basis for this Equitable Adjustment.

Schedule of Operations (Type D)

For projects assigned with Type D schedule requirements, all scheduling work shall be considered incidental to the project with no separate payment under this section.

722.81 Basis of Payment

The timely and accurate submission of the Baseline Schedule is critical to the Contract and the Department's ability to make informed decisions. Only payments under Item 740 - Engineer's Field Office and Item 748 – Mobilization will be made until the Baseline Schedule is accepted by the Engineer.

All required schedule-related work, including, but not limited to computers, computer software, the planning and coordination with utilities, training, schedule preparation and schedule submittals (including monthly progress schedules, short-term schedules, project spending reports, TEAs, recovery schedules or impacted schedules) shall be included in this work.

No payment for any other pay item will be processed beyond seventy-five (75) Calendar Days from Notice to Proceed (NTP) until the Baseline Schedule is accepted by the Engineer. Until the Engineer's acceptance of the Baseline Schedule, the combined total of all payments made to the Contractor will be limited to an amount no greater than the total price for Item 748 - Mobilization or 3% of the contract price, whichever is less.

All Contract Progress Schedule Updates submitted later than ten (10) Calendar Days after the CQE (Contract Quantity Estimate) completion date, or greater than forty (40) Calendar Days from the Data Date of the previous submission, will be deemed to be no longer useful and will not qualify for payment. The late submission of Impacted schedules, including TEAs, recovery schedules and proposal schedules will result in the forfeiture of the monthly payment for the month in which they were due and subsequent months until the submission is made. Late submission of missed submittals will not result in recovery of the previously forfeited portion of the Schedule of Operations Fixed Price Payment Item.

Failure to submit schedules as and when required may result in the forfeiture of that portion of the Schedule of Operations Fixed Price Payment and/or the withholding of the full or partial CQE payments by the Engineer.

Failure to submit schedules that are acceptable to the Engineer may result in the forfeiture of that portion of the Schedule of Operations Fixed Price Payment and/or the withholding of the full or partial CQE payments by the Engineer.

The Schedule of Operations pay item will be adjusted to pay for only the actual quantity of schedules that have been submitted in accordance with this section.

The Contractor's failure or refusal to comply with the requirements of this Section shall be reasonable evidence that the Contractor is not prosecuting the Work with due diligence and may result in the Engineer withholding of full or partial payments of all work performed.

722.82 Payment Items

722.1	SCHEDULE OF OPERATIONS (TYPE A) - FIXED PRICE \$	LUMP SUM
722.2	SCHEDULE OF OPERATIONS (TYPE B) - FIXED PRICE \$	LUMP SUM
722.3	SCHEDULE OF OPERATIONS (TYPE C) - FIXED PRICE \$	LUMP SUM



<u>ITEM 102.3</u> <u>HERBICIDE TREATMENT OF INVASIVE PLANTS</u>

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.

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 MassDOT Landscape Design Section is Tara.Mitchell at Tara.Mitchell@state.ma.us.

QUALIFICATIONS

The applicators shall submit and meet the qualifications outlined below. A list of contractors specializing in invasive management and approved by MassDOT Landscape Design Section is available on the following website: https://www.mass.gov/lists/landscape-design-and-roadside-maintenance under Invasive Plant Management.

Requirements

- 1. Company must provide proof of qualifications by providing the following:
 - a. Narrative describing company, its expertise and experience with invasive plant control.
 - b. Demonstrate experience with herbicide treatment as part of restorations and in sensitive areas.
 - c. Describe company's technical qualifications and past performance.
- 2. Company must meet licensing requirements:
 - a. All crew applicators must have a Massachusetts Commercial Applicator License (CORE).
 - b. At least one or more applicator must have a ROW certification, if required for work.
 - c. Company must provide name(s) of applicator(s) and Applicator License/Certification number for all contractor crew leaders working on the project.
 - d. Company must provide documentation of any warnings, damages or fines received in the last three (3) years.
- 3. Company must provide proof of experience with invasive plant control and include following:
 - a. At least five (5) references from prior invasive plant control work completed in last five (5) years. Provide contact information including address, phone number and email.
 - b. Provide a summary of each of these projects including nature of the problem, specific invasive vegetation treated, dates and period of treatment, methodologies used, and summary of success or not in terms of meeting performance objectives. Include summary of equipment used.
 - c. Photo documentation of these projects.
 - d. GPS coordinates of project locations, if available.
- 4. Crew leader must have expertise with invasive plant control and provide the following:
 - a. Have held Core license for at least five (5) years.
 - b. Resume listing five (5) or more years of experience applying pesticides with the company or with another company specializing in vegetation management.

The following companies are pre-approved by MassDOT Landscape Design Section:

Groundscapes Express, Inc.

Native Habitat Restoration

P.O. Box 737 P.O. Box 334

Wrentham, MA 02093 Stockbridge, MA 01262

Contact: John Engwer Contact: Jess M. Toro: 413-358-7400

Phone: 508-384-7140 Sari Hov: 413-394-0277

SWCA Environmental Consultants Vegetation Control Service, Inc.

15 Research Drive 2342 Main St. Amherst, MA 01002 Athol, MA 01331

Contact: Scott Fisher Contact: Andrew Powers Phone: 413-658.2056 Phone: 800-323-7706

Chris Polatin Ted Elliman

Polatin Ecological Services, LLC

New England Wild Flower Society

Old Blake Farm 180 Hemenway Road 334 Mountain Road Framingham, MA 01701 Gill, MA 01351 508-877-7630 x 3203

Phone: 413-367-5292

SUBMITTALS

No work shall begin without approval of the submittals.

Submittals include the following items:

Invasive Plant Management Strategy (IPMS)

At least thirty (30) days prior to proposed treatment the IPMS shall be submitted for approval by the Engineer and MassDOT Landscape Architect. All chemicals, methods and work done under this item shall be consistent with the IPMS. The IPMS shall be as described under Item 102.33.

Herbicide Use Report

Within two (2) weeks after each application, the Contractor shall provide to the Engineer a completed and signed MassDOT Herbicide Use Report.

Photo Documentation

Digital photos with date and time of herbicide application work, 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.

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.

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. The IPMS shall be submitted for review and approval and the IPMS shall be implemented on-site.

Herbicide treatment for invasive plants shall be as described under Item 102.3 Herbicide Treatment of Invasive Plants and shall be compensated per that Item.

Work under this item shall be coordinated with work and schedule for Selective Clearing, Clearing and Grubbing, Mowing, Tree Removal, Planting, and Wetland Mitigation as relevant to the project.

Individual attending the site walk and determining the Invasive Plant Management Strategy must demonstrate expertise with vegetation management and invasive plant control and submit qualifications as described below.

QUALIFICATIONS

Individual shall be from the same company as that providing services for Item 102.3 Herbicide Treatment of Invasive Plants and shall submit the following, if not submitted under Item 102.3:

- Submit copy of current Core license.
- Submit a resume listing five (5) or more years of experience managing invasive plants with a company specializing in vegetation management.
- References shall be submitted if requested.

SUBMITTALS

Task Summary & Reports

For measurement of payment, the contractor shall submit the total sum and a breakdown of hours for the tasks performed. At a minimum, the tasks shall include the Initial Site Walk, the IPMS Written Report, and if necessary to accommodate project or site changes, a Follow-up Site Inspection and accompanying IPMS Amendment.

Interim Site Monitoring Reports and/or a Final Report shall be submitted if requested by the MassDOT Landscape Design contact. The MassDOT Landscape Design contact must be notified to attend the final walk through when a Final Report has been requested.

Invasive Plant Management Strategy (IPMS)

At least thirty (30) days prior to construction activities and/or any proposed treatment, submit a written IPMS proposal for approval by the Engineer and MassDOT Landscape Architect. All chemicals and methods proposed shall be consistent with applicable Massachusetts Wetlands Protection Act Order of Conditions.

The IPMS shall be completed in coordination with the Roadway Contractor and the Engineer and shall include the following as appropriate to the project:

I. Project Information

- a. Company writing IPMS and performing herbicide application.
- b. Date of site walk
- c. Attendees at site walk
- d. Expected end date of contract and expected last treatment (month/season)

II. Brief Description of Conditions

a. Provide a free-hand sketch on construction plans or aerial image showing species, location, and as relevant, show or note extent of population as relevant to Strategy (i.e., population extends off ROW preventing eradication, small population and eradication deemed feasible within contract schedule, etc.).

III. Coordination with Roadway Contractor regarding other work

- a. <u>Tree Work</u>: Note coordination to be implemented with tree removal, clearing, and clearing and grubbing as applicable to the project.
- b. <u>Wetland Mitigation</u> Include management proposed for wetland mitigation areas in the IPMS, if and as required.
- c. <u>Planting</u>: If there will be planting in areas proposed for treatment, propose treatment and schedule to avoid herbicide damage to plants.
- d. Mowing: If coordination is required with state mowers, note need in IPMS.

IV. Soil Management

- a. Provide specifics on how soil with invasive plant roots (in particular) or seeds will be handled (i.e., separate stockpiles, plant material will be buried on-site, re-used on-site, disposed off site and if so, where?).
- b. Show stockpile locations on plan and include treatment schedule.
- c. Note measures that will be implemented to avoid spread through equipment, including how and where equipment will be cleaned.

V. Invasive Plant Treatment & Management

- a. Proposed chemical and methods of treatment for each species or area.
- b. Time of treatment based on target plant species.
- c. Submit product label including application methods and rates (entire MSDS information need not be submitted if available online).
- d. Proposed performance metrics or measure of treatment success if different from that specified under Item 102.3.
- e. Method for disposing invasive plant material. This includes material that may result in spread (i.e., seeds, roots) and material that has been treated and/or is not viable (foliage, dead wood, etc.). Methods may include grinding in place, stockpiling and treating, and incinerating offsite.
- f. Expected follow-up treatment for duration of contract.

VI. Monitoring Schedule if requested by MassDOT.

Note: The IPMS is critical for identifying pre-construction conditions as well as strategies for minimizing import or spread of invasive plants. Failure to provide an approved IPMS may jeopardize this item, in which case, the contractor will be responsible for management of invasive plants found on-site at no cost to the contract.

Photo Documentation

Digital photos with date and time verification shall be provided with the IPMS and with any follow-up monitoring or reporting.

METHODS

Initial Site Walk

Prior to any construction activities and soil disturbance, the Contractor shall walk the site with the Engineer and the MassDOT Landscape Architect to determine the IPMS. During the site walk the Contractor shall identify limits of work and, as necessary, mark locations of areas designated for treatment and individual plants targeted for treatment or removal. The Contractor shall be responsible for marking delineated areas and plants to be preserved, removed, or otherwise treated. Fencing or other materials needed for marking and delineating protected areas shall be incidental to this item.

IPMS Follow-up Amendment

The IPMS may be amended to address additional concerns or adjust to conditions if required by the MassDOT Landscape Architect. The amended IPMS shall be submitted to the Engineer and MassDOT Landscape Architect for approval at least fourteen (14) days prior to any proposed treatment.

Interim Site Monitoring Inspection Reports

If required by the MassDOT Landscape Architect and Engineer, Interim Site Monitoring and an accompanying report shall be conducted.

Final Inspection

A final inspection and report documenting the status of the invasive control may be required for regulatory purposes or for instances where control will be continued by others. The report shall include photo documentation of pre-construction (existing) and post-treatment conditions, notations on a plan or aerial image of area treated, summary of treatment performed, and control achieved.

METHOD OF MEASUREMENT

Item 102.33 will be measured for payment by the Hour. The basis for measurement shall be per the completion of tasks as approved under the Task Summary submittal.

BASIS OF PAYMENT

Item 102.33 will be paid at the contract unit price per Hour, which price shall include all labor, materials, equipment, tools, and all incidentals required to complete the work.

Payment shall not include travel time to and from the Contractor's place of business.



ITEM 102.511 TREE PROTECTION – ARMORING AND PRUNING

EACH

The work under this item shall conform to the relevant provisions of 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).

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.

Protection shall be for the duration of the construction activities unless otherwise required by the Engineer.

MATERIALS

Tree and plant protection fence(s) shall provide a minimum forty-eight (48) inch tall barrier, that remains vertical and taut. The Fence shall be orange plastic safety fence (recommended where high visibility is necessary), or wooden snow fencing, or other approved material. Posts and anchoring materials shall be incidental to the work.

Per requirements of the Engineer, additional posts, deeper post depths, and/or additional attachments shall be used if the fabric or fence sags, leans or otherwise is not providing visible or physical protection to the TPPZ.

REFERENCES

If requested, the Contractor shall provide to the Engineer one copy of the American National Standards Institute (ANSI) A300 Standard Practices for Tree, Shrub, and Other Woody Plant Maintenance Part 1, Pruning and Part 5, Construction Management Standard. Provision of reference shall be incidental to this item.

ESTABLISHMENT OF 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.

ITEM 102.521 (Continued)

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.

The Contractor is hereby alerted to the presence of several stone walls within the project area, located to the east of Bridge H-24-003. Prior to construction, the Contractor shall place temporary tree protection fencing along the stone walls, as marked on the Construction plans with the label "**Retain and Protect exist stone wall**". The fencing shall follow the stone walls located at Station 6+80 to 8+50 LT, and Station 8+00 to 9+20 RT.

Tree protection fence shall be placed a sufficient distance in front of the walls to prevent any potential disturbance, as determined by the Resident Engineer. The stone walls shall be retained in place and protected, with no individual stones or wall sections removed or otherwise altered. No tree cutting, stumping, excavation, grading or filling activities, or storage of equipment, vehicles or materials shall take place beyond the temporary tree protection fencing. Sitting, leaning of tools and equipment, and other activities that may result in inadvertent displacement of balanced stones shall also be avoided. The temporary tree protection fencing may be permanently removed only upon the completion of the project.

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.

ITEM 102.521 (Continued)

Landscaping work specified within the TPPZ shall be accomplished by hand tools. Where handwork is not feasible, with permission of the Engineer, work shall be conducted with the smallest mechanized equipment necessary.

TREE AND PLANT 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 104.1 TREE REMOVED DIAMETER 36 INCHES AND OVER

EACH

The work under this item shall conform to the relevant provisions of Subsection 101 of the Standard Specifications and the following:

The work shall include removal of trees with diameter 36 inches and over. The work shall include also grinding existing stumps of trees to be removed. Stumps shall be ground to a depth approved by the Engineer.

The Contractor shall use approved methods and take extreme care in the removal of existing trees, stumps and their root flares that are within fourty (40) feet of an existing building as to not cause damage to the adjacent building or its foundation.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 104.1 will be measured and paid for as per Subsections 101.80 and 101.81.

No separate payment will be made for grinding stumps of trees to be removed that are within fourty (40) feet of an existing building, or as specified by the Engineer, but all costs in connection therewith shall be included in the Contract unit price bid.



ITEM 105.45

SUPPLEMENTAL BORROW FOR NATIVE MATERIAL

CUBIC YARD

The work under this item shall conform to the relevant provisions of Subsections 140, 150, 170, 751, 753, 983 of the Standard Specifications and the following:

The purpose of Item 105.45 is to furnish and install additional borrow material, if needed, compliant with the MassDOT Geomorphologist's recommendations to supplement a shortage of native materials for streambed/bank restoration.

The Geomorphologist will provide a material specification for supplemental borrow for native material. The material specification will include a description of the gradation, composition, and physical characteristics of suitable supplemental borrow material in the Streambed/Bank Restoration Plan described in Item 983.521 Stream Bed Bank Restoration.

Prior to placement of the supplemental material, the Contractor shall obtain written acceptance from the Geomorphologist regarding the suitability of the actual material used and forward the acceptance to the Engineer. For the Geomorphologist's review, the Contractor shall provide two samples, at 30 lb minimum each, of the supplemental borrow material with any amendments incorporated, to the Geomorphologist. At least 2 weeks prior to anticipated installation, the samples should be provided on site and the Geomorphologist notified of their availability for review.

The Contractor shall also submit a sieve analysis of the material to the Geomorphologist. In the event that the submitted material is not acceptable, the Contractor shall re-sample, re-test, and re-submit materials at his own expense until the Geomorphologist accepts the submitted materials.

If supplemental borrow materials are used, the Contractor shall notify the Engineer 24 hours in advance of installation of the supplemental borrow materials so that the Engineer can observe the amount of supplemental borrow material installed.

Supplemental borrow material shall not be mixed with native materials but must be handled separately and installed separately for measurement and payment purposes. Supplemental borrow materials are to be used when stockpiled native materials have been exhausted.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 105.45 will be measured and paid for at the Contract unit price per Cubic Yard of supplemental borrow material, complete and in place, used to meet the grades and limits to the neat lines shown on the Drawings or as directed, which price shall include all labor, tool, materials, equipment and incidental costs required to complete the work

This Item will not be measured for payment if there are any stockpiled suitable native materials which may be used for streambed/bank restoration. This Item will only be measured for payment when there is no stockpile or when there is a shortage of suitable native materials for streambed/bank restoration.

No separate payment will be made for stacking, screening, sorting, placement, incorporation of soil amendments to make the supplemental borrow suitable, sampling, testing and submission, but all costs in connection therewith shall be included in the Contract unit price bid.



ITEM 114.1 DEMOLITION OF SUPERSTRUCTURE OF BRIDGE NO. H-24-003

LUMP SUM

The work under this Item shall conform to the relevant provisions of Subsection 112 of the Standard Specifications and the following.

The work shall include furnishing all labor, materials and equipment necessary to perform the demolition of the existing bridge superstructure as shown on the Plans or as directed by the Engineer. Except as specified, all material and debris shall become the property of the Contractor, and shall be recycled, reused, or disposed of properly.

The Contractor shall be responsible for providing a temporary shielding system to prevent any debris from falling into the river beneath the bridge. The Contractor shall remove and dispose of the following: the concrete deck slab, steel railing, granite curbing, bridge wearing surface, steel beams with intermediate and end diaphragms, as indicated on the Plans (see General Requirements for Demolition and Work Involving Painted Steel in Contract). The substructure demolition for the bridge is described and paid for under Items 127. Concrete Excavation and 127.1 Reinforced Concrete Excavation.

MassDOT makes no assurances regarding the presented conditions, dimensions, and materials of the existing structure as shown on the Plans. The Contractor shall verify all existing conditions and construction features of the bridge to be demolished, as necessary, for the proper planning and completion of the work. The Contractor shall base its bid on his/her own findings without any additional compensation for variances from the Plans or these Special Provisions regarding actual conditions for the items to be removed.

Prior to commencing work on this Item, the Contractor shall submit to the Engineer for approval a demolition plan that delineates the methods the Contractor will use to ensure that demolition materials will be prevented from falling into the river and adjacent sloped areas.

The Contractor shall solely be responsible for always maintaining the stability of the existing structure during the demolition and construction operations; maintaining and/or designing for stability of the existing structure are considered incidental to this Item. The Contractor shall prepare and submit a plan indicating his/her proposed method of demolition including equipment, tools, devices, crane capacity and location, etc. to the Engineer for approval. The plan shall also include a schedule of operations, methods of utility protection (if any), shielding design (see Item 994.1 for requirements), dust control, and disposal location. The demolition procedures and any necessary calculations and drawings shall bear the stamp of a Professional Engineer (Structural Engineer) registered in the Commonwealth of Massachusetts certifying that all existing structural members are suitably braced and supported throughout the demolition process. Work shall not commence until the Engineer has given written approval of the method of demolition. Any changes to this demolition procedure will require prior review by the Engineer.

Any lifting plans and supporting calculations for the demolition procedure shall conform to the requirements of Subsection 960 ERECTION of the Standard Specifications for the submittal. The Contractor's demolition method shall take into consideration any utilities and drainage structures near the bridge. Debris from construction must be carefully contained within the work zone and prevented from falling into the Burnshirt River and adjacent sloped areas.

ITEM 114.1 (Continued)

The Contractor shall be required to remove any debris which is generated by demolition from the site immediately and to restore portions of the site affected by the operation to their original undisturbed condition or better. The Contractor shall also be responsible for dust control due to the demolition operation.

BASIS OF PAYMENT

Item 114.1 will be paid for at the Contract unit price per LUMP SUM, which price shall include all labor, demolition, calculations, drawings, procedures, materials, equipment, and incidental costs required to complete the work. Removal of hazardous paint/lead as outlined in the Contract above shall be considered incidental to the cost for completion of the work. All costs for permits, dump fees, special handling of hazardous materials, etcetera, shall be included in the bid price of the demolition Item, except for those included for payment in the estimate under other items.

The cost of providing, installing, and removing the proposed temporary shielding system will be paid for under Item 994.1 Temporary Protective Shielding.

No additional compensation, other than the lump sum price bid for this Item, will be made if the materials or work prove to be different than that inferred or described herein, or as shown on the Plans.



ITEM 127.

CONCRETE EXCAVATION

CUBIC YARD

The work under this item shall conform to the relevant provisions of Subsections 120 & 140 of the Standard Specifications and the following:

Full removal of the existing wingwalls and abutments of Bridge H-24-003 Williamsville Road over Burnshirt River as shown on the plans or directed by the Engineer will be paid under this item. All costs for removal and disposal of excavated concrete shall be incidental to this Item. Existing plans indicate most of the walls are un-reinforced; the reinforced part found in the wingwalls is paid under Item 127.1 Reinforced Concrete Excavation.

Prior to the start of work, the Contractor shall submit Demolition Plans and calculations for review and approval by the Engineer. Plans and calculations shall include the portions of substructure to be removed as defined above for Item 127. The procedure shall meet the requirements for a submittal of a demolition procedure contained under Item 114.1 Demolition of Superstructure of Bridge No. H-24-003 of these Special Provisions.

No debris from any excavation shall fall into the Burnshirt River and sloped areas adjacent to the abutments. All excavated materials shall become the property of the Contractor and shall be removed from the job site.

METHOD OF MEASUREMENT

Item 127. will be measured for payment by the cubic yard, based on the limits shown on the Plans or as required by the Engineer.

BASIS OF PAYMENT

Item 127. will be paid for at the Contract unit price per Cubic Yard, which price shall include all labor, materials, equipment, and incidental costs required to complete the work in accordance with these specifications and to the satisfaction of the Engineer. The unit price will include also excavation, saw cutting, removal, and satisfactory off-site disposal of all excavated materials.



ITEM 127.1 REINFORCED CONCRETE EXCAVATION CUBIC YARD

The work under this item shall conform to the relevant provisions of Subsections 112, 120, and 140 of the Standard Specifications, and the following:

The Work shall include the removal and satisfactory disposal of the existing reinforced concrete portion in the wingwalls, and as directed by the Engineer and as shown on plans. Any sawcut and removal of reinforcement required will be considered incidental to this Item.

All excavated materials shall become the property of the Contractor and shall be removed from the job site.

SUBMITTALS

Prior to the start of work, the Contractor shall submit Demolition Plans and calculations stamped by a Professional Engineer registered in the Commonwealth of Massachusetts for review and approval by the Engineer. Plans and calculations shall include the portions of substructure to be removed as defined above for Item 127.1. The procedure shall meet the requirements for a submittal of a demolition procedure contained under Item 114.1 Demolition of Superstructure of Bridge No. H-24-003 of these Special Provisions. The Contractor shall not proceed with demolition until the Engineer has given written acceptance of the plan.

CONSTRUCTION METHODS

During the prosecution of the work under this Item, the Engineer may reject the use of any method or equipment that impacts the river below.

METHOD OF MEASUREMENT

Item 127.1 will be measured for payment by cubic yards of material excavated, as determined by field measurements conducted by the Contractor, and verified by the Engineer.

BASIS OF PAYMENT

Item 127.1 will be paid for at the contract bid price per CUBIC YARD, which price shall include all labor, materials, equipment, tools, transportation and all incidental costs required to complete the work. The unit price will also include excavation, saw cutting, removal, demolition plan, calculations, and satisfactory off-site disposal of all excavated materials.

All temporary earth support systems required for demolition will be paid for under Item 953.3.



ITEM 144.

CLASS B ROCK EXCAVATION

CUBIC YARD

The work under this Item shall conform to the relevant provisions of Subsection 140 of the Standard Specifications and the following:

- The removal and satisfactory disposal of any natural and man-made obstructions that may be encountered during excavation operations for the proposed bridge abutments, highway guardrail transitions, and wingwalls.
- The removal of boulders measuring one (1) cubic yard or more and all solid rock that requires blasting or breaking by hand power tools encountered at the Northeast quadrant of the bridge and within limits of excavation.
- It is anticipated that removal of weathering rock at the West Abutment, East Abutment, and adjoining wingwalls below the existing footing elevations to the depths shown on the Plans (6" embedment into bedrock) will be required. Where competent bedrock is not found at the proposed bottom of footing elevation, 3000 PSI cement concrete shall be installed at a minimum of 6 inches-to ensure a solid concrete mat to the elevation of competent bedrock as detailed on the Plans. A 3000 PSI concrete mat will be paid for under Item 903. If existing conditions deviate from the contract drawings, the contractor shall get approval from the engineer for additional excavation.



ITEM 156.2 CRUSHED STONE FOR SLOPE TREATMENT

TON

The work under this item shall conform to the relevant provisions of Subsection 150 of the Standard Specifications and the following:

The work shall include placing crushed stone for slope treatment at locations shown on the Plans. Crushed stone for slope treatment is required for use as a bedding/foundation element for the Modified Rockfill. The crushed stone shall conform to Section M2.01.1 of the Standard Specifications.

The crushed stone shall be placed as shown in the details on the Plans and in conformance with the Standard Specifications.

METHOD OF MEASUREMENT

Item 156.2 will be measured for payment by TON, of crushed stone placed, complete in place.

BASIS OF PAYMENT

Item 156.2 will be paid for at the contract unit price per TON, which price shall include all labor, tools, equipment, materials, loading, transportation, disposal fees necessary or incidental, approvals, permits, and 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.



ITEM 180.03 (Continued)

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).



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:



UNREGULATED SOIL consists of soil, fill and dredged material with measured levels of oil and hazardous material (OHM) contamination at concentrations below the applicable Reportable Concentrations (RCs) presented in the MCP. Unregulated soil consists of material which may be reused (or otherwise disposed) as fill within the Commonwealth of Massachusetts subject to the non-degradation criteria of the MCP (310 CMR 40.0032(3), in a restricted manner, such that they are sent to a location with equal or higher concentrations of similar contaminants. Disposal areas include licensed disposal facilities, approved industrial settings in areas which will be capped or covered with pavement or loamed and seeded, and for purposes of this project should be reused as fill within the project site construction corridor whenever possible. The material cannot be placed in residential and/or environmentally sensitive (e.g. wetlands) areas. Under no circumstances shall contaminated soils be placed in an uncontaminated or less contaminated area (including the area above the groundwater table if this area shows no sign of contamination).

The Contractor shall submit to MassDOT the proposed disposal location for unregulated soils for approval. If such a disposal location is not a licensed disposal facility, the Contractor shall submit to the Engineer analytical data to characterize the disposal area sufficiently to verify that the unregulated material generated within the MassDOT construction project limits is equal to or less than the contaminant levels at the disposal site and meets the non-degradation requirements of the MCP. In addition, the Contractor shall provide written confirmation from the owner of the proposed disposal location that they have been provided with the analytical data for both the materials to be disposed as well as the disposal site characterization and that s/he agrees to accept this material. A Material Shipping Record or Bill of Lading, as appropriate, shall be used to track the off-site disposal of unregulated soil and a copy, signed by the disposal facility or property owner, shall be provided to the Engineer in order to document legal disposal of the unregulated material.

The cost of on-site disposal of unregulated soil within the project area will be considered incidental to the item of work to which it pertains.

REGULATED SOIL consists of materials containing measurable levels of OHM that are equal to or exceed the applicable Reportable Concentrations for the site as defined by the MCP, 310 CMR 40.0000. Regulated soil which meets the MCP reuse criteria of the applicable soil/groundwater category for this project area may be reused on site provided that it meets the appropriate geotechnical criteria established by the Engineer. Regulated Soil may be reused (as daily or intermediate cover or pre-cap contouring material) or disposed (as buried waste) at lined landfills within the Commonwealth of Massachusetts or at an unlined landfill that is approved by the Massachusetts Department of Environmental Protection (DEP) for accepting such material, in accordance with DEP Policy #COMM-97-001, or at a similar out-of-state facility. It should be noted that soils which exceed the levels and criteria for disposal at in-state landfills, as outlined in COMM-97-001, may be shipped to an in-state landfill, but require approval from the DEP Division of Solid Waste Management and receiving facility. An additional management alternative for this material is recycling into asphalt. Regulated Soils may also be recycled at a DEP approved recycling facility possessing a Class A recycling permit subject to acceptance by the facility and compliance with DEP Policy #BWSC-94-400. Regulated Soil removed from the site for disposal or treatment must be removed via an LSP approved Bill of Lading, Manifest or applicable material tracking form. This type of facility shall be approved/permitted by the State in which it operates to accept the class of contaminated soil in accordance with all applicable local, state and federal regulations.

HAZARDOUS WASTE consists of materials which must be disposed of at a facility permitted and operated in full compliance with Federal Regulation 40 CFR 260-265, Massachusetts Regulation 310 CMR 30.000, Toxic Substances Control Act (TSCA) regulations, or the equivalent regulations of other states, and all other applicable local, state, and federal regulations. All excavated materials classified as hazardous waste shall be disposed of at an out-of-state permitted facility. This facility shall be a RCRA hazardous waste or TSCA facility, or RCRA hazardous waste incinerator. This type of facility shall be approved/permitted by the State in which it operates to accept hazardous waste in accordance with all applicable local, state and federal regulations and shall be permitted to accept all contamination which may be present in the soil excavate. The Contractor shall ensure that, when needed, the facility can accept TSCA waste materials i.e. polychlorinated biphenyls (PCBs). Hazardous waste must be removed from the site for disposal or treatment via an LSP approved Manifest.

MONITORING/SAMPLING/TESTING REQUIREMENTS

The Contractor shall be responsible for monitoring, sampling and testing during and following excavation of contaminated soils to determine the specific class of contaminated material. Monitoring, sampling and testing frequency and techniques should be performed in accordance with Item 180.03 – LSP Services. Additional sampling and analysis may be necessary to meet the requirements of the disposal facility license. The cost of such additional sampling and analysis shall be included in the bid cost for the applicable disposal items. The Contractor shall obtain sufficient information to demonstrate that the contaminated soil meets the disposal criteria set by the receiving facility that will accept the material.

No excavated material will be permanently placed on-site or removed for off-site disposal until the results of chemical analyses have been received and the materials have been properly classified. The Contractor shall submit to the Engineer results of field and laboratory chemical analyses tests within seven days after their completion, accompanied by the classification of the material determined by the Contractor, and the intended disposition of the material. The Contractor shall submit to the Engineer for review all plans and documents relevant to LSP services, including but not limited to, all documents that must be submitted to the DEP.

WASTE TRACKING:

Copies of the fully executed Weight Slips/Bills of Lading/ Manifests/Material Shipping Records or other material tracking form received by the Contractor from each disposal facility and for each load disposed of at that facility, shall be submitted to Engineer and the Contractor's LSP within three days of receipt by the Contractor. The Contractor is responsible for preparing and submitting such documents for review and signature by the LSP or other appropriate person with signatory authority, three days in advance of transporting soil off-site. The Contractor shall furnish a form attached to each manifest or other material tracking form for all material removed off-site, certifying that the material was delivered to the site approved for the class of material. If the proposed disposition of the material is for reuse within the project construction corridor, the Contractor shall cooperate with MassDOT to obtain a suitable representative sample(s) of the material to establish its structural characteristics in order to meet the applicable structural requirements as fill for the project.

All material transported off-site shall be loaded by the Contractor into properly licensed and permitted vehicles and transported directly to the selected disposal or recycling facility and be accompanied by the applicable shipping paper. At a minimum, truck bodies must be structurally sound with sealed tail gates, and trucks shall be lined and loads covered with a liner, which shall be placed to form a continuous waterproof tarpaulin to protect the load from wind and rain.

DECONTAMINATION OF EQUIPMENT

Tools and equipment which are to be taken from and reused off site shall be decontaminated in accordance with applicable local, state and federal regulations. This requirement shall include, but not be limited to, all tools, heavy machinery and excavating and hauling equipment used during excavation, stockpiling and handling of contaminated material. Decontamination of equipment is considered incidental to the applicable excavation item.

REGULATORY REQUIREMENTS

The Contractor shall be responsible for adhering to regulations, specifications and recognized standard practices related to contaminated material handling during excavation and disposal activities. MassDOT shall not be responsible at any time for the Contractor's violation of pertinent State or Federal regulations or endangerment of laborers and others. The Contractor shall comply with all rules, regulations, laws, permits and ordinances of all authorities having jurisdiction including, but not limited to, Massachusetts DEP, the U.S. Environmental Protection Agency (EPA), Federal Department of Transportation (DOT), Massachusetts Water Resources Authority (MWRA), the Commonwealth of Massachusetts and other applicable local, state and federal agencies governing the disposal of contaminated soils.

All labor, materials, equipment and services necessary to make the work comply with such regulations shall be provided by the Contractor without additional cost to MassDOT. Whenever there is a conflict or overlap within the regulations, the most stringent provisions shall apply. The Contractor shall reimburse MassDOT for all costs it incurs, including damages 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.

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.

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 181.13 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.



<u>ITEM 184.1</u>

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 product as directed by the Engineer.

The timber components of the existing structure are suspected to be treated with creosote, pentachlorophenol and/or CCA. This item shall include all costs for sampling, laboratory testing, loading, transportation and disposal of the treated wood. The Contractor is required to submit disposal manifests to the Engineer prior to the completion of the project. All aspects of this Item are to be completed in accordance with state and federal regulations.

Compensation

Measurement and payment will be by the weight, in tons, of treated timber transported and accepted at a licensed facility. The work shall be considered full compensation for all labor, tools, equipment, materials, testing, loading, transportation, approvals, and permits necessary for the completion of the work.



ITEM 222.3 FRAME AND GRATE (OR COVER) MUNICIPAL STANDARD EACH

The work under this item shall conform to the relevant provisions of Subsections 201 and 220 of the Standard Specifications and the following:

The work shall include furnishing and delivering of municipal standard frames and grates or frames and covers.

Frames and grates shall have a two-directional or "grid-pattern" type and shall be manufactured by a MassDOT-approved fabricator listed on the Qualified Construction Materials List (QCML). Casting date shall be listed on the QCML.

Frames and covers shall have a diamond pattern; pick holes and the appropriate word "DRAIN" or "SEWER" cast in 3-inch letters to match the corresponding utility. Frames and covers shall be manufactured by a MassDOT-approved fabricator listed on the QCML. Casting date shall be listed on the QCML.

METHOD OF MEASUREMENT

Item 222.3 will be measured for payment by each municipal standard frame and grate or frame and cover furnished and delivered.

BASIS OF PAYMENT

Item 222.3 will be paid for at the Contract unit price per each, which price shall include all labor, materials, equipment, and incidental costs required to complete the work.

Each frame and grate or frame and cover will be considered as one unit.



ITEM 504.2 GRANITE CURB TYPE VA4 – SPLAYED END

EACH

The work under this item shall conform to the relevant provisions of Subsection 501 of the Standard Specifications and the following:

The work shall include furnishing and installing curb transition sections at the locations shown on the plans to match into proposed or existing granite edging. The curbing shall be type VB and shall have a minimum length of six feet (6'-0"). The curb shall be sawcut to match into the proposed adjacent granite curb or curb inlets at one end and the opposite end shall match into the existing or proposed granite edging as shown on the plans.

METHOD OF MEASUREMENT

Item 504.2 will be measured for payment by the Each, complete in place. Each six-foot splayed end curb shall constitute a single unit.

BASIS OF PAYMENT

Item 504.2 will be paid for at the contract unit price per Each, which price shall include all labor, materials, equipment and incidental costs required to complete the work.



<u>ITEM 657.</u> <u>TEMPORARY FENCE</u> <u>FOOT</u>

The work under this item shall conform to the relevant provisions of Subsection 644 of the Standard Specifications and the following:

The work shall include furnishing and installation of temporary fencing to protect certain objects during the construction period, as specified on the plans or as required by the Engineer. The work shall also include the removal and resetting of temporary fence as required during the construction period and final removal and disposal of all temporary fencing once construction has been completed.

Temporary fence shall be chain link or steel wire fence. Fencing shall be a minimum of 6 feet high and supported by steel or hardwood stakes spaced at a maximum of 8 feet on center or by other means acceptable to the Engineer. Fencing shall be sufficient to provide sturdy and highly visible separation of the construction activities from the general public.

Gates shall be used at all locations that are to be opened on a regular basis.

METHOD OF MEASUREMENT

Item 657. will be measured for payment by foot, of temporary fence installed complete in place.

BASIS OF PAYMENT

Item 657. Will be paid for at the Contract unit price per foot, which price shall include all labor, materials, equipment, and incidental costs required to complete the work.

Removing and resetting the fence to gain access to the work zone is incidental to Item 657.

The unit price shall include also installation of all posts, fence, brackets, gates and fasteners and/or clips, fence fabric, and the necessary excavation and equipment and miscellaneous hardware as required for installing, moving and removing the fence to complete the work to the satisfaction of the engineer.



ITEM 697.1 SILT SACK EACH

Work under this item shall conform to the relevant provisions of Subsections 227 and 670 of the Standard Specifications and the following:

The work under this item includes the furnishing, installation, maintenance and removal of a reusable fabric sack to be installed in drainage structures for the protection of wetlands and other resource areas and the prevention of silt and sediment from the construction site from entering the storm water collection system. Devices shall be ACF Environmental (800)-448-3636; Reed & Graham, Inc. Geosynthetics (888)-381-0800; The BMP Store (800)-644-9223; or approved equal.

CONSTRUCTION

Silt sacks shall be installed in retained existing and proposed catch basins and drop inlets within the project limits and as required by the Resident Engineer.

The silt sack shall be as manufactured to fit the opening of the drainage structure under regular flow conditions, and shall be mounted under the grate. The insert shall be secured from the surface such that the grate can be removed without the insert discharging into the structure. The filter material shall be installed and maintained in accordance with the manufacturer's written literature and as directed by the Engineer.

Silt sacks shall remain in place until the placement of the pavement overlay or top course and the graded areas have become permanently stabilized by vegetative growth. All materials used for the filter fabric will become the property of the Contractor and shall be removed from the site.

The Contractor shall inspect the condition of silt sacks after each rainstorm and during major rain events. Silt sacks shall be cleaned periodically to remove and disposed of accumulated debris as required. Silt sacks, which become damaged during construction operations, shall be repaired or replaced immediately at no additional cost to the Department.

When emptying the silt sack, the contractor shall take all due care to prevent sediment from entering the structure. Any silt or other debris found in the drainage system at the end of construction shall be removed at the Contractors expense. The silt and sediment from the silt sack shall be legally disposed of offsite. Under no condition shall silt and sediment from the insert be deposited on site and used in construction.

All curb openings shall be blocked to prevent stormwater from bypassing the device.

All debris accumulated in silt sacks shall be handled and disposed of as specified in Section 227 of the Standard Specifications



ITEM 697.1 (Continued)

COMPENSATION

Silt sacks will be measured and paid at the Contract unit price per each, complete in place, which price shall include all labor, materials, equipment and incidental costs required to complete the work. No separate payment will be made for removal and disposal of the sediment from the insert, but all costs in connection therewith shall be included in the Contract unit price bid.



ITEM 698.3 GEOTEXTILE FABRIC FOR SEPARATION SQUARE YARD

The work under this item shall conform to the relevant provisions of Subsections 670, 751, and 767 of the Standard Specifications and the following:

The work shall include the furnishing and installation of geotextile fabric for separation.

The material to be supplied under this Item shall conform to the relevant provisions of Section M9.50.0 Geotextile Fabrics, of the Standard Specifications, as directed by the Engineer. Geotextile Fabric shall be listed on the MassDOT Qualified Construction Materials List. The fabric shall be used under the stone on slopes and in front of drainage outlets, and as directed by the Engineer. Geotextile fabric shall be installed in accordance with the manufacturer's recommendations.

METHOD OF MEASUREMENT

Item 698.3 will be measured for payment by the Square Yard, complete in place. The measurement will be the actual areas within the lines and grades with no allowances made for overlaps.

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, tools, sewing and/or overlapping material, and all incidental costs required to complete the work.



ITEM 740. ENGINEER'S FIELD OFFICE AND EQUIPMENT (TYPE A) MONTH

The work under this Item shall conform to the relevant provisions of Subsection 740 of the Standard Specifications and the following:

Two computer systems and printer system meeting minimum requirements set forth below including installation, maintenance, power, paper, disks, and other supplies shall be provided at the Resident Engineer's Office:

All equipment shall be UL approved and Energy Star compliant.

The Computer System shall meet the following minimum criteria or better:

Processor: Intel, 3.5 GHz

System Memory (RAM): 12 GB Hard Drive: 500 GB

Optical Drive: DVD-RW/DVD+RW/CD-RW/CD+RW

Graphics Card: 8 GB

Network Adapter: 10/100 Mbit/s USB Ports: 6 USB 3.0 ports

Keyboard: Generic

Mouse: Optical mouse with scroll, MS-Mouse compliant

Video/Audio the computer system shall be capable of allow video calling and

recording:

Video camera shall be High Definition 1080p widescreen capable video calling

and recording with built in microphone. The microphone system shall capture natural audio while filtering out background noise.

Audio shall be stereo multimedia speaker system delivering premium

sound.

OS: Latest Windows Professional with all security updates

Web Browser: Latest Internet Explorer with all security updates

Applications: Latest MS Office Professional with all security updates

Latest Adobe Acrobat Professional with all security updates

Latest Autodesk AutoCAD LT

Antivirus software with all current security updates maintained

through the life of the contract.

Monitors: Two 27" LED with Full HD resolution.

Max. resolution 1920 x 1080

Flash drives: 2 (two) - 128GB USB 3.0

Internet access: High Speed (min. 24 mbps) internet access with wireless router.

ITEM 740. (Continued)

The Multifunction Printer System shall meet the following minimum criteria or better:

Color laser printer, fax, scanner, email and copier all in one with the following minimum capabilities:

- Estimated volume 8,000 pages per month
- LCD touch panel display
- 50 page reversing automatic document feeder
- Reduction/enlargement capability
- Ability to copy and print 11" x 17" paper size
- email and network pc connectivity
- Microsoft and Apple compatibility
- ability to overwrite latent images on hard drive

- 600 x 600 dpi capability
- 30 pages per minute print speed (color),
- 4 Paper Trays Standard (RADF) (not including the bypass tray)
- Automatic duplexing
- Finisher with staple functions
- Standard Ethernet. Print Controller
- Scan documents to PDF, PC and USB
- ability to print with authenticated access protection

The Contractor shall supply a maintenance contract for next day service, and all supplies (toner, staples, paper) necessary to meet estimated monthly usage.

The Engineer's Field Office and the equipment included herein including the computer system, and printer shall remain the property of the Contractor at the completion of the project. Disks, flash drives, and card readers with cards shall become the property of the Department.

Compensation for this work will be made at the contract unit price per month which price includes full compensation for all services and equipment, and incidentals necessary to provide equipment, maintenance, insurance as specified and as directed by the Engineer.



ITEM 751.7

COMPOST BLANKET

CUBIC YARD

The work under this Item shall conform to the relevant provisions of Subsection 751 and M1.06.0 Compost of the Standard Specifications and the following:

Work shall consist of furnishing and pneumatically applying compost as a thin mulch blanket (1/2-1 inch depth) over prepared soil to provide temporary soil stabilization and organic matter for plant growth.

SUBMITTALS AND MATERIALS

No materials shall be delivered until the required submittals have been approved by the Engineer. Delivered materials shall match the approved samples. Approval of test results does not constitute final acceptance.

Contractor shall submit to the Engineer samples and certified test results no sooner than 60 days prior to application of compost. Vender certification that material delivered meets the test results shall be submitted if requested.

Compost shall meet the requirements for M1.06.0: Compost, Type 2, as referenced in the MassDOT– Highway Division Standard Specifications for Highways and Bridges, Division III: Materials Specifications, latest edition.

The Engineer shall approve the Contractor's equipment for application.

CONSTRUCTION METHODS

Application of compost material shall not begin until the Engineer has approved the site and soil conditions. Soil preparation shall be as specified under the applicable item for soil placement or for seeding. The Contractor shall notify the Engineer when areas are ready for inspection and application of compost.

Compost blanket shall be <u>pneumatically</u> applied (blown on) to a minimum depth of one half to one inch. Where shown on the plans or when directed by the Engineer depth may be increased to provide berms for sediment control or to otherwise prevent slope erosion.

When compost blanket is proposed with seeding, seed shall be broadcast and shall occur in conjunction with compost blanket, as specified under the relevant item for seeding.

When compost blanket is proposed for areas with planting, compost (and seed if applicable) shall be applied after planting. If compost and seed occur prior to planting, areas shall be regraded and compost and seed reapplied to the satisfaction of the Engineer and at the Contractor's expense.

ITEM 751.7 (Continued)

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 751.7 will be measured and paid for at the Contract unit price per Cubic Yard which price shall include all labor, materials, equipment, and all incidental costs required to complete the work of pneumatically applying compost.

Surface preparation of substrate receiving compost blanket shall be compensated under the applicable item for placement of loam, sand, ordinary borrow, wetland soil, topsoil rehandled and spread, tilled existing soil, or other specified substrate.

Seeding, if utilized, will be compensated for under the appropriate seeding items.



ITEM 765.21 ANNUAL COVER CROP FOR NATIVE SEEDING

POUND

Work under this item shall conform to the relevant provisions of Subsection 765 of the Standard Specifications and the following.

DESCRIPTION

Work consists of furnishing and applying the appropriate annual grass to be seeded as a cover crop in conjunction with upland native seeding and at the rate specified herein.

A cover crop shall be used for following conditions:

- when specified under Application Rate for the permanent native upland seed mix
- for slopes 2:1 or steeper and an annual is not already specified as part of the permanent mix
- when seeding out of season and the native seed mix does not already specify an annual
- as required to prevent erosion until the permanent seed establishes.

A cover crop is not necessary for wetland seeding and is not typically necessary for soil stabilization when seeding in conjunction with a compost blanket application.

Annual rye (Lolium multiflorum) will not be accepted as an annual cover crop.

Using annual rye or exceeding the application rate such that a dense stand of annual grasses prevents germination of the native grasses will require mowing of annual grasses. In this instance, mowing of cover crop will be incidental to this item.

Seed and Application Rate

Add 30 pounds/acre of the following seed based on seeding season:

Avena sativa (Grain Oats): 1 January to 31 July
Cecale cereale (Grain Rye): 1 August to 31 December

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Annual Cover Crop will be measured for payment per pound of seed, complete in place.

Annual Cover Crop will be paid at the contract unit price per pound upon approval of seed bag tags or other documentation of correct application rate and species, and upon acceptance of a satisfactory stand of annual grasses three weeks following seeding.

Application and care of cover crop will be paid for separately under Item 765.635 Native Seeding and Establishment.

ITEM 765.451

PART SHADE ROADSIDE MIX

POUND

Work under this item shall consist of furnishing the mix(es) specified below in the required quantity.

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) <u>Seed Worksheet</u> provided herein shall be submitted to the Engineer <u>prior to ordering seed</u> to determine the number of pounds of Pure Live Seed required.
- 4) <u>Seed Tags.</u> 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.

5) <u>Verification of Seed Delivery</u>. 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



<u>ITEM 765.451</u> (Continued)

6) <u>Seed Sample.</u> 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

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 $90\% \times [78 + 10 + 2]\% = 81\%$ 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

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.

Part Shade Roadside Mix

Application Rate

Part Shade Roadside Mix: 15 lbs/acre PLS. No cover crop shall be applied.

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

Seeding under the following conditions requires a 50% increase in the <u>permanent</u> 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).

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Part Shade Roadside Mix will be measured for payment by the pound of Pure Live Seed delivered and complete in place.

Part Shade Roadside Mix will be paid at the 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.



<u>ITEM 765.451</u> (Continued)

NATIVE SEED WORKSHEET		
Project Description:	Project No:	
Contractor:	Contract No:	
Seed Mix Number & Description:		
Contractor: Complete Prior To Ordering	ı	
Pounds of Seed Required Per Contract:	_	
lbs./acre for _	Acre(s) OR SY	
Additional 50% increase if required (or	at of season or seeding over compost blanket):	
lbs. Total Se	ed Required	
Calculated Quantity for Pure Live Seed	1 (PLS ¹):	
Total Pounds	s PLS	
Engineer: Verification at Time of Applica	<u>ation</u>	
Number pounds delivered to site ² :	Date(s):	
Actual Seed Bag Tag/s Received or pho	oto documented by Engineer:	
	tal germination, hard seed, and dormant seed). ds Total Pounds PLS and Verification of Seed ach Seed Tag.	



<u>ITEM 765.451</u> (Continued)

SUPPLIER VERIFICATION OF SEED DELIVERY FOR MASSDOT PROJECTS

	Date	
We hereby certify that (Seed Supp	lier):	
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 (<u>Do</u>	<u>ate)</u> .	
	tate and Federal regulations. The mixture consists of the following plicable) and ecotype region, and at the following percentages	
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 is April 1 - May 15 and 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%.

Seeding season for cover crops shall be grain oats January 1 – July 31 and grain rye August 1 – December 1.

MATERIAL 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.

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 regraded 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

<u>Loam:</u> 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.

<u>Compost Blanket:</u> Compost Blanket shall be applied as specified under that item. <u>Seed should be hand broadcast at the same time as compost application</u> to ensure a thin cover of compost over seed.

When seeding is done <u>after</u> application of Compost Blanket the rate shall be increased by 50%. If the Compost Blanket is applied after December 1, seed shall be broadcast or hydroseeding over the compost in the Spring and the rate increased by 50% specified under Seed Application.

<u>Compost Mulch over Modified Rock:</u> Compost Mulch and seed shall be applied as specified under that item. No hydromulch is required.

Cover Crop

Cover crop shall be used when seeding out of season, when specified with the permanent native seed mix under that item, and as required to prevent erosion until the permanent seed establishes. A cover crop should not be used with a steep slope mix or other permanent mix which already contains either cereal rye or oats in the composition of the mix. A cover crop is not necessary for wetland seeding and is not typically necessary for soil stabilization when seeding in conjunction with a compost blanket application.

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 unless seeding is done as part of Compost Blanket in which case it shall be as specified above under seeding with Compost Blanket application. 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.

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 <u>specified</u> 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.

<u>Watering</u> 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.

<u>General Weed Control:</u> Unless otherwise directed, mowing shall be as specified under Mowing for Weed Control for seed establishment. Weeds shall be <u>mowed prior to weeds setting seed</u> (by the end of July unless otherwise approved).

<u>Control of Invasive and Aggressive Weeds</u>: 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, 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.

OVER-SEEDING

Areas of bare ground greater than 2-3 feet in 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 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 <u>specified</u> 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 <u>specified permanent</u> seeded species after one growing season. Of that percentage, generally, depending on the mix species:
 - o At least 3 types of the permanent seeded grass species shall be visible.
 - o 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.

ACCEPTANCE OF SEEDING AND ESTABLISHMENT WORK

<u>Conditional Acceptance</u> 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 time of inspection shall be accepted for Interim Acceptance payment.

<u>Final Acceptance of Establishment</u> 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 AND BASIS OF PAYMENT

Native Seeding and Establishment will be measured for payment by the square yard, complete in place.

Native Seeding and Establishment will be paid at the Contract unit price by the square yard 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 and cover crop 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 loam placement or topsoil rehandled and spread as relevant to the project. If used, Compost Blanket shall be compensated under the respective item.

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 moved 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

Sediment Control Barrier will be measured and paid for at the Contract unit price per foot of sediment control barrier installed, complete in place, which price shall include all labor, materials, equipment, and incidental costs required to complete work.

Silt fence, when used in conjunction with compost filter tubes or straw bales, will be incidental to this item.

Additional barrier, such as double or triple stacking of compost filter tubes, shall be paid for per foot of tube to be installed.

Barriers that have been driven over or otherwise damaged by the Contractor's operations shall be repaired or replaced as required by the Engineer at the Contractor's expense.

Sedimentation fence used in conjunction with compost filter will be measured and paid for separately under Standard Item 697, Sedimentation Fence.



<u>ITEM 767.9</u> <u>JUTE MESH</u> <u>SQUARE YARD</u>

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

The work under this item shall consist of furnishing and installing jute mesh fabric to prevent soil erosion. Jute mesh shall be placed over all areas of exposed soil in locations shown on the plans or as required by the Engineer.

MATERIALS

Jute netting or similar material shall be new, unused, undyed, and unbleached 100% biodegradable yarn (no polypropylene) and of uniform plain weave. The materials should weigh approximately 1.0 (+/- 5%) pounds per linear yard (assuming a 4-foot width).

Shall meet the following minimum requirements:

Open Area: 70-75%

Mesh Size: approximately 1/2 inch with an open area of 60-65%. Roll Weight: approximately 1.0 (+/- 5%) pounds per linear yard

Warp Ends: 78 per linear yard
Weft Ends: 41 per linear yard
Recommended flow: 6 fps (1.8 m/s)
Functional Longevity: 6-9 months

Anchoring devices shall be 11-gauge steel staples 6-inch minimum length. In loose soils the length of the staples shall be 9-inches.

For areas that will be routinely mowed anchoring devices shall consist of minimum 8" wooden stakes. Longer stakes shall be used where loose soils or other conditions obligate, as required by the Engineer.

CONSTRUCTION METHODS

Area shall be seeded prior to installation of jute netting.

Installation shall be such as to ensure continuous contact with soil without folds or wrinkles. Jute netting shall be laid such that upslope fabric is placed over lower slope fabric by a minimum of 3 feet. Adjoining rolls shall be overlapped a minimum 6 inches. The netting shall extend beyond at least 1 foot beyond the edge of the seeded area.

The Contractor shall bury the ends of the jute netting 6-8 inches in anchor trenches at top and bottom of slopes.

ITEM 767.9 (Continued)

Jute netting shall be anchored in place with vertically driven metal staples. The staples shall be driven in until their tops are flush with the soil. Staples shall be placed at 12-inch intervals along the top of a slope and in staggered courses along the face of the slope to achieve a minimum of 3 staples per square yard, or at manufacturer's recommendations for the given site conditions.

Contractor shall reseed all trenched and otherwise disturbed areas with specified seed mix. The Contractor shall maintain the jute netting and make satisfactory repairs of any areas damaged until acceptance of seed establishment.

METHOD OF MEASUREMENT

Jute Mesh will be measured by the number of Square Yards complete in place, including anchoring, as measured across the surface of grade and does not include buried or overlapped portions. The quantity measured for payment shall not exceed that shown on the plans or as directed by the Engineer.

Mesh that becomes loose or that is not otherwise functioning to stabilize soil shall be repaired and new or additional jute matting installed as required at the Contractor's expense. Soil erosion shall be repaired, and area shall be raked and reseeded with the original specified mix as required by the Engineer at the Contractors expense.

BASIS OF PAYMENT

Item 767.9 will be paid for at the contract unit price per Square Yard, which price shall include all labor, materials, equipment, trenching, placing, and stapling of jute fabric, reseeding of trenched and disturbed areas, and all incidental costs required to complete the work.



ITEM 866.2066 INCH REFLECTORIZED WHITE LINE
(POLYUREA) (RECESSED)FOOTITEM 867.2066 INCH REFLECTORIZED YELLOW LINEFOOT

(POLYUREA) (RECESSED)

The work under these items shall conform to the relevant provisions of Subsection 860 of the Standard Specifications and the following:

Refer to Construction Standards TR.6.8.

Installation of permanent pavement markings must begin within 14 days of the start of the placement of the top course and must be completed within 14 days of the completion of the top course.

Work under these items shall consist of the furnishing and installation of white and lead-free yellow polyurea reflectorized pavement markings (including edge lines, skip lines, gore lines, and arrows and legends) on all new pavement surfaces.

Materials

VERY FAST CURING POLYUREA TRAFFIC PAINT (no-track times < 10 minutes).

- Innovative Performance Systems HPS-5, Ph. 800.448.3482
- Epoplex LS-90, Ph. 800.822.6920
- 3M Series 1000 and 1200 LPM, Ph. 800.553.1380 or approved equal.

Construction Methods

All work shall be done in accordance with the Material Suppliers specifications and the following:

- 1. The polyurea binder shall be applied at rates to achieve a minimum uniform wet thickness of 25±2 mils.
- 2. Prior to grinding out the grooves for all recessed lines, the Contractor shall use a chalk line or other suitable method to layout the proposed pavement markings on the surface course so that MassDOT can inspect the locations. Once MassDOT has inspected and approved the proposed striping layout, the grooves for the proposed pavement markings may be ground out. No pavement grinding shall be done without the prior approval of the Engineer.
- 3. Items 866.206 and 867.206 for edge lines and skip lines shall be applied into a 6-3/4 inch \pm 1/4 inch wide x 45 mils \pm 5 mils deep RECESSED groove. The recessed groove shall be constructed in accordance with the polyurea manufacturer's recommended procedures.



ITEMS 866.206 & 867.206 (Continued)

Particular attention shall be paid to the surface texture. The acceptability of the surface texture will be decided by the Engineer and/or Manufacturer's Technical Representative. A two (2) inch offset from the edge of the recessed groove to the longitudinal surface course pavement joint is desirable.

The average initial retroreflectance shall be determined according to the measurement and sampling procedures outlined in ASTM D 6359, using a 30 meter retroreflectometer. The 30 meter retroreflectometer shall measure the coefficient of retroreflected luminance, RL, at an observation angle of 1.05 degrees and an entrance angle of 88.76 degrees. RL shall be expressed in units of millicandelas per square foot per foot-candle [(mcd(ft-2)(fc-1]). The metric equivalent shall be expressed in units of millicandelas per square yard per lux [mcd(m-2)(lux-1]).

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 866.206 and Item 867.206 will be measured and paid for in accordance with Subsections 860.80 and 860.81 of the Standard Specifications. The unit prices for Items 866.206, and 867.206 shall include all costs associated with recessing the polyurea markings.



ITEM 953.3 TEMPORARY EXCAVATION SUPPORT SYSTEM SQUARE YARD

The work under this Item shall conform to the relevant provision of Subsections 140 and 950 of the Standard Specifications and the following:

The temporary excavation support system shall be designed by the Contractor. The excavation support system shall be designed to be of sufficient size and strength to meet the requirements of the latest AASHTO Guide Design Specifications for Bridge Temporary Works. No further compensation, other than the square yard price bid for this Item, will be allowed for relocation or modifications made to the temporary excavation support system for convenience. Obstructions encountered will be incidental to the cost. The Contractor shall also furnish, install, maintain, and cut-off or remove a temporary excavation support system as required based upon the actual site conditions, for the construction of the proposed abutments and wingwalls. The temporary excavation support system shall consist of soldier piling and lagging, or any other system that satisfies the design criteria contained herein. Any necessary rock sockets, tieback anchors, deadman anchors, soil nails and/or temporary bracing are considered incidental to this Item.

The temporary excavation support system must be capable of supporting all applicable loads. The temporary excavation support system shall extend longitudinally such that the maximum slope of the excavated surface does not exceed 1 (vertical) to 2 (horizontal).

The limits of the excavation support systems shall be fully contained within the existing/proposed layout.

The temporary excavation support system must follow the design guidelines listed in the 2013 MassDOT LRFD Bridge Manual Part I Section 3.2.5 regarding when to cut off the temporary excavation support and leave in place. No additional payment will be made for the cutting of excavation support to remain in place.

All material used for the temporary excavation support system shall be sound and free from strength impairing defects. All materials for the temporary support systems shall remain the property of the Contractor.

The Contractor shall submit to the Engineer for approval a temporary excavation support system design that is designed to carry all the applicable AASHTO loads, including but not limited to, earth pressure and surcharge due to traffic (construction equipment, etc.). The temporary excavation support system must be designed and bear the stamp of a Professional Engineer registered in the Commonwealth of Massachusetts. Prior to any excavation, the Engineer must approve complete detailed drawings and complete calculations for the temporary excavation support system in writing.

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 utilities, proposed overhead wires and structures.

The Contractor is responsible for control of groundwater and surface runoff drainage to allow excavation work to be performed in the dry. This work will be paid for under Item 991.1 Control of Water.

ITEM 953.3 (Continued)

METHOD OF MEASUREMENT

Item 953.3 will be measured for payment by Square Yard, of temporary excavation support system complete in place.

BASIS OF PAYMENT

Item 953.3 will be paid for at the contract unit price per square yard, which price shall include full compensation for all labor, design calculations, drawings, materials, tools, equipment, maintenance, and excavation required to complete the work.

The removal of the Temporary Excavation Support System will be incidental to this Item.



ITEM 983.521 STREAM BED BANK RESTORATION

CUBIC YARD

The work under this item shall conform to the relevant provisions of Subsections 140, 150, 170, 751, 753, 983 of the Standard Specifications and the following:

The purpose of this item is to provide for the excavation, stockpiling, and replacement of natural streambed material from the Mill River to restore the streambed, bank and existing low flow channel to preconstruction conditions to the maximum extent practicable. The intent of this item is to reuse the existing streambed material that must be excavated for the dumped riprap installation, and to place the material back in the stream to maintain a high-quality streambed and to restore/create natural bank. At least 30 days prior to the commencement of construction, the Contractor or Resident Engineer shall coordinate with David Paulson (Wildlife & Endangered Species Supervisor, (857-262-3378 / david.j.paulson@dot.state.ma.us) to set up a meeting with MassDOT's Geomorphologist, Contractor and Resident Engineer. At this meeting, the Geomorphologist will provide an overview of the restoration work, and will discuss the Contractor's anticipated means, methods, and schedule.

The Work of this Item shall comply with the Streambed/Bank Restoration Plan developed and supplied by the MassDOT Geomorphologist, and the Work that be deemed complete upon approval by the Geomorphologist and Resident Engineer. The Contractor is advised that compliance with the Restoration Plan does not relieve compliance with US Army Corps of Engineers (USACE) and Massachusetts Department of Environmental Protection (DEP) permit Conditions for this Project which includes, but is not limited to, Conditions for submittals, reviews, and approvals for pre-construction, construction, and post-construction work for river channel restoration and river bank restoration. In the event of conflicts of the Plan with Permit conditions, the Contractor shall immediately notify the Engineer.

MATERIALS

Materials shall be per the Restoration Plan. Excavation, handling, and stockpiling shall be per the Restoration Plan. If not specified by the Restoration Plan, the Contractor shall perform the following:

- 1. The grade, bedforms, low flow channel and composition of the existing streambed shall be noted to ensure the material is replaced to match existing conditions as closely as possible;
- 2. Larger boulders shall be identified for use to help fill the larger scour holes;
- 3. The existing streambed/bank material shall be excavated and then stockpiled in separate locations or be separated by double-stacked haybales or temporary concrete barriers to prevent any mixing;
- 4. If there is a shortage of excavated and stockpiled material, the native materials may be supplemented by borrow material, which are described separately under Item 105.45 Supplemental Borrow for Native Material.

CONSTRUCTION METHODS

Construction methods shall be per the Restoration Plan. If not specified by the Restoration Plan, the Contractor shall comply with the following:

ITEM 983.521(Continued)

- 1. All heavy equipment shall be located at the road surface or from the top of bank from above and outside of the vegetated wetlands. Excavation of the channel shall be from above on the roadway with no equipment in the channel as defined. Any additional work and equipment required within the wetlands and river shall consists of workers and hand tools.
- 2. After bedding and dumped riprap scour protection is installed, a minimum thickness of at least 12" of streambed material will be replaced over the dumped riprap to completely cover it and to match preconstruction conditions to the maximum extent possible. All dumped riprap and natural boulder voids shall be choked using native sand, gravel, and cobble excavated and stockpiled from the streambed.
- 3. The excavated streambed material will be replaced at approximately the same elevations such as excavated. Stockpiled fine material from the top of the pre-construction grade bank will be replaced to reform the sediment bars that existed before construction. Voids between larger boulders shall be choked using native sand, gravel, and cobble.
- 4. The replacement of streambed/bank material under this Item shall not begin until the Engineer approves the dumped riprap along the bridge abutments.
- 5. Excess native materials, if any, shall be disposed of properly.

METHOD OF MEASUREMENT

Item 983.521 will be measured for payment by Cubic Yard, of streambed material excavated to lines shown on the Highway Drawings in accordance with the Restoration Plan or as directed.

BASIS OF PAYMENT

Item 983.521 will be paid for at the contract unit price per Cubic Yard, which price shall include all labor, tools, equipment, materials and incidental costs required to rebuild the stream bed in accordance with the Restoration Plan. Removal and disposal of excess native material, if any, shall be considered incidental.

Removal and disposal of excess native material, if any, compliance with the Restoration Plan, stacking, screening, sorting, placement and replacement of materials. will be incidental to Item 983.521.

For Item 983.521 Streambed/Bank Restoration, there will not separately measurement or payment for any materials, tools, labor, or equipment stored or used in order to comply with any state or federal permits, regulations or conditions.

Supplemental borrow material will be measured and paid as described in Item 105.45 Supplemental Borrow for Native Material.



ITEM 991.1 CONTROL OF WATER – STRUCTURE NO. H-24-003 LUMP SUM

The Work under this Item shall conform to the relevant provisions of Subsection 140 of the Standard Specifications and the following:

The work shall include all pumping, sandbagging, and other measures, necessary for sufficient water control (2 stages) to accomplish the demolition of the existing abutments and adjoining wingwalls and the construction of the proposed abutments and wingwalls in the dry. Also, this Item includes all water pollution prevention including sediment control and flood prevention of the excavated areas at the structure for demolition, reconstruction, and dredging necessary to complete the bridge replacement.

The Contractor's attention is directed to the section of these Special Provisions that addresses the Contractor's obligations for Sedimentation and Erosion Control for this project. The demolition of the existing abutments and adjoining wingwalls, bridge excavation and placement of the proposed abutments and wingwalls are placed "in the dry."

CONSTRUCTION METHODS

As part of the work under this Item, it is the responsibility of the Contractor to determine the means and method to maintain the required channel opening for fish and water flow, dewatering techniques and sedimentation controls needed to control water and sediment for the required operations. Prior to commencing construction, the Contractor shall submit Plans showing the methods and materials he/she proposes to use for the Engineer's approval. The submittal shall include a hydraulic calculation showing the proposed methods do not result in flood impact to improvements on surrounding properties due to storm flows. The Plans and hydraulic calculations shall be prepared and stamped by a Professional Engineer registered in the Commonwealth of Massachusetts.

The design submittal must consider a minimum five (5) year flood elevation for the cross-section in each stage of construction. A minimum of 1-foot of freeboard shall be provided with the five (5) year flood elevation for water control purposes. The five (5) year flood elevation that is indicated on the Plans is based on the particular cross-section shown for each stage of construction. Any deviation of the location of the water control system from the Plans will require a determination of a new five (5) year flood elevation for the design.

The Contractor shall use such equipment and shall perform his/her operations in such a manner that boiling or other disturbances of the soil in the foundation area will be prevented. They shall keep the area being excavated dry by such means that water will be prevented from entering from the adjacent soils and adversely affecting the stability of the foundation material or supporting soils.

All dewatering and related earthwork shall be conducted in such a manner as to prevent siltation or contamination of the waterway.

ITEM 991.1 (Continued)

The Contractor shall provide the means of removing all sediment from water pumped from channel excavation or water entering the bridge excavation via ground water or from surface flow; this shall include the use of sedimentation basins, check dams, sedimentation fences or tanks as required in these Special Provisions under Sedimentation and Erosion Control listed below.

Measures to control the discharge of pollutants into water resource areas shall include, but not be limited to the following:

- Rigorous management of construction operations involving potentially hazardous materials, such as refueling and maintenance of construction equipment. Approval of the working drawings does not relieve the Contractor of the responsibility of providing for the safety and successful completion of the work.
- Formulation of contingency plans to control accidental spillage from potentially hazardous materials.
- Sighting of construction staging areas outside of the buffer zones on relatively flat ground.
- Scheduling of work within the resource areas to avoid periods of high flood (e.g., spring floods) and inclement weather.
- Installation and continuous maintenance of staked hay bales and filter fences to prevent sediment migration into adjacent downstream resource areas. Placement of erosion controls shall be as shown on the plans, as specified herein, or as directed by the Engineer, so as to accomplish maximum control of project related sediment mobilization. Additional erosion control measures shall be employed as necessary to prevent erosion and sedimentation of the streambed. These measures shall be maintained for the duration of the contract.
- All discharge resulting from dewatering activities shall be directed to temporary settling tanks/basins located as necessary to control turbidity (see below). At no time shall said discharge be directly released into adjacent resource areas.

The pumping discharge shall not be allowed to enter directly into the Burnshirt River. The water from the work areas shall be pumped to a settling tank. The tank shall be constructed to allow for the pumped water to pass through the tank with sediments settling out before discharging to an area enclosed by hay bales. The tank can be constructed of concrete, fiberglass or any other material that will meet the following:

- 1. Approximately 70 percent sedimentation trapping efficiency shall be achieved with a typical tank to ensure that the tanks are adequately sized to prevent overtopping from dewatering and to provide the required filtering.
- 2. The outlet from the settling tank shall not cause erosion of the surrounding area. An approved method of controlling erosion, such as an erosion control blanket, stone, etc., shall be used at the outlet of the tank.

ITEM 991.1 (Continued)

The settling tanks shall be maintained as follows:

- 1. Inspect at least twice daily during dewatering operations.
- 2. Repair any damage immediately.
- 3. Clean tank outlet daily. Remove any debris immediately.
- 4. Remove sediments when deposits reach 8 inches below the outlet invert.
- 5. Dispose sediments outside of wetland areas at a location approved by the Engineer.
- 6. The Contractor shall inspect hay bales that surround the outlet daily and shall immediately replace any that are damaged.

The approximate location of the settling tanks shall be shown on the Contractor's Plans as part of the submittal for the Engineer's approval.

Pumping shall be conducted in a manner which will not adversely affect the work within the excavation.

The Contractor shall provide and maintain ample pumps, pipes, and other devices to promptly and continually remove and dispose of water from the excavation areas. The size and configuration of pumps and pipes shall be selected by the Contractor.

The Contractor is advised that the effectiveness of the water control method used will vary based on the field conditions and the time at which the actual excavation work is being performed. The Engineer has the right to order the Contractor to stop all excavation operations when in his judgment the Contractor's water control operations are failing to produce adequate results or are posing a threat to the environment.

All water control shall be in compliance with the approved environmental permits included in these bid documents.

BASIS OF PAYMENT

Item 991.1 will be paid for at the contract unit price per Lump Sum, which price shall include all labor, tools, equipment, materials and incidental costs required to to complete the work.

The Lump Sum amount shall include all water control work, including design for flood prevention of excavated areas, water pollution prevention and dewatering operation, all necessary tools, material, installation, and removal of all temporary measures necessary for the measures outlined above

Payment under this Item is a partial progressive payment of the Lump Sum Contract Bid Price of this Item and will be made based upon the following percentages: 50% upon completion of the installation of the water control system to the satisfaction and approval of the Engineer, and 50% upon the removal and satisfactory disposal of the water control system from the project site at the completion of the work.

No separate payment will be made for the removal and disposal of the sediment material collected from the dewatering systems, but all costs in connection therewith shall be included in the Contract unit bid price.



ITEM 994.1 TEMPORARY PROTECTIVE SHIELDING SQUARE FOOT

The work under this Item shall provide for the protection of the Burnshirt River below the bridge and adjacent sloped areas to the bridge from falling debris during demolition of the existing bridge. This shall be accomplished by the utilization of adequate shielding placed beneath the existing superstructure prior to demolition and as directed by the Engineer.

All shielding shall meet the following requirements:

- 1. The Contractor is responsible for designing, furnishing, installing, and maintaining the shielding. When directed by the Engineer, the Contractor shall remove and dispose of the shielding to the satisfaction of the Engineer.
- The Contractor shall submit drawings and calculations, bearing the stamp of a Professional Engineer registered in the Commonwealth of Massachusetts, for the proposed shielding to the Engineer for approval prior to installation. The drawings shall include details of all connections, brackets, and fasteners.
- 3. No portion of the bridge deck, curbing, or other portion of the superstructure or existing structure shall be removed until the Protective Shielding is completely in place and the Contractor has approval from the Engineer to proceed.
- 4. The shielding shall extend the full length of the bridge and a sufficient distance above and beyond the beams as required to protect the river and adjacent sloped areas to the bridge. All spaces along the perimeter of the shielding and at the seams shall be sealed to prevent dust and debris from escaping and falling into the river and adjacent sloped areas to the bridge.
- 5. Shielding shall be designed to safely withstand all loads that it will be subjected to during demolition operations. The allowable design stresses shall be in accordance with the AASHTO Standard Specifications for Highway Bridges, 17th Edition, 2002. The design shall include a complete description of equipment and construction methods proposed for the deck removal and the maximum size of deck area that will be excavated (i.e. 12-inch x 12-inch jack hammered sections, or 6-foot x 2-foot wet saw cut sections). Shielding shall also be designed to withstand the impact imparted by the maximum sized piece of excavated concrete should it fall during excavation or removal.
- 6. The shielding shall not decrease the minimum existing vertical bridge clearance to the roadway unless otherwise approved by the Engineer.
- 7. The shielding shall be maintained and remain in place until the deck is completely removed and shall be removed only upon approval of the Engineering.
- 8. The shielding shall remain the property of the Contractor and shall be removed and disposed of by him/her from the site when no longer needed.

ITEM 994.1 (Continued)

Where existing shielding is used in conjunction with temporary shielding, the Contractor shall supply calculations stamped by a Professional Engineer registered in the State of Massachusetts verifying that existing shielding to be used on the project is in conformance with the provisions of Item 994.1, Temporary Protective Shielding. These calculations shall be incidental to this item.

If the Contractor's operations damage any existing portions of previously installed shielding, such damage(s) shall be repaired at the Contractor's expense.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 994.1 will be measured and paid for at the contract unit price per SQUARE FOOT, which price shall include all labor, materials, equipment, tools, design costs, and incidental costs required to complete the work.

The payment method for Item 994.1 is partial progressive payment of the Square Foot Contract Bid Price of this Item. The first payment of 75% of the Square Foot bid price will be made upon completion of the installation of the shielding system to the satisfaction and approval of the Engineer. The second payment of 25% of the Square Foot bid price for these Item will be made upon the removal and satisfactory disposal of the shielding system from the project.



ITEM 995.01 BRIDGE STRUCTURE, BRIDGE NO. H-24-003

LUMP SUM

The work under this Item shall conform to the applicable provisions of Subsection 995 of the Standard Specifications and the following: For those component parts where no specific requirement is stipulated, the Standard Specifications shall apply except for payment.

Work under this Item shall include all materials, equipment and labor needed to construct the following: abutments, wingwalls, approach slabs, high performance (HP) reinforced cement concrete bridge deck, and high performance (HP) cement concrete safety curb; NEXT 24F Beams superstructure; spray applied membrane waterproofing; elastomeric bearings; precast highway guardrail transitions; damp-proofing; sawing and sealing joints in asphalt pavement per construction plans; S3-TL4 Railing.

The work does not include any item 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.

5000 PSI, ³/₄ IN., 685 HP CEMENT CONCRETE

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

All concrete shall be 5000 PSI, HP Cement Concrete, except as noted on the Plans. 5000 PSI, ¾ IN., 685 HP Cement Concrete shall be used to construct cast-in-place and precast elements of the bridge, the safety curb, precast concrete highway guardrail transitions.

5000 PSI, ³/₄ IN., 685 HP Cement Concrete shall conform to all material requirements contained in Subsection M4.06.1 of the Standard Specifications.

SAWING AND SEALING JOINTS IN ASPHALT PAVEMENT AT BRIDGES

The work to be done under this Item 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 sawcut 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.

PRECAST HIGHWAY GUARDRAIL TRANSITION

General.

The work under this Heading consists of fabricating, transporting and installing Precast Highway Guardrail Transition and includes all necessary labor, materials, and equipment to complete the work as shown on the Plans. The work shall conform with the MassDOT Standard, Supplemental, and Interim Specifications and the requirements of the current AASHTO LRFD Bridge Construction Specifications, supplemented by the current relevant provisions of the latest edition of PCI MNL-116 (The Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products), except as noted herein.

QUALITY ASSURANCE

General.

Quality Assurance includes all the planned and systematic actions necessary to provide confidence that a product or facility will perform satisfactorily in service. It is an all-encompassing term that includes Quality Control (performed by the Fabricator) and Acceptance (performed by MassDOT). Quality Control is the system used by the Contractor and Fabricator to monitor and assess their production processes at the plant facility and installation activities at the project site to ensure that the final product will meet the specified level of quality. Acceptance includes all factors used by MassDOT to determine the corresponding value for the product. MassDOT Acceptance inspection at the plant facility is intended as a means of evaluation of compliance with contract requirements. Contractor and Fabricator Quality Control activities and MassDOT Acceptance activities shall remain independent from one another. MassDOT Acceptance activities shall not replace Fabricator Quality Control activities.

Fabricator Quality Control.

Quality Control shall be performed by the Fabricator to ensure that the product is fabricated in conformance with the specifications herein. The Fabricator shall maintain a Quality Control system to monitor, assess, and adjust placement and fabrication processes to ensure the Precast Concrete Bridge Element(s) meet the specified level of quality, through sufficient Quality Control sampling, testing, inspection, and corrective action (where required). The Fabricator's Quality Control system shall address all key activities during the placement and fabrication and shall be performed in conformance with the Fabricator's NPCA or PCI Certification. Quality Control documentation shall meet the requirements of the *Fabricator Quality Control — Documentation* section below. Upon request, Fabricator Quality Control documentation shall be provided to the MassDOT Plant Inspector.

Plant.

Prior to the fabrication of Precast Concrete Bridge Elements, the Fabricator's precast concrete plant shall obtain the following:

- (a) Certification by the National Precast Concrete Association (NPCA) Plant Certification Program or Precast/Prestressed Concrete Institute (PCI) Plant Certification Program, for the applicable types of Precast Concrete Bridge Element(s) being fabricated
- (b) MassDOT Prequalification
- (c) MassDOT Mix Design Approval

ITEM 995.01 (Continued)

All concrete for a given Precast Concrete Bridge Element shall be produced by a single company and plant, unless otherwise approved by the Engineer.

Personnel.

The Fabricator shall provide adequate training for all QC personnel in accordance with NPCA or PCI certification. There shall be sufficient personnel trained and certified to perform the tests listed under Subsection M4.02.13, Part D. At a minimum, the Fabricator's Quality Control Personnel shall maintain the following qualifications and certifications:

- (a) QC Manager with an active NETTCP Field Technician or ACI Concrete Field Testing Technician – Grade I certification or higher, and a minimum of 4 years continuous experience in the manufacture of Precast Concrete Bridge Elements for state transportation departments. The QC Manager shall be on site while the batch plant is producing and placing concrete for MassDOT projects.
- (b) A Technician/Inspector having the Precast/Prestressed Concrete Institute (PCI) Technician/Inspector Level I or NorthEast Transportation Training and Certification Program (NETTCP) Precast Concrete Inspector, or higher.

The Contractor shall submit to the Engineer a copy of the Fabricator's Quality Control Personnel required qualifications, as specified above.

Laboratory.

The Fabricator shall provide a room of sufficient size to house all equipment and to adequately perform all testing. The room shall have either a separate moisture storage room or curing box for concrete cylinders, and it shall be thermostatically controlled to maintain temperatures consistent with AASHTO T 23. It shall include a desk and file cabinet for proper record keeping, and have good lighting and ventilation. This room shall be kept for testing and quality control and not used for any other purpose. An additional desk and file cabinet shall be provided for exclusive use of the Engineer. No exception from these requirements will be allowed without the express written permission of the Engineer.

Testing Equipment.

At a minimum, the Fabricator's plant facility shall have the following testing equipment:

- (a) Air Content Meter Type A or B: AASHTO T 152
- (b) Air Content Meter Volumetric Method: AASHTO T 196 (Required for Lightweight Concrete)
- (c) Slump Cone: AASHTO T 119
- (d) Cylinder Molds AASHTO M 205
- (e) Concrete Testing Machine: AASHTO T 22
- (f) Screening Sieve: AASHTO T 27, AASHTO T 11
- (g) Curing Box: AASHTO T 23
- (h) Spread Test Base Plate for Self-Consolidating Concrete (SCC): ASTM C1611
- (i) All other equipment prescribed by AASHTO and ASTM standards for the tests to be performed by the Fabricator as specified

ITEM 995.01 (Continued)

Inspection.

Quality Control personnel shall monitor and inspect the fabrication of each Precast Concrete Bridge Element. Quality Control personnel shall report all inspection activities on Quality Control Inspection Reports and non-conformances on Non-Conformance Reports (NCRs) throughout the entire fabrication process, as speciefied herein.

Temperature Monitoring.

At a minimum, the Fabricator shall monitor, record, and report the temperatures of the form, ambient temperatures surrounding the concrete, and temperatures of the concrete continuously, without interruption as specified below:

- (a) Prior to placement of concrete to verify that $Ti \ge 50^{\circ}F$.
- (b) Immediately after placement to verify that $T_i \ge 50^{\circ}F$ is maintained.
- (c) Throughout the entire duration of the curing cycle, at regular intervals not to exceed one hour until 100% Design Strength (f'c) is attained and concrete has cooled to within 40°F of the ambient temperature surrounding the Precast Concrete Bridge Element.

At a minimum, the temperature measuring devices shall record and report the temperature of the concrete to the nearest 2°F. At least two temperature sensors (thermocouples) shall be positioned to record the maximum and minimum anticipated concrete temperatures. The anticipated minimum temperature shall be measured with one or more thermocouples at a distance no greater than 2 inches from the surface of the thinnest section. The anticipated maximum temperature shall be measured with one or more thermocouples at the center of the thickest section. Proposed temperature measurement locations shall be submitted to the Engineer for approval. Temperature recording devices shall be located within the curing enclosure and calibrated as required by PCI MNL-116 Section 4.18.4. Maximum heat increase and cool down rates shall comply with PCI MNL-116, Section 4.19. The Contractor shall furnish temperature logs recorded at a minimum frequency of once per hour to the Inspector as required, with each post-pour QC inspection report.

Sampling and Testing.

At a minimum, the Fabricator shall perform random Quality Control sampling and testing as specified in *Table 1: Quality Control Sampling and Testing*. The Fabricator shall perform additional Quality Control sampling and testing on concrete that has been retempered with admixtures or hold-back water during fabrication. Test Specimens shall conform to the requirements of Section M4.02.13 of the MassDOT Standard and Supplemental Specifications and AASHTO R 60, with the exception of the Stripping (80% f'c) set of cylinders. Stripping (80 % f'c) cylinders shall be cured in the same location and environment as the Precast Bridge Elements they represent. If approved by the Engineer, compressive strength cylinder match curing equipment, that maintains the same concrete conditions that the corresponding Precast Bridge Element is exposed to, may be utilized in lieu of Stripping (80 % f'c) field cured cylinders, with the use of thermocouples, controllers, and heaters.

Table 1: Quality Control Sampling and Testing

Quality Characteristic	Test Method	Sample Size	Specification Limit	Lot Size (c)	Sublot Size (d)	Frequency	Point of Sampling
Slump (in.) (a)	AASHTO T 119	Per AASHTO	≤8 in. or as approved by the Engineer				
Air Content (%)	AASHTO T 152	Per AASHTO	5% ≤ % ≤ 8%				
Temperature (°F)	AASHTO T 309	Per AASHTO	50°F ≤ °F ≤ 90°F				
		Stripping Cylinders: One (1) set of Three (3) 4 x 8 in.	≥80% f' c at Stripping	Total Quantity of Concrete (cy)		One (1) near	
Compressive Strength (psi)	AASHTO T 22	7-day Cylinders: One (1) set of Three (3) 4 x 8 in.	For Information at 7 days	produced on a Contract, per Type of Element fabricated,	20 cy	One (1) per Sublot or fraction thereof	Point of Discharge
	AASHTO T 23	28-day Cylinders: One (1) set of Three (3) 4 x 8 in.	≥ 100% f'c at 28 days	per Mix Design			
		56-day Cylinders: One (1) set of Three (3) 4 x 8 in.	≥ 100% f'c at 56 days (b)				

Notes:

- (a) Self-consolidating concrete (SCC) shall meet the requirements of M4.06.5.
- (b) 56-day Compressive Strength test specimens shall require testing only when 28-day Compressive Strength test specimens have failed to meet Design Strength (f'c).
- (c) Lot shall be defined as a specific quantity of material from a single source, produced or placed by the same controlled process.
- (d) Sublot shall be defined as an equal division or part of a Lot from which a sample of material is obtained in order to assess the Quality Characteristics of the Lot.

Certificate of Compliance.

The Fabricator shall provide a Certificate of Compliance in accordance with Standard Specifications, Division I, Section 6.01, stating that QC test cylinders have achieved the design strength, f'c. A Certificate of Compliance shall accompany each shipment and shall be presented to the MassDOT Resident Engineer or designee upon delivery to the site.

Documentation.

At a minimum, the Fabricator shall maintain a filing system for the following QC records and documentation. All QC records and documentation shall be made available to MassDOT upon the request of the Department.

- (a) Current MassDOT Approved Mix Design Sheet(s) and Approval Letter(s)
- (b) PCI or NPCA Certification
- (c) Current Qualifications and Certifications for QC Manager(s) and QC Technician(s)
- (d) Most current set of Approved Shop Drawings
- (e) Approved Placement, Finishing and Curing Plan
- (f) Approved Dunnage Plan
- (g) Fabricator Certificate of Compliance for each fabricated Precast Concrete Bridge Element
- (h) Admixture Manufacturer's Certification of Compliance for each approved Admixture
- (i) Completed QC Inspection Report for each fabricated Precast Concrete Bridge Element
- (i) Identification Number for each fabricated Precast Concrete Bridge Element
- (k) Time and date of casting of each fabricated Precast Concrete Bridge Element
- (1) Date of stripping of each fabricated Precast Concrete Bridge Element
- (m)Batch Ticket Printout reporting the quantity of concrete produced for each batch of concrete produced
- (n) Concrete temperature records for each Precast Concrete Bridge Element fabricated
- (o) QC Test Report Forms for each sublot of concrete produced
- (p) Non-Conformance Reports (NCRs)
- (q) Documentation of Repairs (if applicable)

Acceptance.

MassDOT will perform Acceptance inspection, sampling, and testing during fabrication and installation, to evaluate the quality and degree of compliance of the fabricated Precast Concrete Bridge Element to MassDOT specifications. Additionally, MassDOT Inspectors will monitor the Fabricator's Quality Control activities to ensure the Fabricator is properly administering Quality Control in conformance with the Fabricator's NPCA or PCI Certification. Acceptance inspection and test results not meeting MassDOT specifications will result in Non-conformance Reports (NCR) being issued by MassDOT to the Fabricator or Contractor for corrective action. Final Acceptance for the fabricated Precast Concrete Bridge Elements shall be determined by MassDOT.

Inspection.

A MassDOT MassDOT Inspector will be assigned to perform Acceptance activities during fabrication, which includes the inspection of the materials, work procedures, and Precast Concrete Bridge Elements. At least seven (7) days prior to the scheduled start of fabrication, the Fabricator shall contact the MassDOT Research and Materials Section (RMS) to provide notice of the scheduled fabrication start date. The Fabricator shall complete the following activites prior to notifying MassDOT RMS of the scheduled start date:

Receive approval for all submitted Fabricator cement concrete mix designs from the MassDOT Research and Materials Section for the current year, as specified under the *Mix Design* section:

- (a) and *Table 3: Trial Batch Sampling Testing for New Mix Designs*. Self-consolidating concrete shall meet the requirements of M4.06.5.
- (b) Receive approval for the submitted Fabricator Placement, Finishing, and Curing Plan from the MassDOT Research and Materials Section, as specified under the *Placement, Finishing, and Curing Plan* section.
- (c) Receive Engineer of Record approved shop drawings from the MassDOT Research and Materials Section as specified under the *Shop Drawings* section.
- (d) Participate in the pre-production meeting, as described under the *Pre-Production Meeting* section (if required).

Prior to the start of fabrication, the Fabricator shall review the fabrication schedule with the MassDOT Inspector. Fabrication shall only proceed when:

- (a) The QC Inspector and MassDOT Inspector are present to inspect the Precast Concrete Bridge Element(s) being fabricated.
- (b) The QC Manager is present at the Fabricator's plant.

The Fabricator shall grant access to all required areas of the Fabricator's plant to the MassDOT Inspector, during the hours of fabrication. Fabrication without MassDOT Inspector access to required areas is prohibited, and will result in the rejection of the fabricated Precast Concrete Bridge Element(s).

Additionally, the MassDOT Inspector will monitor the adequacy of the Fabricator's Quality Control activities. MassDOT Inspector Acceptance activities performed at the Fabricator's plant shall remain independent from the Fabricator, and does not replace the Fabricator's required Quality Control activities.

Sampling and Testing.

At a minimum, the MassDOT Inspector will perform random Acceptance sampling and testing for each Sublot of concrete produced as specified in *Table 2: Acceptance Sampling and Testing*. The MassDOT Inspector will also perform Acceptance sampling and testing on concrete that has been retempered with admixtures or hold-back water during production. Test Specimens will conform to the requirements of Section M4.02.13 of the MassDOT Standard and Supplemental Specifications and AASHTO R 60.

Table 2: Acceptance Sampling and Testing

Quality Characteristic	Test Method	Sample Size	Specification Limit	Lot Size (c)	Sublot Size (d)	Frequency	Point of Sampling
Slump (in.) (a)	AASHTO T 119	Per AASHTO	≤8 in. or as approved by the Engineer				
Air Content (%)	AASHTO T 152	Per AASHTO	5% ≤ % ≤ 8%				
Temperature (°F)	AASHTO T 309	Per AASHTO	50°F ≤ °F ≤ 90°F	Total			
Compressive Strength (psi)	AASHTO T 22 AASHTO	7-day Cylinders: One (1) set of Three (3) 4 x 8 in. 28-day Cylinders: One (1) set of Three (3)	For Information at 7 days ≥ 100% f'c at 28 days	Quantity of Concrete (cy) produced on a Contract, per Type of Element fabricated, per Mix	20 cy	One (1) per Sublot or fraction thereof	Point of Discharge
	T 23	4 x 8 in. 56-day Cylinders: One (1) set of Three (3) 4 x 8 in.	≥ 100% f' _c at 56 days ^(b)	Design			

Notes:

- (a) Self-consolidating concrete (SCC) shall meet the requirements of M4.06.5.
- (b) 56-day Compressive Strength test specimens shall require testing only when 28-day Compressive Strength test specimens have failed to meet Design Strength (f'c).
- (c) Lot shall be defined as a specific quantity of material from a single source, produced or placed by the same controlled process.
- (d) Sublot shall be defined as an equal division or part of a Lot from which a sample of material is obtained in order to assess the Quality Characteristics of the Lot.

MATERIALS

Materials.

Materials shall meet the following specifications (if applicable):

General	M4.00.00
Portland Cement	M4.01.0
Blended Hydraulic Cements	M4.01.1
Fly Ash	M4.01.2
Cement Concrete	M4.02.00
Cement	M4.02.01
Cement Mortar	M4.02.15
Aggregates	M4.02.02
Lightweight Aggregates	M4.02.03
Water	M4.02.04
Cement Concrete Additives	M4.02.05
Proportioning	M4.02.06
Mixing and Delivery	M4.02.10
Test Specimens	M4.02.13
Mortar for Filling Keyways	M4.04.0
Slag	AASHTO M 302
High Performance Concrete	M4.06.1
Self-Consolidating Concrete (SCC)	M4.06.5
Controlled Low Strength Materials	M4.08.0
Reinforcing Bars	M8.01.0
Epoxy Coated Reinforcing Bars	M8.01.7
Galvanized Reinforcing Bars	M8.01.8
Welded Wire Reinforcement	M8.01.2
Mechanical Reinforcing Bar Splicer	M8.01.9
Lifting Devices	PCI MNL-116
Corrugated Metal Pipe	AASHTO M 36

Cement Concrete Mix Design.

The cement concrete shall be comprised of specified proportions of water and MassDOT approved aggregates, cement, supplementary cementitious materials (SCMs), and admixtures to form a homogenous composition. Cement concrete for Precast Concrete Bridge Elements shall meet the requirements of M4.06.1 High Performance Concrete, with the exception that the "Total Cementitious Content" specified shall be considered the "Maximum Allowable Cementitious Content". When used, self-consolidating concrete (SCC) shall meet the requirements of M4.06.5.

Prior to production of cement concrete, the Fabricator shall report and submit all proposed mix design formulations and its constituent materials onto the MassDOT Cement Concrete Mix Design Sheet to the MassDOT Research and Materials Section for review and approval. All mix design yields shall be designed for 1.0 cubic yards of concrete, with an allowable tolerance of +/- 1.0 %. All liquids incorporated into the proposed mix design(s) shall include both water and admixtures in the liquid mass calculation.

During production of cement concrete, the Fabricator shall not alter the previously approved mix design formulation or its constituent materials. Proposed alterations in source, type, batch quantity, or gradation to any of the constituent materials of the previously approved mix design formulation shall require a new MassDOT Mix Design Sheet submission to the MassDOT Research and materials Section for review and approval. Fabrication shall not occur without prior MassDOT mix design approval.

The Fabricator shall notify MassDOT RMS to schedule trial batch testing for the new mix design(s). Trial batch testing shall meet the following requirements:

- (a) Performed by a qualified laboratory and/or AASHTO accredited laboratory.
- (b) Performed and/or sampled in the presence of a MassDOT Inspector.
- (c) Meet the requirements as specified in *Table 3: Trial Batch Sampling Testing for New Mix Designs*. Self-consolidating concrete (SCC) shall meet M4.06.5.

Failure to perform all of the required trial batch testing or provide MassDOT RMS trial batch test results within the Specification Limits (as specified in Table 3) will result in the disqualification of the Fabricator's proposed mix design(s).

Quality Characteristic	Test Method	Sample Size	Specification Limit	Performed By
Slump (a)	AASHTO T 119	Per AASHTO	Max. 8 inches or as approved by the Engineer	Quality Control
Air Content (AC)	AASHTO T 152	Per AASHTO	$5\% \le AC \le 8\%$	Quality Control
Temperature (°F)	AASHTO T 309	Per AASHTO	50°F ≤ °F ≤ 90°F	Quality Control
Compressive Strength (b)	AASHTO T 22 AASHTO T 23	28-day Cylinders: One (1) set of Three (3) 4 x 8 in.	Lab Mixed $f'_{cr} = 1.3 f'_{c}$ at 28 days Batch Mixed $f'_{cr} = 1.2 f'_{c}$ at 28 days	MassDOT
Alkali-Silica Reaction (ASR) (d)	ASTM C 1567	Per ASTM	M4.02.00	Quality Control
Resistance to Chloride Ion Penetration Chloride Ion Penetration (e)	AASHTO T 358 ^(f)	28-day Cylinders: One (1) set of Three (3) 4 x 8 in.	Resistivity $\geq 21 \text{ k}\Omega$ -cm at 28 days	MassDOT
Freeze/Thaw Durability (c)	AASHTO T 161 (Procedure A)	Per AASHTO	Relative Dynamic Modulus of Elasticity after 300 cycles ≥ 80%	Quality Control

Table 3: Trial Batch Sampling and Testing for New Mix Designs

Notes:

- (a) Self-consolidating concrete (SCC) shall meet the requirements of M4.06.5.
- (b) Trial batch compressive strength testing shall be performed by MassDOT. Laboratory mixed trial batch compressive strength results shall achieve 130% Design Strength (f'c). Batch-mixed trial batch compressive results shall achieve 120% f'c. Acceptance will be based on compressive strength testing performed by MassDOT.

- (c) If an AASHTO accredited laboratory is preparing the trial batch test specimens, MassDOT Acceptance presence is not required. If the Fabricator is preparing the trial batch test specimens, MassDOT Acceptance presence is required during trial batch test specimen preparation.
- (d) Alkali Silica Reaction (ASR) testing shall meet the requirements of M4.02.00. Independent laboratories performing ASR testing shall be listed on the MassDOT Quality Construction Materials List (QCML).
- (e) Calcium nitrite shall be removed from mix designs containing the admixture and replaced by an equivalent quantity of water when preparing Chloride Ion Penetration resistance trial batch test specimens.
- (f) The Wenner probe tip spacing "a" shall be 1.5.

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.

Grout.

Grout used for shear keys, vertical adjustment assembly voids, and hand holes shall be in accordance with M4.04.0.

Reinforcement.

All reinforcing steel shall be coated Grade 60 unless otherwise noted on the plans. Mechanical reinforcing bar splicers shall be epoxy coated.

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.

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

Shop Drawings.

Prior to performing any work under this Section, the Contractor shall receive approval for all shop drawings for the Precast Concrete Bridge Element being worked on and any special Contract requirements, provided that a complete shop drawing package is provided. The Contractor shall not order materials or begin work before receiving approved shop drawings. MassDOT will reject Precast Concrete

Bridge Elements that deviate from the approved drawings or are fabricated prior to receiving written approval of the shop drawings. The Contractor shall bear full responsibility and costs for all materials ordered or work performed prior to the approval of the shop drawings or written authorization from MassDOT.

Contractor shall submit scaled shop drawings to the Engineer of Record for review and approval. Upon approval, the Engineer of Record will forward two (2) sets of scaled, full size (minimum 24x36") paper copies of the Approved (or Approved As Noted) shop drawings to the MassDOT Director of Research and Materials. Calculations are not to be included in any submittal to the Research and Materials Section. An approval stamp shall appear on every shop drawing sheet. Wet-stamping or wet-signing is not required, provided that the stamp and reviewer name are legible. The Fabricator's name and address shall appear on each sheet.

Resubmittal of "Approved as Noted" shop drawings is not necessary for minor revisions, provided that the correction can be clearly understood and is unambiguous without possibility of misinterpretation. Shop drawings with questions or comments that require a response and/or additional information from the Fabricator must be resubmitted.

Detailed shop drawings shall be prepared in accordance with the relevant provisions of Subsection 5.02 and shall, at a minimum, contain the following:

- (a) Number and type and/or piece mark of the precast concrete bridge element including overall length, width and height.
- (b) Skew angle.
- (c) Location, size and geometry of all steel reinforcement, including mechanical reinforcing bar splicers to be used for connecting Precast Concrete Bridge Elements together in the field.
- (d) Location and details of all inserts, anchors, Vertical Adjustment Assemblies, and any other items required to be cast into the Precast Concrete Bridge Elements (whether detailed on the plans by the Engineer of Record or provided for the Contractor's convenience). Precast Concrete Bridge Elements shall not be fired or drilled into for attachment purposes. All hardware shall be galvanized except as noted.
- (e) Locations and details of the lifting devices, including supporting calculations, type and amount of any additional reinforcing required for lifting. The Fabricator shall design all lifting devices based on the no cracking criteria in Chapter 8 of the PCI Design Handbook (7th edition).
- (f) The minimum compressive strength required prior to handling the precast concrete bridge element.

The shop drawings shall not include procedures for placement, finishing, and curing of concrete. These details shall be included in the Placement, Finishing and Curing Plan that is to be submitted to MassDOT Research and Materials Section as described under *Placement*, *Finishing*, *and Curing Plan*.

Fabrication.

All Precast Concrete Bridge Elements shall be fabricated in accordance with the latest edition of PCI MNL-116 as modified herein.

Placement, Finishing and Curing Plan.

At least 30 days prior to start of fabrication, the Contractor shall submit the Fabricator's proposed Placement, Finishing and Curing Plan to the Engineer for approval by MassDOT Research and Materials

Section. This shall be an independent submittal, separate from the fabrication shop drawings. The Placement, Finishing and Curing Plan shall include the following:

- (a) Method of Mixing
- (b) Method of Placement
- (c) Method of Consolidation
- (d) Method of Finishing
- (e) Method of Initial Curing
- (f) Method of Intermediate Curing
- (g) Method of Final Curing
- (h) Moisture Retention Materials and Equipment (water spray equipment, saturated covers, sheet materials, liquid membrane-forming compounds, accelerated curing equipment, etc.)
- (i) Cylinder Curing Methods, Location, and Environmental Control (temperature, humidity, etc.)
- (j) Temperature Monitoring, Recording, and Reporting

Dunnage Plan Shop Drawings.

At least 30 days prior to the start of fabrication, the Contractor shall submit proposed Dunnage Plan Shop Drawings to the Engineer of Record for review and approval. This shall be an independent submittal, separate from the fabrication shop drawings. Upon approval, the Engineer of Record will forward two (2) sets of scaled, full size (minimum 24"x36") paper copies of the Approved (or Approved As Noted) Dunnage Plan to the MassDOT Director of Research and Materials. Calculations are not to be included in any submittal to the Research and Materials Section. The Dunnage Plan shall include the following:

- (a) Proposed layout of the Precast Concrete Bridge Elements for storage in yard and during shipping
- (b) Support and blocking point locations
- (c) Support and blocking materials

Pre-Production Meeting.

The Contractor shall notify the MassDOT Research and Materials Section to determine if a preproduction 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 Section *Quality Assurance – Precast Concrete, C. Acceptance, A. Inspection*), 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.

Reinforcement.

The reinforcing bars shall be installed in accordance with Section 901.62 of the Supplemental 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.

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.

Tolerances.

Fabrication shall comply with tolerances specified on the plans. Tolerances for steel reinforcement placement shall be in accordance with 901.62. In the absence of specifications on the plans, tolerances shall comply with the latest version of the PCI MNL 135, Precast Tolerance Manual.

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. Any defects or damage of more than "Category 2, Minor Defects" made to the concrete, due to form work, stripping or handling, shall be subject to repair or rejection, as defined in the *Repairs and Replacement* section. 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.

Mixing of Concrete.

The concrete shall be proportioned and mixed in conformance with the Fabricator's MassDOT approved mix design and M4.02.10 Mixing and Delivery Fabrication shall not occur without prior MassDOT mix design approval. The Fabricator shall provide copies of batch tickets to the MassDOT Plant Inspector. The MassDOT Plant Inspector will verify if the batch ticket quantities are within the tolerances of the Fabricator's MassDOT approved mix design.

Placement of Concrete.

Prior to the placement of concrete, the temperature of the forms shall be greater than or equal to 50°F. Quality Control inspection shall be performed by the Fabricator as specified in the *Fabricator Quality Control* section. Placement of the concrete shall not proceed until the MassDOT Plant Inspector is present to perform inspection and begin monitoring Fabricator Quality Control inspection activities, and is in compliance with specifications. The MassDOT Plant Inspector shall inspect and accept the placement of the reinforcing steel prior to the placement of concrete into the forms. The Fabricator shall verify all materials and equipment required for protecting and curing the concrete are readily available and meet the requirements of the *Final Curing Methods* section below. All items encased in the concrete shall be accurately placed in the position shown on the Plans and firmly held during the placing and setting of the

concrete. Clearance from the forms shall be maintained by supports, spacers, or hangers and shall be of approved shape and dimension.

During placement, the concrete shall maintain a concrete temperature range between 50°F and 90°F. The Fabricator shall minimize the time to concrete placement (measured from start of mixing to completion of placement). In no event shall time to placement exceed 90 minutes. The Fabricator shall perform additional Quality Control sampling and testing on concrete that has been retempered with admixtures or hold-back water during the placement of the concrete as specified in the *Fabricator Quality Control* section above. Delays or shutdowns of over 30 minutes shall not be allowed during the continuous filling of individual forms.

Consolidation of Concrete.

Suitable means shall be used for placing concrete to prevent segregation or displacement of reinforcing steel or forms. The concrete shall be thoroughly consolidated by external or internal vibrators or a combination of both. Vibrators shall not be used to move concrete within the forms. Vibrators shall be used as specified in 901.63C and as directed by the Engineer. Concrete shall be placed and consolidated in a way that minimizes the presence of surface voids or bug holes on the formed surfaces. When used, self-consolidating concrete (SCC) shall meet the requirements of M4.06.5.

Finishing of Concrete.

The finish of the Precast Concrete Bridge Elements shall be as indicated on the plans. Where Precast Concrete Bridge Elements have keyways for grout or closure pours, the surfaces of these shear keys shall be abrasive blasted prior to shipment. The Fabricator may utilize a surface retarder with water blast, sandblast, or a combination of both to achieve the desired keyway finish. At a minimum, the profile of the keyway surfaces shall be similar to that of 60 grit sand paper. The exposed reinforcing steel in the precast slab 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 Fabricator shall permanently mark each precast concrete bridge element with its type and/or piece mark, date of casting, and supplier identification either by stamp markings in fresh concrete, waterproof paint, or other approved means on a surface that will not be exposed after assembly.

Exposed Surfaces of Precast Concrete Bridge Elements.

As soon as conditions permit, before the concrete has fully hardened, all dirt, laitance, and loose aggregate shall be removed from the exposed concrete surfaces. Contractor shall not allow foot traffic on the uncured concrete until it has reached sufficient strength to prevent damage.

Exposed Surfaces of Closure Pour Shear Keys.

The closure pour shear key cast in the sides of the beam flanges shall have an exposed aggregate finish. The closure pour reinforcing steel and its coating shall not be damaged by the process for creating the exposed aggregate surface. Fabricator may utilize a surface retarder with water blast, abrasive blast, or a combination of both to achieve the desired shear key finish. The abrasive blast shall use oil free compressed air. The profile of the shear key surfaces shall be similar to that of 60 grit sandpaper.

Initial Curing Methods.

After the placement of concrete and prior to concrete finishing, the Fabricator shall initiate initial curing methods when the concrete surface begins to dry, to reduce moisture loss from the surface. Application of one or more of the following initial curing methods shall occur immediately after the bleed water sheen has disappeared.

Fogging.

Fogging nozzles shall atomize water into a fog-like mist. The fog spray shall be directed and remain visibly suspended above the concrete surface, to increase the humidity of the air and reduce the rate of evaporation. Water from fogging shall not be worked into the surface during finishing operations and shall be removed or allowed to evaporate prior to finishing.

Liquid-applied Evaporation Reducers

Evaporation reducers shall be sprayed onto the freshly placed concrete surface to produce an effective monomolecular film that reduces the risk of plastic-shrinkage cracking and rate of evaporation of the bleed water from the concrete surface. Evaporation reducers shall be applied in accordance with manufacturer's recommendations.

Intermediate Curing Methods.

The Fabricator shall initiate intermediate curing methods if concrete finishing has taken place prior to the concrete reaching final set. The freshly finished concrete surface shall be protected from moisture loss, by the continuation of initial curing methods (fogging and evaporation reducers) until final curing methods are applied or by the use of liquid membrane-forming curing compounds (see *Liquid Membrane-Forming Compounds for Curing* section).

Final Curing Methods.

The Fabricator shall initiate and apply final curing methods to the concrete immediately after the following conditions are met:

- (a) Completion of concrete finishing
- (b) Final set of concrete
- (c) Concrete has hardened sufficiently enough to prevent surface damage

During fabrication of Precast Concrete Bridge Elements, the Fabricator shall maintain the required concrete temperature ranges throughout the entire duration of the final curing method cycle as specified herein. Controlled and gradual termination of the final curing method shall occur after all specified conditions are met. The concrete temperature shall be reduced at a rate not to exceed 36°F per hour until the concrete temperature is within 20°F of the ambient temperature outside of the final curing method enclosure. The Fabricator shall maintain a minimum concrete temperature of 40°F until 100% f'c is attained (see *Handling and Storage* section below).

Water Spray Curing.

All exposed concrete surfaces shall remain moist with a continuous fine spray of water throughout the entire duration of the final curing method cycle (see *Table 4: Final Curing Method Cycle for Water Spray*).

Table 4: Final Curing Method Cycle for Water Spray

Sustained Concrete	Final Curing Method	Compressive
Temperature	Cycle Duration	Strength
50°F ≤ °F ≤ 90°F	\geq Five (5) days	$\geq 80\% f_c$

Saturated Covers for Curing.

All exposed concrete surfaces shall remain moist with a continuous application of saturated covers throughout the entire duration of the final curing method cycle (see *Table 5: Final Curing Method Cycle for Saturated Covers*). Saturated covers shall be allowed to dry thoroughly before removal to provide uniform, slow drying of the concrete surface.

Table 5: Final Curing Method Cycle for Saturated Covers

Sustained Concrete	Final Curing Method	Compressive
Temperature	Cycle Duration	Strength
50°F ≤ °F ≤ 90°F	≥ Three (3) days	$\geq 80\% f_c$

Saturated covers, such as burlap, cotton mats, and other coverings of absorbent materials shall meet the requirements of AASHTO M 182, Class 3. Saturated covers shall be in good condition, free from holes, tears, or other defects that would render it unsuitable for curing concrete. Saturated covers shall be dried to prevent mildew when storing. Prior to application, saturated covers shall be thoroughly rinsed in water and free of harmful substances that are deleterious or cause discoloration to the concrete. Saturated covers shall have sufficient thickness and proper positioning onto the concrete surface to maximize moisture retention.

Saturated covers shall contain a sufficient amount of moisture to prevent moisture loss from the surface of the concrete. Saturated covers shall be kept continuously moist so that a film of water remains on the concrete surface throughout the entire duration of the final curing method cycle. The Fabricator shall not permit the saturated covers to dry and absorb water from the concrete. Use of polyethylene film (see *Polyethylene Film* section) may be applied over the saturated cover to potentially decrease the need for continuous watering.

Sheet Materials for Curing.

All exposed concrete surfaces shall remain moist with a continuous application of curing sheet materials throughout the entire duration of the final curing method cycle (see *Table 6: Final Curing Method Cycle for Curing Sheet Materials*).

Table 6: Final Curing Method Cycle for Sheet Materials

Sustained Concrete	Final Curing Method	Compressive
Temperature	Cycle Duration	Strength
50°F ≤ °F ≤ 90°F	≥ Three (3) days	≥80% f'c

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

Polyethylene Film.

Polyethylene film shall meet the requirements of ASTM C171, consist of a single sheet manufactured from polyethylene resins, be free of visible defects, and have a uniform appearance. Careful considerations shall be taken by the Fabricator to prevent the film from tearing during storage and application, so as to not disrupt the continuity of the film (polyethylene film reinforced with glass or other fibers is more durable and less likely to be torn). The Fabricator shall monitor the application of the film to prevent uneven spots from appearing (mottling) on the concrete surface, due to variations in temperature, moisture content, or both. The Fabricator shall prevent mottling from occurring on the concrete surface by applying additional water under the film or applying a combination of polyethylene film bonded to absorbent fabric to the concrete surface to retain and evenly distribute the moisture.

Immediately following final finishing, polyethylene film shall be placed over the surface of the fresh concrete surface, so as to not damage the surface of the concrete and shall be placed and weighted so that it remains in contact with the concrete throughout the entire duration of the final curing method cycle. The film shall extend beyond the edges of the concrete surface. The film shall be placed flat on the concrete surface, avoiding wrinkles, to minimize mottling. Edges of adjacent polyethylene film shall overlap a minimum of 6 inches and be tightly sealed with the use of sand, wood planks, pressure-sensitive tape, mastic, or glue to maintain close contact with the concrete surface, retain moisture, and prevent the formation of air pockets throughout the entire duration of the final curing method cycle.

White Burlap-Polyethylene Sheeting

White burlap-polyethylene sheeting shall meet the requirements of ASTM C171, be securely bonded to the burlap so to avoid separation of the materials during handling and curing of the concrete, and be applied in the same manner as the polyethylene film.

Reinforced Impervious Paper.

Reinforced impervious paper shall meet the requirements of ASTM C171, consist of two sheets of kraft paper cemented together with a bituminous adhesive and reinforced with embedded cords or strands of fiber running in both directions, and be white in color. Reinforced impervious paper shall be treated to prevent tearing when wetted and dried.

Reinforced impervious paper can be reused so long as it is effective in retaining moisture on the concrete surface. The Fabricator shall visually inspect the reinforced impervious paper for all holes, tears, and pin holes from deterioration of the paper through repeated use by holding the paper up to the light. The paper shall be discarded and prohibited from use when the moisture is no longer retained.

After the concrete has hardened sufficiently to prevent surface damage, the concrete surface shall be thoroughly wetted prior to the application of the reinforced impervious paper, and be applied in the same manner as the polyethylene film.

<u>ITEM 995.01</u> (Continued)

Liquid Membrane-Forming Compounds for Curing.

All exposed concrete surfaces shall remain moist with a continuous application of liquid membrane-forming compounds throughout the entire duration of the final curing method cycle (see *Table 7: Final Curing Method Cycle for Liquid Membrane-Forming Compounds*).

Table 7: Final Curing Method Cycle for Liquid Membrane-Forming Compounds

Sustained Concrete	Final Curing Method	Compressive
Temperature	Cycle Duration	Strength
50°F ≤ °F ≤ 90°F	≥ Seven (7) days	$\geq 80\% f_c$

Liquid membrane-forming compounds shall meet the requirements of ASTM C 1315, Type I, Class A and shall exhibit specific properties, such as alkali resistance, acid resistance, adhesion-promoting quality, and resistance to degradation by ultraviolet light, in addition to moisture-retention capabilities. Liquid membrane-forming compounds shall consist of waxes, resins, chlorinated rubber, or other materials to reduce evaporation of moisture from concrete. Liquid membrane-forming compounds shall be applied in accordance with the manufacturer's recommendations.

Liquid membrane-forming compounds shall be applied immediately after the disappearance of the surface water sheen following final finishing. All exposed surfaces shall be wetted immediately after form removal and kept moist to prevent absorption of the compound, allowing the curing membrane to remain on the concrete surface for proper membrane moisture retention. The concrete shall reach a uniformly damp appearance with no free water on the surface prior to the application of the compound.

If patching or finishing repairs are to be performed prior to the application of the compound, the Precast Concrete Bridge Element shall be covered temporarily with saturated covers until the repairs are completed and the compound is applied. Only areas being repaired shall be uncovered during this period. While the saturated covers are removed to facilitate the patching process, the work shall continue uninterrupted. If for any reason the work is interrupted, saturated covers shall be placed onto the uncovered concrete surface, until the work continues and is completed, at which time the curing compound shall be applied to the repaired area.

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

The compound shall be applied in two applications at right angles to each other to ensure uniform and more complete coverage. On very deeply textured surfaces, the surface area to be treated shall be at least twice the surface area of a troweled or floated surface. In such cases, two separate applications may be needed, each at 200 ft²/gal., with the first being allowed to become tacky before the second is applied.

The curing compound shall be applied by power sprayer, using appropriate wands and nozzles with pressures between 25 and 100 psi. For very small areas such as repairs, the compound shall be applied with a wide, soft-bristled brush or paint roller. The compound shall be stirred or agitated before use and applied uniformly in accordance with the manufacturer's recommended rate. The Fabricator shall verify the application rates are in accordance with the manufacturer's recommended rate.

When the concrete surface is to receive paint, finishes, or toppings that require positive bond to the concrete, it is critical that the curing procedures and subsequent coatings, finishes, or toppings be compatible to achieve the necessary bond.

After the termination of the final curing method cycle has occured, liquid membrane-forming compounds shall be removed by blast-cleaning from any concrete surface that is to receive paint, finishes, plastic concrete from secondary pour, grout, or any other toppings that require bonding to the concrete surface. These surfaces shall be further blast-cleaned to remove the cement matrix down to exposed aggregate to ensure proper bonding to the material. The method used to remove the curing compound shall not damage the reinforcement and coating. Compounds are prohibited on any concrete surface that

will have a penetrating or coating type treatment such as a sealer, stain, or waterproofing membrane applied to it.

Accelerated Curing.

Accelerated curing shall use live steam or radiant heat with moisture in accordance with PCI MNL-116 as modified herein. The concrete temperature shall meet the maximum heat increase and cool down rates as specified herein. Concrete temperature monitoring shall meet the requirements of the *Temperature Monitoring* section. Excessive and fluctuating rates of heating and cooling shall be prohibited. The concrete temperature shall not exceed 158°F at any time. The Fabricator shall meet the following accelerated curing sequencing and requirements.

Initial Delay Period.

The initial delay period shall be defined as the duration immediately following the placement of the concrete and the attainment of initial set of the concrete. The Fabricator shall determine the time of initial set in accordance with AASHTO T 197 specifications. Throughout the entire duration of the preset period, initial curing shall be implemented. The temperature increase period (see *Temperature Increase Period* section) shall not occur until initial set of the concrete is attained. During the initial delay period, the concrete temperature shall meet the following requirements:

- i. Concrete temperature rate of increase shall not exceed 10°F per hour.
- ii. Total concrete temperature increase shall not exceed 40°F higher than the placement concrete temperature or 100°F, whichever is less

Temperature Increase Period.

The temperature increase period shall be defined as the duration immediately following the completion of the initial delay period (after initial set) and immediately prior to the start of the constant maximum temperature period. Application of steam to the enclosure shall not occur until the initial delay period is complete. After the initial delay period is complete, all exposed concrete surfaces shall be cured in a moist environment where the concrete temperature increases at a rate not to exceed 36°F per hour.

Constant Maximum Temperature Period.

The constant maximum temperature period shall be defined as the duration immediately following the completion of the temperature increase period and immediately prior to the start of the temperature decrease period. After the temperature increase period is complete, all exposed concrete surfaces shall be cured in a moist environment at a controlled and constant elevated temperature throughout the entire duration of the constant maximum temperature period. Termination of the constant maximum temperature period and the start of the termination decrease period shall occur after all specified conditions are met (see *Table 8: Constant Maximum Temperature Period*).

Table 8: Constant Maximum Temperature Period

Sustained Concrete Temperature	Constant Maximum Temperature Period	Compressive Strength
$120^{\circ}\text{F} \le {^{\circ}\text{F}} \le 158^{\circ}\text{F}$	$6 \text{hrs} \leq \text{Time} \leq 48 \text{hrs}$	≥80% f'c

Temperature Decrease Period.

After the constant maximum temperature period is complete, the concrete temperature shall be cured in a moist environment at a controlled and reduced rate not to exceed 36°F per hour until the concrete temperature is within 20°F of the ambient temperature outside of the curing enclosure.

Stripping.

The Fabricator shall not strip forms or handle the Precast Concrete Bridge Element until Quality Control compressive strength cylinders attain a minimum compressive strength of 80% Design Strength (f_c) or the value indicated on the approved drawings has been achieved. After removal from the form, all exposed concrete surfaces shall continue to be cured in conformance with the *Final Curing Methods* sections until completion.

Handling and Storage of Precast Concrete Bridge Elements.

Precast Concrete Bridge Elements may be exposed to temperatures below freezing (32°F) when the chosen curing cycle has been completed, provided that the following conditions are met:

- (a) Precast Concrete Bridge Elements are protected from precipitation with polyethylene curing covers until 100% f'c is attained
- (b) Precast Concrete Bridge Elements maintain a minimum concrete temperature of 40°F until 100% f'c is attained

Precast Concrete Bridge Elements damaged during handling and storage will be repaired or replaced at MassDOT's direction at no cost to MassDOT. Precast Concrete Bridge Elements shall be lifted at the designated points by approved lifting devices embedded in the concrete and in accordance with proper lifting and handling procedures. Storage areas shall be smooth and well compacted to prevent damage due to differential settlement. Precast Concrete Bridge Elements shall be supported on the ground by means of continuous blocking, in accordance with the approved dunnage plan.

Precast Concrete Bridge Elements shall be loaded on a trailer with blocking as described above, in accordance with the approved dunnage plan. Shock-absorbing cushioning material shall be used at all bearing points during transportation of the Precast Concrete Bridge Elements. Blocking shall be provided at all locations of tie-down straps. Precast Concrete Bridge Elements stored prior to shipment shall be inspected by the Contractor prior to being delivered to the site to identify damage that would be cause for repair or rejection.

Repairs and Replacement.

In the event defects are identified, they shall be classified in the following categories and a non-conformance report (NCR) shall be filed if required. The NCR shall be submitted to MassDOT for review. Defects in all categories shall be documented by plant Quality Control personnel and made available to MassDOT upon request. Any required repairs shall utilize materials listed on the MassDOT QCML.

Where noted, defects shall be repaired according to the PCI Northeast Region Guidelines for Resolution of Non-Conformances in Precast Concrete Bridge Elements, Report Number PCINE-18-RNPCBE. Please note that reference to PCINE-18-RNPCBE is made for repair details only. In the case of conflicts with this Special Provision, this Special Provision shall govern.

Category 1, Surface Defects.

Category 1 defects do not need to be repaired, and an NCR does not need to be filed. Surface defects are defined as the following:

- (a) Surface voids or bug holes that are less than 5/8-inch in diameter and less than ½-inch deep, except when classified as Category 4
- (b) Cracks less than or equal to 0.006 inches wide
- (c) Cracks less than or equal to 0.125 inches wide on surfaces that will receive a field-cast concrete overlay

Category 2, Minor Defects.

Category 2 defects shall be repaired, but an NCR does not need to be filed. Minor defects are defined as the following:

- (a) Spalls, honeycombing, surface voids that are less than 2 inches deep and have no dimension greater than 12 inches
- (b) Cracks less than or equal to 0.016 inches that will not receive a concrete overlay
- (c) Broken or spalled corners that will be covered by field-cast concrete

Minor defects shall be repaired according to PCINE-18-RNPCBE. Cracks shall be sealed according to the PCI Repair Procedure #14 in PCINE-18-RNPCBE.

Category 3, Major Defects.

For Category 3 defects, the Fabricator shall prepare an NCR that documents the defect and describes the proposed repair procedure. The NCR shall be submitted to MassDOT for approval prior to performing the repair. Major defects are defined as the following:

- (a) Spalls, honeycombing and surface voids that are deeper than 2 inches or have any dimension greater than 12 inches, when measured along a straight line
- (b) Concentrated area of defects consisting of four or more Category 2 Defects within a 4-square foot area.
- (c) Exposed reinforcing steel
- (d) Cracks greater than 0.016 inches and less than or equal to 0.060 inches in width that will not receive a concrete overlay
- (e) Bearing area spalls with dimensions not exceeding 3 inches
- (f) Cracks, spalls and honeycombing that will be encased in cast in place concrete need not be repaired, but the limits and location of the defects shall be documented with an NCR

Upon MassDOT approval, defects and cracks shall be repaired according to PCINE-18-RNPCBE and this specification. All repairs shall be completed at the expense of the Contractor.

Category 4, Rejectable Defects.

Rejectable defects as determined by the MassDOT Inspector, RMS, and Engineer may be cause for rejection. Fabricator may submit an NCR with a proposed repair procedure, requesting approval. Some rejectable defects are defined as the following:

- (a) Surface defects on more than 5% of the surface area which will be exposed to view after installation
- (b) Minor defects that in total make up more than 5% of the surface area of the unit
- (c) Cracks greater than 0.060 inches in width except as noted in Category 1
- (d) Elements fabricated outside of the specified tolerances
- (e) MassDOT compressive strength testing that does not meet the specified Design Strength, f'c

Loading.

Prior to the Fabricator loading the Precast Bridge Element on to the truck for shipping, the Fabricator shall provide the MassDOT Plant Inspector and RMS a minimum seven (7) days' notice of the Fabricator's intent to load the Precast Bridge Element. Inspection by the MassDOT Plant Inspector shall take place while the element is still on dunnage in the yard. The element shall not be loaded onto the truck until the MassDOT Plant Inspector has performed the inspection.

Shipping.

Prior to shipment, the Fabricator shall perform the following actions and provide the required documentation to the MassDOT Plant Inspector:

- (a) Precast Concrete Bridge Elements shall remain at the Fabricator's plant for a minimum of 7 days after cast date.
- (b) QC Inspection Reports shall be signed by the Quality Control Manager and provided to the MassDOT Plant Inspector.
- (c) QC Compressive Strength Test Report Forms attaining Design Strength, f'c for the Precast Concrete Bridge Element's representative Sublot shall be generated by the Fabricator and provided to the MassDOT Plant Inspector.

- (d) Certificate of Compliance shall be generated by the Fabricator as described under the Fabricator Quality Control section and provided to the MassDOT Plant Inspector.
- (e) All MassDOT RMS approved Corrective Actions submitted on the Non-Conformance Reports (NCR), shall be verified to have been completed by the MassDOT Plant Inspector and Quality Control Manager.
- (f) All NCRs shall be signed off by the Quality Control Manager, MassDOT Inspector and MassDOT RMS.

Delivery.

Upon Delivery, the following documentation shall be provided to 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.

The Contractor shall inspect Precast Concrete Bridge Elements upon receipt at the site. Precast Concrete Bridge Elements damaged during delivery shall be repaired or replaced at MassDOT's direction at no cost to MassDOT.

CONSTRUCTION METHODS - FIELD CONSTRUCTION

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 and Quality Control Plan for Precast Concrete Bridge Element Assembly.

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.

Erection Procedure and Quality Control Plan for Precast Concrete Bridge Element Assembly.

Prior to the erection, the Contractor shall submit an Erection Procedure and a Quality Control Plan for Precast Concrete Bridge Element Assembly 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 Procedure and Quality Control Plan for Precast Concrete Bridge Element 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 Precast Concrete Bridge Element Assembly shall, at a minimum, include the following:

Erection Procedure

The Erection Procedure shall be prepared to conform to the requirements of 960.61, Erection and the applicable sections in Chapter 8 of the PCI Design Handbook (seventh 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 Materials (CLSM) — 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.

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.

Quality Control Plan for Precast Concrete Bridge Element Assembly

The Quality Control Plan for Precast Concrete Bridge Element 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 Precast Concrete Bridge Elements shall be submitted on full size 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. The approval of this document will serve as a guideline for setting interim concrete and grout strengths and curing procedures to allow construction to proceed without waiting for the final in-service strengths to be achieved.

The following list details the minimum criteria that should be included in the Quality Control Plan for Precast Concrete Bridge Element Assembly:

- (a) A detailed schedule showing the sequence of operations that the Contractor will follow. The schedule shall include a timeline for installation of all major elements of the bridge accounting for the installation of temporary works and cure times of grouts or closure pour concrete and other selected materials.
- (b) Calculations that support the schedule outlined above should be included verifying that the selected materials have adequate interim strength to proceed from one step to another. Final material strengths are not normally required until the bridge is opened to vehicular traffic. The minimum factor of safety of two (2) will be required for the interim strength of grouts and closure pour concrete before construction is allowed to proceed to subsequent steps. The factor of safety is applied to the service loads that are supported by the elements and materials during various stages of construction. For example, if the Contractor calculates that the grout between the precast
 - pier cap and pier wall requires a strength of 100 psi to support the dead load of the beams in the next step, a cylinder break of 200 psi will be required prior to allowing the pier cap to be loaded with the beams. The required strength of materials for subsequent construction stages shall also be calculated and the material strength verified.
- (c) The Contractor is responsible for determining the center of gravity for all elements. Special care shall be used for unusual elements that are not symmetric. These elements may require special lifting hardware to allow for installation in a plumb or flat position.
- (d) Plan of the work area, depicting items such as temporary earth support, utilities within the immediate vicinity of the work, drainage structures, etc. The Contractor shall coordinate the various subcontractors that will need to occupy the same area and shall ensure that there are no conflicts. For example, if the Contractor is having different Subcontractors prepare and submit plans for temporary earth support and demolition, and the earth support is required to be installed prior to the demolition, it shall be the Contractor's responsibility to ensure that the Quality Control Plan for Precast Concrete Bridge Element Assembly submission allows both operations to be performed without field modification.
- (e) Details of all equipment that shall be employed for the construction of the bridge.
- (f) Methods of providing temporary support of the elements. Include methods of adjusting and securing the element after placement.
- (g) Vertical Adjustment Assemblies to be used as a means of setting precast concrete footings to the correct elevations.

- (h) Procedures for controlling the overall horizontal dimensions and the vertical elevations as each precast concrete bridge element is erected by using the tolerance limits of the joints as detailed on the plans.
- (i) Methods for curing grout.
- (j) Proposed methods for installing non-shrink grout and the sequence and equipment for the grouting operation.
- (k) Methods for sealing the keyways in preparation for filling with non-shrink grout, including the use of backer rods. The Contractor shall not assume that the backer rods will restrain the pressure from the grout in vertical grout joints. Provide additional forming to retain the backer rod.

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.

Preparation of Closure Pour Keyways.

Immediately prior to erecting the Precast Concrete Bridge Elements, the closure pour shear keys 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 and precast concrete using a high-pressure water blast. The 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 shear keys 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.

Erection.

The elements shall be placed in the sequence and according to the methods outlined in the Erection Procedure and Quality Control Plan for Precast Concrete Bridge Element Assembly. 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.

Suitable spreaders shall be used during lifting so that only a vertical pull will be made on the lifting device. A non-vertical lifting force may be permitted if prior written approval is given by the Engineer. 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.

Precast components shall be pre-bed with non-shrink grout thicker than shim stacks prior to placing other precast elements on top of them.

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.

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 Cement Mortar (M4.02.15) or grout.

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.

Type 3 – Structural Non-Excavatable Controlled Low Strength Materials (CLSM)

Installation shall include the placement of Controlled Low Strength Materials (CLSM) – Structural Non-Excavatable below and on all sides of the precast highway guardrail transition as shown on the plans; cost to be considered incidental to installation of the precast unit. Type 3 – Structural Non-Excavatable conforming to the Standard Specifications for Highways and Bridges Subsection M4.08.0.

LAMINATED ELASTOMERIC BEARING W/O ANCHOR BOLTS (51-100K)

DESCRIPTION OF WORK

The work to be performed under this heading shall conform to the relevant provisions of Section M9.14.5 and the following:

SUBMITTALS

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

- 1. Prior to fabrication:
 - a. Written notification in accordance with M9.14.5
 - b. Shop drawings for approval in accordance with Section 5.02 of MassDOT's Supplemental Specifications to the Standard Specifications for Highways and Bridges.
 - i. Fabrication shall not begin until the Contractor receives written approval from the Department that the submitted shop drawings have been received.
- 2. Upon delivery of the bearing pads:
 - a. A Certificate of Compliance certifying that the elastomeric bearing pads meet the requirements of the contract specifications.
 - i. A Mill certificate and certificate of compliance for the steel laminates shall accompany the bearing pads.
 - b. Independent testing results as required below.
 - c. Additional elastomeric bearing pads for MassDOT Acceptance testing as required below.

MATERIALS

Elastomer: The elastomeric compound shall be composed of 100% low temperature Grade

3 virgin crystallization resistant polychloroprene (neoprene).

Steel Laminates: The steel laminates shall meet the requirements of AASHTO M 251.

Internal Load Plates: The internal load plates shall conform to AASHTO M 270 Grade 36 or Grade

50.

FABRICATORS

The National Transportation Product Evaluation Program (NTPEP) shall find the bearing pad fabrication plant to be in compliance with the Elastomeric Bridge Bearing Pad Technical Committee Work Plan. Approved fabricators are listed on the MassDOT QCML.

FABRICATION

Bearing pads shall be fabricated in conformance with the "Method B" design method outlined in the AASHTO LRFD Bridge Design Specifications.

The bearing dimensions, including elastomer thickness and edge cover, number and thickness of steel reinforcing laminates, dimensions of load plates (if any), and the design shear modulus of the elastomer shall be as shown on the Plans.

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

SAMPLING

Sampling of bearing pads for testing shall be random and performed on a lot basis. Lots shall be divided into sublots of 10 bearings. Acceptance samples shall be independently tested as outlined below. For Verification samples taken by the Engineer at the project, the sampling rate shall be one randomly selected full size bearing pad of each size and type in accordance with Subsection M9.14.5. A lot shall be defined as the smallest number of bearings determined by the following criteria:

- 1. A lot shall not exceed a single contract quantity.
- 2. A lot shall consist of bearings of the same size and configuration.
- 3. A lot shall consist of bearings produced in a continuous manner from the same batch of elastomer and cured under the same conditions.

All pads required for testing purposes in accordance with Subsection M9.14.5 of the Standard Specifications shall be considered incidental to this item. The quantities listed in the Schedule of Basis for Partial Payment only include the number of bearings required for construction and do not include the additional bearings required for conformance and destructive testing as outlined herein.

INDEPENDENT TESTING

Independent testing shall be performed by a nationally recognized testing laboratory approved by the Engineer which shall provide certified test results. Each Lot of bearings as defined above shall be randomly sampled and tested at the frequency specified under Section 8.5 of AASHTO M 251. The minimum testing shall be in conformance with Sections 8 and 9 of M 251 as specified below:

- 1. Materials shall meet Section 4 of M 251.
- 2. Dimensions per Section 8.4 of M 251.
- 3. Elastomer per Section 8.6 of M 251.
- 4. Compressive Strain at maximum dead and live load (service) per Section 8.8.1 of M 251.
 - a. The compressive deflection of each bearing shall not exceed 10% of the design effective rubber thickness at a compressive load equal to the maximum design load.
- 5. Short Duration Compression Test per Section 8.8.2 of M 251.
- 6. Shear Modulus of the Elastomer per Section 8.9.1 of M 251.
 - a. The shear modulus shall be between 0.136 and 0.184 ksi.
- 7. Tensile Strength, Ultimate Elongation per ASTM D412.
- 8. Shear Bond Strength per ASTM D429.
- 9. Heat Resistance per ASTM D573.



- 10. Compression Set per ASTM D395.
- 11. Low Temperature Brittleness per ASTM D746 for Elastomer Grades 3.

PACKAGING, HANDLING, AND STORAGE

The bearing pads shall be packaged, handled, and stored in accordance with Section 18.1.3 of the AASHTO LRFD Bridge Construction Specifications. On the top of each completed bearing it shall be clearly identified and marked in accordance with M 251 Section 7. In addition, a 1/32" deep direction arrow shall be inscribed into the bearing which will allow the bearing to be aligned with the up-station direction. All marks shall be permanent and be visible after the bearing is installed.

INSTALLATION

The bearing pads and bridge seat bearing areas shall conform to Section 901.65A(3).

ACCEPTANCE

Requirements for providing notification to the Department prior to the start of bearing pad production as well as the provisions for random sampling of the bearings by the Department at the job site for additional destructive testing shall be in accordance with M9.14.5 and this specification. The Department shall use the results of the independent testing as well as their own testing in the Acceptance of the bearing pads.

PRESTRESSED CONCRETE NEXT 24F BEAMS

The work to be done under this heading shall conform to the applicable provisions of Section 901 of the Standard Specifications and the following:

High Strength Cement Concrete used to fabricate the Prestressed NEXT 24F beams shall be in accordance with the Plans and the requirements listed in these Special Provisions. The minimum 28-day compressive strength shall be 10000 PSI. No prestress shall be transferred to the concrete until it has attained a compressive strength, as shown by cylinder test, of at least 8000 PSI.

General.

The work under this Heading consists of fabricating, transporting and installing Prestressed Concrete Next 24F Beams, and includes all necessary labor, materials, and equipment to complete the work as shown on the Plans. The work shall conform to the MassDOT Standard Specifications and the requirements of the current AASHTO LRFD Bridge Construction Specifications, supplemented by the current relevant provisions of the latest edition of PCI MNL-116 (The Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products), except as noted herein. MassDOT contract documents shall take precedence over the AASHTO LRFD Bridge Construction Specifications and PCI MNL-116. Section 930, M4.02.14, and M4.03.00 through M4.03.14 of the MassDOT Standard Specifications are superseded in their entirety by the requirements specified below.

Subsection M4.06.01 "High Performance Cement Concrete" of the MassDOT Standard Specifications shall be superseded in its entirety by the requirements of Subsection M4.06.1 "High Performance Cement Concrete" of the June 2023 Supplemental Specifications.

QUALITY ASSURANCE

General.

Quality Assurance includes all the planned and systematic actions necessary to provide confidence that a product or facility will perform satisfactorily in service. It is an all-encompassing term that includes Quality Control (performed by the Fabricator) and Acceptance (performed by MassDOT). Quality Control is the system used by the Contractor and Fabricator to monitor and assess their production processes at the plant facility and installation activities at the project site to ensure that the final product will meet the specified level of quality. Acceptance includes all factors used by MassDOT to determine the corresponding value for the product. MassDOT Acceptance inspection at the plant facility is intended as a means of evaluation of compliance with contract requirements. Contractor and Fabricator Quality Control activities and MassDOT Acceptance activities shall remain independent from one another. MassDOT Acceptance activities shall not replace Fabricator Quality Control activities.

Fabricator Quality Control.

Quality Control shall be performed by the Fabricator to ensure that the product is fabricated in conformance with the specifications herein. The Fabricator shall maintain a Quality Control system to monitor, assess, and adjust placement and fabrication processes to ensure the Prestressed Concrete Beam(s) meet the specified level of quality, through sufficient Quality Control sampling, testing, inspection, and corrective action (where required). The Fabricator's Quality Control system shall address all key activities during the placement and fabrication and shall be performed in conformance with the

Fabricator's PCI Certification. Quality Control documentation shall meet the requirements of the *Fabricator Quality Control – Documentation* section below. Upon request, Fabricator Quality Control documentation shall be provided to the MassDOT Plant Inspector.

Plant.

Prior to the fabrication of Prestressed Concrete Beams, the Fabricator's precast concrete plant shall obtain the following:

- (a) Certification by the Precast/Prestressed Concrete Institute (PCI) Plant Certification Program, for Prestressed Concrete Beam fabrication, Category B3 level or higher
- (b) MassDOT Prequalification
- (c) MassDOT Mix Design Approval

All concrete for a given Prestressed Concrete Beam shall be produced by a single company and plant, unless otherwise approved by the Engineer.

Personnel.

The Fabricator shall provide adequate training for all QC personnel in accordance with PCI certification. There shall be sufficient personnel trained and certified to perform the tests listed under Subsection M4.02.13, Part D. At a minimum, the Fabricator's Quality Control Personnel shall maintain the following qualifications and certifications:

- (a) QC Manager with an active Precast/Prestressed Concrete Institute (PCI) Technician/Inspector Level II or higher, and a minimum of 5 years continuous experience in the manufacture of Prestressed Concrete Beams for state transportation departments. The QC Manager shall be on site while the batch plant is producing and placing concrete for MassDOT projects.
- (b) A Technician/Inspector having the Precast/Prestressed Concrete Institute (PCI) Technician/Inspector Level II or higher

The Contractor shall submit to the Engineer a copy of the Fabricator's Quality Control Personnel required qualifications, as specified above.

Laboratory.

The Fabricator shall provide a room of sufficient size to house all equipment and to adequately perform all testing. The room shall have either a separate moisture storage room or curing box for concrete cylinders, and it shall be thermostatically controlled to maintain temperatures consistent with AASHTO T 23. It shall include a desk and file cabinet for proper record keeping, and have good lighting and ventilation. This room shall be kept for testing and quality control and not used for any other purpose. An additional desk and file cabinet shall be provided for exclusive use of the Engineer. No exception from these requirements will be allowed without the express written permission of the Engineer.

Testing Equipment.

At a minimum, the Fabricator's plant facility shall have the following testing equipment:

- (a) Air Content Meter Type A or B: AASHTO T 152
- (b) Air Content Meter Volumetric Method: AASHTO T 196 (Required for Lightweight Concrete)
- (c) Slump Cone: AASHTO T 119
- (d) Cylinder Molds AASHTO M 205
- (e) Concrete Testing Machine: AASHTO T
- (f) Screening Sieve: AASHTO T 27, AASHTO T 11
- (g) Curing Box: AASHTO T 23
- (h) Spread Test Base Plate for Self-Consolidating Concrete (SCC): ASTM C1611
- (i) All other equipment prescribed by AASHTO and ASTM standards for the tests to be performed by the Fabricator as specified

Inspection.

Quality Control personnel shall monitor and inspect the fabrication of each Prestressed Concrete Beam. Quality Control personnel shall report all inspection activities on Quality Control Inspection Reports and non-conformances on Non-Conformance Reports (NCRs) throughout the entire fabrication process, as speciefied herein.

Temperature Monitoring.

At a minimum, the Fabricator shall monitor, record, and report the temperatures of the form, ambient temperatures surrounding the concrete, and temperatures of the concrete continuously, without interruption as specified below:

- (a) Prior to placement of concrete to verify that $Ti \ge 50^{\circ}F$.
- (b) Immediately after placement to verify that $T_i \ge 50^{\circ}F$ is maintained.
- (c) Throughout the entire duration of the curing cycle, at regular intervals not to exceed one hour until 100% Design Strength (f'c) is attained and concrete has cooled to within 40°F of the ambient temperature surrounding the Prestressed Concrete Beam.

At a minimum, the temperature measuring devices shall record and report the temperature of the concrete to the nearest 2°F. At least two temperature sensors (thermocouples) shall be positioned to record the maximum and minimum anticipated concrete temperatures. The anticipated minimum temperature shall be measured with one or more thermocouples at a distance no greater than 2 inches from the surface of the thinnest section. The anticipated maximum temperature shall be measured with one or more thermocouples at the center of the thickest section. Proposed temperature measurement locations shall be submitted to the Engineer for approval. Temperature recording devices shall be located within the curing enclosure and calibrated as required by PCI MNL-116 Section 4.18.4. Maximum heat increase and cool down rates shall comply with PCI MNL-116, Section 4.19. The Contractor shall furnish temperature logs recorded at a minimum frequency of once per hour to the Inspector as required, with each post-pour QC inspection report.

Sampling and Testing.

At a minimum, the Fabricator shall perform random Quality Control sampling and testing as specified in *Table 1: Quality Control Sampling and Testing*. The Fabricator shall perform additional Quality Control sampling and testing on concrete that has been retempered with admixtures or hold-back water during fabrication. Test Specimens shall conform to the requirements of Section M4.02.13 of the MassDOT Standard and Supplemental Specifications and AASHTO R 60, with the exception of the Stripping (80% f°c) set of cylinders. Stripping (80% f°c) cylinders shall be cured in the same location and environment as the Prestressed Concrete Beam they represent. If approved by the Engineer, compressive strength cylinder match curing equipment, that maintains the same concrete conditions that the corresponding Prestressed Concrete Beam is exposed to, may be utilized in lieu of Stripping (80% f°c) field cured cylinders, with the use of thermocouples, controllers, and heaters.

Table 1: Quality Control Sampling and Testing

Quality Characteristic	Test Method	Sample Size	Specification Limit	Lot Size (c)	Sublot Size (d)	Frequency	Point of Sampling
Slump (in.) (a)	AASHTO T 119	Per AASHTO	≤8 in. or as approved by the Engineer				
Air Content (%)	AASHTO T 152	Per AASHTO	5% ≤ % ≤ 8%				
Temperature (°F)	AASHTO T 309	Per AASHTO	50°F ≤ °F ≤ 90°F				
		Stripping Cylinders: One (1) set of Three (3) 4 x 8 in.	≥80% f' c at Stripping	Total Quantity of Beams		One (1) non	
Compressive Strength (psi)	AASHTO T 22	7-day Cylinders: One (1) set of Three (3) 4 x 8 in.	For Information at 7 days	fabricated on a Contract, per Bid Item, per Mix	One (1) Beam	One (1) per Sublot or fraction thereof	Point of Discharge
	AASHTO T 23	28-day Cylinders: One (1) set of Three (3) 4 x 8 in.	≥ 100% f'c at 28 days	Design			
		56-day Cylinders: One (1) set of Three (3) 4 x 8 in.	≥ 100% f'c at 56 days (b)				

Notes:

- (a) Self-consolidating concrete (SCC) shall meet the requirements of M4.02.17.
- (b) 56-day Compressive Strength test specimens shall require testing only when 28-day Compressive Strength test specimens have failed to meet Design Strength (f'c).

- (c) Lot shall be defined as a specific quantity of material from a single source, produced or placed by the same controlled process.
- (d) Sublot shall be defined as an equal division or part of a Lot from which a sample of material is obtained in order to assess the Quality Characteristics of the Lot.

Certificate of Compliance.

The Fabricator shall provide a Certificate of Compliance in accordance with Standard Specifications, Division I, Section 6.01, stating that QC test cylinders have achieved the design strength, f'c. A Certificate of Compliance shall accompany each shipment and shall be presented to the MassDOT Resident Engineer or designee upon delivery to the site.

Documentation.

At a minimum, the Fabricator shall maintain a filing system for the following QC records and documentation. All QC records and documentation shall be made available to MassDOT upon the request of the Department.

- (a) Current MassDOT Approved Mix Design Sheet(s) and Approval Letter(s)
- (b) PCI Certification
- (c) Current Qualifications and Certifications for QC Manager(s) and QC Technician(s)
- (d) Most current set of Approved Shop Drawings
- (e) Approved Placement, Finishing and Curing Plan
- (f) Approved Dunnage Plan
- (g) Fabricator Certificate of Compliance for each fabricated Prestressed Concrete Beam
- (h) Admixture Manufacturer's Certification of Compliance for each approved Admixture
- (i) Completed QC Inspection Report for each fabricated Prestressed Concrete Beam
- (j) Identification Number for each fabricated Prestressed Concrete Beam
- (k) Time and date of casting of each fabricated Prestressed Concrete Beam
- (1) Date of stripping of each fabricated Prestressed Concrete Beam
- (m)Batch Ticket Printout reporting the quantity of concrete produced for each batch of concrete produced
- (n) Concrete temperature records for each fabricated Prestressed Concrete Beam
- (o) QC Test Report Forms for each sublot of concrete produced
- (p) Non-Conformance Reports (NCRs)
- (q) Documentation of Repairs (if applicable)

Acceptance.

MassDOT will perform Acceptance inspection, sampling, and testing during fabrication and installation, to evaluate the quality and degree of compliance of the fabricated Prestressed Concrete Beam to MassDOT specifications. Additionally, MassDOT Inspectors will monitor the Fabricator's Quality Control activities to ensure the Fabricator is properly administering Quality Control in conformance with the Fabricator's NPCA or PCI Certification. Acceptance inspection and test results not meeting MassDOT specifications will result in Non-conformance Reports (NCR) being issued by MassDOT to the Fabricator or Contractor for corrective action. Final Acceptance for the fabricated Prestressed Concrete Beams shall be determined by MassDOT.

1. Inspection.

A MassDOT MassDOT Inspector will be assigned to perform Acceptance activities during fabrication, which includes the inspection of the materials, work procedures, and Prestressed Concrete Beams. At least seven (7) days prior to the scheduled start of fabrication, the Fabricator shall contact the MassDOT Research and Materials Section (RMS) to provide notice of the scheduled fabrication start date. The Fabricator shall complete the following activites prior to notifying MassDOT RMS of the scheduled start date:

- (a) Receive approval for all submitted Fabricator cement concrete mix designs from the MassDOT Research and Materials Section for the current year, as specified under the *Mix Design* section and *Table 3: Trial Batch Sampling Testing for New Mix Designs*. Self-consolidating concrete shall meet the requirements of M4.02.17.
- (b) Receive approval for the submitted Fabricator Placement, Finishing, and Curing Plan from the MassDOT Research and Materials Section, as specified under the *Placement, Finishing, and Curing Plan* section.
- (c) Receive Engineer of Record approved shop drawings from the MassDOT Research and Materials Section as specified under the *Shop Drawings* section.
- (d) Participate in the pre-production meeting, as described under the *Pre-Production Meeting* section (if required).

Prior to the start of fabrication, the Fabricator shall review the fabrication schedule with the MassDOT Inspector. Fabrication shall only proceed when:

- (a) The QC Inspector and MassDOT Inspector are present to inspect the Prestressed Concrete Beam(s) being fabricated.
- (b) The QC Manager is present at the Fabricator's plant.

The Fabricator shall grant access to all required areas of the Fabricator's plant to the MassDOT Inspector, during the hours of fabrication. Fabrication without MassDOT Inspector access to required areas is prohibited, and will result in the rejection of the Prestressed Concrete Beam(s).

Additionally, the MassDOT Inspector will monitor the adequacy of the Fabricator's Quality Control activities. MassDOT Inspector Acceptance activities performed at the Fabricator's plant shall remain independent from the Fabricator, and does not replace the Fabricator's required Quality Control activities.

2. Sampling and Testing.

At a minimum, the MassDOT Inspector will perform random Acceptance sampling and testing for each Sublot of concrete produced as specified in *Table 2: Acceptance Sampling and Testing*. The MassDOT Inspector will also perform Acceptance sampling and testing on concrete that has been retempered with admixtures or hold-back water during production. Test Specimens will conform to the requirements of Section M4.02.13 of the MassDOT Standard and Supplemental Specifications and AASHTO R 60.

<u>ITEM 995.01</u> (Continued)

Table 2: Acceptance Sampling and Testing

Quality Characteristic	Test Method	Sample Size	Specification Limit	Lot Size (c)	Sublot Size (d)	Frequency	Point of Sampling
Slump (in.) (a)	AASHTO T 119	Per AASHTO	≤8 in. or as approved by the Engineer				
Air Content (%)	AASHTO T 152	Per AASHTO	5% ≤ % ≤ 8%				
Temperature (°F)	AASHTO T 309	Per AASHTO	50°F≤°F≤90°F	Total			
Compressive	AASHTO	7-day Cylinders: One (1) set of Three (3) 4 x 8 in. 28-day	For Information at 7 days	Quantity of Beams fabricated on a Contract, per Bid Item,	One (1) Beam	One (1) per Sublot or fraction thereof	Point of Discharge
Strength (psi)	T 22 AASHTO T 23	Cylinders: One (1) set of Three (3) 4 x 8 in.	≥ 100% f' c at 28 days	per Mix Design			
		56-day Cylinders: One (1) set of Three (3) 4 x 8 in.	≥100% f'c at 56 days (b)				

Notes:

- (a) Self-consolidating concrete (SCC) shall meet the requirements of M4.02.17.
- (b) 56-day Compressive Strength test specimens shall require testing only when 28-day Compressive Strength test specimens have failed to meet Design Strength (f'c).
- (c) Lot shall be defined as a specific quantity of material from a single source, produced or placed by the same controlled process.
- (d) Sublot shall be defined as an equal division or part of a Lot from which a sample of material is obtained in order to assess the Quality Characteristics of the Lot.

MATERIALS

Materials.

Materials shall meet the following specifications (if applicable):

General	M4.00.00
Portland Cement	M4.01.0
Blended Hydraulic Cements	M4.01.1
Fly Ash	M4.01.2
Cement Concrete	M4.02.00
Cement	M4.02.01
Cement Mortar	M4.02.15



<u>ITEM 995.01</u> (Continued)

Aggregates	M4.02.02
Lightweight Aggregates	M4.02.03
Water	M4.02.04
Cement Concrete Additives	M4.02.05
Proportioning	M4.02.06
Mixing and Delivery	M4.02.10
Test Specimens	M4.02.13
Mortar for Filling Keyways	M4.04.0

Slag AASHTO M 302

High Performance Cement Concrete M4.06.1– June 2023 Supplemental

Specifications

Self-Consolidating Concrete (SCC) M4.02.17

Prestressing Strands AASHTO M 203

Reinforcing Bars M8.01.0
Epoxy Coated Reinforcing Bars M8.01.7
Welded Wire Reinforcement M8.01.2
Mechanical Reinforcing Bar Splicer M8.01.9
Strand Chuck M8.15.0
Lifting Devices PCI MNL-116

Cement Concrete Mix Design.

The cement concrete shall be comprised of specified proportions of water and MassDOT approved aggregates, cement, supplementary cementitious materials (SCMs), and admixtures to form a homogenous composition. When used, self-consolidating concrete (SCC) shall meet the requirements of M4.02.17. HP Cement Concrete mix design shall meet the requirements of the June 2023 Supplemental Specifications.

The Fabricator is responsible for developing the concrete mix to be used for fabricating prestressed beams and having it prequalified by the MassDOT Research and Materials Section. The mix design compressive strength shall be as shown on the plans and as prequalified by the MassDOT Research and Materials Section. Prequalification shall include the trial batch testing shown in Table 3. For previously prequalified mixes, the Fabricator shall perform any tests specified in Table 3 that were not previously performed.

If the concrete mix has not been prequalified by the MassDOT Research and Materials Section, the Fabricator shall design and submit for approval, the proportions and test results for a concrete mix that shall attain the requirements specified in Table 3. The proposed mix design and all required test results shall be submitted to the MassDOT Research and Materials Section for approval. Requirements for additional testing and receipt of additional documentation from the Fabricator will be determined by RMS. Unsatisfactory results or other conditions identified during this additional testing and additional documentation review, will require re-submission of a new mix design for review and approval.

The mix shall be formulated with calcium nitrite corrosion inhibitors, which shall be added at a rate of 3 gallons per cubic yard of concrete in order to increase the active corrosion threshold to 9.9 pounds of chloride per cubic yard of concrete at the reinforcing bar level. Prior to production of cement concrete, the Fabricator shall report and submit all proposed mix design formulations and its constituent materials onto the MassDOT Cement Concrete Mix Design Sheet to the MassDOT Research and Materials Section for review and approval. All mix design yields shall be designed for 1.0 cubic yards of concrete, with an

allowable tolerance of \pm 1.0 %. All liquids incorporated into the proposed mix design(s) shall include both water and admixtures in the liquid mass calculation.

During production of cement concrete, the Fabricator shall not alter the previously approved mix design formulation or its constituent materials. Proposed alterations in source, type, batch quantity, or gradation to any of the constituent materials of the previously approved mix design formulation shall require a new MassDOT Mix Design Sheet submission to the MassDOT Research and materials Section for review and approval. Fabrication shall not occur without prior MassDOT mix design approval. All concrete used for prestressed concrete beams shall be batched by the Fabricator producing the prestressed concrete beams. The use of ready-mix concrete batched by others shall not be permitted.

The Fabricator shall notify MassDOT RMS to schedule trial batch testing for the new mix design(s). Trial batch testing shall meet the following requirements:

- (a) Performed by a qualified laboratory and/or AASHTO accredited laboratory.
- (b) Performed and/or sampled in the presence of a MassDOT Inspector.
- (c) Meet the requirements as specified in *Table 3: Trial Batch Sampling Testing for New Mix Designs*. Self-consolidating concrete (SCC) shall meet M4.02.17.

Failure to perform all of the required trial batch testing or provide MassDOT RMS trial batch test results within the Specification Limits (as specified in Table 3) will result in the disqualification of the Fabricator's proposed mix design(s).

Quality Characteristic	Test Method	Sample Size	Specification Limit	Performed By
Slump (a)	AASHTO T 119	Per AASHTO	Max. 8 inches or as approved by the Engineer	Quality Control
Air Content (AC)	AASHTO T 152	Per AASHTO	$5\% \le AC \le 8\%$	Quality Control
Temperature (°F)	AASHTO T 309	Per AASHTO	50°F ≤ °F ≤ 90°F	Quality Control
Compressive Strength (b)	AASHTO T 22 AASHTO T 23	28-day Cylinders: One (1) set of Three (3) 4 x 8 in.	Lab Mixed $f'_{cr} = 1.3 f'_{c}$ at 28 days Batch Mixed $f'_{cr} = 1.2 f'_{c}$ at 28 days	MassDOT
Alkali-Silica Reaction (ASR) (d)	ASTM C 1567	Per ASTM	M4.02.00	Quality Control
Resistance to Chloride Ion Penetration Chloride Ion Penetration (c)	AASHTO T 358 ^(f)	28-day Cylinders: One (1) set of Three (3) 4 x 8 in.	Resistivity \geq 21 k Ω -cm at 28 days	MassDOT
Freeze/Thaw Durability (c)	AASHTO T 161 (Procedure A)	Per AASHTO	Relative Dynamic Modulus of Elasticity after 300 cycles > 80%	Quality Control

Table 3: Trial Batch Sampling and Testing for New Mix Designs

Notes:

(a) Self-consolidating concrete (SCC) shall meet the requirements of M4.02.17.

- (b) Trial batch compressive strength testing shall be performed by MassDOT. Acceptance will be based on compressive strength testing performed by MassDOT. For mixes requiring f'_c > 8,000 psi, three consecutive trial batches shall be performed, all achieving f'_{cr} ≥ 1.1 f'_c, for MassDOT approval.
- (c) If an AASHTO accredited laboratory is preparing the trial batch test specimens, MassDOT Acceptance presence is not required. If the Fabricator is preparing the trial batch test specimens, MassDOT Acceptance presence is required during trial batch test specimen preparation.
- (d) Alkali Silica Reaction (ASR) testing shall meet the requirements of M4.02.00. Independent laboratories performing ASR testing shall be listed on the MassDOT Quality Construction Materials List (QCML).
- (e) Calcium nitrite shall be removed from mix designs containing the admixture and replaced by an equivalent quantity of water when preparing Chloride Ion Penetration resistance trial batch test specimens.
- (f) The Wenner probe tip spacing "a" shall be 1.5.

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.

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 steeland 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.

CONSTRUCTION METHODS – PLANT FABRICATION

Shop Drawings

Prior to performing any work under this Section, the Contractor shall receive approval for all shop drawings for the Prestressed Concrete Beam being worked on and any special Contract requirements, provided that a complete shop drawing package is provided. The Contractor shall not order materials or begin work before receiving approved shop drawings. MassDOT will reject any Prestressed Concrete Beams that deviate from the approved drawings or are fabricated prior to receiving written approval of the shop drawings. The Contractor shall bear full responsibility and costs for all materials ordered or work performed prior to the approval of the shop drawings or written authorization from MassDOT.

The Contractor shall submit scaled shop drawings to the Engineer of Record for review and approval. Upon approval, the Engineer of Record will forward two (2) sets of scaled, full size (minimum 24x36") paper copies of the Approved (or Approved As Noted) shop drawings to the MassDOT Director of Research and Materials. Calculations are not to be included in any submittal to the Research and Materials Section. An approval stamp shall appear on every shop drawing sheet. Wet-stamping or wet-signing is not required, provided that the stamp and reviewer name are legible. The Fabricator's name and address shall appear on each sheet.

Resubmittal of "Approved as Noted" shop drawings is not necessary for minor revisions, provided that the correction can be clearly understood and is unambiguous without possibility of misinterpretation.

Shop drawings with questions or comments that require a response and/or additional information from the Fabricator must be resubmitted.

Detailed shop drawings shall be prepared in accordance with the relevant provisions of Subsection 5.02 and shall, at a minimum, contain the following:

- (a) Number and type of Prestressed Concrete Beams including overall length, width and height.
- (b) Skew angle.
- (c) Location and spacing of strands, draped strands and their geometry, and/or location and spacing of strands to be debonded including the length of each strand's debondment.
- (d) Location, size and geometry of all steel reinforcement, and mechanical reinforcing bar splicers if called for on the plans.
- (e) Location and details of all inserts, anchors, and any other items required to be cast into the Prestressed Concrete Beams (whether detailed on the plans by the Engineer of Record or provided for the Contractor's convenience). Prestressed Concrete Beams shall not be fired or drilled into for attachment purposes. All hardware shall be galvanized except as noted.
- (f) Locations and details of the lifting devices, including supporting calculations, type and amount of any additional reinforcing required for lifting. The Fabricator shall design all lifting devices based on the no cracking criteria in Chapter 8 of the PCI Design Handbook (7th edition).
- (g) The minimum compressive strength required prior to release of prestressing and prior to handling the Prestressed Concrete Beam.

The shop drawings shall not include procedures for placement, finishing, and curing of concrete. These details shall be included in the Placement, Finishing and Curing Plan that is to be submitted to MassDOT Research and Materials Section as described under *Placement, Finishing, and Curing Plan*.

Fabrication.

All Prestressed Concrete Beams shall be fabricated in accordance with the latest edition of PCI MNL-116 as modified herein.

Placement, Finishing and Curing Plan.

At least 30 days prior to start of fabrication, the Contractor shall submit the Fabricator's proposed Placement, Finishing and Curing Plan to the Engineer for approval by MassDOT Research and Materials Section. This shall be an independent submittal, separate from the fabrication shop drawings. The Placement, Finishing and Curing Plan shall include the following:

- (a) Method of Mixing
- (b) Method of Placement
- (c) Method of Consolidation
- (d) Method of Finishing
- (e) Method of Initial Curing
- (f) Method of Intermediate Curing
- (g) Method of Final Curing
- (h) Moisture Retention Materials and Equipment (water spray equipment, saturated covers, sheet materials, liquid membrane-forming compounds, accelerated curing equipment, etc.)
- (i) Cylinder Curing Methods, Location, and Environmental Control (temperature, humidity, etc.)

(j) Temperature Monitoring, Recording, and Reporting

Dunnage Plan Shop Drawings.

At least 30 days prior to the start of fabrication, the Contractor shall submit proposed Dunnage Plan Shop Drawings to the Engineer of Record for review and approval. This shall be an independent submittal, separate from the fabrication shop drawings. Upon approval, the Engineer of Record will forward two (2) sets of scaled, full size (minimum 24"x36") paper copies of the Approved (or Approved As Noted) Dunnage Plan Shop Drawings to the MassDOT Director of Research and Materials. Calculations are not to be included in any submittal to the Research and Materials Section. The Dunnage Plan Shop Drawings shall include the following:

- (a) Proposed layout of the Prestressed Concrete Beams for storage in yard and during shipping
- (b) Support and blocking point locations
- (c) Support and blocking materials

Pre-Production Meeting.

The Contractor shall notify the MassDOT Research and Materials Section to determine if a preproduction 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 Section *Quality Assurance – Precast Concrete, C. Acceptance, A. Inspection*), 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.

Reinforcement.

The reinforcing bars shall be installed in accordance with Section 901.62 of the Supplemental 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.

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.

Tolerances.

Fabrication shall comply with tolerances specified on the plans. Tolerances for steel reinforcement placement shall be in accordance with 901.62. In the absence of specifications on the plans, tolerances shall comply with the latest version of the PCI MNL 135, Precast Tolerance Manual.

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. Any defects or damage of more than "Category 2, Minor Defects" made to the concrete, due to form work, stripping or handling, shall be subject to repair or rejection, as defined in the *Repairs and Replacement* section. 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.

Mixing of Concrete.

The concrete shall be proportioned and mixed in conformance with the Fabricator's MassDOT approved mix design and M4.02.10 Mixing and Delivery. Fabrication shall not occur without prior MassDOT mix design approval. The Fabricator shall provide copies of batch tickets to the MassDOT Plant Inspector. The MassDOT Plant Inspector will verify if the batch ticket quantities are within the tolerances of the Fabricator's MassDOT approved mix design.

Placement of Concrete.

Prior to the placement of concrete, the temperature of the forms shall be greater than or equal to 50°F. Quality Control inspection shall be performed by the Fabricator as specified in the *Fabricator Quality Control* section. Placement of the concrete shall not proceed until the MassDOT Plant Inspector is present to perform inspection and begin monitoring Fabricator Quality Control inspection activities and is in compliance with specifications. The MassDOT Plant Inspector shall inspect and accept the placement of the reinforcing steel and prestressing strands prior to the placement of concrete into the forms. The Fabricator shall verify all materials and equipment required for protecting and curing the concrete are readily available and meet the requirements of the *Final Curing Methods* section below. All items encased in the concrete shall be accurately placed in the position shown on the Plans and firmly held during the placing and setting of the concrete. Clearance from the forms shall be maintained by supports, spacers, or hangers and shall be of approved shape and dimension.

During placement, the concrete shall maintain a concrete temperature range between 50°F and 90°F. The Fabricator shall minimize the time to concrete placement (measured from start of mixing to completion of placement). In no event shall time to placement exceed 90 minutes. The Fabricator shall perform additional Quality Control sampling and testing on concrete that has been retempered with admixtures or hold-back water during the placement of the concrete as specified in the *Fabricator Quality Control* section above. Delays or shutdowns of over 30 minutes shall not be allowed during the continuous filling of individual forms.

Consolidation of Concrete.

Suitable means shall be used for placing concrete to prevent segregation or displacement of reinforcing steel or forms. The concrete shall be thoroughly consolidated by external or internal vibrators or a combination of both. Vibrators shall not be used to move concrete within the forms. Vibrators shall be used as specified in 901.63C and as directed by the Engineer. Concrete shall be placed and consolidated

in a way that minimizes the presence of surface voids or bug holes on the formed surfaces. When used, self-consolidating concrete (SCC) shall meet the requirements of M4.02.17.

Finishing of Concrete.

The top of the prestressed concrete beams shall be given a rake finish with a ¼" amplitude applied transversely across the beam to the limits shown on the plans.

Exposed Surfaces of Prestressed Concrete Beams.

As soon as conditions permit, before the concrete has fully hardened, all dirt, laitance, and loose aggregate shall be removed from the exposed concrete surfaces. Contractor shall not allow foot traffic on the uncured concrete until it has reached sufficient strength to prevent damage.

Initial Curing Methods.

After the placement of concrete and prior to concrete finishing, the Fabricator shall initiate initial curing methods when the concrete surface begins to dry, to reduce moisture loss from the surface. Application of one or more of the following initial curing methods shall occur immediately after the bleed water sheen has disappeared.

1. Fogging.

Fogging nozzles shall atomize water into a fog-like mist. The fog spray shall be directed and remain visibly suspended above the concrete surface, to increase the humidity of the air and reduce the rate of evaporation. Water from fogging shall not be worked into the surface during finishing operations and shall be removed or allowed to evaporate prior to finishing.

2. Liquid-applied Evaporation Reducers

Evaporation reducers shall be sprayed onto the freshly placed concrete surface to produce an effective monomolecular film that reduces the risk of plastic-shrinkage cracking and rate of evaporation of the bleed water from the concrete surface. Evaporation reducers shall be applied in accordance with manufacturer's recommendations.

Intermediate Curing Methods.

The Fabricator shall initiate intermediate curing methods if concrete finishing has taken place prior to the concrete reaching final set. The freshly finished concrete surface shall be protected from moisture loss, by the continuation of initial curing methods (fogging and evaporation reducers) until final curing methods are applied or by the use of liquid membrane-forming curing compounds (see *Liquid Membrane-Forming Compounds for Curing* section).

Final Curing Methods.

The Fabricator shall initiate and apply final curing methods to the concrete immediately after the following conditions are met:

- (a) Completion of concrete finishing
- (b) Final set of concrete
- (c) Concrete has hardened sufficiently enough to prevent surface damage

During fabrication of Prestressed Concrete Beams, the Fabricator shall maintain the required concrete temperature ranges throughout the entire duration of the final curing method cycle as specified herein. Controlled and gradual termination of the final curing method shall occur after all specified conditions are met. The concrete temperature shall be reduced at a rate not to exceed 36°F per hour until the concrete temperature is within 20°F of the ambient temperature outside of the final curing method enclosure. The Fabricator shall maintain a minimum concrete temperature of 40°F until 100% f'c is attained (see *Handling and Storage* section below).

1. Water Spray Curing.

All exposed concrete surfaces shall remain moist with a continuous fine spray of water throughout the entire duration of the final curing method cycle (see *Table 4: Final Curing Method Cycle for Water Spray*).

Table 4: Final Curing Method Cycle for Water Spray

Sustained Concrete	Final Curing Method	Compressive
Temperature	Cycle Duration	Strength
50°F ≤ °F ≤ 90°F	\geq Five (5) days	≥80% f'c

2. Saturated Covers for Curing.

All exposed concrete surfaces shall remain moist with a continuous application of saturated covers throughout the entire duration of the final curing method cycle (see *Table 5: Final Curing Method Cycle for Saturated Covers*). Saturated covers shall be allowed to dry thoroughly before removal to provide uniform, slow drying of the concrete surface.

Table 5: Final Curing Method Cycle for Saturated Covers

Sustained Concrete	Final Curing Method	Compressive
Temperature	Cycle Duration	Strength
50°F ≤ °F ≤ 90°F	≥ Three (3) days	≥80% f' _c

Saturated covers, such as burlap, cotton mats, and other coverings of absorbent materials shall meet the requirements of AASHTO M 182, Class 3. Saturated covers shall be in good condition, free from holes, tears, or other defects that would render it unsuitable for curing concrete. Saturated covers shall be dried to prevent mildew when storing. Prior to application, saturated covers shall be thoroughly rinsed in water and free of harmful substances that are deleterious or cause discoloration to the concrete. Saturated covers shall have sufficient thickness and proper positioning onto the concrete surface to maximize moisture retention.

Saturated covers shall contain a sufficient amount of moisture to prevent moisture loss from the surface of the concrete. Saturated covers shall be kept continuously moist so that a film of water remains on the concrete surface throughout the entire duration of the final curing method cycle. The Fabricator shall not permit the saturated covers to dry and absorb water from the concrete. Use of polyethylene film (see *Polyethylene Film* section) may be applied over the saturated cover to potentially decrease the need for continuous watering.

3. Sheet Materials for Curing.

All exposed concrete surfaces shall remain moist with a continuous application of curing sheet materials throughout the entire duration of the final curing method cycle (see *Table 6: Final Curing Method Cycle for Curing Sheet Materials*).

Table 6: Final Curing Method Cycle for Sheet Materials

Sustained Concrete	Final Curing Method	Compressive
Temperature	Cycle Duration	Strength
50°F ≤ °F ≤ 90°F	≥ Three (3) days	≥80% f'c

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

Polyethylene Film.

Polyethylene film shall meet the requirements of ASTM C171, consist of a single sheet manufactured from polyethylene resins, be free of visible defects, and have a uniform appearance. Careful considerations shall be taken by the Fabricator to prevent the film from tearing during storage and application, so as to not disrupt the continuity of the film (polyethylene film reinforced with glass or other fibers is more durable and less likely to be torn). The Fabricator shall monitor the application of the film to prevent uneven spots from appearing (mottling) on the concrete surface, due to variations in temperature, moisture content, or both. The Fabricator shall prevent mottling from occurring on the concrete surface by applying additional water under the film or applying a combination of polyethylene film bonded to absorbent fabric to the concrete surface to retain and evenly distribute the moisture.

Immediately following final finishing, polyethylene film shall be placed over the surface of the fresh concrete surface, so as to not damage the surface of the concrete and shall be placed and weighted so that it remains in contact with the concrete throughout the entire duration of the final curing method cycle. The film shall extend beyond the edges of the concrete surface. The film shall be placed flat on the concrete surface, avoiding wrinkles, to minimize mottling. Edges of adjacent polyethylene film shall overlap a minimum of 6 inches and be tightly sealed with the use of sand, wood planks, pressure-sensitive tape, mastic, or glue to maintain close contact with the concrete surface, retain moisture, and prevent the formation of air pockets throughout the entire duration of the final curing method cycle.

White Burlap-Polyethylene Sheeting

White burlap-polyethylene sheeting shall meet the requirements of ASTM C171, be securely bonded to the burlap so to avoid separation of the materials during handling and curing of the concrete, and be applied in the same manner as the polyethylene film.

Reinforced Impervious Paper.

Reinforced impervious paper shall meet the requirements of ASTM C171, consist of two sheets of kraft paper cemented together with a bituminous adhesive and reinforced with embedded cords or strands of fiber running in both directions, and be white in color. Reinforced impervious paper shall be treated to prevent tearing when wetted and dried.

Reinforced impervious paper can be reused so long as it is effective in retaining moisture on the concrete surface. The Fabricator shall visually inspect the reinforced impervious paper for all holes, tears, and pin holes from deterioration of the paper through repeated use by holding the paper up to the light. The paper shall be discarded and prohibited from use when the moisture is no longer retained.

After the concrete has hardened sufficiently to prevent surface damage, the concrete surface shall be thoroughly wetted prior to the application of the reinforced impervious paper, and be applied in the same manner as the polyethylene film.

4. Liquid Membrane-Forming Compounds for Curing.

All exposed concrete surfaces shall remain moist with a continuous application of liquid membrane-forming compounds throughout the entire duration of the final curing method cycle (see *Table 7: Final Curing Method Cycle for Liquid Membrane-Forming Compounds*).

Table 7: Final Curing Method Cycle for Liquid Membrane-Forming Compounds

Sustained Concrete	Final Curing Method	Compressive
Temperature	Cycle Duration	Strength
50°F≤°F≤90°F	≥ Seven (7) days	≥80% f'c

Liquid membrane-forming compounds shall meet the requirements of ASTM C 1315, Type I, Class A and shall exhibit specific properties, such as alkali resistance, acid resistance, adhesion-promoting quality, and resistance to degradation by ultraviolet light, in addition to moisture-retention capabilities. Liquid membrane-forming compounds shall consist of waxes, resins, chlorinated rubber, or other materials to reduce evaporation of moisture from concrete. Liquid membrane-forming compounds shall be applied in accordance with the manufacturer's recommendations.

Liquid membrane-forming compounds shall be applied immediately after the disappearance of the surface water sheen following final finishing. All exposed surfaces shall be wetted immediately after form removal and kept moist to prevent absorption of the compound, allowing the curing membrane to remain on the concrete surface for proper membrane moisture retention. The concrete shall reach a uniformly damp appearance with no free water on the surface prior to the application of the compound.

If patching or finishing repairs are to be performed prior to the application of the compound, the Precast Concrete Bridge Element shall be covered temporarily with saturated covers until the repairs are completed and the compound is applied. Only areas being repaired shall be uncovered during this period. While the saturated covers are removed to facilitate the patching process, the work shall continue uninterrupted. If for any reason the work is interrupted, saturated covers shall be placed onto the uncovered concrete surface, until the work continues and is completed, at which time the curing compound shall be applied to the repaired area.

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

The compound shall be applied in two applications at right angles to each other to ensure uniform and more complete coverage. On very deeply textured surfaces, the surface area to be treated shall be at least twice the surface area of a troweled or floated surface. In such cases, two separate applications may be needed, each at 200 ft²/gal., with the first being allowed to become tacky before the second is applied.

The curing compound shall be applied by power sprayer, using appropriate wands and nozzles with pressures between 25 and 100 psi. For very small areas such as repairs, the compound shall be applied with a wide, soft-bristled brush or paint roller. The compound shall be stirred or agitated before use and applied uniformly in accordance with the manufacturer's recommended rate. The Fabricator shall verify the application rates are in accordance with the manufacturer's recommended rate.

When the concrete surface is to receive paint, finishes, or toppings that require positive bond to the concrete, it is critical that the curing procedures and subsequent coatings, finishes, or toppings be compatible to achieve the necessary bond

After the termination of the final curing method cycle has occured, liquid membrane-forming compounds shall be removed by blast-cleaning from any concrete surface that is to receive paint, finishes, plastic concrete from secondary pour, grout, or any other toppings that require bonding to the concrete surface. These surfaces shall be further blast-cleaned to remove the cement matrix down to exposed aggregate to ensure proper bonding to the material. The method used to remove the curing compound shall not damage the reinforcement and coating. Compounds are prohibited on any concrete surface that will have a penetrating or coating type treatment such as a sealer, stain, or waterproofing membrane applied to it.

5. Accelerated Curing.

Accelerated curing shall use live steam or radiant heat with moisture in accordance with PCI MNL-116 as modified herein. The concrete temperature shall meet the maximum heat increase and cool down rates as specified herein. Concrete temperature monitoring shall meet the requirements of the *Temperature Monitoring* section. Excessive and fluctuating rates of heating and cooling shall be prohibited. The concrete temperature shall not exceed 158°F at any time. The Fabricator shall meet the following accelerated curing sequencing and requirements.

Initial Delay Period.

The initial delay period shall be defined as the duration immediately following the placement of the concrete and the attainment of initial set of the concrete. The Fabricator shall determine the time of initial set in accordance with AASHTO T 197 specifications. Throughout the entire duration of the initial delay period, initial curing shall be implemented. The temperature increase period (see *Temperature Increase Period* section) shall not occur until initial set of the concrete is attained. During the initial delay period, the concrete temperature shall meet the following requirements:

- i. Concrete temperature rate of increase shall not exceed 10°F per hour.
- ii. Total concrete temperature increase shall not exceed 40°F higher than the placement concrete temperature or 100°F, whichever is less

Temperature Increase Period.

The temperature increase period shall be defined as the duration immediately following the completion of the initial delay period (after initial set) and immediately prior to the start of the constant maximum temperature period. Application of steam to the enclosure shall not occur until the initial delay

period is complete. After the initial delay period is complete, all exposed concrete surfaces shall be cured in a moist environment where the concrete temperature increases at a rate not to exceed 36°F per hour.

Constant Maximum Temperature Period.

The constant maximum temperature period shall be defined as the duration immediately following the completion of the temperature increase period and immediately prior to the start of the temperature decrease period. After the temperature increase period is complete, all exposed concrete surfaces shall be cured in a moist environment at a controlled and constant elevated temperature throughout the entire duration of the constant maximum temperature period. Termination of the constant maximum temperature period and the start of the termination decrease period shall occur after all specified conditions are met (see *Table 8: Constant Maximum Temperature Period*).

Table 8: Constant Maximum Temperature Period

Sustained Concrete		Compressive Strength
Temperature	Temperature Period	1
120°F ≤ °F ≤ 158°F	$6 \text{hrs} \leq \text{Time} \leq 48 \text{hrs}$	≥80% f'c

Temperature Decrease Period.

After the constant maximum temperature period is complete, the concrete temperature shall be cured in a moist environment at a controlled and reduced rate not to exceed 36°F per hour until the concrete temperature is within 20°F of the ambient temperature outside of the curing enclosure.

Release.

The Fabricator shall not release strands or handle the Prestressed Concrete Beam until Quality Control compressive strength cylinders attain a minimum compressive strength of 80% Design Strength (f'c) or the specified detensioning compression strength as indicated on the approved shop drawings has been achieved. All exposed concrete surfaces shall continue to be cured in conformance with the *Final Curing Methods* sections until completion.

Handling and Storage of Prestressed Concrete Beams.

Prestressed Concrete Beams may be exposed to temperatures below freezing (32°F) when the chosen curing cycle has been completed, provided that the following conditions are met:

- (a) Prestressed Concrete Beams are protected from precipitation with polyethylene curing covers until 100% f'c is attained
- (b) Prestressed Concrete Beams maintain a minimum concrete temperature of 40°F until 100% f'c is attained

Prestressed Concrete Beams damaged during handling and storage will be repaired or replaced at MassDOT's direction at no cost to MassDOT. Prestressed Concrete Beams shall be lifted at the designated points by approved lifting devices embedded in the concrete and in accordance with proper lifting and handling procedures. Storage areas shall be smooth and well compacted to prevent damage due to differential settlement. Prestressed Concrete Beams shall be supported on the ground by means of continuous blocking, in accordance with the approved dunnage plan.

Prestressed Concrete Beams shall be loaded on a trailer with blocking as described above, in accordance with the approved dunnage plan. Shock-absorbing cushioning material shall be used at all bearing points during transportation of the Prestressed Concrete Beams. Blocking shall be provided at all locations of tie-down straps. Prestressed Concrete Beams stored prior to shipment shall be inspected by the Contractor prior to being delivered to the site to identify damage that would be cause for repair or rejection.

Repairs and Replacement.

In the event defects are identified, they shall be classified in the following categories and a non-conformance report (NCR) shall be filed if required. The NCR shall be submitted to MassDOT for review. Defects in all categories shall be documented by plant Quality Control personnel and made available to MassDOT upon request. Any required repairs shall utilize materials listed on the MassDOT OCML.

Where noted, defects shall be repaired according to the PCI Northeast Region Guidelines for Resolution of Non-Conformances in Prestressed Concrete Beams, Report Number PCINE-18-RNPCBE. Please note that reference to PCINE-18-RNPCBE is made for repair details only. In the case of conflicts with this Special Provision, this Special Provision shall govern.

1. Category 1, Surface Defects.

Category 1 defects do not need to be repaired, and an NCR does not need to be filed. Surface defects are defined as the following:

- (a) Surface voids or bug holes that are less than 5/8-inch in diameter and less than ½-inch deep, except when classified as Category 4
- (b) Cracks less than or equal to 0.006 inches wide
- (c) Cracks less than or equal to 0.125 inches wide on surfaces that will receive a concrete overlay or spray-applied membrane waterproofing

2. Category 2, Minor Defects.

Category 2 defects shall be repaired, but an NCR does not need to be filed. Minor defects are defined as the following:

- (d) Spalls, honeycombing, surface voids that are less than 2 inches deep and have no dimension greater than 12 inches
- (a) Cracks less than or equal to 0.016 inches that will not receive a concrete overlay or sprayapplied membrane waterproofing
- (b) Broken or spalled corners that will be covered by field-cast concrete

Minor defects shall be repaired according to PCINE-18-RNPCBE. Cracks shall be sealed according to the PCI Repair Procedure #14 in PCINE-18-RNPCBE.

3. Category 3, Major Defects.

For Category 3 defects, the Fabricator shall prepare an NCR that documents the defect and describes the proposed repair procedure. The NCR shall be submitted to MassDOT for approval prior to performing the repair. Major defects are defined as the following:

- (a) Spalls, honeycombing and surface voids that are deeper than 2 inches or have any dimension greater than 12 inches, when measured along a straight line
- (b) Concentrated area of defects consisting of four or more Category 2 Defects within a 4-square foot area
- (c) Exposed reinforcing steel
- (d) Cracks greater than 0.016 inches and less than or equal to 0.060 inches in width that will not receive a concrete overlay or spray-applied membrane waterproofing
- (e) Bearing area spalls with dimensions not exceeding 3 inches
- (f) Cracks, spalls and honeycombing that will be encased in cast in place concrete need not be repaired, but the limits and location of the defects shall be documented with an NCR

Upon MassDOT approval, defects and cracks shall be repaired according to PCINE-18-RNPCBE and this specification. All repairs shall be completed at the expense of the Contractor.

4. Category 4, Rejectable Defects.

Rejectable defects as determined by the MassDOT Inspector, RMS, and Engineer may be cause for rejection. Fabricator may submit an NCR with a proposed repair procedure, requesting approval. Some rejectable defects are defined as the following:

- (a) Surface defects on more than 5% of the surface area which will be exposed to view after installation
- (b) Minor defects that in total make up more than 5% of the surface area of the unit
- (c) Cracks greater than 0.060 inches in width except as noted in Category 1
- (d) Elements fabricated outside of the specified tolerances
- (e) MassDOT compressive strength testing that does not meet the specified Design Strength, f'c

Loading.

Prior to the Fabricator loading the Precast Bridge Element on to the truck for shipping, the Fabricator shall provide the MassDOT Plant Inspector and RMS a minimum seven (7) days' notice of the Fabricator's intent to load the Precast Bridge Element. Inspection by the MassDOT Plant Inspector shall take place while the element is still on dunnage in the yard. The element shall not be loaded onto the truck until the MassDOT Plant Inspector has performed the inspection.

Shipping.

Prior to shipment, the Fabricator shall perform the following actions and provide the required documentation to the MassDOT Plant Inspector:

- (a) Prestressed Concrete Beams shall remain at the Fabricator's plant for a minimum of 7 days after cast date.
- (b) QC Inspection Reports shall be signed by the Quality Control Manager and provided to the MassDOT Plant Inspector.
- (c) QC Compressive Strength Test Report Forms attaining Design Strength, f'c for the Prestressed Concrete Beam's representative sublot shall be generated by the Fabricator and provided to the MassDOT Plant Inspector.

- (d) Certificate of Compliance shall be generated by the Fabricator as described under the Fabricator Quality Control section and provided to the MassDOT Plant Inspector.
- (e) All MassDOT RMS approved Corrective Actions submitted on the Non-Conformance Reports (NCR), shall be verified to have been completed by the MassDOT Plant Inspector and Quality Control Manager.
- (f) All NCRs shall be signed off by the Quality Control Manager, MassDOT Inspector and MassDOT RMS.

Delivery.

Upon Delivery, the following documentation shall be provided to the MassDOT Resident Engineer or designee:

- (a) QC Compressive Strength Test Report Forms attaining Design Strength, f'c for the Prestressed Concrete Beam'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.

The Contractor shall inspect the Prestressed Concrete Beams upon receipt at the site. Prestressed Concrete Beams damaged during delivery shall be repaired or replaced at MassDOT's direction at no cost to MassDOT.

CONSTRUCTION METHODS - FIELD CONSTRUCTION

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:

- (a) QC Compressive Strength Test Report Forms attaining Design Strength, f'c for the Prestressed Concrete Beam'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 Prestressed Concrete Beams prior to installation.

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, Erection and the applicable sections in Chapter 8 of the PCI Design Handbook (seventh edition) for handling, erection, and bracing requirements. At a minimum, the Erection Procedure shall provide:

- (a) Steel reinforcing details, and location and details of lifting devices
- (b) Minimum concrete compressive strength for handling the Prestressed Concrete Beams.
- (c) Concrete stresses stresses during handling, transport, and erection.
- (d) Crane capacities, pick radii, sling geometry, and lifting hardware.
- (e) Verification that the equipment can handle all pick loads and weights with the required factor of safety.
- (f) 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.
- (g) Design of crane supports including verification of subgrade for support.
- (h) Location and design of all temporary bracing that will be required during erection.

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 on full size 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) For NEDBT and NEXT D beams, 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.

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.

Prestressed NEBT, NEDBT, NEXT F, NEXT D and Spread Deck or 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.

As the beams are being erected, the Contractor shall monitor the width of the closure pours and the out-to-out width of the beams top flanges so that, after all beams are erected, the actual overall width of the bridge deck shall not deviate from the dimension shown on the plans beyond a tolerance of +0 inches and -1 inches. In order to achieve this, the Contractor may vary the width of the closure pours within the tolerances specified on the plans.

2. Concrete Deck Slab Placement.

Prior to casting the deck, the abutments and piers shall be prepared for the placement of the deck concrete as called for on the plans and the Contractor shall cut the lifting devices off below the top of the beam.

The top of the beam shall be clean and free of all laitance. 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 with a grout of the same color as that of the precast concrete.

SCHEDULE OF BASIS FOR PARTIAL PAYMENT

Within ten (10) days after the Notice to Proceed, the Contractor shall submit a schedule of unit prices for the major component Sub-Items that make up Item 995.01 as well as his/her total bridge structure Lump Sum cost for Bridge Structure No. H-24-003 (CEE). 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.

The schedule applies only to Bridge Structure No. H-24-003 (CEE). 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 coordination with MassDOT Standard Nomenclature.

ITEM 995. 01 ESTIMATED LUMP SUM BREAKDOWN QUANTITIES (NOT GUARANTEED)

SUB-ITEM	DESCRIPTION	UNIT	QNTY	U.P.	TOT.
Item 450.711	Superpave Bridge Protective Course12.5	TON	6		
	Polymer (SPC – B - 12.5)				
Item 482.31	Sawing and Sealing Joints in Asphalt	FT	70		
	Pavement at Bridges				
Item 904.3	5000 PSI, 3/4 in., 685 HP Cement Concrete	<u>CY</u>	503		
Item 904.31	Precast Concrete Highway Guardrail	<u>EA</u>	<u>4</u>		
	Transition				
Item 910.	Steel Reinforcement For Structures	<u>LB</u>	10395		
Item 910.2	Steel Reinforcement For Structures -		75000		
	Coated				
Item 922.2	Laminated Elastomeric Bearing W/O	<u>EA</u>	16		
	Anchor Bolts(51-100K)				
Item 931.24	Prestressed Concrete Next 24 F Beams	<u>FT</u>	236		
Item 965.	Membrane Waterproofing for Bridge	<u>SF</u>	1991		
	Decks				
Item 970.	Damp-Proofing	<u>SF</u>	3124		
Item 975.1	Metal Bridge Railing (3 Rail), Steel (Type	FT	190		
	S3-TL4)				
	Total C	Cost of Iten	n 995. 01 =		

The above schedule applies only to Bridge Structure, Bridge No. H-24-003. Payment for similar materials and construction at locations other than at this bridge structure shall not be included under this Item.

 DOCUMENT A00802

DETAIL SHEETS

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THE COMMONWEALTH OF MASSACHUSETTS DEPARMENT OF TRANSPORTATION – HIGHWAY DIVISION TEN PARK PLAZA – BOSTON, MA

— PRELIMINARY ESTIMATE OF QUANTITIES — DETAIL SHEET —

City/Town: Hubbardston Year: 2025

Sta. 1+00.00 to Sta. 10+43.65 STA.: Road: Williamsville Road Type: Resurfacing and Related Work Class: Rural Minor Collector

> Date: March 18, 2025

Unclassified Excavation 2,112 CY Gravel Borrow 143 CY

Stone for Pipe Ends 6 SY Gravel Borrow For Backfilling

Crushed Stone 1 TON Structures and Pipes 550 CY

Dense Graded Crushed Stone for Sub-Base 323 CY

PROPOSED PAVEMENT FINE MILLING & PAVEMENT OVERLAY AREA = ±270 SY

SURFACE: 1.5 INCHES SUPERPAVE BRIDGE SURFACE COURSE - 9.5

POLYMER (SSC-B-9.5-P)

FINE MILLING: 1.5 INCHES VARIABLE DEPTH PAVEMENT FINE MILLING

ASPHALT EMULSION FOR TACK COAT (RS-1H) OVER FINE MILLED SURFACES

PROPOSED FULL DEPTH PAVEMENT $AREA = \pm 2,633 SY$

1.5 INCHES SUPERPAVE BRIDGE SURFACE COURSE - 9.5 SURFACE:

POLYMER (SSC-B-9.5-P)

(BRIDGE SURFACE COURSE RECOMMENDED SO IT GETS PLACED IN ONE CONTINUOUS OPERATION TO MINIMIZE TRANSVERSE JOINTS AND IMPROVE RIDEABILITY)

INTERMEDIATE: 2 INCHES SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5)

BASE: 4 INCHES SUPERPAVE BASE COURSE - 37.5 (SBC-37.5)

4 INCHES DENSE GRADED CRUSHED STONE OVER SUB-BASE:

8 INCHES GRAVEL BORROW, TYPE b

ASPHALT EMULSION FOR TACK COAT (RS-1H) OVER MICROMILLED SURFACES

ITEM 101. CLEARING AND GRUBBING

This work shall consist of clearing, grubbing, cutting, removal and disposal of all vegetation and debris from areas as shown on the plans or designated by the Engineer. The work shall also include the preservation from injury or defacement of all vegetation and objects designated by the Engineer to remain.

FROM	TO
STA	STA
1+00.00/11.20RT	4+26.76/15.96RT
6+11.95/29.18RT	6+99.00/23.79RT
5+19.44/39.08LT	6+82.25/24.57LT
3+37.80/29.41LT	4+28.22/41.58LT
7+93.68/24.30LT	8+96.48/22.04LT
9+29.32/22.84LT	9+91.99/26.86LT

ITEM 102. <u>SELECTIVE CLEARING AND THINING</u>

This work under this item shall consist of the removal of hazardous growth and dead, dying or diseased plant material. The location shall be designated in the layout or as directed by the engineer.

FROM	TO
STA	STA
1+45.18/25.89RT	4+22.18/25.72RT
4+73.73/41.41RT	5+82.66/27.51RT
6+08.42/41.88RT	7+77.48/21.60RT
6+56.16/25.85LT	6+80.98/24.50LT

ITEM 102.1 TREE TRIMMING

This item consists of the removal and satisfactory disposal of all dead and other unwanted limbs and branches as designated in the layout or as directed by the engineer.

FROM	TO
STA	STA
1+44.57/28.90RT	4+13.46/50.78RT
4+66.74/49.79RT	5+83.26/47.72RT
6+13.46/43.72RT	7+83.69/31.12RT



ITEM 102.3 HERBICIDE TREATMENT OF INVASIVE PLANTS

Use as directed by the engineer.

ITEM 102.33 INVASIVE PLANT MANAGEMENT STRATEGY

Use as directed by the engineer

ITEM 102.511 TREE PROTECTION – ARMORING AND PRUNING

Use as directed by the engineer

<u>ITEM 102.521</u> <u>TREE AND PLANT PROTECTION FENCE</u>

Use as directed by the engineer

<u>ITEM 104.1</u> <u>TREE REMOVED DIAMETER 36 INCHES AND OVER</u>

LOCATION 7+23.30/13.97RT

ITEM 105.45 SUPPLEMENTAL BORROW FOR NATIVE MATERIAL

Use as directed by the engineer

<u>ITEM 120.1</u> <u>UNCLASSIFIED EXCAVATION</u>

To excavate existing roadway area for placement of proposed roadway, to remove sediment buildup along shoulders of road to restore country drainage, to excavate for guardrail posts, and to construct proposed driveways.

ITEM 141. CLASS A TRENCH EXCAVATION

To construct proposed splash pads, and to rebuild deteriorated paved waterway at location determined by the Engineer.



ITEM 141.1 TEST PIT FOR EXPLORATION

This item shall be excavated where and as directed by the Engineer to locate existing utility crossings at proposed utilities. Assume each test pit is 5'x5'x5'.

Location

4+25.65/7.81RT 4+99.20/4.17RT 5+03.43/0.35RT 4+30.76/5.55LT

ITEM 142. CLASS B TRENCH EXCAVATION

To construct proposed drainage structures and pipes, and, as required, to remove abandoned existing drainage structures and pipes at locations confirmed by the Town or Engineer.

BEGIN STR	STA/OFF	END STR	STA/OFF
CB5	5+34.06/16.45L	DMH4	5+53.85/0.66R
DMH4	5+53.85/0.66R	CB6	5+33.77/15.79
DMH4	5+53.85/0.66R	DMH 5	5+29.26/36.26R
CB7	7+35.64/16.09L	CB8	7+35.89/16.34R
CB11	1+82.00/13.27L	DMH8	1+90.60/10.10L
CI 12	1+82.00/13.30R	DMH10	1+90.73/9.89R

ITEM 144. CLASS B ROCK EXCAVATION

This item is included as a contingency that, if in the opinion of the engineer, rock excavation is required. Assume 2.5% of the total excavation.

ITEM 146. DRAINAGE STRUCTURE REMOVED

To remove existing drainage structures at locations confirmed by the Town or Engineer.

STR	STA/OFFSET
EXIST CB	9+07.02/7.68LT
EXIST CB	7+43.90/6.06RT
EXIST CB	9+07.95/13.68RT

ITEM 150.1 SPECIAL BORROW

Used for the construction of Check Dam at 3+98.27/22.80L

For full-depth reconstruction of the asphalt from STA 1+00 to STA 10+43.65.

ITEM 151. GRAVEL BORROW

This is for under curbs in driveways, HMA driveways and aprons at HMA driveways, granite curb placement along the roadway & for box widening.

ITEM 156. CRUSHED STONE

To construct proposed splash pads.

ITEM 156.2 CRUSHED STONE FOR SLOPE TREATMENT

This is required for the area 1:5:1 slope and/or as shown in the plans.

ITEM 170. FINE GRADING AND COMPACTING – SUBGRADE AREA

To fine grade and compact subgrade at proposed roadway and driveways.

ITEM 201. CATCH BASIN

To install proposed catch basins. All catch basins are proposed with deep sump.

STR	STA/OFF
Prop CB-5	5+34.06/16.45L
Prop CB-6	5+34.06/16.12R
Prop CB-7	7+35.62/15.97L
Prop CB-8	7+35.62/15.75R
Prop CB-9	9+14.27/13.91L
Prop CB-11	1+82.00/13.37L
Prop CB-12	1+81.81/11.05L
Prop CB-10	9+07.95/13.68R
Prop CB-13	3+51.00/14.50R

ITEM 202. MANHOLE

To install proposed manholes.

STR **STA** Prop DMH-4 5+53.82/0.27R Prop DMH-5 5+36.82/39.31R

ITEM 220. DRAINAGE STRUCTURE ADJUSTED

To adjust all existing drainage structures on the project.

STR STA/OFF EXIST DMH-6 6+03.84/0.62R EXIST DMH-7 7+35.59/1.14R EXIST DMH-8 8+90.21/1.45R

ITEM 220.3 DRAINIAGE STRUCTURE CHANGE IN TYPE

STR STA/OFF

EXIST CB-1 1+90.60/13.67 L EXIST CB-2 1+81.81/11.05R

ITEM 222.3 FRAME AND GRATE (OR COVER) MUNICIPAL STANDARD

For proposed catch basins and manholes.

STR	STA/OFF
PROP CB-5	5+34.06/16.45L
PROP CB-6	5+34.06/16.12R
PROP CB-7	7+35.62/15.97L
PROP CB-8	7+35.62/15.75R
PROP CB-9	9+14.27/13.91L
PROP CB-11	1+82.00/13.37L
PROP CB-12	1+81.81/11.05L
PROP CB-10	9+07.95/13.68R
PROP CB-13	3+51.00/14.50R
PROP DMH-4	5+53.82/0.27R
PROP DMH-5	5+36.82/39.31R
EXIST DMH-6	6+03.84/0.62R
EXIST DMH-7	7+35.59/1.14R
EXIST DMH-8	8+90.21/1.45R
EXIST CB-1	1+90.60/13.67L
EXIST CB-2	1+81.81/11.05R



ITEM 223.2 FRAME AND GRATE (OR COVER) REMOVED AND DISCARDED (EA)

For Existing drainage structures.

STR	STA/OFF
EXIST CB-1	1+90.60/10.10LT
EXIST CB-2	1+90.73/9.89RT
EXIST DMH 7	7+35.59/1.14RT
EXIST DMH-6	6+03.84/0.62RT
EXIST DMH-8	8+90.21/1.45RT
EXIST CB	9+07.02/7.68RT
EXIST CB	7+43.90/6.06RT
EXIST CB	9+07.95/13.68RT

ITEM 227.3 REMOVAL OF DRAINAGE STRUCTURE SEDIMENT

Structure	<u>Location</u>
EXIST CB-1	1+90.60/10.10LT
EXIST CB-2	1+90.73/9.89RT
EXIST DMH	6+03.84/0.62RT
EXIST CB	9+08.04/14.79RT
EXIST DMH	7+35.59/1.14RT
EXIST DMH	8+90.21/1.45RT

ITEM 227.31 REMOVAL OF DRAINAGE PIPE SEDIMENT

To clean debris from existing drainage structures and pipes as needed at locations determined by the Engineer.

START/STA	END STA
1+00 (0/10 10)	1 + 00 72 /0 00D
1+90.60/10.10L	1+90.73/9.89R
1+90.80/13.67L	2+00.43/33.27LT
2+30.41/28.15LT	2+71.00/31.04
5+10.81/34.66	5+39.08/36.30
5+38.78/36.51RT	8+89.64/2.53RT
6+03.84/0.62RT	8+90.21/1.45RT
7+35.59/1.14RT	8+90.21/1.45RT



ITEM 227.4 MASONRY PLUG

To remove existing pipe and catch basin and plug a DMH.

7+44.60/6.55RT

ITEM 241.12 12 INCH REINFORCED CONCRETE PIPE CLASS III

FROM	TO
STA	STA
1+90.60/10.10LT	1+82.00/13.27LT
1+90.73/9.89RT	1+82.00/13.30RT
5+33.73/14.65LT	5+53.88/0.01RT
5+53.88/0.01RT	5+33.76/15.81RT
7+35.32/15.64LT	7+35.25/15.78
8+97.42/5.89LT	9+07.98/13.00LT
8+96.01/2.07LT	9+06.66/7.92LT
3+51.00/14.50RT	3+53.10/26.45LT

18 INCH REINFORCED CONCRETE PIPE CLASS III **ITEM 241.18**

FROM TO

STA STA

5+53.88/0.01 RT 5+39.56/36.91RT 5+37.01/36.32RT 5+23.57/35.67RT

ITEM 242.12 12 INCH REINFORCED CONCRETE PIPE FLARED END

STA

3+51.29/25.94RT

ITEM 242.18 18 INCH REINFORCED CONCRETE PIPE FLARED END

STA

5+08.82/34.82RT

ITEM 415.1 PAVEMENT STANDARD MILLING

This item shall consist of the milling and removal of existing HMA pavement courses from the project area.

FROM TO

1+00 1+50 9+93.65 10+43.65

ITEM 450.31 SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC - 12.5)

Williamsville Road - full depth only (not including bridge area)

ITEM 450.42 SUPERPAVE BASE COURSE - 37.5 (SBC - 37.5)

These items shall consist of producing and placing HMA pavement as shown on the plans or directed by the engineer. Williamsville Road - full depth only (not including bridge area)

ITEM 450.601 SUPERPAVE BRIDGE SURFACE COURSE-9.5 POLYMER (SSC-B-9.5-P)

Williamsville Road - full depth only (not including bridge area)

ITEM 450.701 SUPERPAVE BRIDGE PROTECTIVE COURSE-9.5 POLYMER(SPC-B-9.5-P)

For bridge pavement

ITEM 451. HMA FOR PATCHING

This item shall be used for permanent trench patching.

ITEM 452. ASPHALT EMULSION FOR TACK COAT

For applying to existing or new pavement surfaces prior to placing pavement courses.

ITEM 453. HMA JOINT ADHESIVE

For use to bond pavement joints at limits of work & longitudinal joints in the surface course.

ITEM 472. TEMPORARY ASPHALT PATCHING

Use as directed by the engineer.



ITEM 504. GRANITE CURB TYPE VA4 - STRAIGHT

Total Length of Curb along the entire project

Location

FROM TO

1+00/11.08LT 10+43.65/12.71LT 1+00/10.84RT 10+43.65/12.76RT

Deductions

CB

1+91.36/13.35LT 1+90.60/13.22RT 5+33.73/16.05LT 5+33.76/15.96RT 7+35.56/16.00LT 7+35.57/15.77RT 9+14.27/13.91LT 9+08.04/14.79RT

Driveways

3+10.91/18.49LT 5+97.84/22.06RT 7+90.21/17.29RT 8+74.47/16.81LT 9+79.96/14.62LT

Granite Curb Type VA 4-splayed end

10+43.65/12.76LT 10+43.65/12.71LT 1+00/10.90/LT 1+00.27/11.52

ITEM 504 (Continued)

Guard Rail

	Prop Guard Rail flared end
to	=3+60.25/16L
	Prop Guard Rail flared end
to	=3+44.85/16R
	Prop Guard Rail flared end
to	=7+00.00/16L
	Prop Guard Rail flared end
to	=5+50.81/16R
	to

ITEM 504.2 GRANITE CURB TYPE VA4 - SPLAYED END

10+43.65/12.76LT 10+43.65/12.71LT 1+00/10.90LT 1+00.27/11.52RT

ITEM 514. GRANITE CURB INLET – STRAIGHT

1+90.97/13.54LT 1+90.31/13.15RT 5+33.73/16.05 LT 5+33.76/15.96 RT 7+35.65/16.00LT 7+35.57/15.77 RT 9+08.27/13.78RT 9+07.95/13.68LT 3+51.00/14.50RT

ITEM 516. GRANITE CURB CORNER TYPE A

3+10.91/18.49LT 5+97.92/21.14RT 7+90.21/17.29 RT 8+75.47/16.81RT 9+79.84/23.99RT 10+18.39/22.08RT



ITEM 620.13 GUARDRAIL, TL-3 (SINGLE FACED)

Guard Rail Location

TO
4+21.04/16.56LT
4+11.42/16.49 RT
7+23.97/18.35LT
5+76.71/19.34 RT

ITEM 620.131 GUARDRAIL, DEEP POST (SINGLE FACED)

This item shall include the assembly and erection of all components, parts and materials complete at the intended locations.

<u>LOCATION</u>	$\overline{\text{FEET}}$
STA 3+50.33/18.42 RT	12

ITEM 630.2 HIGHWAY GUARD REMOVED AND DISCARDED

Location
From To
3+60.57/12.99LT 4+42.53/10.32 LT
2+79.07/20.25RT 4+28.64/20.20
4+97.84/11.02LT 6+52.38/13.47LT
4+85.59/20.64 RT 5+44.11/25.30 LT

ITEM 657. TEMPORARY FENCE

Assume both sides of the bridge.

ITEM 697. SEDIMENTATION FENCE

As necessary by the determination of the engineer

ITEM 697.1 SILT SACK

At proposed and existing catch basins within project limits.

Prop CB-5	5+34.06/16.45L
Prop CB-6	5+34.06/16.12R
Prop CB-8	7+35.62/15.75R
Prop CB-7	7+35.66/15.97L
EXIST CB	9+07.64/14.05R
EXIST CB	9+06.31/8.84L
EXIST CB	1+90.80/13.67L
EXIST CB	1+90.41/12.92R

ITEM 698.3 GEOTEXTILE FABRIC FOR SEPARATION

For the proposed HMA Swale.

ITEM 767.121 SEDIMENT CONTROL BARRIER

FROM	TO
1+00/16.35RT	4+13.46/50.40RT
4+66.74/49.85RT	5+82.91/27.37RT
6+10.78/27.26RT	6+98.91/21.36RT
9+09.55/21.95RT	9+71.34/26.75RT
9+92.30/26.17RT	10+22.79/28.48RT
7+26.32/17.70LT	10+42.81/15.43LT
5+03.57/1.92LT	6+80.88/23.58LT
3+36.81/24.76LT	4+31.71/20.21LT
1+00.05/16.04LT	2+90.97/28.53LT

ITEM 767.9 JUTE MESH

This is for areas that have a steep slope and shall be placed as directed by the engineer or as shown on the plans.

Location	
FROM	TO
10+42.76/15.24LT	9+14.89/15.62LT



ITEM 769. PAVEMENT MILLING MULCH UNDER GUARD RAIL

Guard Rail Locati

FROM TO

3+36.02/17.84/LT 4+21.04/16.56LT 3+19.20/18.01RT 4+11.42/16.49 RT 5+19.35/16.55LT 7+23.97/18.35LT 5+05.06/16.40 RT 5+76.71/19.34 RT

ITEM 832. WARNING-REGULATORY AND ROUTE MARKER-

ALUMINUM PANEL (TYPE A)

R3-17b R3-17aP R3-17bP

ITEM 847.1 SIGN SUP (N/GUIDE) +RTE MKR W/1 BRKWAY POST ASSEMBLY- STEEL

Location

1+43.29/15.42RT 1+70.03/15.81LT 9+18.29/16.54LT 9+33.06/16.67 RT

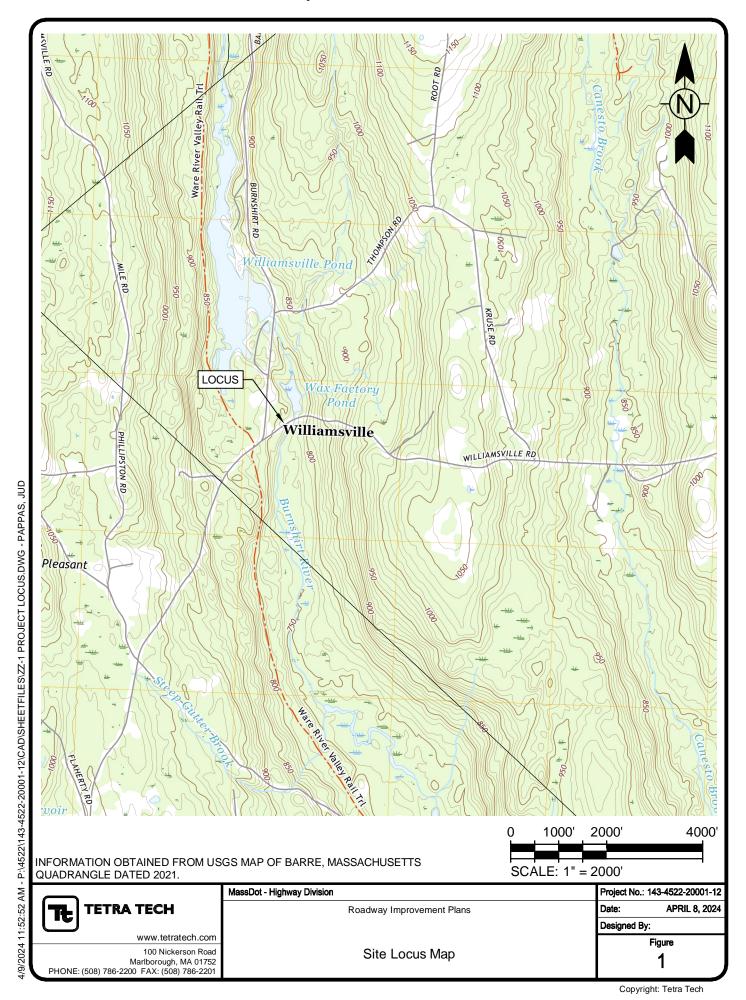
ITEM 986. MODIFIED ROCK FILL

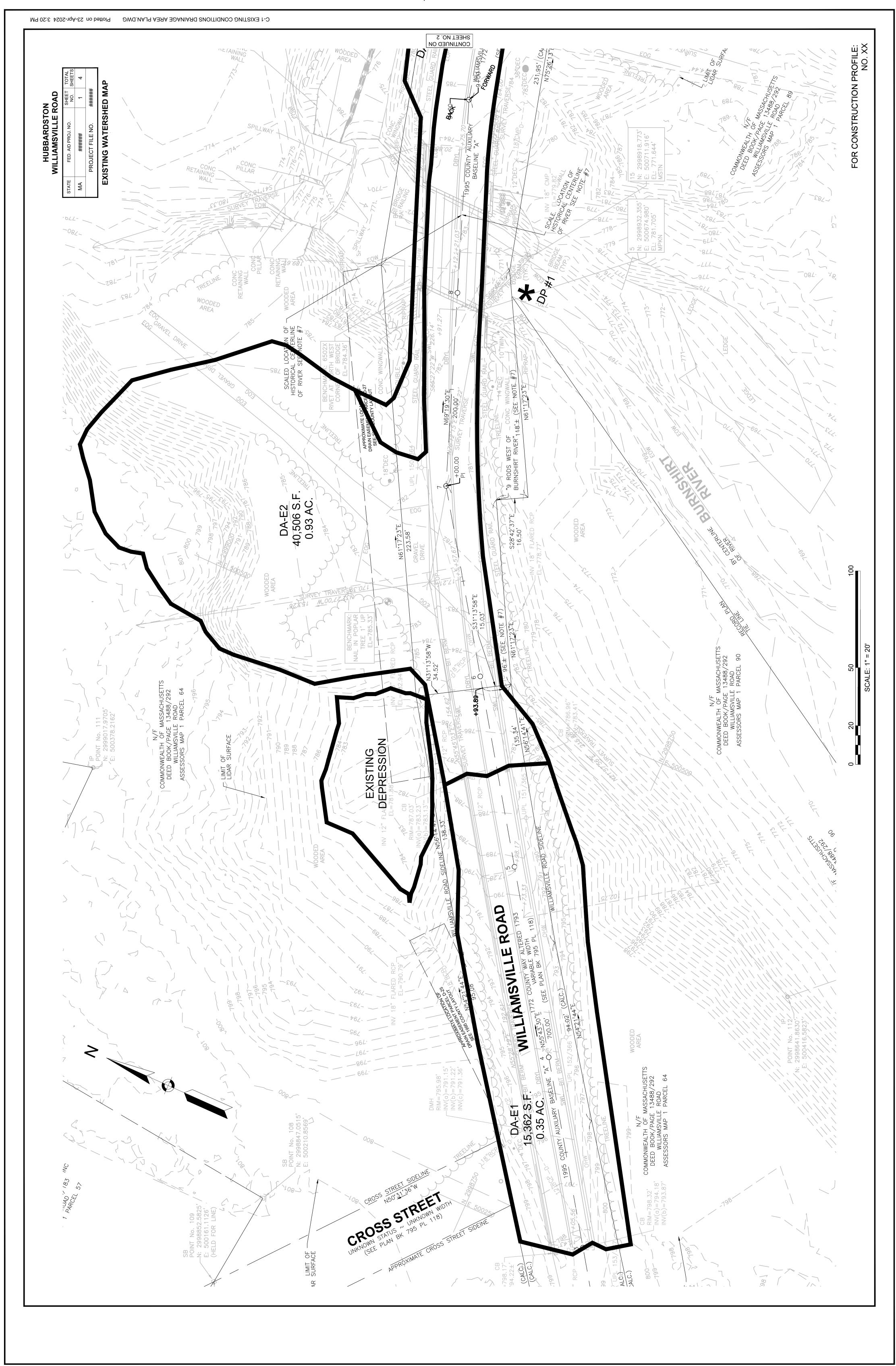
To be used in areas where the location is steep and be placed as directed by the engineer or as shown on the plans.

DOCUMENT A00803

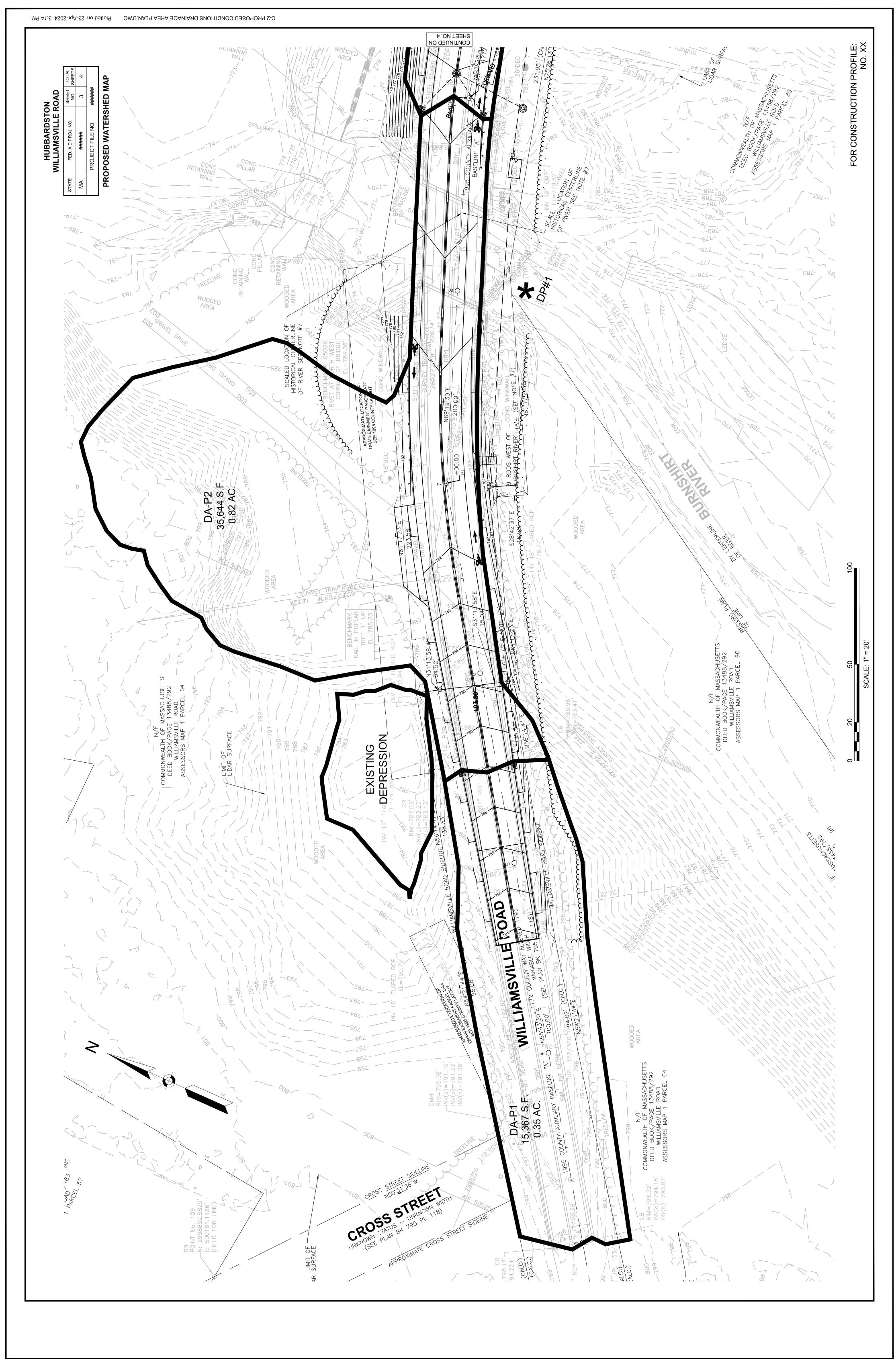
DRAWINGS AND SKETCHES

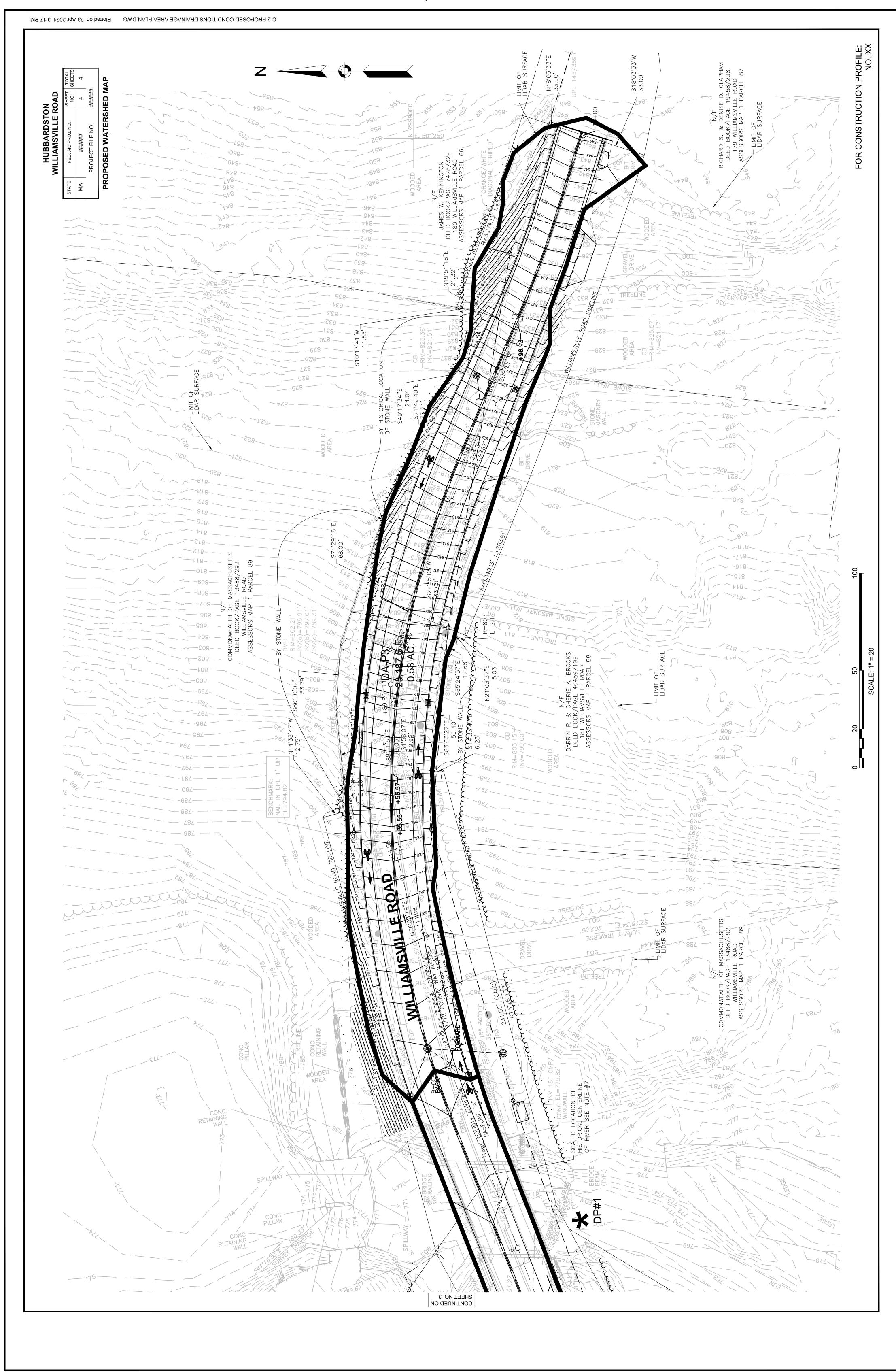
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DOCUMENT A00808

PROJECT UTILITY COORDINATION FORM

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Project Utilities Coordination (PUC) Form

CONTACTS AND GENERAL UTILITY INFORMATION

											<u>.</u>	Date.	
City/Town:			Project File #:		PUC Completed by: Utility Pole Set:	Utility Pole Se	ij						
Hubbardston			609187		C. Grygorcewicz		National Grid	Grid					
Route/Street:			Resident Engineer:	eer:	Mass DOT PM:	Scheduled Ad Date:	Date:		Total Poles Relocated:	cated:		11/5/2024	
Williamsville Road	ad		TBD		Kristine Chestna	3/1/2025			8 Perm., 1 Temp.			PRINTED	
Consultant:			Contact:		Office #	Cell #			Email				
MassDOT HQ			Eric Nova		857-368-9444				eric.nova@dot.state.ma.us	tate.ma.us	s		
Utility Company	Contact	Office #	# Cell	Email	Scope, Budget,		Reimbursement	tue m	Potential for District Initiated Early Relocation *	Utilities On Bridge/Structure		Utilities Underground (UG) /Aerial (OH)	(ng)
					Yes No	Agreement Non-	Non-Reimb'le	Notes	YES NO	YES	NO	UG	ОН
National Grid Electric	Manuel Munoz	(401) 895-9726		manuel.munoz@nationalgrid.com	×	20%			×		×		×
Charter	John Yurkevicius			john.yurkevicius@charter.com	×	%05			×		×		×
Comcast	Miguel Quintal	617-279-9491		Miguel_Quintal@comcast.com	×	20%			×		×		×
Verizon	Paul Styspeck	(413) 787-1845	(413) 575-7058	paul.m.styspeck@verizon.com	×	%05			×		×		×
Hubbardston DPW	Travis Brown	(978) 928-1408		highway@hubbardstonma.us	N/A		Con	Contact Info Only	×		×		×

Utility Relocation Notes for MassDOT Contractor

notice-to-proceed for the first Utility - and each subsequent Utility. These advance notifications are to be identified in the Contractor's Schedules (Pre-Con preparation, Baseline, Subnets, and Updated/Monthly Schedules) as specified in Unless otherwise noted by Contract, the MassDOT Contractor is to provide the District Construction Office with 7 Calendar Days advance notification in order to validate the current progress and provide the required 30 Days advance Subsection 8.02. Note: The durations included below do not include these lead-times. See Additional 'Important Basis notes for Contractor' - on last PUC Form page.

Additional notes:
National Grid will need to temporarily relocate their electric lines away from the bridge to gain 10' of clearance from construction per OSHA standards. Set all poles, both temporary and permanent, at the beginning of project.

National Grid to

This temporary relocation includes 1 temporary pole, as shown on the plans. Charter & Verizon plan to do one permanent relocation, and will not use the temporary pole.

The sequence as detailed on the following pages is based on the consultants proposed staging plan. This information was compiled through meetings that included all of the utilities listed below along with the designer and the Town/City. Th information prior to project advertisement.

ation	
O Transpor	
ASS ts Department Division	
Massachuse Highway	

PUC FORM - CONTINUED

Operations Notes

Reason/Note (optional)

(oN\s9Y

Should an AR be considered for the "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 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 Access Restraint & Limitations of 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 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) z z z z z z z z z z z z z z z z z z zz otential **Access Restraint** 11/5/2024 PRINTED same vicinity formation in these 4 columns is intended to supplement any but NOT in the 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). Contractor Concurrent orking on-site slated Access Restraints that are described in the Special "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 intractor note: In planning and executing the work, the Utility are Contractor and Contractor Off-Site IS MOLKINE) ite (while Utility Concurrent / Exclusive Utility Work oberations onconstruction physical No Contractor Concurrent Utilities on site with other Utility working vicinity Exclusive Utility on Utilities in site with no other **υτιιτ** Μοτκιη**ξ** Utilities (Lead time not included) Estimated Duration (Work Days) by Sub-Total Sub-Total **Sub-Total** Sub-Tota emoval as specified in Contract Documents. Schedule a utility walk-through after pre-construction meeting. Coordinate with MassDOT Survey to locate pole will need to perform any necessary grading, clearing & grubbing, and tree DESCRIPTION - Utility Relocation Phases, Tasks and Activities Yes nnce Comcast is notified by MassDOT or Utility Co. that new poles and power is trasferred, work will take plas as follows install 9 anchors remove 7 anchors) Is 'enabling' (prep) work, by the Contractor, necessary prior to the start of the first series of utility relocations: Verizon Line transfer all cables, drops, and equipment to new poles Verizon to remove ext. arm, poles, pole to anchor guy's and remove associated anchors Verizon to trim out/remove copper cable slack and plack slack fiber into loops elocate fiber from old spans to new strand on opposite side and wreck out old strand including but not limited to snow removal, clearing and grubbing, guard rail removal, all 5 poles, relocate 5 poles, replace 2 anchors, install 9 of 3-477TW, 828' 1/0 triplex, One service replacement) work by the Contractor - Prior to overhead utility relocations contractor this calendar restriction within the schedule (unless otherwise note). erizon Line place new pole to anchor guys & pole to pole guy's ionstruct New Coax onto new strand ransfer Existing plant to new poles old Splice all new coax plice amos and activate, swing and replace drops to new coax lelash existing filters and relocate slack for splicing nabling' work by the Contractor - Construct bridge as shown in plans ocations. Utilities need to be moved prior to bridge demolition. Has any of the Utility work been identified to work concurrently ransformers/equipment (1 transformer replacement il Grid Electric Overhead (351' of 3-477TW, 282' 1/0 triplex) IMPORTANT BASIS NOTES - FOR CONTRACTOR ferizon splice to trim out terminals ferizon to remove non working drops & terminals Construct new fiber onto new pole line splice multiple fibers at new locations Wreck out any old coax/fiber. company to perform Utility relocations. survey temporary pole locations suild new strand oles and Anchors (Install 5 lectric Overhead (828' of 3 Temporary pole Design Build Contracts JTILITY OPERATIONS O − Utility Co **RESPONSIBLE PARTY** c = Contracto Task: 3 Task: 3 Stage 1

For all MassDOT construction contracts issued after January 2014, the new Utility Coordination/documentation specification is required. This is Section 8.14 in Design-Build Contracts (see Design-Build index reference for applicable section

Prior to starting any and all enabling work for Utilities, the Contractor is to plan in advance with submittals and approved durations.

ESPONSIBLE PAR	(aved Pave by	<u> </u>	tractor poto: In planir	and pariting had a	ork tho	Operations Notes	
		•	iti actor more, iii piaiiiii	contractor note: In planning and executing the work, the	ork, the		Sa
		=	nformation in these 4 columns is intended to supplement any	mns is intended to sup	oplement any		
			related Access Restraints that are described in the Special	lat are described in the	e Special	Should an AR be considered for the	red for the
		_	rovisions.			Contractor ?	
			Exclusive Concurrent Utility on Utilities site	Contractor Off-Site	Contractor		
Sontractol Utillity Co.		Utilities (Le:	n no other illities in ty working th other iles on site	Contractor hysical struction ations on- while Utility working)	ractor and illity are ng on-site - VOT in the ne vicinity	ov) (ov) (ov)	
) = O			r , Hilia wi	q noo nəqo v) ətis	UI worki but I	(Yes/)	
8 * Potential District Initiated	* 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	e Contr	ract NTP. In submitti	ng a bid price and in	the developme	nt/basis of the Baseline	
Schedule, the Contractor sh	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	sion, ur	nless otherwise noted	in this Specification	າ, the earliest th	at the first Utility comp	any is to
וברבועב נווב זס משלא מתעמוני	ce nountainon to monitee to the site, will be 7 calendal days after the pre-constitution intenting and rever sooner than 7.5	nays a	ונפן נוופ כסוונומר ואו				

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DOCUMENT A00810

MassDOT Herbicide Use Report

Proposal No .609187-130387



MassDOT Herbicide Use Report

Date Submitted:	

Contractor Performing Work:		Proje	ct or Contract No:	
Town/s:			Associated Route:	
Project Description:				
MDAR ALERT*:				
Treatment		Area Treated	(as applicable)	
Description:		Acres:	Sq Yds:	Miles:
Weeds Targeted:		Gallons Fo	rmula Used:	
Application Method:		Date/	Time Began:	
Product Used:		Dat	e/Time End:	
Name:	Name:		Name:	
EPA Reg. No:	EPA Reg. No:		_ EPA Reg. No	:
% Active Ingredient	% Active Ingre	dient	% Active Ing	redient
Dry:	Dry:		_ Dry:	
Liquid:	Liquid: _		_ Liquid:	
Formulation (dilution rate):	Formulation (dilution rate):		Formulation (dilution rate)):
Additional products used (s	surfactants, etc.) or oth	er information:		
Applicators:			License Numbers:	
* Please note: EDRR Species (MAM, Hogwe Tree of Heaven 1) stands of >2			nny or highway rect are	a 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

Each week, following watering, Log shall be submitted to the MassDOT Engineer. 6/15/2018

Watering Log for MassDOT Plantings

Project Description:	ription:								Contract No:	ct No:		
Plant Locations/s: (Attach planting plan/s as necessary)	ns/s: ting						Notes:		Proje	Project No:		
	Separate Trees sha Provide n	Separate logs shall be kept to track Trees shall receive a minimum of 10 Provide note that if watering is not	e kept to tr minimum vatering is	rack areas of 10 gallo not perfor	or plants w ns with eac med as sch	areas or plants with different watering schedules.) gallons with each watering and shrubs a minimum of 5 gallons. performed as scheduled due to rain. Record date of rainfall and amount.	t watering s and shrubs to rain. Rec	chedules. a minimun	n of 5 gallor rainfall an	ıs. d amount.		
Date Watered												
Landscape Contractor Initial												
Prime Contractor Initial												
Date Watered												
Landscape Contractor Initial												
Prime Contractor Initial												

City/Town: HUBBARDSTON

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)

Project File Number: 609187

*	
Contract Number: 130387	
Project Description: Bridge Replacement, H-24-	003, Williamsville Road over the Burnshirt River
attempts to provide current and accurate inform documents, files or other data "as is" without including but not limited to, accuracy, reliable Commonwealth of Massachusetts and its Consincluding lost profits or other consequential, exin any way to the documents, files or other dat claims arising out of or related to electronic acces on electronic media can deteriorate undetected of	tesy to facilitate public access to information. MassDOT ation but cannot guarantee so. MassDOT provides such any warranty of any kind, either expressed or implied, bility, omissions, completeness and currentness. The sultants shall not be liable for any claim for damages, emplary, incidental, indirect or special damages, relating a accessible from this file, including, but not limited to, so or transmission of data or viruses. Because data stored or be modified without our knowledge, MassDOT cannot censs. MassDOT makes no representation as to the fithe stated CAD software.
conformed contract documents, and that only	y responsibility to reconcile this electronic data with the the conformed contract documents shall be regarded as d that this authorization does not give me the right to d wish to receive the AutoCAD files.
This signed form shall be emailed to the Highw at the following email address:	ay Design Engineer at the MassDOT -Highway Division
DOTHighwayDesign@dot.state.ma Attn: AutoCAD Files	us
Name of person requesting AutoCAD files:	
Affiliation/Company:	
Address:	
Telephone number:	
Email address:	
Signature/Date:	
orginual of Duto.	

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DOCUMENT A00831

ARMY CORPS OF ENGINEERS SELF-VERIFICATION NOTIFICATION

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	SE	U.S. Army Corps of ELF-VERIFICATION					
Authority	Rivers and Harbors Act, Section Engineers; Final Rule 33 CFR 3			_		Regulatory Programs	of the Corps of
Principal Purpose Routine Uses	This information will be used in a Routine uses will include: (1) Do require authorization pursuant to	evaluating activities under ocumenting compliance w o one or more of USACE	vith the term E's Regulato	s and cond	ditions of the Gener	ral Permit (GP) for ac	-
Disclosure	and local agencies for evaluation Failure to fully comply and abide formal enforcement action, up to	de by the GP terms and	conditions	•	J		roject may result in
Instructions	The permittee must complete a completed SVN must be kept of regulatory authorities at any till USACE. The SVN shall be subleach field (e.g., emails, letters, cenae-r-ma-sv@usace.army.m	on site during construction me. Within 30 days of in mitted to USACE as <u>ONE</u> description, phone calls,	n and be mand the man	ade availab oject constr ocument th Electronic su	ole for review by U ruction, the permit hat includes projec ubmissions to the	SACE and other Fed tee shall submit the t plans and documer following address are	eral, State, & Local completed SVN to station that supports e strongly preferred:
		(ITEMS 1 THRU 3 To	O BE FILLE	ED BY USA	ACE)		
1. APPLICATION N	O.	2. FIELD OFFICE CODE	E		3. DATE RECEI	VED	
		APPLICANT AND	AGENT IN	FORMATIO	ON		
4. APPLICANT'S NA	AME			7. AGEN	T'S ADDRESS:		
First -	Middle - L	_ast -		First -		Middle -	Last -
Company -				Company	'-		
E-mail Address -				E-mail Ad	dress -		
5. APPLICANT'S AI	DDRESS:			8. AGENT	Γ'S ADDRESS:		
Address-	ss- Address-						
City -	- State - Zip - Country - City - State - Zip - Country -				Country -		
6. APPLICANT'S PI	APPLICANT'S PHONE NOS. WAREA CODE 9. AGENTS PHONE NOS. WAREA CODE						
a. Residence	b. Business	c. Fax		a. Reside	ence b	o. Business	c. Fax
NAME, LOCATION, AND DESCRIPTION OF PROJECT SITE							
10. PROJECT NAME OR TITLE							
11. FILE NUMBER(S) OF PREVIOUS USACE ACTIONS ON THE SITE (if applicable) 12. NAME OF WATERBODY							
13. PROJECT COORDINATES (in decimal degrees) 14. PROJECT STREET ADDRESS (if applicable))				
Latitude: ∘N Longitude: ∘W Address							
City - State - Zip -				Zip -			
	ACTIVITY	Y TYPE, PROJECT IMPA	-				
15. GENERAL PER	MIT ACTIVITIES (CHECK ALL	THAT APPLY)	16. SUMMA	ARY OF PF	ROJECT IMPACTS	S (see instructions)	
1 6	11 16 _	21	Area (squ	uare feet) I	Length (linear feet)	Volume (cubic yards)	Duration
2 7	12 17 _	22					
3 8	13 18 _	23					
4 9	14 19 _	24					
5 10	15 20 _	25					

17. PROJECT PLANS (BY CHECKING THE BOXES BELOW, YOU CERTIFY THESE ITEMS ARE COMPLETE) (see instructions)

- a. Plans shall at least contain the following: Vicinity Map, Plan View, and Typical Cross Section View of the proposed activity.
- b. All direct, indirect and secondary impacts from USACE regulated activities are shown on the project plans.
- c. The size of the impact area for each activity (acre, square feet, linear feet) are shown on the project plans.
- d. For discharges of fill material (§404), the volume of fill material is identified on the project plans.
- e. The duration of each impact, permanent or temporary (X days), is identified on the project plans.
- f. Do activities with permanent impacts result in the loss of waters? If so, this is identified on the project plans.
- g. All aquatic resources in the vicinity of the USACE regulated activities are delineated on the project plans.

18. AVOIDANCE & MINIMIZATION (BY CHECKING THE BOXES BELOW, YOU CERTIFY THESE CRITERIA ARE MET) (see instructions)

- a. The project has been designed to avoid and minimize impacts to aquatic resources.
- b. The footprint of activities in waters of the U.S. has been reduced to only what is necessary to achieve the overall project purpose.
- c. All practicable measures have been taken to avoid and minimize impacts to aquatic resources through construction techniques and site access (e.g., Best Management Practices, Time of Year Restrictions).
- d. All temporary impacts from USACE regulated activities will be restored upon completion of construction and the project area will be returned to preconstruction contours and conditions.

COMPLIANCE WITH FEDERAL REGULATIONS & SUPPLEMENTAL INFORMATION

19. DUE DILIGENCE (see instructions)

Complete the entries below to document compliance with the following Federal requirements. Construction may NOT begin if a PCN is/may be required, and you must contact USACE to determine permitting requirements. Documentation that demonstrates how the activity complies with each field below shall be submitted to the USACE as noted in the instructions block. See each General Condition (GC) in the GP for how to comply with each requirement.

- a. State Historic Preservation Officer
- b. Massachusetts BUAR
- c. Tribal Historic Preservation Officers
- d. Endangered Species Act NOAA
- e. Endangered Species Act USFWS
- f. Northern Long Eared Bat (ESA)
- g. Essential Fish Habitat
- h. Wild & Scenic Rivers
- i. 401 Water Quality Certification 401

401 WQC/OOC File Number: OOC issued: 401 issued:

- j. Section 408 Permission
- k. Coastal Zone
- I. Construction Mats
- m.Time of Year Restrictions
- n. Vernal Pools
- o. Sediment & Erosion Controls
- p. Stream/Wetland Crossings

20. AQUACULTURE ACTIVITIES - GP 18 (see instructions)

- a. If required, an Aquaculture Certification from the Massachusetts Division of Marine Fisheries was obtained prior to commencing work.
- b. Coordination with the U.S. Coast Guard pursuant to Private Aids to Navigation has occurred prior to commencing work.
- c. If required, a MEPA Certificate was obtained from the Massachusetts Environmental Protection Agency prior to commencing work.
- d. The prospective permittee contacted local authorities (e.g. harbormaster, select board, shellfish constable) for authorization of their facility prior to commencing work.

21. ADDITIONAL INFORMATION/ATTACHMENTS (see instructions)

- a. The project plans are enclosed in this SVN submittal (see block 17).
- b. The activity funded through the Bipartisan Infrastructure Bill (also known as the Infrastructure Investment and Jobs Act).
- c. All required state, local and federal approvals were acquired prior to starting construction in USACE jurisdiction.
- d. After construction of the activity is completed, a complete Certificate of Compliance will be submitted to USACE.

22. IS THERE ANOTHER LEAD FEDERAL AGENCY:

YES NO

Proposal No. 609187-130387

23. STATEMENT OF AUTHORIZATION (see instruction			
I certify that I possess the authority to undertake the	work described herein or am ac	ting as the duly authorized agent of the applica I	ınt.
Courtney Walker	11/22/2024	Alyra Jacobs	11/22/24
SIGNATURE OF APPLICANT	DATE	SIGNATURE OF AGENT	DATE
24. SIGNATURES (see instructions)			
I hereby certify that the information in this Self-Verific	ation Notification is complete ar	nd accurate. As the applicant or their duly autho	orized agent, I certify the
activity was completed in accordance with the terms a	and conditions of the GP. This ir	cludes all applicable terms, general conditions	, and activity-specific GP
criteria. I agree to allow the duly authorized representa	·		
upon the premises of the project site at reasonable ti			
to, takes precedence over, and waives any communic	-		this consent specifically
supersedes and waives that prohibition and grants pe	ermission to enter the property of	respite such posting.	
Courtney Walker SIGNATURE OF APPLICANT	11/22/2024	Alyna Jacobs	11/22/24
SIGNATURE OF APPLICANT	DATE	SIGNATURE OF AGENT	DATE
18 U.S.C. Section 1001 provides that: Whoever, in an	•		
falsifies, conceals, or covers up any trick, scheme, or makes or uses any false writing or document knowing			
\$10,000 or imprisoned not more than five years or bo		statements of chary, shall	be inted flot more than
, , ,			

Instructions for Preparing a Department of the Army General Permit (GP) Self-Verification

- Blocks 1 through 3. To be completed by the Corps of Engineers.
- **Block 4. Applicant' Name.** Enter the name and the e-mail address of the responsible party or parties. If the responsible party is an agency, company, corporation, or other organization, indicate the name of the organization and responsible officer and title. If more than one party is associated with the self-verification, please attach a sheet of paper with the necessary information marked Block 4.
- **Block 5. Address of Applicant.** Please provide the full address of the party or parties responsible for the self-verification. If more space is needed, attach an extra sheet of paper marked Block 5.
- Block 6. Applicant Telephone Number(s). Please provide the telephone number where you can usually be reached during normal business hours.
- Blocks 7 through 9. To be completed, if you choose to have an agent.
- Block 7. Authorized Agent's Name and Title. Indicate name of individual or agency, designated by you, to represent you in this process. An agent can be an attorney, builder, contractor, engineer, consultant, or any other person or organization. Note: An agent is not required.
- Blocks 8 and 9. Agent's Address and Telephone Number. Please provide the complete mailing address of the agent, along with the telephone number where they can be reached during normal business hours.
- Block 10. Proposed General Permit Activity Name or Title. Please provide a name identifying the proposed GP activity, e.g., Windward Marina, Rolling Hills Subdivision, or Smith Commercial Center.
- Block 11. File Number(s) of Previous USACE Actions on the Site Please provide any known USACE file number. If the activity does not have a known USACE file number, you may state N/A.
- **Block 12. Name of Waterbody.** Please provide the name (if it has a name) of any stream, lake, marsh, or other waterway to be directly impacted by the GP activity. If it is a minor (no name) stream, identify the waterbody the minor stream enters.
- **Block 13. Proposed Activity Coordinates.** Please enter the latitude and longitude of where the proposed GP activity is located. Indicate whether the project location provided is the center of the project or whether the project location is provided as the latitude and longitude for each of the "corners" of the project area. If there are multiple sites, please list the latitude and longitude of each site (center or corners) on a separate sheet of paper and mark as Block 13.
- Block 14. Proposed Activity Street Address. If the proposed activity is located at a site having a street address (not a box number), enter it in Block 14.
- **Block 15. General Permit Activity Type.** Please select all GP activity types that apply to the proposed activity. A list of GP activity types can be found in Section III of the GP.
- Block 16. Summary of Project Impacts. Please provide ALL proposed impacts, both temporary and permanent in duration, that are located in Waters of the United States. The area of impact shall be provided in square feet (SF). When applicable, impacts that result in conversion of stream bank or shoreline must also be identified in linear feet (LF). Dredging or the discharge of dredged or fill material shall also include the volume, cubic yards (CY), of material removed from or placed into Waters of the U.S. If more entries are required, please attach a table matching the desired format in Block 16.
- Block 17. Project Plans. Please verify that items a-g are included in the project plans. Three types of illustrations are necessary to properly depict the proposed work. These illustrations or drawings are identified as a Vicinity Map, a Plan View (Aerial view) and a Cross Section Map. For linear projects (e.g. roads, subsurface utility lines, etc.) gradient drawings (longitudinal profile) should also be included. Plans must accurately depict the existing conditions and all aspects of the proposed activity located in waters of the U.S. Please submit one copy of all drawings formatted to print on 8½ x 11 inch or 11 x 17 inch plain white paper. Use the fewest number of sheets necessary for your drawings or illustrations. Each illustration should identify the project, the applicant, and the type of illustration (vicinity map, plan view, or cross section). While illustrations need not be certified engineering sheets; they should be clear, accurate, contain all necessary information, and depict all proposed work. Each submission must also include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current wetland delineation manual and regional supplement published by USACE.
- Block 18. Avoidance & Minimization. Please verify that items a-d have been implemented for the proposed activity.
- Block 19. Due Diligence. Please complete all the fields and submit documentation to USACE to demonstrate compliance with the above requirements. This Documentation may include emails, letters, meeting notes, phone call log, project narrative, project plans, a species list from the NOAA Section 7 Mapper, a completed copy of the IPAC determination keys, etc. Documentation should be limited to what is necessary to demonstrate how the proposed activity meets each requirement. Refer to the MA GP, Appendix A, for specific guidance on the identification of previously identified historic properties and previously unidentified historic properties. Endangered Species: *The applicant must be designated as the non-federal representative for the purposes of Section 7 consultation to select the Rangewide D-Key options. Otherwise, the applicant shall select the following option when IPAC indicates the NLEB is present: "The activity IS located within the NLEB Species Range (PCN Required)."
- Block 20. Aquaculture Activities. Please verify that items a-d have been obtained or completed prior to commencing work in waters of the U.S.
- Block 21. Additional Information/Attachments. Please verify that items a-d have been completed prior to commencing work in waters of the U.S.
- Block 22. Lead Federal Agency. Please identify if there is another lead federal agency involved with the proposed activity. Enter the lead federal agency name (e.g., the Federal Emergency Management Agency, FEMA) and the agency's designated person of contact for the activity.
- **Block 23. Statement of Authorization.** The applicant shall sign this section for all activities. If an agent is to be employed, the agent shall sign this section.
- **Block 24. Signatures.** The SVN must be signed by the person proposing to undertake the GP activity, and if applicable, the authorized party (agent) that prepared the SVN. The signature of the person proposing to undertake the GP activity shall be an affirmation that the party submitting the SVN possesses the requisite property rights to undertake the GP activity.

General Permit No.: NAE-2022-02649 Final Effective Date: June 2, 2023 Expiration Date: June 1, 2028 Applicant: General Public, Commonwealth of Massachusetts

Department of the Army General Permits for the Commonwealth of Massachusetts

The New England District of the U.S. Army Corps of Engineers (USACE) hereby issues twenty-five (25) regional general permits (GPs) for activities subject to USACE jurisdiction in waters of the U.S., including wetlands, navigable waters within the Commonwealth of Massachusetts and adjacent ocean waters to the seaward limit of the outer continental shelf. The Massachusetts GPs (hereafter referred to as the MA GP or GP) are issued in accordance with USACE regulations at 33 CFR 320 -332 [see 33 CFR 325.5(c)(1)]. These GPs establish criteria and contain permit conditions to ensure that the authorized activities have no more than minimal individual and cumulative adverse impacts to the environment.

This document	t contains the following sections:	<u>Pages</u>
SECTION I	Statutory Authorities & Regulated Activities	2
SECTION II	Review Categories & Application Procedures	3-7
SECTION III	Massachusetts General Permits	8-34
SECTION IV	General Conditions	35-51
SECTION V	Mitigation Standards	52-54
SECTION VI	Federal & State Agency Contact Information & Websites	55-56
SECTION VII	Definitions & Acronyms	57-66
APPENDIX A	Guidance for Section 106 NHPA Compliance in Massachusetts	67-71
APPENDIX B	Pre-Construction Notification	72-77
APPENDIX C	Self-Verification Notification	78-81
APPENDIX D	Pre-Construction Notification Application Checklist	82-88

In issuing these GPs, the Federal Government does not assume any liability for the following: (a) damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes; (b) damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the U.S. in the public interest; (c) damages to persons, property or to other permitted or unpermitted activities or structures caused by the activity authorized by any of the GPs; (d) design or construction deficiencies associated with the permitted work; or (e) damage claims associated with any future modification, suspension or revocation of these permits.

Tammy R. Turley 02 June 2023

Chief, Regulatory Division

SECTION I. STATUTORY AUTHORITES & REGULATED ACTIVITIES

1. Work Requiring USACE Authorization

- a. <u>Section 10:</u> Work and structures that are located in, over, under or that affect navigable waters of the United States (U.S.) (see 33 CFR 329). The USACE regulates these activities under section 10 of the Rivers and Harbors Act of 1899 (see 33 CFR 322).
- b. <u>Section 404:</u> The discharge of dredged or fill material into waters of the U.S (see 33 CFR 328). The USACE regulates these activities under Section 404 of the Clean Water Act (CWA). The term "discharge of dredged or fill material" also includes certain discharges resulting from excavation. Applicants should contact USACE to determine if a particular excavation discharge occurring within waters of the U.S., is a regulated activity. See 33 CFR 323.4 of the CWA for exempted activities.

For additional information on the limits of USACE jurisdiction, please see: https://www.nae.usace.army.mil/Portals/74/docs/regulatory/JurisdictionalLimits/Jurisdictional_Limits Brochure.pdf

2. Authority to Issue General Permits

- a. In accordance with 33 CFR 322.2(f), 325.2(e)(2), and 325.5(c), USACE may issue regional general permits authorizing activities under Section 10 of the RHA.
- b. In accordance with Section 404(e) of the CWA, 33 USC 1344(e), and 33 CFR 323.2(h), 325.2(e)(2), and 325.5(c), after notice and opportunity for public hearing, USACE may issue regional general permits for any category of activities involving discharges of dredged or fill material if the activities in such category are similar in nature, will cause only minimal adverse environmental effects when performed separately, and will only have minimal cumulative adverse effect on the environment.

3. Related Laws

33 CFR 320.3 includes a list of related laws including, but not limited to, Section 408 of the Rivers and Harbors Act of 1899, Section 401 of the Clean Water Act, Section 402 of the Clean Water Act, Section 307(c) of the Coastal Zone Management Act of 1972, Section 106 of the National Historic Preservation Act of 1966, Section 7 of the Endangered Species Act, the Fish and Wildlife Coordination Act of 1956, the Magnuson-Stevens Fishery Conservation and Management Act, the Fish and Wildlife Coordination Act, Section 302 of the Marine Protection, Research and Sanctuaries Act of 1972, Section 7(a) of the Wild and Scenic Rivers Act, the Golden Eagle Protection Act, and the Migratory Bird Treaty Act.

SECTION II. REVIEW CATEGORIES & APPLICATION PROCEDURES

To qualify under these GPs, the design, construction, and maintenance associated with each proposed activity must meet the terms and eligibility criteria listed in Section III, all applicable general conditions (GCs) in Section IV, and any specific mitigation requirements in Section V. Applicants should first review the GPs to see if a project is eligible for authorization under one or more of the GPs within this document. Any activity not specifically listed may still be eligible for authorization under these GPs; applicants are advised to contact USACE for specific eligibility determination.

Please note that these GPs allow for Self-Verification (SV) contingent upon meeting all criteria and with full adherence to all GCs. Projects that do not qualify for SV, may meet criteria for Pre-Constriction Notification (PCN). Tables are provided under each activity, which outline criteria for SV and PCN. Activities that do not meet criteria for SV or PCN may require review as an Individual Permit (IP). Activities may require a PCN or IP as noted in Sections III and/or IV of this GP. Notwithstanding compliance with the terms of these GPs, USACE retains discretionary authority to require either PCN review or IP review on a case-by-case basis for any project based on concerns for the environment or for any of the other public interest factors found in 33 CFR 320.4(a). These GPs also do not replace or change those activities identified as exempt from USACE regulation (33 CFR 323.4).

1. Pre-Application Assistance

Prospective applicants may request a pre-application meeting to address any questions they may have. USACE may also request a pre-application meeting or additional information to facilitate review of the request. Pre-application meetings and/or site visits help streamline the authorization process by alerting the prospective applicant to potentially time-consuming factors that may arise during the evaluation of their project (e.g., avoidance, minimization and compensatory mitigation requirements, historic properties, endangered species, essential fish habitat, impacts to federal projects, and/or dredging of contaminated sediments).

To schedule a pre-application meeting, present questions, or if you need further assistance, please contact USACE at:

Email: cenae-r-ma@usace.army.mil (strongly preferred) Phone: (978) 318-8338

Mail: U.S. Army Corps of Engineers New England District Regulatory Division, Massachusetts Section 696 Virginia Road Concord, MA 01742

2. Submitting a Request

Please follow the procedures outlined in Sections II.2-5 when requesting an SV or applying for PCN authorization for activities covered by these GPs. The GPs are provided in Section III below. For SV-eligible projects, the Self-Verification Notification (SVN) must be submitted within 30 days of commencing work. Otherwise, a Pre-Construction Notification (PCN) must be submitted for work that is not SV-eligible. Please include appropriate drawings and attachments and submit your request using the mailbox identified in Section II.4 or II.5 below. USACE will promptly confirm receipt of your request and notify you in the event additional information is required. Guidance on

how to submit electronic correspondence is located on the NAE Regulatory website here: https://www.nae.usace.army.mil/Missions/Regulatory/Submitting-Electronic-Correspondence.

3. Local, State & Federal Approvals

Applicants are responsible for applying for and obtaining any required local, state, and federal permits or approvals. These must be obtained prior to the commencement of work in waters. Such authorizations may include a Water Quality Certification, a Coastal Zone Management Act consistency determination, and other approvals as noted below. Authorization under these GPs does not obviate the need for the permittee to obtain other Federal, State, or local permits, approvals, or authorizations required by law.

I. Water Quality Certification under Section 401 of the Federal Clean Water Act (33 USC 1341). Applicants are responsible for determining the appropriate 401 Water quality Certification (WQC) requirements and submitting this information to the USACE at the time of their PCN application or when completing their SVN. Applicants that are unsure of whether their activity has been certified should contact MassDEP, or EPA Region 1 when the activity is located on tribal lands, for a determination. The 401 WQC requirement must be satisfied by acquiring one of the following WQCs from MassDEP (see GC 8):

General 401 WQC: The MassDEP issued a WQC on April 21, 2023 conditionally certifies all activities in GPs 1 – 24 eligible for SV and PCN so long as the activity is described in 314 CMR 9.03, and is not an activity described in 314 CMR 9.04, and so long as the activity meets all other requirements, terms and conditions of this WQC. The MassDEP WQC also conditionally certifies activities described in GP 25 so long as the activity meets all other conditions of the WQC. Emergency projects described in GP 25 must obtain an emergency certification or otherwise be authorized pursuant to 310 CMR 10.06, qualify under a Severe Weather Emergency Declaration pursuant to 310 CMR 10.06(8) issued by the MassDEP, or meet the requirements of 9.12(2) or (3) in order to be certified under the WQC

Applicants should refer to the following link to determine if their activity is eligible: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/ Massachusetts-General-Permits/. If eligible, you must comply with all applicable WQC conditions. Activities listed in 314 CMR 9.03 that are not exempt from the Wetland Protection Act must have a valid Final Order of Conditions (OOC) or Final Restoration Order of Conditions pursuant to 310 CMR 10.00 to be eligible under the General 401 WQC.

Individual 401 WQC: In the event the proposed activity is not covered by the general WQC, applicants shall contact MassDEP and apply for an individual 401 WQC if their activity does not qualify for a General 401 WQC as outlined above. MassDEP may issue, waive, or deny the individual 401 WQC on a case-by-case basis. All activities listed in 314 CMR 9.04 must obtain an individual 401 WQC from MassDEP to be eligible under these GPs. When an Individual 401 WQC is required for *PCN activities*, the applicant shall submit their Individual 401 WQC application concurrently to MassDEP and the USACE to comply with 40 CFR 121.

Activities Proposed on Tribal Lands: When an activity is proposed on Tribal lands, the applicant shall refer to the general 401 WQCs granted by the Environmental Protection Agency (EPA), Region 1 on May 15, 2023. These 401 WQCs are located on the USACE Regulatory website: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/.

II. Coastal Zone Management Act Federal Consistency Concurrence pursuant to Section 307 of the CZMA of 1972, as amended. Federal consistency concurrence is required for all activities located within the coastal zone, unless determined otherwise by the Massachusetts Office of Coastal Zone Management (MA CZM) (see GC 9). As applicable, this requirement must be satisfied by acquiring one of the following from the MA CZM:

General CZM Federal Consistency Concurrence (General Concurrence): MA CZM has granted General Concurrence for all SV and PCN activities for GPs 1-25 and this can be found at: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/. The applicant must obtain all applicable permits and approvals prior to the commencement of work in USACE jurisdiction (i.e., construction begins on site). For SVs, General Concurrence is automatically granted and no further action is required from the applicant. For PCNs, the USACE will coordinate with MA CZM to acquire General Concurrence as part of the PCN application review. During review of the PCN application, USACE may request additional information from the applicant to support CZM's evaluation of the activity.

Individual CZM Federal Consistency Concurrence (Individual Concurrence): In certain cases, MA CZM may elevate any GP activity 1-25 to require Individual Concurrence. The applicant must contact MA CZM and follow the procedures to obtain Individual Concurrence as determined appropriate by MA CZM.

The MA CZM program includes five regional offices that serve 78 coastal municipalities. The following map provides more information about these offices: https://www.mass.gov/service-details/czm-regions-coastal-communities-and-coastal-zone-boundary

<u>III. Other Approvals</u>: Approvals typically required in Massachusetts include, but are not limited to, a Chapter 91 Permit/License, Massachusetts Environmental Protection Act (MEPA) review, Wetlands Protection Act Order of Conditions, and/or Aquaculture Certification. *Applicants should also be aware that USACE may not be able to render a permit decision in the event the proposed activity is denied by another local, state and/or federal agency.*

4. Procedures for Self-Verification (SV) Eligible Projects

If the activity is eligible for an SV, the Self-Verification Notification (SVN) must be completed prior to the start of project construction and submitted to USACE within 30 days of commencing work. The purpose of the SVN is to provide applicants with a tool to assist them when determining if the activity as proposed is SV-eligible. The following GPs do not require submission of the SVN: GP 1 (SV #1), GP 3 (SV #2-3), GP 4 (SV #2), GP 11, GP 12 (note #2), GP 14 (see note), GP 15 (see note), and GP 24 (SV #3). For the activities <u>not</u> listed above, the SVN must be completed prior to the start of work and be kept on site at all times during project construction. The applicant shall not begin work for SV-eligible activities until they have completely verified the bulleted items below.

Digital submittals by email are <u>strongly encouraged</u> to facilitate the most efficient processing of the SVN submittal. Please communicate with USACE staff if you are unable to provide a digital copy. Addresses are <u>cenae-r-ma-sv@usace.army.mil</u> (email) or Regulatory Division, U.S. Army Corps of Engineers, New England District, 696 Virginia Road, Concord, MA 01742-2751 (mail).

Eligible SV Activities:

- Are subject to USACE jurisdiction (see GC 2); and
- Qualify for one or more of the GPs within this document (Section III); and
- Meet the GCs within this document (Section IV); and

- When required, are supported by a complete SVN (Appendix C); and
- Receive all other required local, State, and/or Federal approvals.

5. Procedures for Pre-Construction Notification (PCN) Eligible Projects

For activities that require a PCN, an application to and written authorization from USACE is required. *No work requiring a PCN may proceed until the applicant receives written authorization from USACE verifying that the activity is authorized.* The verification letter may include special conditions that the applicant must comply with. When possible, it is *highly* recommended that PCN application materials are submitted at least 90 days before the target start date to allow for USACE evaluation and any necessary agency consultations. PCN applications shall demonstrate in writing how the proposed activity complies with all GCs, as applicable to their activity.

Digital submittals by email are <u>strongly encouraged</u> to facilitate the most efficient processing of the PCN application. Please communicate with USACE staff if you are unable to provide a digital copy. Addresses are <u>cenae-r-ma@usace.army.mil</u> or Regulatory Division, U.S. Army Corps of Engineers, New England District, 696 Virginia Road, Concord, MA 01742-2751 (mail).

Eligible PCN Activities:

- Are subject to USACE jurisdiction (see GC 2); and
- Qualify for one or more of the GPs within this document (Section III); and
- Meet the GCs within this document (Section IV); and
- Comply with the Mitigation Standards within this document (Section V); and
- Are supported by a complete PCN document (Appendix B); and
- When required, are supported by the submittal of project information to the appropriate parties identified in Appendix A; and
- Receive all other required local, State, and/or Federal approvals.

6. Interagency Review Procedures

The USACE reserves the opportunity to coordinate PCN activities with Federal and State agencies to ensure that the proposed activity results in no more than a minimal impact to the aquatic environment. In some cases, USACE may require project modifications involving avoidance, minimization, and/or compensatory mitigation for unavoidable impacts to ensure the net effects of a project are minimal. The USACE determines, after review and coordination with the agencies and/or the applicant, if PCN applications:

- a. Meet the terms and conditions of the GP as proposed;
- b. Require additional information:
- c. Require avoidance, minimization, compensatory mitigation, construction sequencing, project modification, or other special conditions to avoid or minimize adverse impacts to the aquatic environment;
- d. Require individual permit review regardless of whether the terms and GCs of these GPs are met, based on concerns for the aquatic environment or any other factor of the public interest (see Section 9 below).

For activities requiring a PCN, the applicant must wait for written authorization from USACE before commencing activities in waters of the U.S. Beginning work for PCN required activities without a USACE written authorization is a violation of these GPs, and the terms and conditions of this document. The applicant may be subjected to an enforcement action by USACE and/or the Environmental Protection Agency (EPA).

7. Construction of Solid Fill Structures and Fills Along the Coastline or Baseline from Which the Territorial Sea is Measured.

Projects involving the construction of solid fill structures or discharge of fill that may extend beyond the coastline or the baseline from which the territorial sea is measured (i.e., mean low water) will require a PCN. The USACE will submit a description of the proposed work and a copy of the plans to the Solicitor, Department of the Interior, Washington, DC 20240, and request comments concerning the effects of the proposed work on the outer continental rights of the United States. These comments will be included in the administrative record of the application. After completion of permit review, the record will be forwarded to the Chief of Engineers. The decision on the application will be made by the Secretary of the Army after coordination with the Attorney General.

8. Emergency Activities

Per 33 CFR 325.2(e)(4), an emergency is limited to a situation that would result in an unacceptable hazard to life, a significant loss of property, or an immediate, unforeseen, and significant economic hardship if corrective action requiring a permit is not undertaken within a time period less than the normal time needed to process an application under standard procedures. Emergency work shall be limited to that which is necessary to stabilize and secure the situation. Additional work needed for final repairs shall not be completed until approval is obtained through the appropriate, non-emergency process. Emergency work is subject to the same terms and conditions of these GPs as non-emergency work, and similarly, must qualify for authorization under these GPs; otherwise, an IP is required. See GP 25 Emergency Situations for additional information.

9. Individual Permit

Projects that do not meet the terms and conditions of this GP may require review as an IP (33 CFR 325.5 (b)). Proposed work in this category will require a separate Federal application for an individual permit from USACE (33 CFR 325.1). In addition, USACE retains discretionary authority on a case-by-case basis to elevate GP-eligible activities to an IP based on concerns for the environment or any other factor of the public interest (33 CFR 320.4 (a)). Applicants are required to submit the appropriate application materials directly to USACE as early as possible to expedite the permit review process. General information and application forms can be obtained at our website or by contacting our office at cenae-r-ma@usace.army.mil or (978) 318-8338. Individual 401 WQC and/or CZMA Federal consistency concurrence from the appropriate MA agencies are required before USACE can issue an individual permit. Applying for an IP does not relieve the applicant from their obligation to obtain all required Federal, State and/or local approvals.

10. Compliance

Applicants shall ensure compliance with all applicable GPs in Section III, GCs in Section IV, and any special conditions included in USACE verification letters. Noncompliance with these GPs, GCs, and special conditions may subject the applicant to criminal, civil, or administrative penalties, and/or an ordered restoration, and/or the permit may be modified, suspended or revoked by USACE. The USACE will consider any activity requiring USACE authorization to be noncompliant if that activity does not comply with all GP terms and conditions at all times, including while the project is under construction and when work is completed.

SECTION III. MASSACHUSETTS GENERAL PERMITS

Applicants are encouraged to review Sections I & II prior to submitting an application to confirm that the activity as proposed complies with all terms and conditions of the 2023 MA GPs. Applicants are also encouraged to review the definitions in Section VII, Definitions & Acronyms, of this document. Several terms are frequently used throughout the GPs, and it is important for the reader to understand these terms. If seeking verification for an activity previously verified under the 2018 MA GPs, please contact the USACE to discuss permitting needs in advance of submitting an application.

General Permits

- 1. Aids to Navigation and Temporary Recreational Structures
- 2. Maintenance
- Moorings
- 4. Structures in Navigable Waters of the U.S.
- 5. Boat Ramps and Marine Railways
- 6. Utility Lines, Oil or Natural Gas Pipelines, Outfall Or Intake Structures, and Appurtenant Features
- 7. Dredging, Disposal of Dredged Material, Beach Nourishment, Rock Removal and Rock Relocation
- 8. U.S. Coast Guard Approved Bridges
- 9. Bank and Shoreline Stabilization
- 10. Aquatic Habitat Restoration, Enhancement, and Establishment Activities
- 11. Fish and Wildlife Harvesting and Attraction Devices and Activities
- 12. Response Operations, Oil and Hazardous Substances
- 13. Cleanup of Hazardous and Toxic Waste
- 14. Scientific Measurement Devices
- 15. Survey Activities
- 16. Land and Water-Based Renewable Energy Generation Facilities and Hydropower Projects
- 17. Residential, Commercial and Institutional Developments, and Recreational Facilities
- 18. Aquaculture
- 19. Mining Activities
- 20. Living Shorelines
- 21. Agricultural Activities
- 22. Reshaping Existing Drainage Ditches, Construction of New Ditches, and Mosquito Management
- 23. Linear Transportation Projects and Wetland/Stream Crossings
- 24. Temporary Construction, Access, and Dewatering
- 25. Emergency Situations

GP 1. AIDS TO NAVIGATION AND TEMPORARY RECREATIONAL STRUCTURES (Authority: §10)

(a) The placement of aids to navigation and regulatory markers that are approved by and installed in accordance with the requirements of the U.S. Coast Guard (USCG). See 33 CFR, Part 66; and (b) Temporary buoys, markers, and similar structures placed for recreational use during specific events such as water skiing competitions and boat races or seasonal use. See GC 16.

Self-Verification Eligible

- 1. Aids to navigation and regulatory markers approved by and installed in accordance with the requirements of the USCG.
- 2. Temporary buoys, markers and similar structures that are: (a) placed for recreational use during specific events and removed within 30 days after event; or (b) placed during winter events on ice and removed before spring thaw. These structures must be authorized by the local harbormaster, not located within an FNP or its buffer zone, and not located in saltmarsh or tidal vegetated shallows.

Pre-Construction Notification Required

- 1. Impacts in saltmarsh or tidal vegetated shallows.
- 2. Activities that are not SV eligible.

Note: An SVN submittal to USACE is not required for work authorized under SV #1 above.

GP 2. MAINTENANCE (Authorities: §10 and §404)

Repair, rehabilitation, or replacement of any previously authorized¹, currently serviceable structure, or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3 (activities occurring before certain dates), provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction technique requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized. This GP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to conduct the activities above. Maintenance dredging and beach nourishment are not eligible under GP 2 (see GP 7). Stream crossing modifications (including sliplining), replacements or extensions are not eligible under GP 2 (see GPs 6, 17, 23). See GP 25 Emergency Situations for expedited review of emergency activities.

Not authorized under GP 2 (IP required): (a) Permanent impacts in >1 acre in non-tidal waters and/or wetlands; or (b) Permanent impacts >1/2 acre in tidal waters; >1000 SF in saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >100 SF in tidal vegetated shallows; or (c) Temporary impacts >1 acre in tidal waters; >5000 SF in saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >1000 SF in vegetated shallows; (d) New stream channelization or stream relocation projects (e.g., those in response to storm or flood events).

Self-Verification Eligible

Maintenance activities that meet all of the following terms:

- 1. In non-tidal waters, the combined permanent and temporary impacts extending beyond the original footprint are ≤5,000 SF² and not located in vegetated shallows or riffle and pool complexes.
- 2. In tidal waters, the combined permanent and temporary impacts extending beyond the original footprint are ≤5,000 SF, ≤1,000 SF in mudflats and/or natural rocky habitat, and not located in saltmarsh and tidal vegetated shallows.
- 3. Minor deviations in the repair, rehabilitation, or replacement of previously authorized, currently serviceable structures or fills.
- 4. Bulkhead replacement in tidal and non-tidal waters via installation of new bulkhead within 18 inches of the existing bulkhead and associated backfill.
- 5. Drawdown of an impoundment for dam/levee repair provided it does not exceed 18 months and one growing season (April through September).

Pre-Construction Notification Required

- 1. Discharges associated with removal of accumulated sediments and debris in the vicinity of existing structures, including intake and outfall structures and associated canals.
- 2. The removal of sediment outside the immediate vicinity of existing structures (e.g., bridges, culverted road crossings, water intake structures, etc.) that is ≥200 linear feet. This activity is limited to the minimum necessary to restore the waterway in the vicinity of the structure to the approximate dimensions existing when the structure was built.
- 3. Dam and flood control or levee repair, rehabilitation, or replacement involves:
- a. A change in the flood elevation or permanent water surface elevation of the impoundment; or
- b. Drawdown of impoundment for construction exceeding one growing season (see SV eligible #5);
- c. Any modification that changes the character, scope, or size of the original fill design; or
 - d. Does not meet SV eligible 1-7.
- 4. Installation of steel piles, including steel sheet piles, that cannot be done in the dry and where NOAA-ESA listed species are mapped as present.

¹ Some maintenance activities may not be subject to regulation under Section 404 of the CWA in accordance with 33 CFR 323.4(a)(2). Per 33 CFR 330.3, Vested dates are: a) Work performed and structures installed before December 18, 1968 (Section 10); and b) Fill placed before July 25, 1975 (Section 404).

² This excludes dam projects that may require a temporary drawdown with impacts >5,000 SF in non-tidal waters. Instead, the drawdown shall comply with SV #5 to be eligible under Self-Verification.

- 6. Any stream channel modification is limited to the minimum necessary for the repair, rehabilitation, or replacement of the structure or fill; such modifications, including the removal of material from the stream channel, must be immediately adjacent to the project or within the boundaries of the structure or fill.
- 7. Work to previously approved tide gates not affecting upstream tidal resource areas.
- 5. Activities located in the Connecticut River or Merrimack River, unless they are completed in the dry or when the tide is waterward of the work area.
- 6. Activities on USACE properties & USACE-controlled easements.
- 7. Activities that do not require an IP. Activities that do not require a PCN or an IP may be SV eligible.

Notes:

- 1. This authorizes the repair, rehabilitation, or replacement of any previously authorized structure or fill that does not qualify for the CWA §404(f) exemption for maintenance. See 33 CFR 323.4(a)(2). Prior USACE permits may have included authorization to maintain the activity, in which case authorization under this GP is not necessary.
- 2. See GC 22 for information on temporary construction mats.

GP 3. MOORINGS (Authority: §10)

New moorings and mooring fields; the relocation of previously authorized moorings; expansions, boundary reconfigurations or modifications of previously authorized mooring fields; and maintenance and replacement of moorings.

Not authorized under GP 3 (IP required): (a) Moorings or mooring fields converted to or associated with a new boating facility¹; or (b) Moorings in a USACE Federal Navigation Anchorage or USACE Federal Navigation Channel, except municipal-operated mooring fields.

Self-Verification Eligible

- 1. New or relocated moorings that meet all the following terms:
- a. Authorized by a local harbormaster/municipality under MGL Chapter 91 §10A; and
 - b. No interference with navigation; and
- c. Single boat, single-point and non-commercial; and
 - d. Not associated with a boating facility, and
- e. Neither placed within nor impact tidal vegetated shallows (e.g., eelgrass); and
- f. Not located within a USACE Federal navigation project (FNP) or the FNP buffer zone.
- 2. Existing, authorized moorings are converted from traditional moorings to low impact mooring technology (see note below) and/or helical anchors.
- 3. Maintenance and replacement of moorings authorized by the USACE.

Pre-Construction Notification Required

- 1. New mooring fields; or expansions, boundary reconfigurations or modifications of existing, authorized mooring fields.
- 2. Moorings located such that they, and/or vessels docked or moored at them, are within the buffer zone of the horizontal limits of a Federal Anchorage. The buffer zone is equal to 3 times the authorized depth of that channel (see GC 15).
- 3. New individual moorings located in saltmarsh, mudflats, natural rocky habitat, and tidal vegetated shallows. Locating moorings these areas should be avoided to the maximum extent practicable. If these areas cannot be avoided, plans should show conservation mooring or low-impact mooring systems that prevent mooring chains from resting or dragging on the bottom substrate at all tides, where practicable. USACE may require a survey in areas previously mapped as containing eelgrass or within 100 ft. of existing eelgrass beds to document presence or absence of eelgrass and to determine the appropriate type and amount of compensatory mitigation for impacts to eelgrass.
- 4. Replacement moorings located in tidal vegetated shallows.
- 5. Moorings that are not SV eligible and do not require an IP.

Notes:

- 1. Low impact mooring systems, including conservation moorings, are encouraged to minimize impacts of chain scouring from conventional moorings during the tidal cycle.
- 2. An SVN submittal to USACE is not required for work authorized under SV #2-3 above.

¹ Boating facilities are marinas, yacht clubs, boat clubs, boat yards, dockominiums, town facilities, land/homeowner's associations, etc. that provide for a fee, rent or sell mooring or docking space. Not classified as boating facilities are municipal moorings or municipal mooring fields that charge an equitable user fee based only on the actual costs incurred.

GP 4. STRUCTURES IN NAVIGABLE WATERS OF THE U.S. (Authority: §10 & §404)

New, expansions, reconfigurations or modifications of structures for navigational access in waters of the U.S. including but not limited to temporary/seasonal or permanent pile and pole-supported piers, floats, stairs, shore outhauls, and boat and float lifts.

Not authorized under GP 4 (IP required): (a) Structures associated with a new boating facility; (b) Structures in a USACE Federal anchorage or channel; or (c) Artificial reefs.

Self-Verification Eligible

- 1. Private, non-commercial piers, floats and lifts that meet all the following terms:
- a. Piers and floats in: (i) Tidal waters total ≤600 SF combined; and (ii) Non-tidal navigable waters of the U.S. total ≤600 SF combined; and
- b. Piers are ≤4 feet wide and ≥6 feet above the marsh substrate (the height is measured from the marsh substrate to the bottom of the lowest longitudinal support); and
- c. Floats and lifts in tidal waters and non-tidal navigable waters of the U.S. are ≥24 inches above the substrate during all tidal cycles. Float stops are preferred when site conditions warrant them (i.e., low tide exposes substrate), and skids can only be used in areas where piles are not feasible and on sandy or hard bottom substrates; and
- d. Piers, floats and lifts: (i) Are ≥25 feet from previously mapped or existing vegetated shallows, or riparian property line extensions; (ii) Extend ≤25% of the waterway width in non-tidal navigable waters of the U.S. or MHW in tidal navigable waters of the U.S.
- e. Installation of ≤12-inch diameter timber piles. Installation of ≥12-inch diameter piles of any material type when installed in the dry.
- 2. Fenders and similar structures.

Pre-Construction Notification Required

- 1. Shore outhauls.
- 2. Expansions, modifications, or new reconfiguration zones at any authorized boating facility.
- 3. New, expansions, reconfigurations, reconfiguration zones, or modifications of structures that provide public, community or government recreational uses such as boating, fishing, swimming, access, etc.
- 4. Installation of steel piles, including steel sheet piles, that cannot be done in the dry and where NOAA-ESA listed species are mapped as present.
- 5. Located within the buffer zone of the horizontal limits of an FNP (GC 15).
- 6. Miscellaneous structures.
- 7. Impacts in tidal vegetated shallows.
- 8. Structures that are not SV eligible and do not require an IP.

Notes:

- 1. See GC 19 regarding pile driving and pile removal in navigable waters and
- 2. See GC 20 regarding time of year restrictions in tidal waters.
- 3. Boating facilities are facilities that provide for a fee, rent, or sell mooring space, such as marinas, yacht clubs, boat clubs, boat yards, town facilities, dockominiums, etc. Pile supported structures with no discharges of dredged or fill material are not regulated by USACE in non-navigable waters.
- 4. A SVN submittal to USACE is not required for SV #2 above.

GP 5. BOAT RAMPS AND MARINE RAILWAYS (Authorities: §10 and §404)

Activities required for the construction of boat ramps and marine railways, including excavation and fill.

Not authorized under GP 5 (IP required): (a) Permanent impacts that are >1 acre in non-tidal waters of the U.S., >½ acre in tidal waters; >1000 SF in saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >100 SF in tidal vegetated shallows; (b) Temporary impacts in tidal waters that are >1 acre; >5000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1000 SF in vegetated shallows¹; or (c) dredging in navigable waters of the U.S. (see GP 7).

Self-Verification Eligible

- 1. In non-tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, and (b) not located in riffle and pool complexes and non-tidal vegetated shallows.
- 2. In tidal waters, the combined permanent and temporary impacts are (a) \leq 5,000 SF, (b) \leq 1,000 SF in mudflats and/or natural rocky habitat, and (c), not located in saltmarsh and tidal vegetated shallows.

Pre-Construction Notification Required

- 1. Boat ramps are located within 25 feet of property line extensions unless the properties are owned by the same owner. The USACE may require a letter of no objection from the abutter(s).
- 2. Activities that are not eligible for SV and do not require an IP.

GP 6. UTILITY LINES, OIL OR NATURAL GAS PIPELINES, OUTFALL OR INTAKE STRUCTURES, AND APPURTENANT FEATURES (Authorities: §10 & §404)

Activities required for: (a) The construction, maintenance, repair or removal of utility lines, oil or natural gas pipelines¹, outfall or intake structures², and appurtenant features including the associated excavation, backfill, or bedding for these structures. (b) The construction, maintenance, or expansion of substations and other appurtenant facilities associated with a utility line, oil or natural gas pipeline, and outfall or intake structure in non-tidal waters of the U.S.; and (c) The construction and maintenance of foundations for overhead utility line towers, poles, and anchors in tidal and non-tidal waters of the U.S., provided the foundations are the minimum size necessary and separate footings for each tower leg (rather than a larger single pad) are used where feasible. This GP authorizes the construction of access roads to facilitate construction of the above activities provided the activity, in combination with all other activities included in one single and complete project, does not exceed the thresholds identified below (IP required). Access roads used solely for construction of the utility line must be removed upon completion of the work. This GP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to conduct the activities above.³

Not authorized under GP 6 (IP required): (a) Permanent impacts for any single and complete project that are >1 acre in non-tidal waters of the U.S.; >½ acre in tidal waters; >1000 SF in saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >100 SF in tidal vegetated shallows; (b) Temporary impacts in tidal waters that are >1 acre; >5000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1000 SF in vegetated shallows; (c) Stormwater treatment or detention systems, or subsurface sewage disposal systems in waters of the U.S.; or (d) New tide gates that do not meet SV criteria below.

Self-Verification Eligible

- 1. In non-tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, and (b) not located in riffle and pool complexes and non-tidal vegetated shallows.
- 2. In tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, (b) ≤1,000 SF in mudflats and/or natural rocky habitat, and (c), not located in saltmarsh and tidal vegetated shallows.
- 3. Intake structures that are dry hydrants used exclusively for firefighting activities with no stream impoundments.
- 4. New tide gates on outfall structures for pipes conveying stormwater and/or industrial NPDES-permitted discharges from waters that are not waters of the U.S.

Pre-Construction Notification Required

- 1. New outfall and/or intake structures.
- 2. Unconfined work or silt producing activities in streams with diadromous fish.
- 3. Submarine cables, conduits, or pipelines that occur in, over or under navigable waters of the U.S.
- 4. Stream channelization, relocation, impoundment, or loss of streambed occurs.
- 5. The activity is placed within and runs parallel to or along a streambed within waters of the U.S.
- 6. There is a permanent change in preconstruction contours in waters of the U.S.
- 7. Installation of utility lines or gas/oil pipelines using trench excavation where material is temporarily sidecast into waters of the U.S. for >3 months. Applicants must demonstrate how the material would not be dispersed by currents or other forces.
- 8. Activities that are not SV eligible and do not require an IP.

¹ See the definitions of a "utility line" and "oil or natural gas pipeline" in Section VII.

² Outfall structures must be in compliance with regulations issued under the National Pollutant Discharge Elimination System Program (Section 402 of the Clean Water Act).

³ Temporary impacts shall comply with all GCs, including GC 32 Utility Line Installation and Removal.

GP 7. DREDGING (Authority: §10), DISPOSAL OF DREDGED MATERIAL (Authorities: §10, §404), BEACH NOURISHMENT (Authorities: §10 & §404), ROCK REMOVAL (Authority: §10) AND ROCK RELOCATION (Authorities: §10 & §404)

New, improvement and maintenance dredging (see notes below) including: (a) Disposal of dredged material at a confined aquatic disposal cell, beach nourishment location, near shore site, or ocean disposal site selected under Section 404 of the Clean Water Act pursuant to the 404(b)(1) Guidelines, provided the dredged material meets the requirements for such disposal; (b) Beach nourishment not associated with dredging; and (c) Rock removal and relocation for navigation.

Not authorized under GP 7 (IP required): (a) Dredging where ocean disposal is required for the disposal of dredged material (Section 103); New dredging >½ acre; ≥10,000 CY; >1000 SF permanent impacts to intertidal areas, saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >100 SF permanent impacts to tidal vegetated shallows; (b) Maintenance or improvement dredging and/or disposal with >1 acre of impacts to intertidal areas, saltmarsh, mudflats, riffle and pool complexes, or non-tidal vegetated shallows; (c) New dredging where the primary purpose is sand mining for beach nourishment; (d) Beach scraping; (e) Boulder removal and relocation for navigation >½ acre; or (f) Blasting.

Self-Verification Eligible

- 1. Maintenance dredging of previously dredged areas, with upland disposal, that meet all of the following terms:
 - a. Dredged area ≤1/2 acre; and
- b. Activities comply with GC 20, TOY Restrictions. The time-of-year restriction(s) stated in Appendix B of the MA Division of Marine Fisheries (DMF) Technical Report TR-47¹ can apply instead if the general TOY restriction if a TOY is provided for a specific waterbody and is less restrictive. This is to protect endangered species, EFH, and other species; and
- c. The dredge footprint is located >25' from salt marsh or >100' from vegetated shallows; and
- d. Combined permanent and temporary impacts that are (i) ≤1,000 SF in mudflats or natural rocky habitat, or (ii) ≤5,000 SF within intertidal habitat and areas containing shellfish (an area contains shellfish unless: it is verified that minimal shellfish are present per the local shellfish constable or a shellfish survey; or it is not mapped as a MassGIS shellfish suitability area).
 - e. No return water from upland disposal areas.
- 2. Boulder relocation with ≤1,000 SF of impacts, relocated to a similar depth and substrate.

Pre-Construction Notification Required

- 1. Maintenance dredging where the primary purpose is sand mining for beach nourishment.
- 2. New dredging and associated disposal ≤1/2 acre or <10,000 cubic yards.
- 3. Improvement dredging.
- 4. Beach nourishment in waters of the U.S. not associated with dredging.
- 5. Activities that are located in saltmarsh and tidal vegetated shallows.
- 6. Dredging in a Federal Navigation Project or within the buffer zone (see GC 15).
- 7. Activities that are not eligible for SV and do not require an IP.

- 1. See Section VII for definitions of improvement and maintenance dredging.
- 2. For PCN activities, the USACE may waive or adjust the time of year requirement on a case-by-case basis after consultation with resource agencies.
- 3. Disposal site of any dredged material must be identified prior to obtaining USACE authorization.
- 4. Contact the USACE if a ten-year authorization to maintain an area is desired.

¹ The MA DMF Technical Report TR-47: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit

GP 8. U.S. COAST GUARD APPROVED BRIDGES (Authorities: §404)

Discharges of dredged or fill material incidental to the construction and modification of bridges across navigable waters of the U.S., including cofferdams, abutments, foundation seals, piers, and temporary construction and access fills provided that the USCG authorizes the construction of the bridge structure under Section 9 of the Rivers and Harbors Act of 1899 or other applicable laws. A USCG Authorization Act Exemption or a Surface Transportation and Uniform Relocation Assistance Act (STURRA) (144h) exemption do not constitute USCG authorization.

Not authorized under GP 8 (IP Required): Causeways and approach fills (see GP 23).

Self-Verification Eligible

- 1. Discharges of dredged or fill material that are incidental to the construction of bridges across navigable waters and meet all of the following:
 - a. Combined permanent and temporary impacts that are ≤5,000 SF.
- b. Combined permanent and temporary impacts that are ≤1,000 SF in mudflats and natural rocky habitat.
- c. Not located in saltmarsh and tidal vegetated shallows.

Pre-Construction Notification Required

- 1. Activities on USACE properties & USACE controlled easements.2. Installation of steel piles, including steel sheet piles, that cannot be done in the dry and where NOAA-ESA listed species are mapped as present.
- 3. Activities that are not eligible for SV and do not require an IP.

- 1. GP 8 is not applicable to bridges over inland waters or wetlands that are not tidally influenced or regulated as navigable under Section 10.
- 2. See eligibility criteria for GPs 2 & 23 for projects that are not subject to USCG regulations.

GP 9. BANK AND SHORELINE STABILIZATION (Authorities: §10 & §404)

Bank stabilization activities necessary for erosion protection along the banks of lakes, ponds, streams, estuarine and ocean waters, and any other open waters. Includes bulkheads, seawalls, riprap, revetments, living seawalls, or slope protection & similar structures, specifically for the purpose of shoreline protection. This GP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to conduct the activities above.

Activities must meet the following criteria: (a) No material is placed in excess of the minimum needed for erosion protection; (b) No material is of a type, or is placed in any location, or in any manner, that will impair surface water flow into or out of any waters of the U.S.; (c) No material is placed in a manner that will be eroded by normal or expected high flows (properly anchored native trees and treetops may be used in low energy areas); (d) Native plants appropriate for current site conditions, including salinity, must be used for bioengineering or vegetative bank stabilization; (e) The activity is not a stream channelization activity; and (f) The activity must be properly maintained, which may require repairing it after severe storms or erosion events. This GP authorizes those maintenance and repair activities if they require authorization. This GP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to construct the bank stabilization activity. See GP 20 for living shoreline stabilization structures or fills.

Not authorized under GP 9 (IP required): (a) New bank stabilization >500 feet in total length (>1,000 linear feet in total length when necessary to protect transportation infrastructure) or permanent loss of saltmarsh >1,000 SF, unless the District Engineer waives this criterion by making a written determination concluding that the discharge of dredged or fill material will result in no more than minimal adverse environmental effects (an exception is for bulkheads – the district engineer cannot issue a waiver for a new bulkhead that is >1,000 feet in length along the bank); (b) Stream channelization or relocation activities; or (c) Breakwaters, groins or jetties.

Self-Verification Eligible

- 1. Activities in tidal and non-tidal waters that are:
- a. <200 feet in length.
- b. <400 feet in length when necessary to protect transportation infrastructure.
- c. ≤1 cubic yard of fill per linear foot average along the bank waterward of the plane of OHW or HTL.
- d. Not located in non-tidal wetlands, saltmarsh, vegetated shallows.

Pre-Construction Notification Required

- 1. Activities in tidal and non-tidal waters that are:
- a. ≥200 feet to ≤500 feet in total length. Activities >500 feet in total length must have a written waiver from USACE.
- b. ≥400 feet to ≤1,000 feet in total length when necessary to protect transportation infrastructure. Activities >1,000 feet in total length must have a written waiver from USACE.
- c. >1 cubic yard of fill per linear foot average along the bank waterward of the plane of OHW or HTL.
- d. Located in non-tidal wetlands, saltmarsh, vegetated shallows.
- 2. Activities with permanent loss of tidal or non-tidal waters that is (a) ≥5,000 SF or (b) ≥1,000 SF in mudflats and natural rocky habitat.
- 3. Activities that are (a) located in the Connecticut River or Merrimack River and/or (b) require installation of steel piles/steel sheet piles that cannot be done in the dry where NOAA ESA-listed species are mapped as present.
- 4. Activities on USACE properties & USACE-controlled easements.
- 5. Activities that require grouted riprap and/or poured/unformed concrete.
- 6. Activities that are not eligible for SV and do not require an IP.

Note: The applicant shall comply with GC 24. This includes utilization of bioengineering techniques in lieu of hard armoring to the maximum extent practicable as site conditions allow.

GP 10. AQUATIC HABITAT RESTORATION, ENHANCEMENT, AND ESTABLISHMENT ACTIVITIES (Authorities: §10 and §404)

Activities for the restoration, enhancement and establishment of non-tidal and tidal wetlands and riparian areas, including invasive, non-native or nuisance species control; the restoration and enhancement of non-tidal streams and other non-tidal open waters; the relocation of non-tidal waters, including non-tidal streams & associated wetlands for reestablishment of a natural stream morphology and reconnection of the floodplain; the restoration and enhancement of shellfish, finfish and wildlife; and the rehabilitation or enhancement of tidal streams, tidal wetlands and tidal open waters; provided those activities result in net increases in aquatic resource functions and services. See GP 9 for bank and shoreline stabilization. See GP 20 for living shorelines.

Not authorized under GP 10 (IP required): Stream channelization activities and artificial reefs.

Self-Verification Eligible

- 1. In tidal and non-tidal waters excluding tidal vegetated shallows, the combined permanent and temporary impacts are ≤5,000 SF.
- 2. Eelgrass (vegetated shallows) planting and transplanting ≤100 SF in tidal waters.

Pre-Construction Notification Required

- 1. In tidal and non-tidal waters excluding tidal vegetated shallows, the combined permanent and temporary impacts are >5,000 SF.
- 2. Eelgrass (vegetated shallows) planting and transplanting >100 SF in tidal waters.
- 3. Permanent water impoundments, dam removal, fish ladders, or tide gates.
- 4. Stream relocation, impoundment, or loss of streambed occurs.
- 5. Runneling projects with the purpose of restoring saltmarsh by removing excess water that ponds on the saltmarsh surface.
- 6. The conversion of: (a) a stream or natural wetlands to another aquatic habitat type (e.g., stream to wetland or vice versa, wetland to pond, etc.) or uplands, (b) one wetland type to another (e.g., forested wetland to an emergent wetland).
- 7. Activities in the Connecticut River from the Turners Falls Dam to the MA/CT border, or Merrimack River from the Essex Dam to the mouth, involving permanent or temporary impacts unless they are performed <5 feet waterward from OHW or HTL and in the dry. This is to protect endangered species.
- 8. Activities on USACE properties & USACE-controlled easements.
- 9. Activities that are not eligible for SV and do not require an IP.

- 1. Changes in wetland plant communities that occur when wetland hydrology is more fully restored during wetland rehabilitation activities are not considered a conversion to another aquatic habitat type.
- 2. See RGL 18-01 for guidance on removal of obsolete dams and other structures from rivers and streams. https://www.usace.army.mil/missions/civil-works/regulatory-program-and-permits/guidance-letters/
- 3. An ecological reference site may be used for a design basis of the restoration activity. The reference site should possess characteristics of an intact aquatic habitat or riparian area that exists in the region. The reference site shall represent the target habitat type of the proposed activity. A reference site may be required at the discretion of USACE.

GP 11. FISH AND WILDLIFE HARVESTING AND ATTRACTION DEVICES AND ACTIVITIES (Authorities: §10 and §404)

Fish and wildlife harvesting and attraction devices and activities in waters of the U.S. such as pound nets, crab traps, crab and shellfish dredging, eel pots, lobster traps, duck blinds, clam and oyster digging, fish aggregating devices, and small fish attraction devices such as open-water fish concentrators (sea kites, etc.).

Not authorized under GP 11 (IP required): Artificial reefs; or new, or expansions of, impoundments and semi-impoundments of waters of the U.S. for the culture or holding of motile species such as lobster with an impounded area >½ acre.

Self-Verification Eligible

- In non-tidal waters, the combined permanent and temporary impacts are (a) ≤1/2 acre, and (b) not located in riffle and pool complexes and non-tidal vegetated shallows.
- 2. Fish and wildlife harvesting and attraction devices and activities that do not require a PCN or IP.

Pre-Construction Notification Required

- 1. Pound nets, impoundments or semi-impoundments of waters of the U.S. for the culture or holding of motile species such as lobster with an impounded area ≤½ acre, fish aggregating devices, or small fish attraction devices.
- 2. Devices and activities that are located in tidal vegetated shallows, mud flats, or saltmarsh.
- 3. Devices and activities that do not require an IP.

Note: An SVN submittal to USACE is not required for work authorized under GP 11.

GP 12. RESPONSE OPERATIONS, OIL AND HAZARDOUS SUBSTANCES (Authorities: §10 & §404)

(a) Activities conducted in response to a discharge or release of oil and hazardous substances that are subject to the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR 300) including containment, cleanup, and mitigation efforts, provided that the activities are done under either: (i) The Spill Prevention, Control and Countermeasure Plan required by 40 CFR 112.3; (ii) The direction or oversight of the Federal on-scene coordinator designated by 40 CFR 300; or (iii) Any approved existing State, regional or local contingency plan provided that the Regional Response Team concurs with the proposed response efforts or does not object to the response effort; (b) Activities required for the cleanup of oil releases in waters of the U.S. from electrical equipment that are governed by EPA's polychlorinated biphenyl (PCB) spill response regulations at 40 CFR 761; (c) Booms placed in navigable waters of the U.S. for oil and hazardous substance containment, absorption and prevention; and (d) The use of structures and fills for spill response training exercises. Wetlands, vegetated shallows, mudflats, and riffle and pool complexes should be restored in place at the same elevation.

Self-Verification Eligible

- 1. Activities are conducted in accordance with (a) or (b) above that are not planned or scheduled, but an emergency response (see Note 1).
- 2. Booms placed in navigable waters of the U.S. for oil and hazardous substance containment, absorption and prevention.
- 3. Temporary impacts for spill response training exercises ≤5000 SF in non-tidal waters and ≤1000 SF in tidal waters with no impacts to wetlands, saltmarsh, mudflats, or vegetated shallows.
- 4. Temporary structures in tidal waters with no impacts to wetlands, saltmarsh, mudflats, vegetated shallows, or riffle and pool complexes and in place ≤30 days.

Pre-Construction Notification Required

- 1. Activities (a) or (b) above are planned or scheduled, not an emergency response; or
- 2. Activities that are not eligible for SV and do not require an IP.

- 1. For emergency response activities in the Connecticut River from the Turners Falls Dam to the MA/CT border, Merrimack River from the Essex Dam to the mouth, and remaining tidal waters that are not rivers, the permittee must contact the USACE at (978) 318-8338 before or as soon as possible after the work authorized under GP 12(a) (c) commences for the USACE to address effects under the Endangered Species Act.
- 2. An SVN submittal to USACE is not required for booms used for spill prevention, or properly contained and cleaned de minimus oil or hazardous substance discharges into navigable waters of the U.S.

GP 13. CLEANUP OF HAZARDOUS AND TOXIC WASTE (Authorities: §10 and §404)

Specific activities required to affect the containment, stabilization, or removal of hazardous or toxic waste materials, including court ordered remedial action plans or related settlements, which are performed, ordered or sponsored by a government agency with established legal or regulatory authority.

Not authorized under GP 13: (a) Establishment of new disposal sites; or (b) Expansion of existing sites used for the disposal of hazardous or toxic waste.

Self-Verification Eligible

1. In non-tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, and (b) not located in vegetated shallows and riffle and pool complexes.

Pre-Construction Notification Required

- 1. In non-tidal waters, the combined permanent and temporary impacts are (a) >5,000 SF, and (b) located in vegetated shallows and riffle and pool complexes.
- 2. Permanent and temporary impacts in tidal waters or navigable waters of the U.S.
- 3. Stream channelization, relocation, impoundment, or loss of streambed occurs.
- 4. Activities that are not eligible for SV and do not require an IP.

- 1. Wetlands, vegetated shallows, mudflats, and riffle and pool complexes should be restored in place at the same elevation to the maximum extent practicable.
- 2. Activities undertaken entirely on a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site by authority of CERCLA, are not required to obtain permits under Section 404 of the CWA or Section 10 of the Rivers and Harbors Act.

GP 14. SCIENTIFIC MEASUREMENT DEVICES (Authorities: §10 and §404)

Scientific measurement devices for measuring and recording scientific data, such as staff gauges, tide and current gauges, meteorological stations, water recording and biological observation devices, water quality testing and improvement devices, and similar structures. Also eligible are small weirs and flumes constructed primarily to record water elevation, flow and/or velocity. Upon completion of the use of the device to measure and record scientific data, the measuring device and any other structures or fills associated with that device (e.g., foundations, anchors, buoys, lines, etc.) must be removed to the maximum extent practicable and the site restored to preconstruction elevations.

Not authorized under GP 14 (IP required): (a) Permanent impacts that are >5,000 SF in tidal and non-tidal waters of the U.S.; >1000 SF in tidal saltmarsh, mud flats, riffle and pool complexes; or >100 SF in tidal vegetated shallows; or (b) Temporary impacts in tidal waters that are >1 acre, unless the District Engineer waives this criterion by making a written determination concluding that the discharge of dredged or fill material will result in no more than minimal adverse environmental effects; >5000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1000 SF in vegetated shallows.

Self-Verification Eligible

- 1. In non-tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, (b) not located in riffle and pool complexes and non-tidal vegetated shallows.
- 2. In tidal waters, the combined permanent and temporary impacts are (a) \leq 5,000 SF, (b) \leq 1,000 SF in mudflats and/or natural rocky habitat, (c) not located in saltmarsh and tidal vegetated shallows.
- 3. Temporary, non-biological sampling devices in waters that do not restrict or concentrate movement of aquatic organisms and will not adversely affect the course, condition, or capacity of a waterway for navigation.
- 4. Scientific measurement devices, and small weirs and flumes constructed primarily to record water quantity and velocity provided the discharge of fill is limited to 25 cubic yards. These cannot obstruct or restrict the waterway course, condition, capacity, and location.
- 5. Temporary measuring devices and associated structures (e.g., anchors, buoys, etc.) in tidal and non-tidal waters that do not require a PCN or IP.

Pre-Construction Notification Required

- 1. Biological sampling devices, weirs or flumes, or the activity restricts or concentrates movement of aquatic organisms.
- 2. Permanent towers located in navigable waters that record and measure scientific data.
- 3. Devices that are not eligible for SV and do not require an IP.

Note: An SVN submittal to USACE is not required for temporary measuring devices with a footprint of <10 SF, with a profile of <3 feet high measured from the substrate and located in water deeper than -10 feet MLW.

GP 15. SURVEY ACTIVITIES (Authorities: §10 and §404)

Survey activities such as soil borings, core sampling, seismic exploratory operations, plugging of seismic shot holes and other exploratory-type bore holes, exploratory trenching, soil surveys, sampling, sample plots or transects for wetland delineations, and historic resources surveys.

Not authorized under GP 15 (IP required): (a) Permanent impacts that are >1 acre in tidal and non-tidal waters; >1000 SF in tidal saltmarsh, mud flats, or riffle and pool complexes; or >100 SF in tidal vegetated shallows; or (b) Temporary impacts in tidal waters that are >1 acre, unless the District Engineer waives this criterion by making a written determination concluding that the discharge of dredged or fill material will result in no more than minimal adverse environmental effects; >5000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1000 SF in vegetated shallows.

Self-Verification Eligible

- 1. In non-tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, (b) not located in riffle and pool complexes and non-tidal vegetated shallows.
- 2. In tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, (b) ≤1,000 SF in mudflats and/or natural rocky habitat, (c) not located in saltmarsh and tidal vegetated shallows.

Pre-Construction Notification Required

- 1. Exploratory trenching (see Note 2) occurs in waterways (e.g., streams, tidal waters).
- 2. Activities associated with the recovery of historic resources, and the drilling and discharge of excavated material from test wells for oil and gas exploration.
- 3. Seismic exploratory operations occur in tidal waters, the Connecticut River from the Turners Falls Dam to the MA/CT border, or the Merrimack River from the Essex Dam to the mouth. This is to protect endangered species.
- 4. Activities that are not eligible for SV and do not require an IP.

- 1. An SVN submittal is not required for wetland delineations, and core sampling conducted for preliminary evaluation of dredge project analysis.
- 2. For the purposes of GP 15, the term "exploratory trenching" means mechanical land or underwater clearing of the upper soil profile to expose bedrock or substrate for the purpose of mapping or sampling the exposed material.
- 3. The discharge of drilling mud and cuttings may require a permit under §402 of the CWA.

GP 16. LAND AND WATER-BASED RENEWABLE ENERGY GENERATION FACILITIES (Authorities: §10 and §404), AND HYDROPOWER PROJECTS (Authority: §10 and §404)

Structures and work in tidal waters and discharges of dredged or fill material into tidal and non-tidal waters for the construction, expansion, modification or removal of: (a) Land-based renewable energy production facilities (e.g., solar, wind, biomass, geothermal) and their attendant features; (b) Water-based wind or hydrokinetic renewable energy generation projects and their attendant features; and (c) Discharges of dredged or fill material associated with hydropower projects. Attendant features may include, but are not limited to, land-based collection and distribution facilities, control facilities, and parking lots. For each single and complete project in (b) above, no more than 10 generation units (e.g., wind turbines or hydrokinetic devices) are authorized in navigable waters of the U.S. Upon completion of the pilot project (see note 2), the generation units, transmission lines, and other structures or fills associated with the pilot project must be removed to the maximum extent practicable.

Not authorized under GP 16 (IP required): (a) Permanent impacts that are >1 acre in non-tidal waters, >½ acre in tidal waters; >1000 SF in saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >100 SF in vegetated shallows; or (b) Temporary impacts in tidal waters that are >1 acre; >5000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1000 SF in vegetated shallows.

Self-Verification Eligible

In non-tidal waters, the combined permanent and temporary impacts for land-based activities are (a) ≤5,000 SF, (b) not located in riffle and pool complexes and non-tidal vegetated shallows.

Pre-Construction Notification Required

- 1. In non-tidal waters, the combined permanent and temporary impacts for land-based activities are (a) >5000 SF, or (b) located in vegetated shallows or riffle and pool complexes.
- 2. Permanent and temporary impacts in tidal waters.
- 3. Water-based wind or hydrokinetic renewable energy generation projects, and hydropower projects.
- 4. For all activities eligible for authorization under GP 16:
- a. The activity occurs in tidal waters or in, over or under navigable waters.
- b. Stream channelization, relocation, impoundment, or loss of streambed occurs.
- 5. Activities that are not eligible for SV and do not require an IP.

- 1. Utility lines constructed to transfer the energy from the land-based renewable generation or collection facility to a distribution system, regional grid, or other facility may be authorized by GP 6.
- 2. For the purposes of this GP, the term "pilot project" means an experimental project where the renewable energy generation units will be monitored to collect information on their performance and environmental effects at the project site.

GP 17. RESIDENTIAL, COMMERCIAL AND INSTITUTIONAL DEVELOPMENTS AND RECREATIONAL FACILITIES (AUTHORITIES: §404)

Discharges of dredged or fill material into non-tidal waters for the construction or expansion of: (a) Residences and residential subdivisions; (b) Residential, commercial and institutional building foundations and building pads; and (c) Recreational facilities such as playgrounds, playing fields, bikeways, trails, etc. This GP also authorizes attendant features that include, but are not limited to, roads, parking lots, garages, yards, and utility lines, and stormwater management facilities. This GP authorizes attendant features if they are necessary for the use of the project purpose.

Not authorized under GP 17 (IP required): (a) Permanent impacts that result in loss of non-tidal waters >1/2 acre; >1000 SF in riffle and pool complexes or vegetated shallows; or (b) Subsurface sewerage disposal systems in non-tidal waters.

Self-Verification Eligible

- 1. In non-tidal waters, the combined permanent and temporary impacts are (a) <5,000 SF, and (b) not located in riffle and pool complexes and non-tidal vegetated shallows.
- 2. Stream channelization or relocation resulting in loss of streambed that is <200 LF.

Pre-Construction Notification Required

- 1. In non-tidal waters, the combined permanent and temporary impacts are (a) ≥5,000 SF, or (b) located in riffle and pool complexes or non-tidal vegetated shallows.
- 2. Stream and wetland crossings that require a PCN per GCs 20 TOY Restrictions and GC 31 Stream Work and Crossings & Wetland Crossings.
- 3. Stream channelization or relocation resulting in loss of streambed that is ≥200 LF. Stream impoundment activities of any kind.
- 4. Activities on USACE properties & USACE-controlled easements.
- 5. Activities that are not SV eligible and do not require an IP.

- 1. Stream and wetland crossings (permanent and temporary), including those built with construction mats; and modifications (including sliplining), replacements or extensions to existing crossings.
- 2. See GC 22 for information on temporary construction mats.
- 3. Subdivisions: For residential subdivisions, the aggregate total loss of waters of United States authorized by this GP cannot exceed 1/2-acre. This includes any loss of waters of the United States associated with development of individual subdivision lots.

GP 18. AQUACULTURE (Authorities: §10 and §404)

(a) The installation of buoys, floats, racks, trays, nets, lines, tubes, containers, and other structures into navigable waters of the U.S.; (b) Discharges of dredged or fill material into tidal and non-tidal waters necessary for shellfish seeding, rearing, cultivating, transplanting, and harvesting activities; and (c) Shellfish seeding or brushing the flats projects. Any fill material imported to the project from offsite (this is limited to mineral growth medium used in culture trays) shall be clean and of comparable grain size to the native substrate. Activities authorized under this GP must have (a) their MA DMF Aquaculture Certificate letter for licensed shellfish aquaculture sites, (b) documentation that the applicant has coordinated with the U.S. Coast Guard regarding USCG Private Aids to Navigation standards, (c) their MEPA Certificate (if required), and (d) documentation that the applicant has contacted their local authorities (ex. harbormaster, select board, shellfish constable) for authorization of their facility.

Not authorized under GP 18 (IP required): (a) New, or expansions of, impoundments and semi-impoundments of tidal and non-tidal waters for the culture or holding of motile species such as lobster with an impounded area >½ acre; (b) Cultivation of a nonindigenous species (see Note 1) unless that species has been previously cultivated in the waterbody; (c) Cultivation of an aquatic nuisance species (see Note 1); (d) Attendant features such as docks, piers, boat ramps (see GP 4); (e) stockpiles, staging areas, or the deposition of shell material back into tidal and non-tidal waters as waste.

Self-Verification Eligible

- 1. In tidal waters, a new lease site area is (a) ≤2-acre, (b) not located in salt marsh, natural rocky habitat, or tidal vegetated shallows.
- 2. In tidal waters, <u>expansions</u> of existing lease sites not to exceed 2 acres for the entire site (e.g. 1 acre lease site increasing to a 2 acre lease site may qualify as SV). A PCN is required for expansions in salt marsh, natural rocky habitat, and tidal vegetated shallows.
- 3. Cages, racks that are elevated ≥2 feet above the ocean floor with legs within a lease site with ≤4 buoys marking the corners.
- 4. Floating cage strings with a single connecting line, ≤2 anchors and ≤2 end marker buoys per string within a lease site with ≤4 buoys marking the corners.
- 5. No activities located within 25 feet of tidal vegetated shallows.
- 6. Culture only indigenous species.
- 7. Not located in FNP or within a distance of three times the authorized depth of an FNP (see GC 15).
- 8. Not located in or impinge upon the value of any National Lands or Federal Properties.
- 9. Floating upweller docks that total ≤600 SF in area.

Pre-Construction Notification Required

- 1. Discharges of fill material associated with aquaculture >5,000 SF.
- 2. Research, educational, commercial-viability or experimental aquaculture gear activities >1,000 SF.
- 3. Kelp or finfish aquaculture.
- 4. Land-based hatchery intakes >3 inches in diameter
- 5. Activities in water depths >10 feet mean low lower water (MLLW).
- 6. Activities with in-water lines, ropes or chains that are not SV eligible (see #3-4).
- 7. Activities occur in the Connecticut River from the Turners Falls Dam to the MA/CT border or the Merrimack River from the Essex Dam to the mouth. This is to protect endangered species.
- 8. New, or expansions of, impoundments and semiimpoundments for the culture or holding of motile species such as lobster with an impounded area ≤1/2 acre.
- 9. Activities that do not require an IP. Activities that do not require a PCN or an IP may be SV eligible.

Note: The Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 defines: (a) nonindigenous species as "any species or other viable biological material that enters an ecosystem beyond its historic range, including any such organism transferred from one country into another"; and (b) aquatic nuisance species as "a nonindigenous species that threatens the diversity or abundance of native species or the ecological stability of infested waters, or commercial, agricultural, aquacultural, or recreational activities dependent on such waters."

GP 19. MINING ACTIVITIES (Authorities: §10 and §404)

Discharges of dredged or fill material into non-tidal waters for mining activities, except for coal mining and metallic mineral mining activities.

Not authorized under GP 19 (IP required): (a) Permanent impacts >1 acre in non-tidal waters; or (b) Activities in tidal waters.

Self-Verification Eligible

In non-tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, and (b) not located in riffle and pool complexes, non-tidal vegetated shallows, and streams.

Pre-Construction Notification Required

- 1. In non-tidal waters, the combined permanent and temporary impacts are (a) >5,000 SF, or (b) located in riffle and pool complexes, non-tidal vegetated shallows, and streams.
- 2. The activity occurs in non-tidal navigable waters of the U.S.
- 3. Stream channelization, relocation, impoundment, loss of streambed, or discharge of tailings into streams occurs.
- 4. Work on USACE properties & USACE-controlled easements.
- 5. Activities that are not eligible for SV and do not require an IP.

GP 20. LIVING SHORELINES¹ (Authorities: §10 and §404)

Construction and maintenance of living shorelines to stabilize banks and shores in tidal waters. In non-tidal waters that are not subject to the ebb and flow of the tide, nature-based bank stabilization techniques such as bioengineering and vegetative stabilization may be authorized by GP 9. This GP authorizes those maintenance and repair activities in-kind that are necessary to address changing environmental conditions.

The following terms must be met for both SVs and PCNs as applicable: (a) Coir logs, coir mats, stone, native oyster shell, native wood debris, and other structural materials must be adequately anchored, of sufficient weight, or installed in a manner that prevents relocation in most wave action or water flow conditions, except for extremely severe storms; (b) For living shorelines consisting of tidal fringe wetlands, native plants appropriate for current site conditions, including salinity and elevation, must be used if the site is planted by the permittee; (c) Discharges of dredged or fill material into waters of the U.S., and oyster or mussel reef structures in navigable waters, must be the minimum necessary for the establishment and maintenance of the living shoreline; (d) If sills or other structural materials per PCN #4 must be constructed to protect fringe wetlands for the living shoreline, those structures must be the minimum size necessary to protect those fringe wetlands; (e) The activity must be designed, constructed, and maintained so that it has no more than minimal adverse effects on water and sediment movement between the waterbody and the shore and the movement of aquatic organisms between the waterbody and the shore; and (f) The living shoreline must be properly maintained and monitored, which may require periodic repair of sills, bioengineered components, or replacing sand fills after severe storms or erosion events. Vegetation may be replanted to maintain the living shoreline.

Not authorized under GP 20 (IP required): (a) The activity is ≥1000 feet in length along the bank (≥2000 LF both banks) unless waived by the District Engineer; or (b) The activity is >30 feet channel ward of mean low water in tidal waters; or (c) Upland reclamation activities; or (d) Stream channelization or relocation activities; or (e) Breakwaters, groins, jetties, or artificial reefs; or (f) Permanent impacts >1,000 SF in existing saltmarsh; >100 SF in existing tidal vegetated shallows.

Self-Verification Eligible

- Tidal and non-tidal living shorelines ≤100 LF for each bank (≤200 LF for both banks).
- 2. Combined permanent and temporary impacts ≤5,000 SF in tidal waters, excluding existing salt marsh, tidal vegetated shallows, natural rocky habitat, and mudflats.

Pre-Construction Notification Required

- 1. Tidal and non-tidal living shorelines >100 LF to <1000 LF (>200 LF to <2000 LF for both banks).
- 2. Permanent and temporary impacts in existing salt marsh, tidal vegetated shallows, or mudflats.
- 3. Work on USACE properties & USACE-controlled easements.
- 4. Use of stone sills, native oyster shell, native wood debris, or other structural materials.

- 1. PCNs require monitoring for a minimum of 5 years in accordance with an approved restoration plan, unless otherwise determined by the USACE. The first year of monitoring will be the first year that the site has been through a full growing period after completion of construction and planting.
- 2. Applicants are encouraged to obtain a MEPA certificate prior to submitting a USACE permit application.
- ¹ A living shoreline has a footprint that is made up mostly of native material. It incorporates vegetation or other living, natural "soft" elements alone or in combination with some type of harder shoreline structure (e.g., oyster or mussel reefs or rock sills) for added protection and stability. Living shorelines should maintain the natural continuity of the land-water interface and retain or enhance shoreline ecological processes. Living shorelines must have a substantial biological component, either tidal or lacustrine fringe wetlands or oyster or mussel reef structures.

GP 21. AGRICULTURAL ACTIVITIES (Authority: §404)

Discharges of dredged or fill material in non-tidal waters for agricultural activities, including the construction of building pads for farm buildings. Authorized activities include: (a) installation, placement, or construction of drainage tiles, ditches, or levees; mechanized land clearing; land leveling; the relocation of existing serviceable drainage ditches; and similar activities; (b) construction of farm ponds, excluding perennial streams, provided the farm pond is used solely for agricultural purposes; and (c) discharges of dredged or fill material to relocate existing serviceable drainage ditches constructed in non-tidal streams.

Not authorized under GP 21 (IP required): (a) Permanent impacts that are >1 acre in non-tidal waters; or >1000 SF in riffle and pool complexes, or non-tidal vegetated shallows; (b) Work in tidal waters; or (c) Construction of farm ponds in perennial streams.

Self-Verification Eligible

In non-tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, and (b) not located in riffle and pool complexes and non-tidal vegetated shallows.

Pre-Construction Notification Required

- 1. In non-tidal waters, the combined permanent and temporary impacts are (a) >5,000 SF, or (b) located in riffle and pool complexes and non-tidal vegetated shallows.
- 2. Activities occur in non-tidal navigable waters of the U.S.
- 3. Stream channelization, relocation, impoundment, loss of streambed, or farm ponds in non-perennial streams occurs.
- 4. Activities that are not eligible for SV and do not require an IP.

Note: Some discharges for agricultural activities may qualify for an exemption under Section 404(f) of the CWA (see 33 CFR 323.4). This GP authorizes the construction of farm ponds that do not qualify for the CWA $\S404(f)(1)(C)$ exemption because of the recapture provision at $\S404(f)(2)$.

GP 22. RESHAPING EXISTING DRAINAGE DITCHES, CONSTRUCTION OF NEW DITCHES, AND MOSQUITO MANAGEMENT (Authorities: §10 and §404)

Discharges to modify the cross-sectional configuration of currently serviceable drainage ditches constructed in tidal and non-tidal waters, for the purpose of improving water quality by regrading the drainage ditch with gentler slopes, which can reduce erosion, increase growth of vegetation, and increase uptake of nutrients and other substances by vegetation. Also authorized are mosquito reduction activities.

Not authorized under GP 22 (IP required): Stream channelization, relocation, impoundments, or loss of streambed.

Self-Verification Eligible

≤500 linear feet of drainage ditch will be reshaped provided excavated material is deposited in an upland area.

Pre-Construction Notification Required

- 1.>500 linear feet of drainage ditch will be reshaped, excavated material is deposited in a water of the U.S., or the reshaping of the ditch increases the drainage capacity beyond the original asbuilt capacity or expands the area drained by the ditch as originally constructed (i.e., the capacity of the ditch is not the same as originally constructed or drains additional wetlands or other waters of the U.S.).
- 2. Permanent and temporary impacts in tidal vegetated shallows.
- 3. New ditches or relocation of drainage ditches constructed in waters of the U.S. (i.e., the location of the centerline of the reshaped drainage ditch is not approximately the same as the location of the centerline of the original drainage ditch).
- 4. Activities that are not eligible for SV and do not require an IP.

Note: Some ditch activities are exempt under Section 404(f) of the CWA (see 33 CFR 323.4).

GP 23. LINEAR TRANSPORTATION PROJECTS AND WETLAND/STREAM CROSSINGS (Authorities: §10 & §404)

Activities¹ required for the construction, expansion, modification, or improvement of linear transportation projects (e.g., driveways, roads, highways, railways, trails, airport runways, and taxiways) and attendant features. This GP also authorizes temporary structures, fills, and work, including the use of temporary mats (see Note 1), necessary to construct the linear transportation project.

Not authorized under GP 23 (IP required): (a) Permanent impacts for any single and complete project that are >1 acre in non-tidal waters; >½ acre in tidal waters; >1000 SF in saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >100 SF in tidal vegetated shallows; (b) Temporary impacts in tidal waters that are >1 acre; >5000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1000 SF in vegetated shallows; (c) Non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars (see GP 17); or (d) New tide gates.

Self-Verification Eligible

- 1. In non-tidal waters, the combined permanent and temporary impacts are a) ≤5,000 SF; b) not located in riffle and pool complexes and non-tidal vegetated shallows; and c) meet the Massachusetts River and Stream Crossing Standards
- 2. Existing crossings (e.g., culverts, elliptical or arch pipes, etc.) are not modified by (a) decreasing the diameter of the crossing or (b) changing the friction coefficient, such as through slip lining (retrofitting an existing culvert by inserting a smaller diameter pipe), culvert relining or invert lining.
- 3. Stream channelization or relocation resulting in loss of streambed that is <200 LF.

Pre-Construction Notification Required

- 1. In non-tidal waters, the combined permanent and temporary impacts are a) >5,000 SF; b) located in vegetated shallows or riffle and pool complexes; or c) do not meet the Massachusetts River and Stream Crossing Standards (see note 4).
- 2. The activity occurs in tidal waters, salt marsh, or in, over or under navigable waters of the U.S.
- 3. Stream and wetland crossings that require a PCN per GC 20 TOY Restrictions and GC 31 Stream Work and Crossings & Wetland Crossings.
- 4. Stream channelization or relocation resulting in loss of streambed that is ≥200 LF. Stream impoundment activities of any kind.
- 5. Work on USACE properties & USACE-controlled easements.
- 6. Activities that are not eligible for SV and do not require an IP.

- 1. See GC 22 for information on temporary construction mats.
- 2. Discharges of dredged or fill material incidental to the construction of bridges across navigable waters of the U.S. may be authorized under GP 8.
- Loss of streambed does not require a PCN when bridge piers or similar supports are used.
- 4. In their PCN application submission to the USACE, applicants must explain why they are unable to meet the Massachusetts River and Stream Crossing Standards.
- 5. For tidal crossings, modeling is encouraged as a method to verify the proposed crossing would not be undersized and resilient to the effects of sea level rise.

¹ Stream crossings must conform with the MA Stream Crossing Guidelines when practicable and comply with all applicable GCs of this document (Section IV).

GP 24. TEMPORARY CONSTRUCTION, ACCESS, AND DEWATERING (Authorities: §10 and §404)

Temporary structures, work, and discharges, including cofferdams, necessary for construction activities or access fills or dewatering of construction sites that are not authorized under another GP activity.

Not authorized under GP 24 (IP required): (a) Permanent structures or impacts; (b) Temporary impacts in tidal waters that are >1 acre; >5000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1000 SF in vegetated shallows; (c) Use of cofferdams to dewater wetlands or other aquatic areas to change their use; (d) Temporary stream crossings (see GPs 6, 17, 23); (e) Structures or fill left in place after construction is completed.

Self-Verification Eligible

- In non-tidal waters, temporary impacts are
 a) ≤5,000 SF; b) not located in riffle and pool complexes and non-tidal vegetated shallows.
- 2. In tidal waters, temporary impacts are a) ≤5,000 SF, b) ≤1,000 SF in mudflats and/or natural rocky habitat, and c) not located in saltmarsh and tidal vegetated shallows.
- 3. Structures in navigable waters of the U.S. provided impacts do not require a PCN and they are left in place ≤30 days.

Pre-Construction Notification Required

- 1. In non-tidal waters, temporary impacts are a) >5,000 SF; b) located in riffle and pool complexes or non-tidal vegetated shallows.
- 2. In tidal waters, temporary impacts are a) >5,000 SF; b) >1,000 SF in mudflats and/or natural rocky habitat, or (c) located in saltmarsh and tidal vegetated shallows.
- 3. Activities in the Connecticut River from the Turners Falls Dam to the MA/CT border, or Merrimack River from the Essex Dam to the mouth, involving temporary impacts unless they are performed <5 feet waterward from OHW or HTL and in the dry. This is to protect endangered species; or
- 4. Activities not eligible for SV and do not require an IP.

- 1. Turbidity or sediment resuspension is generally not considered to occur when properly using management techniques to work in dry conditions. See GC 25.
- 2. Total impact areas under SV Eligible 1-2 exclude use of temporary construction mats. See GC 22 for information on temporary construction mats.
- 3. An SVN submittal to USACE is not required for SV #3 above.

GP 25. EMERGENCY SITUATIONS (Authorities: §10 and §404)

Structures or work in or affecting navigable waters of the U.S. and the discharge of dredged or fill material into waters of the U.S., including wetlands, necessary for repair or protection measures associated with an emergency situation¹, MassDEP Emergency Declaration/Certification, or FEMA Declared Disaster. The activity shall be the minimum necessary to alleviate the immediate emergency unless that additional work would result in no more than minimal effects to aquatic environment and is necessary to reduce the potential for future failure or loss of the structure or site. Typical activities authorized under this GP include, but are not limited to, restoration of damaged areas; bank stabilization; temporary fills for staging, access, and dewatering; and, repair, replacement, or rehabilitation of existing structures and/or fills (i.e., roads, bridges, utility pipelines and flood control structures, including attendant features, and other existing structures located in waters of the U.S.).

For the restoration of areas damaged by storms floods, or other discrete events: (a) The restored area must not extend waterward of the ordinary high-water mark or high tide line that existed prior to the damage. (b) The slope of the restored area below the ordinary high-water mark or high tide line must not exceed the slope that existed prior to the damage. (c) The bottom elevation of the restored area must not exceed the bottom elevation that existed prior to the damage (i.e., the restored area must not result in a reduction in the depth of the waterbody that existed prior to the damage). (d) Except in cases of FEMA reimbursement, the activity must be initiated, under contract to commence, or funds shall be allocated for the activity within 30 days of authorization under GP 25.

Not authorized under GP 25 (IP required): (a) Permanent impacts for a single and complete project >1/2 acre in tidal waters, unless the district engineer waives this criterion by making a written determination concluding that the activity will result in no more than minimal adverse environmental effects; >1,000 SF in saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >100 SF in tidal vegetated shallows; (b) Temporary impacts in tidal waters that are >5,000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1,000 SF in vegetated shallows; (c) New structures or fills that did not previously exist before the storm event or other discrete event (see other GPs).

Self-Verification Eligible

- 1. Activities that qualify under a Severe Weather Emergency Declaration pursuant to 310 CMR 10.06(8) and/or receive an Emergency Certification pursuant to 310 CMR 10.06 and/or meet the requirements of 314 CMR 9.12(2) or (3); and
- 2. Activities eligible under a FEMA Declared Disaster that also comply with #1 above.

Pre-Construction Notification Required

- 1. Activities that are eligible under a FEMA Declared Disaster and do not qualify under SV #1.
- 2. Minor deviations in the structure or fill area, including those to existing structures or fills are authorized due to changes in materials, construction techniques, requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to alleviate the emergency.
- 3. Activities that are not eligible for SV and do not require an IP.

- 1. Review the GCs (Section IV) to confirm if a PCN is not required elsewhere in this document.
- 2. If the activity is not a MassDEP Emergency Declaration/Certification, does not meet the requirements of 314 CMR 9.12(2) or (3), or is not a FEMA Declared Disaster, applicants must explain in writing why their activity qualifies as an emergency (see footnote) to be eligible under GP 25.
- 3. SV eligible activities qualify under the general 401 WQC MassDEP issued for the 2023 MA GPs (GC 9).

¹ An emergency, as determined by this office and 33 CFR 325.2(e)(4), is one which would result in an unacceptable hazard to life, a significant loss of property, or an immediate, unforeseen, and significant economic hardship if corrective action requiring a Department of the Army permit is not undertaken within a time period less than the normal time to process the request under standard processing procedures.

SECTION IV. GENERAL CONDITIONS:

To qualify for GP authorization, the applicant must comply with the following general conditions, as applicable, in addition to authorization-specific conditions imposed by the division or district engineer.

- 1. Other Permits
- 2. Federal Jurisdictional Boundaries
- 3. Single and Complete Projects
- 4. Use of Multiple General Permits
- 5. Suitable Material
- 6. Tribal Rights & Burial Sites
- 7. Avoidance, Minimization, and Compensatory Mitigation
- 8. Water Quality & Stormwater Management
- 9. Coastal Zone Management
- 10. Federal Threatened and Endangered Species
- 11. Essential Fish Habitat
- 12. National Lands
- 13. Wild and Scenic Rivers
- 14. Historic Properties
- 15. USACE Property and Federal Projects (§408)
- 16. Navigation
- 17. Permit/Authorization Letter On-Site
- 18. Storage of Seasonal Structures
- 19. Pile Driving and Pile Removal in Navigable Waters
- 20. Time of Year Restrictions
- 21. Heavy Equipment in Wetlands
- 22. Temporary Fill & Construction Mats
- 23. Restoration of Wetland Areas
- 24. Bank Stabilization
- 25. Soil Erosion and Sediment Controls
- 26. Aguatic Life Movements and Management of Water Flows
- 27. Spawning, Breeding, and Migratory Areas
- 28. Vernal Pools
- 29. Invasive Species
- 30. Fills Within 100-Year Floodplains
- 31. Stream Work and Crossings & Wetland Crossings
- 32. Utility Line Installation and Removal
- 33. Water Supply Intakes
- 34. Coral Reefs
- 35. Blasting
- 36. Inspections
- 37. Maintenance
- 38. Property Rights
- 39. Transfer of GP Verifications
- 40. Modification, Suspension, and Revocation
- 41. Special Conditions
- 42. False or Incomplete Information
- 43. Abandonment
- 44. Enforcement Cases
- 45. Previously Authorized Activities
- 46. Duration of Authorization

1. Other Permits. Authorization under these GPs does not obviate the need for the permittee to obtain other Federal, State, or local permits, approvals, or authorizations required by law. Permittees are responsible for obtaining all required permits, approvals, or authorizations. Activities that are not regulated by the State, but subject to USACE jurisdiction, may still be eligible for these GPs.

2. Federal Jurisdictional Boundaries.

- a. Applicability of these GPs shall be evaluated with reference to Federal jurisdictional boundaries. Activities shall be evaluated with reference to "waters of the U.S." under the CWA (33 CFR 328) and "navigable waters of the U.S." under §10 of the Rivers and Harbors Act of 1899 (33 CFR 329). Permittees are responsible for ensuring that the boundaries used satisfy the Federal criteria defined at 33 CFR 328-329. These sections prescribe the policy, practice, and procedures to be used in determining the extent of the USACE jurisdiction. Note: Waters of the U.S. includes all waters pursuant to 33 CFR 328.3(a), and adjacent wetlands as the term is defined in 33 CFR 328.3(c). b. Wetlands shall be delineated in accordance with the USACE Wetlands Delineation Manual and the most recent Northcentral/Northeast Regional Supplement. Wetland delineation and jurisdiction information is located at: www.nae.usace.army.mil/missions/regulatory/jurisdiction-and-wetlands and maps are located at www.nae.usace.army.mil/missions/regulatory/state-general-permits/massachusetts-general-permit.
- c. Vegetated shallows shall be delineated when present on the project site. Vegetated shallow survey guidance and maps are located at: www.nae.usace.army.mil/missions/regulatory/state-general-permits/massachusetts-general-permit.
- d. Natural rocky habitats shall be delineated when present on the project site. The definition of natural rocky habitats is in Section VII of the MA GP. Natural rocky habitat survey guidance and maps are located at: www.nae.usace.army.mil/missions/regulatory/state-general-permit.
- **3. Single and Complete Projects**. The MA GP shall not be used for piecemeal work and shall be applied to single and complete projects. The term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers.
- a. For non-linear projects, a single and complete project must have independent utility. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed, even if the other phases were not built, can be considered as separate single and complete projects with independent utility.
- b. Unless USACE determines the activity has independent utility, all components of a single project and/or all planned phases of a multi-phased project (e.g., subdivisions should include all work such as roads, utilities, and lot development) shall be evaluated as one single and complete project.
- c. For linear projects such as power lines or pipelines with multiple crossings, a "single and complete project" is all crossings of a single water of the U.S. (i.e., single waterbody) at a specific location. For linear projects crossing a single waterbody several times at separate and distant locations, each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately. If any crossing requires a PCN review or an individual permit review, then the entire linear project shall be reviewed as one project under PCN or the individual permit procedures.
- **4.** Use of Multiple General Permits. The use of more than one GP for a single and complete project is prohibited, except when the acreage loss of waters of the U.S. authorized by the GPs does not exceed the acreage limit of the GPs with the highest specified acreage limit. For example, if a road crossing over waters is constructed under GP 23, with an associated utility line

crossing authorized by GP 6, if the maximum acreage loss of waters of the U.S. for the total project is ≥1 acre it shall be evaluated as an IP.

5. Suitable Material & Discharge of Pollutants. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). All activities involving any discharge into waters of the U.S. authorized under these GPs shall be consistent with applicable water quality standards, effluent limitations, standards of performance, prohibitions, and pretreatment standards and management practices established pursuant to the CWA (33 U.S.C. 1251), and applicable state and local laws. If applicable water quality standards, limitations, etc., are revised or modified during the term of this GP, the authorized work shall be modified to conform with these standards within six months from the effective date of such revision or modification, or within a longer period of time deemed reasonable by the District Engineer in consultation with the Regional Administrator of the EPA. Unless monitoring data indicates otherwise, applicants may presume that their activity complies with state water quality standards provided they are in compliance with the Section 401 WQC (Applicable only to the Section 404 activity).

6. Tribal Rights & Burial Sites

- a. For all SV and PCN applications, prospective permittees shall follow the guidance set forth in Appendix A, Guidance for NHPA Section 106 Compliance in Massachusetts.
- b. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.
- c. Many tribal resources are not listed on the National Register of Historic Places (NRHP) and may require identification and evaluation in collaboration with the identifying tribe and by qualified professionals. The Tribal Historic Preservation Officer (THPO) and State Historic Preservation Officer (SHPO) may be able to assist with locating information on:
 - i. Previously identified tribal resources; and
 - ii. Areas with potential for the presence of tribal resources.
- d. <u>Discovery of Previously Unknown Remains and Artifacts</u>: If any previously unidentified human remains, cultural deposits, or artifacts are discovered while accomplishing the activity authorized by this permit, you must immediately notify the USACE of what you have found, and to the maximum extent practicable, cease work and avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The USACE will initiate the appropriate the Federal, Tribal, and state coordination required to determine if the items or remains are eligible for listing in the NRHP and warrant a recovery effort or can be avoided.
- e. <u>Burial Sites</u>: Burial sites, marked or unmarked, are subject to state law (Massachusetts Unmarked Burial Law). Native American burial sites on federal or tribal land are subject to the provisions of Native American Graves Protection and Repatriation Act (NAGPRA). Regulated activities may not result in disturbance or removal of human remains until disposition of the remains has been determined by the appropriate authority under these laws, and the work is authorized by the USACE. Regulated activities which result in an inadvertent discovery of human remains must stop immediately, and the USACE, as well as the appropriate state and tribal authority, must be notified. Regulated work at inadvertent discovery sites requires compliance with state law or NAGPRA, as appropriate, prior to re-starting work.
- **7. Avoidance, Minimization, and Compensatory Mitigation.** To qualify under the MA GP, activities must comply with Section V Mitigation Standards and the following as applicable:
- a. Avoid and Minimize: Activities must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the U.S. to the maximum extent practicable at the project site. Avoidance and minimization are required to the extent necessary to ensure that the adverse effects to the aquatic environment (both area and function) are no more than minimal.

- b. Compensatory mitigation for unavoidable impacts to waters of the U.S., including direct, indirect, secondary, and temporal loss, will generally be required for permanent impacts that exceed the thresholds identified in Section V, and may be required for temporary impacts, to offset unavoidable impacts which remain after all appropriate and practicable avoidance and minimization has been achieved and to ensure that the adverse effects to the aquatic environment are no more than minimal. Proactive restoration projects or temporary impact work with no secondary effects may generally be excluded from this requirement.
- c. Mitigation proposals shall follow the guidelines found in the Compensatory Mitigation for Losses of Aquatic Resources; Final Rule April 10, 2008; 33 CFR 332. Prospective permittees may purchase mitigation credits in-lieu of permittee-responsible mitigation as compensation for unavoidable impacts to waters of the U.S. in the Commonwealth of Massachusetts.
- **8. Water Quality & Stormwater Management.** The 401 WQC requirement applies to all activities listed under GPs 1-25, unless determined otherwise by MassDEP. Permittees shall also satisfy stormwater management requirements in Massachusetts.
- a. General 401 WQC: MassDEP issued a WQC on April 21, 2023 which conditionally certifies all activities in GPs 1 24 eligible for SV and PCN so long as the activity is described in 314 CMR 9.03, and is not an activity described in 314 CMR 9.04, and so long as the activity meets all other requirements, terms and conditions of the WQC. The MassDEP WQC also conditionally certifies activities described in GP 25 so long as the activity meets all other conditions of the WQC. Emergency projects described in GP 25 must obtain an emergency certification or otherwise be authorized pursuant to 310 CMR 10.06, qualify under a Severe Weather Emergency Declaration pursuant to 310 CMR 10.06(8) issued by the MassDEP, or meet the requirements of 9.12(2) or (3) in order to be certified under the WQC. Prospective permittees may refer to the following link to determine if their activity is eligible: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permit/. The General 401 WQC is located here, and it provides detailed information regarding what activities are certified and the conditions for certification. Activities listed in 314 CMR 9.03 that are not exempt from the Wetland Protection Act must have a valid Final Order of Conditions (OOC) or Final Restoration Order of Conditions pursuant to 310 CMR 10.00 to be eligible under the General 401 WQC.
- b. <u>Individual 401 WQC</u>: Prospective permittees shall contact MassDEP and apply for an individual 401 WQC if their activity does not qualify for a General 401 WQC as outlined above. MassDEP may issue, waive, or deny the individual 401 WQC on a case-by-case basis. All activities listed in 314 CMR 9.04 must obtain an individual 401 WQC from MassDEP to be eligible under these GPs. When an Individual 401 WQC is required for *PCN activities*, the prospective permittee shall submit their Individual 401 WQC application concurrently to MassDEP and USACE to comply with 40 CFR 121.
- c. The prospective permittee is responsible for determining the appropriate 401 WQC requirement and submitting this information to the USACE at the time of their PCN application or when completing their SVN. Prospective permittees that are unsure of whether their activity has been certified should contact MassDEP for a determination.
- d. As applicable, all activities shall be compliant with the Massachusetts Stormwater Handbook. The Stormwater Handbook can be accessed on the NAE Regulatory website here: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/.
- e. No work requiring authorization under Section 404 of the CWA may be performed unless (1) the prospective permittee qualifies for coverage under the April 21, 2023 General 401 WQC, (2) the prospective permittee receives an individual Section 401 WQC from the MassDEP, or (3) the MassDEP waives individual Section 401 WQC.
- **9. Coastal Zone Management.** The permittee must obtain CZM consistency concurrence when an activity is located in the coastal zone in order to be eligible under the MA GP. This requirement

shall be satisfied by acquiring one of the following from the Massachusetts Office of Coastal Zone Management (MA CZM):

- a. <u>General CZM Federal Consistency Concurrence (General Concurrence)</u>: MA CZM has granted General Concurrence for all SV and PCN activities for GPs 1-25. The prospective permittee must obtain all applicable permits and approvals before construction of the authorized activity begins (e.g., before work begins on site). For SVs, General Concurrence is automatically granted and no further action is required from the prospective permittee. For PCNs, the USACE will coordinate with MA CZM to acquire General Concurrence as part of the PCN application review.
- b. <u>Individual CZM Federal Consistency Concurrence (Individual Concurrence)</u>: In certain cases, MA CZM may elevate any GP activity 1-25 and require Individual Concurrence. The prospective permittee must contact MA CZM and follow the procedures to obtain Individual Concurrence as determined appropriate by MA CZM.
- c. Permittees must obtain CZM consistency concurrence as outlined above before commencing work authorized under these GPs.

10. Federal Threatened and Endangered Species

- a. No activity is authorized under any GP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any GP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of "effects of the action" for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding "activities that are reasonably certain to occur" and "consequences caused by the proposed action."
- b. Other Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If a PCN is required for the proposed activity, the Federal permittee must provide USACE with the appropriate documentation to demonstrate compliance with those requirements. The USACE will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.
- c. <u>USFWS ESA-Listed Species</u>: Non-federal applicants shall use the USFWS website, Information for Planning and Consultation (IPAC), to determine if their activity is located within the ESA-listed species range. The IPAC website can be accessed on the NAE Regulatory website: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permits/. Applicants shall ensure they have an updated, valid species list before construction begins. This may require applicants to update their species list in IPAC before the start of construction. Note: Applicants should refer to the NAE Regulatory Website at the link above to determine if they have been designated as a non-federal representative. Applicants shall complete Section 7 consultation according to the guidance document located on the NAE Regulatory Website. After completing the Rangewide Determination Key and reaching the outcome "may affect, not likely to adversely affect", you may be required to wait up to 15 days before that outcome is final and compliance under Section 7 of the ESA is fulfilled.
 - i. Self-Verification Criteria: The activity is SV-eligible if:
 - 1) The activity is not located within the ESA-listed species range;
 - 2) Another (lead) Federal agency has completed Section 7 consultation; or
 - 3) The activity is located within the ESA-listed species range <u>and</u> USACE has designated the applicant as a non-federal representative under 50 CFR 402.08 of the ESA for all

- species within the project's action area. As the non-federal representative, the applicant shall complete consultation through IPAC and reach the outcome of "no effect" or "not likely to adversely affect".
- ii. Pre-Construction Notification Criteria: The activity requires a PCN if:
 - 1) The activity is located within the ESA-listed species range <u>and</u> USACE has NOT designated the applicant as a non-federal representative under 50 CFR 402.08 of the ESA for all species within the project's action area;
 - 2) The activity is located in designated or proposed critical habitat; or
 - 3) The activity is located within the ESA-listed species range and completion of the IPAC determination key has resulted in the outcome of "may affect" or "may affect, likely to adversely affect"; or
 - 4) A PCN is required elsewhere in this document.
- d. <u>NOAA-Listed Species</u>: Non-federal applicants shall refer to the Section 7 Mapper for federally listed species to determine if any species are mapped as present. When NOAA-listed species are present, the applicant shall generate a species report through the mapper and submit this document as part of their PCN or SVN submission. The NOAA Fisheries' Section 7 Mapper can be accessed here on the NAE Regulatory website here: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/.
- e. Authorization of an activity by an GP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

11. Essential Fish Habitat (EFH).

- a. SV eligible activities have been determined to result in no more than minimal adverse effects, provided the permittee complies with all terms and conditions of the MA GP as appliable to the activity. NMFS has granted General Concurrence [50 CFR 600.920(g)] for all SV eligible activities. These activities do not require project specific EFH consultation.
- b. For PCN required activities, the applicant is required to describe and identify potential adverse effects to EFH and should refer to NOAA Fisheries' EFH Mapper (http://www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper) and Omnibus Essential Fish Habitat Amendment 2 Volume 2: EFH and HAPC Designation Alternatives and Environmental Impacts (https://www.habitat.noaa.gov/application/efhmapper/oa2 efh hapc.pdf). If an activity is located within EFH, the PCN application must contain:
 - 1. A description of the action located in EFH.
 - 2. An analysis of the potential adverse effects of the action on EFH and the managed Species.
 - 3. Conclusions regarding the effects of the action on EFH.
 - 4. Proposed mitigation, if applicable (refer to the mitigation thresholds located in Section V).
- c. Federal agencies shall follow their own procedures for complying with the EFH requirements of the Magnuson-Stevens Fishery Conservation and Management Act. For activities requiring a PCN, the applicant is responsible for furnishing documentation that demonstrates consultation for EFH has been completed.
- d. For PCN activities, no work may commence until EFH consultation as required by the Magnuson-Stevens Act has been completed.

- **12. National Lands**. Activities that impinge upon the value of any National Wildlife Refuge, National Forest, National Marine Sanctuary, National Historic Landmarks or any other area administered by the National Park Service, U. S. Fish and Wildlife Service (USFWS) or U.S. Forest Service (USFS) require a PCN or Individual Permit. Federal land managers seeking authorization for activities located in the above listed National Lands may proceed under SV, unless a PCN is required elsewhere in this document.
- **13. Wild and Scenic Rivers.** The following activities in designated river or study river segments in the National Wild and Scenic River (WSR) System require a PCN unless the Federal agency with direct management responsibility for such river, in Massachusetts this is generally the National Park Service, has determined in writing to the proponent that the proposed work will not adversely affect the WSR designation or study status:
- a. Activities that occur in WSR segments, in and 0.25 miles up or downstream of WSR segments, or in tributaries within 0.25 miles of WSR segments;
 - b. Activities that occur in wetlands within 0.25 miles of WSR segments;
 - c. Activities that have the potential to alter free-flowing characteristics in WSR segments.

No GP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

As of May 10, 2023, affected rivers in Massachusetts include: the Taunton River (40 miles), Sudbury River (16.6 miles), Assabet River (4.4 miles), Concord River (8 miles), Nashua River (27 miles), Squannacook River (16.3 miles), Nissitissit River (4.7 miles), and the Westfield River, including West Branch, Middle Branch, Gendale Brook, East Branch, Drowned Land Brook, Center Brook, Windsor Jambs Brook, Shaker Mill Brook, Depot Brook, Savery Brook, Watson Brook, Center Pond Brook (78.1 miles). The most up to date list of designated and study rivers and their descriptions may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

14. Historic Properties

- a. For all SV and PCN applications, permittees shall follow the guidance set forth in Appendix A, Guidance for NHPA Section 106 Compliance in Massachusetts.
- b. No undertaking authorized by these GPs shall cause effects¹ (defined in 36 CFR Part 800 and 33 CFR Part 325, Appendix C, and its Interim Guidance) on properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places (NRHP)², including previously unknown historic properties within the permit area, unless the USACE or another Federal action agency has satisfied the consultation requirements of Section 106 of the National Historic Preservation Act (Section 106). If another Federal agency is determined the lead federal agency for compliance with Section 106, applicant must obtain the appropriate documentation and provide this information to the USACE to demonstrate compliance with Section 106. The applicant shall not begin the activity until the USACE notifies them in writing that the documentation provided satisfies Section 106 requirements.

¹ Effect means the alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register of Historic Properties.

² See the NAE Regulatory website, National Register of Historic Places link here: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/.

- c. Many historic properties are not listed on the NRHP and may require identification and evaluation by qualified historic preservation and/or archaeological consultants. The State Historic Preservation Officer (SHPO), Massachusetts Board of Underwater Archaeological Resources (BUAR), local historical societies, certified local governments, general public, and NRHP may also be able to assist with locating information on:
 - i. Previously identified historic properties; and
 - ii. Areas with potential for the presence of historic properties.
- d. Discovery of Previously Unknown Remains and Artifacts: If any previously unidentified human remains, cultural deposits, or artifacts are discovered while accomplishing the activity authorized by this permit, you must immediately notify the USACE of what you have found, and to the maximum extent practicable, cease work and avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The USACE will initiate the Federal, State and tribal coordination required to determine if the items or remains warrant a recovery effort and/or if the site is eligible for listing in the National Register of Historic Places. e. Section 110k: Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. § 306113) prevents the USACE from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106, has intentionally significantly adversely effected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the USACE, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the USACE is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties effected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or effects historic properties on tribal lands or effects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties. f. <u>Underwater Archaeological Resources</u>: Under Massachusetts General Law Ch. 6, s.'s 179-180, and Ch. 91, s. 63, the BUAR has statutory jurisdiction within state waters and is the sole trustee of the Commonwealth's underwater heritage, charged with the responsibility of encouraging the discovery and reporting, as well as the preservation and protection, of underwater archaeological resources. Underwater archaeological resources located within the waters of the Commonwealth of Massachusetts are property of the Commonwealth, which holds title to these resources and retains regulatory authority over their use. Under Massachusetts General Law, no person, organization or corporation may "remove, displace, damage, or destroy" any underwater archaeological resources located within the Commonwealth's submerged lands except through consultation with the BUAR and in conformity with the permits it issues. https://www.mass.gov/ orgs/board-of-underwater-archaeological-resources.

15. USACE Property and Federal Projects. (33 USC §408)

- a. USACE projects and property can be found at: https://www.nae.usace.army.mil/Missions/Civil-Works/.
- b. In addition to any authorization under these GPs, prospective permittee shall contact the USACE Real Estate Division (https://www.nae.usace.army.mil/Missions/Real-Estate-Division/) at (978) 318-8585 for work occurring on or potentially affecting USACE properties and/or USACE-controlled easements. Work may not commence on USACE properties and/or USACE-controlled easements until they have received any required USACE real estate documents evidencing site-specific permission to work.
- c. Any proposed temporary or permanent occupation or alteration of a Federal project (including, but not limited to, a levee, dike, floodwall, channel, anchorage, breakwater, seawall, bulkhead, jetty, wharf, pier, or other work built or maintained but not necessarily owned by the United States),

is not eligible for SV and requires a PCN. This includes all proposed structures and work in, over, or under a USACE federal navigation project (FNP) or in the FNP's buffer zone. The buffer zone is an area that extends from the horizontal limits of the FNP to a distance of three times the FNP's authorized depth. The activity also requires review and approval by the USACE pursuant to 33 USC 408 (Section 408 Permission). The prospective permittee may reach out to the POCs located here: https://www.nae.usace.army.mil/Missions/Section-408/.

- d. Any structure or work constructed in a FNP or its buffer zone shall be subject to removal at the owner's expense prior to any future USACE dredging or the performance of periodic hydrographic surveys.
- e. Where a Section 408 permission is required, written verification for the PCN will not be issued prior to the decision on the Section 408 permission request.

16. Navigation

- a. No activity may cause more than a minimal adverse effect on navigation.
- b. Any safety lights and signals prescribed by the U.S. Coast Guard, must be installed, and maintained at the permittee's expense on authorized facilities in navigable waters of the U.S.
- c. There shall be no unreasonable interference with navigation by the existence or use of the activity authorized herein, and no attempt shall be made by the permittee to prevent the full and free use by the public of all navigable waters at or adjacent to the activity authorized herein.
- d. The permittee understands and agrees that if future U.S. operations require the removal, relocation, or other alteration of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from USACE, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the U.S. No claim shall be made against the U.S. on account of any such removal or alteration.
- 17. Permit/Authorization Letter On-Site. For PCNs, the permittee shall ensure that a copy of these GPs and the accompanying authorization letter are at the work site (and the project office) whenever work is being performed, and that all personnel with operational control of the site ensure that all appropriate personnel performing work are fully aware of its terms and conditions. The entire permit authorization shall be made a part of any and all contracts and sub-contracts for work that affects areas of USACE jurisdiction at the site of the work authorized by these GPs. This shall be achieved by including the entire permit authorization in the specifications for work. The term "entire permit authorization" means these GPs, including GCs and the authorization letter (including its drawings, plans, appendices, special conditions, and other attachments), and any permit modifications. If the authorization letter is issued after the construction specifications, but before receipt of bids or quotes, the entire permit authorization shall be included as an addendum to the specifications. If the authorization letter is issued after receipt of bids or quotes, the entire permit authorization shall be included in the contract or sub-contract as a change order. Although the permittee may assign various aspects of the work to different contractors or sub-contractors, all contractors and sub-contractors shall be obligated by contract to comply with all environmental protection provisions contained within the entire authorization letter, and no contract or subcontract shall require or allow unauthorized work in areas of USACE jurisdiction. For SVs, the permittee shall ensure that a complete and signed copy of the SVN is present on site during construction and is made available for review at any time by USACE and other Federal, State, & Local regulatory agencies. A complete and signed copy of the SVN must be submitted to USACE Regulatory within 30 days of initiating construction of the authorized activity, unless stated otherwise in the applicable GP.
- 18. Storage of Seasonal Structures. Coastal structures such as pier sections, floats, etc., that

are removed from the waterway for a portion of the year (often referred to as seasonal structures) shall be stored in an upland location, located above MHW and not in tidal wetlands. These seasonal structures may be stored on the fixed, pile-supported portion of the structure that is seaward of MHW. This is intended to prevent structures from being stored on the marsh substrate and the substrate seaward of MHW.

19. Pile Driving and Pile Removal in Navigable Waters.

- a. Derelict, degraded or abandoned piles and sheet piles in navigable waters of the U.S., except for those inside existing work footprints for piers, must be completely removed, cut and/or driven to 3 feet below the substrate to prevent interference with navigation, and existing creosote piles that are affected by project activities shall be completely removed if practicable. In areas of fine-grained substrates, piles must be removed by the direct, vibratory or clamshell pull method¹ to minimize sedimentation and turbidity impacts and prevent interference with navigation from cut piles. Removed piles shall be disposed of in an upland location landward of MHW or OHW and not in wetlands, tidal wetlands or mudflats.
- b. A PCN is required for the installation or removal of structures with jetting techniques.
- c. A PCN is required for the installation of >12 inch-diameter piles of any material type or steel piles of any size in tidal waters, unless they are installed in the dry. If piles are not installed in the dry:
- i. Impact pile driving shall commence with an initial set of three strikes by the hammer at 40% energy, followed by a one-minute wait period, then two subsequent 3-strike sets at 40% energy, with one minute waiting periods, before initiating continuous impact driving.
- ii. Vibratory pile driving shall be initiated for 15 seconds at reduced energy followed by a one-minute waiting period. This sequence of 15 seconds of reduced energy driving, one-minute waiting period shall be repeated two more times, followed immediately by pile-driving at full rate and energy.
- iii. In addition to using a soft start at the beginning of the workday for pile driving as described in 19c(i-ii), a soft start must also be used at any time following a cessation of pile driving for a period of 30 minutes or longer.
- d. Bubble curtains may be used to reduce sound pressure levels during vibratory or impact hammer pile driving.
- **20. Time-of-Year (TOY) Restrictions**. Activities that include in-water work must comply with the TOY Restrictions below to be SV eligible, otherwise a PCN is required. PCN submittals shall contain written justification for deviation from the TOY Restrictions. The term "in-water work" does not include conditions where the work site is "in-the-dry" (e.g., intertidal areas exposed at low tide). The term "in-the-dry" includes work contained within a cofferdam so long as the cofferdam is installed and subsequently removed outside the TOY Restriction. The TOY restrictions stated in Appendix B of the MA DMF Technical Report TR-47² can apply instead for activities in tidal waters if (1) TOYs are provided for a specific waterbody where the activity is proposed and (2) the TOYs are less restrictive than below. The activity must also not require a PCN elsewhere in this document to be SV eligible.

² The MA DMF Technical Report TR-47: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit

¹ <u>Direct Pull</u>: Each piling is wrapped with a choker cable or chain that is attached at the top to a crane. The crane then pulls the piling directly upward, removing the piling from the sediment. <u>Vibratory Pull</u>: The vibratory hammer is a large mechanical device (5-16 tons) that is suspended from a crane by a cable. The vibrating hammer loosens the piling while the crane pulls up. <u>Clamshell Pull</u>: This can remove intact, broken or damaged pilings. The clamshell bucket is a hinged steel apparatus that operates like a set of steel jaws. The bucket is lowered from a crane and the jaws grasp the piling stub as the crane pulls up. The size of the clamshell bucket is minimized to reduce turbidity during piling removal.

TOY Restriction (No work)

Non-tidal Waters	Defer to TR-47
Tidal Waters	January 15 – November 15

Alternate work windows proposed under a PCN will generally be coordinated with the USFWS and NMFS. Resulting written verifications may include species-specific work allowed windows.

- **21. Heavy Equipment in Wetlands.** Operating heavy equipment (drill rigs, fixed cranes, etc.) within wetlands shall be minimized, and such equipment shall not be stored, maintained, or repaired in wetlands, to the maximum extent practicable. Where construction requires heavy equipment operation in wetlands, the equipment shall:
 - Have low ground pressure (typically ≤3 psi);
- ii. Be placed on swamp/construction/timber mats (herein referred to as "construction mats" or "mats") that are adequate to support the equipment in such a way as to minimize disturbance of wetland soil and vegetation. See GC 22 for information on the placement of construction mats; or
- iii. Be operated on adequately dry or frozen wetlands such that shear pressure does not cause subsidence of the wetlands immediately beneath the equipment and upheaval of adjacent wetlands. Construction mats are to be placed in the wetland from the upland or from equipment positioned on mats if working within a wetland. Dragging construction mats into position is prohibited. Other support structures that are capable of safely supporting equipment may be used with written USACE authorization.

22. Temporary Fill, Work & Construction Mats.

- a. <u>Construction mats in non-tidal waters:</u> Temporary construction mats shall be in place ≤1 year and for one growing season or less to be SV eligible. A PCN is required if construction mats are in place >1 year or for more than one growing season. Construction mats can be placed in an area of any size in non-tidal waters. The activity may occur in segments to ensure the requirements for SV above are met, otherwise a PCN is required.
- b. <u>Construction mats in tidal waters:</u> Temporary construction mats placed in an area <5,000 SF in tidal waters are SV eligible, provided those mats are in place ≤6 months. Temporary construction mats placed in an area ≥5,000 SF or in place >6 months in tidal waters require a PCN.
- c. <u>Management of construction mats:</u> At a minimum, construction mats shall be managed in accordance with the following construction mat best management practices (BMPs):
 - 1. Mats shall be in good condition to ensure proper installation, use, and removal.
 - 2. As feasible, mats shall be placed in a location that will minimize the amount of mats needed for the wetland crossing(s).
 - 3. Inspect mats prior to their re-use and remove any plant debris. Mats are to be thoroughly cleaned before re-use to prevent the spread of invasive plant species.
 - 4. Impacts to wetland areas shall be minimized during installation, use, and removal of the mats.
 - 5. Adequate erosion & sediment controls shall be installed at approaches to mats to promote a smooth transition to, and minimize sediment tracking onto, the mats.
 - 6. In most cases, mats should be placed along the travel area so that the individual boards are resting perpendicular to the direction of traffic. No gaps should exist between mats. Place mats far enough on either side of the resource area to rest on firm ground.
- d. A PCN is required for temporary fills in place >2 years. All temporary fills and disturbed soils shall be stabilized to prevent the material from eroding into waters of the U.S. where it is not authorized. Work shall include phased or staged development to ensure only areas under active development are exposed and to allow for stabilization practices as soon as practicable. Temporary fill must be placed in a manner that will prevent it from being eroded by expected high flows.

- e. Activities that require unconfined temporary fill and are authorized for discharge into waters of the U.S. shall consist of material that minimizes effects to water quality.
- f. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable when temporary structures, work, and discharges of dredged or fill material, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Materials shall be placed in a location and manner that does not adversely impact surface or subsurface water flow into or out of the wetland. Temporary fill authorized for discharge into wetlands shall be placed on geotextile fabric or other appropriate material laid on the pre-construction wetland grade where practicable to minimize impacts and to facilitate restoration to the original grade. Construction mats are excluded from this requirement.
- g. Construction debris and deteriorated materials shall not be located in waters of the U.S.
- h. Temporary fills, construction mats, and corduroy roads shall be entirely removed as soon as they are no longer needed to construct the authorized activity and the disturbed areas be restored to pre-construction contours and conditions.
- i. Construction equipment, such as temporary barges in tidal waters, shall provide clearance above the substrate to avoid grounding onto the substrate during all tides.

23. Restoration of Wetland Areas.

- a. Upon completion of construction, all disturbed wetland areas shall be stabilized with a wetland seed mix or plant plugs containing only plant species native to New England, and be appropriate for site conditions, including salinity and frequency of inundation, and shall not contain any species listed in the "Invasive and Other Unacceptable Plant Species" Appendix K of the New England District "Compensatory Mitigation Standard Operating Procedures" found at https://www.nae.usace.army.mil/Missions/Regulatory/Mitigation.aspx.
- b. The introduction or spread of invasive plant species in disturbed areas shall be prevented and controlled. Equipment shall be thoroughly cleaned before and after project construction to prevent the spread of invasive species. This includes, but is not limited to, tire treads and construction mats.
- c. In areas of authorized temporary disturbance, if trees are cut in USACE jurisdiction, they shall be cut at or above ground level and not uprooted in order to prevent disruption of any kind to the wetland soil structure and to allow stump sprouts to revegetate the work area, unless otherwise authorized.
- d. Wetland areas where permanent disturbance is not authorized shall be restored to their original condition and elevation, which under no circumstances shall be higher than the pre-construction elevation. Original condition means careful protection and/or removal of existing soil and vegetation, and replacement back to the original location such that the original soil layering and vegetation schemes are approximately the same, unless otherwise authorized.

24. Bank Stabilization.

- a. Projects involving construction or reconstruction/maintenance of bank stabilization within USACE jurisdiction shall be designed to minimize environmental effects, effects to neighboring properties, scour, conversion of natural shoreline to hard armoring, etc. to the maximum extent practicable. b. Projects involving the construction of new bank stabilization within USACE jurisdiction shall use bioengineering techniques and natural materials in the project design to the maximum extent practicable. Use of hard structures shall be eliminated or minimized unless the prospective permittee can demonstrate that use of bioengineering techniques is not practicable due to site conditions.
- c. Where possible, bank stabilization projects shall optimize the natural function of the shoreline, including self-sustaining stability to attenuate flood flows, fishery, wildlife habitat and water quality protection, while protecting upland infrastructure from storm events that can cause erosion as well as impacts to public and private property.
- d. No material shall be placed in excess of the minimum needed for erosion protection.
- e. No material shall be placed in a manner that will be eroded by normal or expected high flows (properly anchored native trees and treetops may be used in low energy areas).

- f. Native plants appropriate for current site conditions, including salinity, must be used for bioengineering or vegetative bank stabilization.
- g. The activity must be properly maintained, which may require repairing it after severe storms or erosion events.

25. Soil Erosion and Sediment Controls.

- a. Appropriate soil erosion and sediment controls¹ (hereinafter referred to as "controls") must installed prior to earth disturbance and maintained in effective operating condition during construction. Biodegradable wildlife friendly erosion controls should be used whenever practicable to minimize effects to water quality.
- b. Activities in streams (rivers, streams, brooks, etc.) and tidal waters that are capable of producing sedimentation or turbidity should be done during periods of low-flow or no-flow, when the stream or tide is waterward of the work area. Controls may also be used to obtain dry work conditions (e.g., coffer dam, turbidity curtain). The prospective permittee must demonstrate in the project plans where the controls are proposed and how these controls would avoid and/or minimize turbidity or sedimentation.
- c. A PCN is required for controls that encroach: i) >25% of the stream width measured from OHW in non-tidal diadromous streams from March 15 to June 30; or ii) >25% of the waterway width measured from MHW in tidal waters from Feb. 1 to June 30, or >50% of the waterway width measured from MHW in tidal waters from July 1 to Jan. 14. This is to protect upstream fish passage. Proponents must also maintain downstream fish passage throughout the project.
- d. No dewatering shall occur with direct discharge to waters or wetlands. Excess water in isolated work areas shall be pumped or directed to a sedimentation basin, tank or other dewatering structures in an upland area adequately separated from waters or wetlands. Suspended solids shall be removed prior to discharge back into waters or wetlands from these dewatering structures. All discharge points back into waters and wetlands shall use appropriate energy dissipaters and erosion and sedimentation control BMPs.
- e. Temporary controls shall be removed upon completion of work, but not until all exposed soil and other fills, as well as any work waterward of OHW or the HTL, are permanently stabilized at the earliest practicable date. Sediment and debris collected by these devices shall be removed and placed at an upland location in a manner that will prevent its later erosion into a waterway or wetland. Controls may be left in place if they are biodegradable and flows and aquatic life movements are not disrupted.

26. Aquatic Life Movements and Management of Water Flows.

- a. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies and wetlands shall be:
 - i. Suitably spanned, bridged, culverted, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species; and
 - ii. Properly aligned and constructed to prevent bank erosion or streambed scour both adjacent to and inside the crossing.

¹ Appropriate soil erosion, sediment and turbidity controls include cofferdams, bypass pumping around barriers immediately up and downstream of the work footprint (i.e., dam and pump), installation of sediment control barriers (i.e., silt fence, vegetated filter strips, geotextile silt fences, filter tubes, erosion control mixes, hay bales or other devices) downhill of all exposed areas, stream fords, retention of existing vegetated buffers, application of temporary mulching during construction, phased construction, and permanent seeding and stabilization, etc.

- b. To avoid adverse impacts on aquatic organisms, the low flow channel/thalweg shall remain unobstructed during periods of low flow, except when necessary to perform the authorized work.
- c. For work in tidal waters, in-stream controls (e.g., cofferdams) should be installed in such a way as to not obstruct fish passage.
- d. Riprap and other stream bed materials shall be installed in a manner that avoids organism entrapment in rock voids or water displaced to subterranean flow with crushed stone and riprap.
- e. To the maximum extent practicable, the preconstruction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity shall not restrict or impede the passage of normal or high flows unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

27. Spawning, Breeding, and Migratory Areas.

- a. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized under these GPs.
- b. Activities in waters of the U.S. that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.
- c. The applicant is responsible for obtaining any "take" permits required under the USFWS's regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The applicant should contact the appropriate local office of the USFWS to determine if such "take" permits are required for a particular activity.
- d. Information on spawning habitat for species managed under the Magnuson-Stevens Fishery Conservation and Management Act (i.e., EFH for spawning adults) can be obtained from NAE Regulatory website, Essential Fish Habitat section, at: https://www.nae.usace.army.mil/ Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/.
- e. Information regarding diadromous fish habitat can be obtained from the following DMF website at: https://www.mass.gov/info-details/massgis-data-diadromous-fish.

28. Vernal Pools.

- a. A PCN is required if a discharge of dredged or fill material is proposed within a vernal pool depression that is also a water of the U.S.
- b. Vernal pools must be identified on the plans that show aquatic resource delineations.
- c. Adverse impacts to vernal pools shall be avoided & minimized to the maximum extent practicable.

29. Invasive Species.

- a. The introduction, spread or the increased risk of invasion of invasive plant or animal species on the project site, into new or disturbed areas, or areas adjacent to the project site caused by the site work shall be avoided. Construction mats shall be thoroughly cleaned before reuse to avoid spread of invasive species.
- b. Unless otherwise directed by USACE, all applications for PCN non-tidal projects proposing fill in USACE jurisdiction shall include an Invasive Species Control Plan. Additional information can be found at: https://www.nae.usace.army.mil/Missions/Regulatory/Invasive-Species/, https://www.nae.usace.army.mil/Missions/Regulatory/Mitigation/.
- **30. Fills Within 100-Year Floodplains.** The activity shall comply with applicable Federal Emergency Management Agency (FEMA) approved, Massachusetts Emergency Management

Agency (MEMA) approved and/or local floodplain management requirements. Applicants should contact FEMA and/or MEMA regarding floodplain management requirements.

31. Stream Work and Crossings & Wetland Crossings.

- a. When feasible, all temporary and permanent crossings of waterbodies and wetlands (hereinafter referred to as "crossings") shall conform to the "Massachusetts River and Stream Crossing Standards" located at: https://www.mass.gov/doc/massachusetts-river-and-stream-crossing-standards/download or https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit. Projects that do not conform to these guidelines shall be reviewed under PCN or IP procedures.
- b. Crossings shall be suitably culverted, bridged, or otherwise designed to withstand and to prevent the restriction of high flows, to maintain existing low flows, maintain water quality, and not obstruct the movement of aquatic life indigenous to the waterbody beyond the duration of construction.
- c. Crossings shall be installed in such a manner as to preserve hydraulic capacity and flow, sediment transport, and organism passage at its present level, between the wetlands on either side of the road. The applicant shall take necessary measures to correct any wetland damage resulting from deficiencies in hydraulic capacity, sediment transport and organism passage.
- d. Stream crossings shall utilize a natural mixed grain-size streambed material composition that matches upstream and downstream substrates to create a stable streambed. Substrate should function appropriately during normal and high flows without washing out. If natural streambed material is not utilized, a PCN is required.
- e. Activities involving open trench excavation in flowing waters require a PCN. Work should not occur in flowing waters (requires using management techniques such as temporary flume pipes, culverts, cofferdams, etc.). Normal flows should be maintained within the stream boundary's confines when practicable. Projects utilizing these management techniques must meet all applicable terms and conditions of the GP, including the GCs in Section IV.

32. Utility Line Installation and Removal

- a. Subsurface utility lines must be installed at a sufficient depth to avoid damage from anchors, dredging, etc., and to prevent exposure from erosion and stream adjustment.
- b. When utility lines are installed via horizontal directional drilling, a frac-out contingency plan shall be present on site for the duration of construction. As necessary, the applicant shall immediately contain, control, recover, and remove drilling fluids released into the environment.
- c. Abandoned or inactive utility lines must be removed and faulty lines (e.g., leaking hazardous substances, petroleum products, etc.) must be removed or repaired. A written verification from the USACE is required if they are to remain in place, e.g., to protect sensitive areas or ensure safety.
- d. Utility lines shall not adversely alter existing hydrology, and trenches cannot be constructed or backfilled in such a manner as to drain waters of the U.S. (e.g., backfilling with extensive gravel layers, creating a French drain effect). In wetland areas, structures such as ditch plugs, cut-off walls, clay blocks, bentonite, or other suitable material shall be used within utility trenches to ensure that the trench through which the utility line is installed does not drain waters of the U.S. including wetlands.
- e. Stockpiling of tree debris, to the extent where it has the effect of fill material, shall not occur in waters of the U.S. Tree debris shall be removed from waters of the U.S. and placed in uplands without causing additional disturbance to aquatic resources. Failure to meet this condition could change the bottom elevation of the wetland and be considered a discharge of fill material, and depending on the area of alteration, may require a PCN or IP.
- **33. Water Supply Intakes.** No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

- **34. Coral Reefs**. Impacts to coral reefs are not authorized under these GPs. Coral reefs consist of the skeletal deposit, usually of calcareous or silicaceous materials, produced by the vital activities of anthozoan polyps or other invertebrate organisms present in growing portions of the reef.
- **35. Blasting.** Blasting in waters of the U.S. associated with work such as dredging, trenching, pile installation, etc. is not authorized under these GPs.
- **36. Inspections.** The permittee shall allow USACE to make periodic inspections at any time deemed necessary to ensure that the work is being or has been performed in accordance with the terms and conditions of this permit. To facilitate these inspections, for activities requiring a PCN, the permittee shall complete and return the Certificate of Compliance when it is provided with a PCN verification letter. For SV-eligible activities, the permittee shall complete and submit the SVN to USACE within 30 days of initiating project construction, at which point, USACE may opt to inspect the activity to verify compliance with the terms and conditions of the GP. Post-construction engineering drawings may be required by USACE for completed work. This includes post-dredging survey drawings for any dredging work.
- **37. Maintenance.** The permittee shall maintain the activity authorized by these GPs in good condition and in conformance with the terms and conditions of this permit. Some maintenance activities may not be subject to federal regulation under Section 404 in accordance with 33 CFR 323.4(a)(2). This condition is not applicable to maintenance of dredging projects. Prospective permittees should contact USACE to inquire about maintenance of dredging projects, and its eligibility under these GPs. Maintenance dredging is subject to the review thresholds in GP #7 as well as any conditions included in a written USACE authorization. Maintenance dredging includes only those areas and depths previously authorized and dredged.
- **38. Property Rights.** Per 33 CFR 320.4(g)(6), these GPs do not convey any property rights, either in real estate or material, or any exclusive privileges, nor do they authorize any injury to property or invasion of rights or any infringement of Federal, State, or local laws or regulations.
- **39. Transfer of GP Verifications.** When the work authorized by these GPs is still in existence at the time the property is transferred, the terms and conditions of these GPs, including any special conditions, will continue to be binding on the entity or individual who received the GP authorizations, as well as the new owner(s) of the property. If the permittee sells the property associated with a GP authorization, the applicant may transfer the GP authorization to the new owner by submitting a letter to USACE to validate the transfer. A copy of the GP authorization letter must be attached to the letter, and the letter must include the following statement: "The terms and conditions of these general permits, including any special conditions, will continue to be binding on the new owner(s) of the property." This letter shall be signed by both the seller and new property owner(s).
- **40. Modification, Suspension, and Revocation**. These GPs and any individual authorization issued thereof may be either modified, suspended, or revoked in whole or in part pursuant to the policies and procedures of 33 CFR 325.7; and any such action shall not be the basis for any claim for damages against the U.S.
- **41. Special Conditions.** The USACE may impose other special conditions on a project authorized pursuant to these GPs that are determined necessary to minimize adverse navigational and/or environmental effects or based on any other factor of the public interest. Failure to comply with all conditions of the authorization, including special conditions, constitutes a permit violation and may subject the applicant to criminal, civil, or administrative penalties or restoration.

- **42. False or Incomplete Information.** If USACE makes a determination regarding the eligibility of a project under these GPs, and subsequently discovers that it has relied on false, incomplete, or inaccurate information provided by the applicant, the authorization will not be valid, and the U.S. Government may institute appropriate legal proceedings.
- **43. Abandonment.** If the permittee decides to abandon the activity authorized under these GPs, unless such abandonment is merely the transfer of property to a third party, he/she/they may be required to restore the area to the satisfaction of USACE.
- **44. Enforcement cases.** These GPs do not apply to any existing or proposed activity in USACE jurisdiction associated with an on-going USACE or EPA enforcement action, until such time as the enforcement action is resolved or USACE or EPA determines that the activity may proceed independently without compromising the enforcement action.

45. Previously Authorized Activities.

- a. Completed projects that received prior authorization from USACE (SV or PCN), shall remain authorized in accordance with the original terms and conditions of those authorizations, including their terms, GCs, and any special conditions provided in a written verification.
- b. Activities authorized pursuant to 33 CFR 330.3 (activities occurring before certain dates) are not affected by these GPs.

46. Duration of Authorization.

These GPs expire on June 1, 2028. Activities authorized under these GPs will remain authorized until the GPs expire, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend, or revoke the authorization in accordance with 33 CFR 325.2(e)(2). Activities authorized under GPs 1-25 that have either commenced (i.e., are under construction) or are under contract to commence in reliance upon this authorization will have until June 1, 2029 to complete the work. If requested by USACE, the permittee shall furnish documentation that demonstrates the project was under construction or under contract to commence by June 1, 2028. If work is not completed before June 1, 2029, the permittee must contact USACE. The USACE may issue a new authorization provided the project meets the terms and conditions of the MA GPs in effect at the time. Activities completed under the SV or PCN authorizations of these GPs will continue to be authorized after their expiration date.

SECTION V: MITIGATION STANDARDS

1. Mitigation Types

For all activities, applicants must (a) demonstrate how the project has been designed to avoid or minimize impacts to aquatic resources; and (b) describe measures taken to avoid or minimize impacts to aquatic resources through construction techniques and/or site access. Please see https://www.nae.usace.army.mil/Missions/Regulatory/Mitigation/ for assistance with preparing mitigation in accordance with the 2008 Compensatory Mitigation for Losses of Aquatic Resources; Final Rule (33 CFR 332.3), hereafter referred to as "2008 Mitigation Rule."

<u>Avoidance</u> - Avoidance of impacts (direct and indirect) to aquatic resources means that project activities would not result in the placement of fill material or installation of a structure that could impact the resource area. Avoidance can include, but is not limited to, designing the project to avoid impacts to all or a portion of the aquatic resource areas.

<u>Minimization</u> - Minimization of impacts (direct and indirect) to aquatic resources means that measures are taken to ensure the amount and duration of impacts are limited to the maximum extent practicable. There are many minimization measures that could be implemented, prior to, during, or after the proposed activity, to ensure impacts are minimized. Examples include, but are not limited to:

- Permanent preservation of avoided aquatic features and buffer zone, in perpetuity. In these
 cases, the preserved area would be under a conservation easement and managed by
 conservation oriented third-party manager.
- Utilization of best management practices (BMPs) to ensure impacts are limited, and do not result in adverse impacts to the integrity and long-term functions of preserved/avoided features.

<u>Compensatory Mitigation</u> - Compensatory mitigation is generally required for PCN activities in which the impacts to the aquatic resources have been avoided and minimized to the maximum extent practicable but would still result in unavoidable adverse effects to the environment that are considered more than minimal or are contrary to the public interest. Whatever the case may be, compensatory mitigation is no substitute for avoidance and minimization.

2. Thresholds for Compensatory Mitigation

The basic objective of compensatory mitigation in the USACE Regulatory Program is to offset environmental losses resulting from unavoidable impacts to waters of the U.S. authorized by Department of the Army permits. The following compensatory mitigation thresholds apply to all PCN activities that result in loss¹ of the resource area types listed below. Activities² in waters of the U.S. associated with the restoration, enhancement, and establishment of tidal and non-tidal aquatic resources are not considered loss and are not subject to the thresholds below. Thresholds for different resource areas may not be combined to exceed 5,000 SF of total loss of all waters. The USACE will continue to evaluate projects on a case-by-case basis, and may in some cases require compensatory mitigation below these thresholds (e.g. minor impacts that add to a cumulative loss).

¹ See definition of loss in Section VII.

² These activities must result in net increases in aquatic resource functions and services to be exempted from the thresholds above.

Compensatory Mitigation Thresholds in Massachusetts						
Resource Area	Non-Tidal Threshold	Tidal Threshold				
Stream	200 LF	200 LF				
Bank Stabilization	500 LF	500 LF				
Open Water	Project Dependent	Project Dependent				
Wetland	5,000 SF	500 SF				
Vernal Pool	All	N/A				
SAV	Project dependent	25 SF				
Mudflat	N/A	1,000 SF				
Intertidal	N/A	1,000 SF				

These thresholds can be utilized to determine at what point compensatory mitigation is required but are not used to determine how much mitigation may be needed to offset impacts to resources. Per the 2008 Mitigation Rule (33 CFR 332.3(f)(1)) "the amount of required compensatory mitigation must be, to the extent practicable, sufficient to replace lost aquatic resource functions. In cases where appropriate functional or condition assessment methods or other suitable metrics are available, these methods should be used where practicable to determine how much compensatory mitigation is required. If a functional or condition assessment or other suitable metric is not used, a minimum one-to-one acreage or linear foot compensation ratios must be used."

3. Compensatory Mitigation Hierarchy

Compensatory mitigation <u>should</u> follow the hierarchy as outlined in 33 CFR 332.3(b)(2-6) or current regulation. This hierarchy in order of preference includes: (1) Mitigation Bank credits, (2) In-Lieu Fee program credits, (3) permittee-responsible mitigation under a watershed approach, (4) permittee-responsible mitigation through on-site and in-kind mitigation, and (5) permittee-responsible mitigation through off-site and/or out-of-kind mitigation. If the proposed mitigation deviates from this mitigation hierarchy, the applicant <u>must</u> justify in writing why the proposed mitigation is environmentally preferable to the preferred method of compensatory mitigation (See 2008 Mitigation Rule). In order for your application to be considered complete, you must provide a statement that discusses how your project will compensate for the loss or impact to aquatic resources. If you are proposing permittee responsible mitigation, the 12 components of a mitigation plan (33 CFR 332.4(c)(2-14) must be addressed for your application to be considered complete. Prospective applicants are encouraged to contact USACE with questions at any time. Addressing the 12 components of a mitigation plan is commensurate with the amount of compensatory mitigation required, and USACE can assist prospective applicants with the level of information needed to satisfy each component.

For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee.

4. In-Lieu Fee (ILF)

The purchase of credits from the Massachusetts In-Lieu Fee Program (MA ILFP) is the *preferred* method of compensatory mitigation in Massachusetts since, as of the issuance date of this GP, there are no mitigation banks available in Massachusetts. The applicant shall develop a mitigation plan that addresses the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

The MA ILFP is administered by the Massachusetts Department of Fish & Game (DFG) in accordance with the 2008 Mitigation Rule at 33 CFR 332. The Mitigation Rule governs in-lieu fee compensatory mitigation associated with USACE permits under §404 of the Clean Water Act and/or §9 or §10 of the Rivers and Harbors Act of 1899.

MA ILFP Website: https://www.mass.gov/in-lieu-fee-program

Acceptance of an ILF payment into the ILFP established by the 2014 MA ILFP Instrument (link below) is an acknowledgement by DFG that it assumes all legal responsibility for satisfying the mitigation requirements of the USACE (i.e., the implementation, performance, and long-term management and monitoring of the compensatory mitigation project(s) approved under this Instrument and subsequent Compensatory Mitigation Plans). This transfer of legal responsibility is established by: 1) the approval of this In-Lieu Fee Instrument; 2) receipt by the district engineer of a Notice of Credit Sale and Transfer of Legal Responsibility to DFG that is signed by the DFG and the permittee and dated; and 3) the transfer of fees from the permittee to DFG.

MA ILFP Fact Sheet: https://www.mass.gov/files/documents/2017/01/sj/ilfp-fact-sheet-ma-ilfp-fees.pdf

MA ILFP Instrument: https://www.mass.gov/files/documents/2016/08/nd/ilfp-final-instrument-dfg.pdf

5. Permittee-Responsible

The USACE may determine that the proposed permittee-responsible compensatory mitigation is appropriate on a case-by-case basis. As described in the Compensatory Mitigation Hierarchy section above, applicants must justify in writing why the proposed mitigation is environmentally preferable to the purchase of ILF credits. Applicants are encouraged to contact the USACE prior to submission of a permit application to seek further guidance regarding USACE mitigation requirements.

Applicants will demonstrate their proposed compensatory mitigation in writing by addressing the 12 components of a mitigation plan (33 CFR 332.4(c)(2-14). <u>Please note that all elements must be addressed, or the permit application will be deemed incomplete</u>. In certain circumstances, the district engineer may determine that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). Guidance on how to address these components can be found on the New England District Mitigation webpage: https://www.nae.usace.army.mil/Missions/Regulatory/Mitigation/

Performance standards will be used to measure the successfulness of the mitigation project. A successful mitigation project is one that is self-sustaining. For a mitigation project that will restore, enhance, or create wetlands, proper performance standards must address hydrology, hydric soils, and hydrophytic vegetation. The mitigation proposal must include an explanation of quantitative methods used to measure the success of performance standards (i.e., percent cover may be measured using vegetation plots, hydrology may be measured using data loggers, soil cores may be taken and evaluated for hydric soil indicators).

Monitoring methods should include quantitative sampling methods following established, scientific protocols. Sampling documentation, as part of monitoring reports, should include maps and coordinates (also shapefiles, if available) showing locations of sampling points, transects, quadrats, etc. In addition, permanent photo stations should be established coincident with sampling locations.

SECTION VI: FEDERAL & STATE AGENCY CONTACT INFORMATION & ORGANIZATIONAL WEBSITES

Federal Agencies

U.S. Army Corps of Engineers

Regulatory Division 696 Virginia Road Concord, Massachusetts 01742-2751 (978) 318-8338 (phone); (978) 318-8303 (fax) www.nae.usace.army.mil/missions/regulatory

National Marine Fisheries Service

55 Great Republic Drive Gloucester, Massachusetts 01930 (978) 281-9300 (phone) (Federal endangered species & EFH)

National Park Service

15 State Street Boston, Massachusetts 02109 (617) 223-5191 (phone) (*Wild and Scenic Rivers*)

Chief, Risk Analysis Branch

FEMA Region 1
99 High Street, 6th Floor
U.S. Department of Homeland Security
Boston, Massachusetts 02110
(617) 956-7576 (phone)

U.S. Environmental Protection Agency

5 Post Office Square Suite 100 (OEP06–3) Boston, Massachusetts 02109-3912 (617) 918-1692 (phone) U.S. Army Corps of Engineers
Navigation Division – Section 408
696 Virginia Road
Concord, Massachusetts 01742-2751
See link below for contact information:
https://www.nae.usace.army.mil/Missions/Section-408/

U.S. Fish & Wildlife Service

70 Commercial Street, Suite 300 Concord, New Hampshire 03301 (603) 223-2541 (phone) (Federal endangered species)

Bureau of Ocean and Energy Management

1849 C Street, NW Washington D.C. 20240 202-208-6474 (phone) (Offshore Wind Facilities)

Commander (dpb)

First Coast Guard District
Battery Building
One South Street
New York, New York 10004-1466
(212) 514-4331 (phone); (212) 514-4337 (fax)
(*Bridge permits*)

State Agencies in Massachusetts

Massachusett	Massachusetts Department of Environmental Protection (MassDEP)					
DEP Division of Wetlands	100 Cambridge Street, Suite 900					
<u>& Waterways</u>	Boston, Massachusetts 02114					
	(617) 292-5695					
Northeast Region	150 Presidential Way, Suite 300					
	Woburn, Massachusetts 01801					
	(978) 694-3200					
Southeast Region	20 Riverside Drive, Route 105					
	Lakeville, Massachusetts 02347					
	(508) 946-2800					
Central Region	8 New Bond Street					
	Worcester, Massachusetts 01606					
	(508) 792-7650					
Western Region	436 Dwight Street					
	Springfield, Massachusetts 01103					
	(413) 784-1100					

Massachi	Massachusetts Office of Coastal Zone Management (CZM)					
	Emails may be sent to: czm@mass.gov					
MA Office of Coastal Zone	100 Cambridge Street, Suite 900					
<u>Management</u>	Boston, Massachusetts 02114					
	(617) 626-1200					
North Shore Region	2 State Fish Pier					
	Gloucester, Massachusetts 01930					
	(978) 281-3972					
South Shore Region	175 Edward Foster Road					
	Scituate, Massachusetts 02066					
Cape Cod and Islands	3195 Main Street, P.O. Box 220					
Region	Barnstable, MA 02630					
South Coastal Region	81-B County Road, Suite E					
	Mattapoisett, MA 02739					

Massachusetts Historical Commission (MHC)				
Office Location:	220 Morrisey Boulevard Boston, Massachusetts 02125 (617) 727-8470			

Massachusetts I	Massachusetts Board of Underwater Archaeological Resources (BUAR)					
Emails	s may be sent to: <u>david.s.robinson@mass.gov</u>					
Office Location:	, , , , , , , , , , , , , , , , , , ,					
	Boston, Massachusetts 02114					
	(617) 626-1014					

SECTION VII: Definitions & Acronyms

Artificial or Living Reef: A structure which is constructed or placed in waters for the purpose of enhancing fishery resources and commercial and recreational fishing opportunities.

Attendant Features: Occurring with or as a result of; accompanying.

Biodegradable: A material that decomposes into elements found in nature within a reasonably short period of time and will not leave a residue of plastic or a petroleum derivative in the environment after degradation. In contrast, degradable plastics break down into plastic fragments that remain in the environment after degradation. Examples of biodegradable materials include jute, sisal, cotton, straw, burlap, coconut husk fiber (coir) or excelsior. In contrast, degradable plastics break down into plastic fragments that remain in the environment after degradation. Photodegradable, UV degradable or Oxo-(bio)degradable plastics are not considered biodegradable under this GP.

Boating facilities: These provide, rent or sell mooring space, such as marinas, yacht clubs, boat yards, dockominiums, municipal facilities, land/home owners, etc. Not classified as boating facilities are piers shared between two abutting properties or municipal mooring fields that charge an equitable user fee based on the actual costs incurred.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved. Must comply with the applicable provisions of 33 CFR 332. See also the New England District Compensatory Mitigation Guidance at http://www.nae.usace.army.mil/Missions/Regulatory/Mitigation.aspx.

Construction mats: Constructions, swamp and timber mats (herein referred to as "construction mats") are generic terms used to describe structures that distribute equipment weight to prevent wetland damage while facilitating passage and providing work platforms for workers and equipment. They are comprised of sheets or mats made from a variety of materials in various sizes. A timber mat consists of large timbers bolted or cabled together. Corduroy roads, which are not considered to be construction mats, are cut trees and/or saplings with the crowns and branches removed, and the trunks lined up next to one another. Corduroy roads are typically installed as permanent structures. Like construction mats, they are considered as fill whether they are installed temporarily or permanently.

Cumulative Impacts: The impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.1). Although the impact of a particular discharge may constitute a minor change in itself, the cumulative effect of numerous such piecemeal changes can result in a major impairment of the water resources and interfere with the productivity and water quality of existing aquatic ecosystems. See 40 CFR 230.11(g).

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Dredging:

<u>Improvement Dredging</u>: For the purposes of these GPs, this is dredging deeper than previously authorized by the USACE and dredged under that authorization.

<u>Maintenance Dredging</u>: For the purposes of these GPs, this is dredging from an area previously authorized by the USACE and dredged under that authorization. The USACE may require proof of authorization and dredging. Maintenance dredging typically refers to the routine removal of accumulated sediment to maintain the design depths of serviceable navigation channels, harbors, marinas, boat launches and port facilities. Maintenance dredging is conducted for navigational purposes and does not include any expansion of the previously dredged area. The USACE may

review a maintenance dredging activity as new dredging if sufficient time has elapsed to allow for the colonization of SAS, shellfish, etc.

<u>New Dredging</u>: For the purposes of these GPs, this is a) first time the USACE authorizes dredging of a particular location or b) dredging has not occurred for an extended period of time, and this has allowed for aquatic resources (i.e., eelgrass, shellfish, etc.) to redevelop in the area.

Dredged material & discharge of dredged material: These are defined at 33 CFR 323.2(c) and (d). The term dredged material means material that is excavated or dredged from waters of the U.S. **Enhancement:** The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s) but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Ephemeral stream: A stream with flowing water only during, and for a short duration, after precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Erosion Controls: Appropriate soil erosion, sediment and turbidity controls include cofferdams, bypass pumping around barriers immediately up and downstream of the work footprint (i.e., dam and pump), installation of sediment control barriers (i.e., silt fence, vegetated filter strips, geotextile silt fences, filter tubes, erosion control mixes, hay bales or other devices) downhill of all exposed areas, stream fords, retention of existing vegetated buffers, application of temporary mulching during construction, phased construction, and permanent seeding and stabilization, etc.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area (33 CFR 332.2).

Expansions: Work that increases the footprint of fill, structures, depth of basin or drainage features, or floats, or slip capacity.

Essential Fish Habitat (EFH): The Federal Magnuson-Stevens Fishery Management and Conservation Act broadly defines EFH to include those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. See

www.greateratlantic.fisheries.noaa.gov/habitat for more information.

Fill material & discharge of fill material: Material placed in waters of the U.S. where the material has the effect of either replacing any portion of a water of the U.S. with dry land or changing the bottom elevation of any portion of a water of the U.S. Fill material does not include any pollutant discharged into the water primarily to dispose of waste. These are defined at 33 CFR 323.2 (e) & (f). Federal navigation projects (FNPs): These areas are maintained by the USACE; authorized, constructed and maintained on the premise that they will be accessible and available to all on equal terms; and comprised of USACE Federal anchorages, Federal channels and Federal turning basins. The buffer zone is equal to three times the authorized depth of a FNP. The following are FNPs in MA and more information, including the limits, is provided at

www.nae.usace.army.mil/missions/navigation >> Navigation Projects: Andrews River, Harwich, MA Cross Rip Shoals, Nantucket Gloucester Harbor and Aunt Lydia's Cove Sound Annisquam River **Beverly Harbor** Green Harbor Cuttyhunk Harbor **Boston Harbor** Dorchester Bay and Neponset Hingham Harbor **Buttermilk Bay Channel** River Hyannis Harbor Canapitsit Channel **Duxbury Harbor Ipswich River** Cape Cod Canal Edgartown Harbor Island End River (Chelsea, MA) **Essex River** Chatham Harbor Kingston Harbor Lagoon Pond Cohasset Harbor Fall River Harbor

Little Harbor Woods Hole

Falmouth Harbor

Lynn Harbor
Malden River
Menemsha Creek
Merrimack River
Mystic River
Nantucket Harbor of Refuge

Nantucket Harbor of Refuge New Bedford and Fairhaven

Harbor

Newburyport Harbor Oak Bluffs Harbor Pigeon Cove Harbor Plymouth Harbor

Pollock Rip Shoals, Nantucket

Sound

Provincetown Harbor Red Brook Harbor Rockport Harbor Salem Harbor

Sandy Bay Harbor of Refuge

Saugus River Scituate Harbor Sesuit Harbor **Taunton River**

Vineyard Haven Harbor Wareham Harbor Wellfleet Harbor

Westport River and Harbor Weymouth Back River Weymouth Fore and Town

Rivers

Winthrop Harbor Woods Hole Channel

Flume: An open artificial water channel, in the form of a gravity chute, which leads water from a diversion dam or weir alongside a natural flow. A flume can be used to measure the rate of flow. **FNP buffer zone:** The buffer zone of a USACE Federal Navigation Project (FNP) is equal to three times the authorized depth of the FNP.

Frac out: During horizontal directional drilling (HDD) operations, drilling fluid travels up the borehole into a pit. When the borehole becomes obstructed or the pressure becomes too great inside the borehole, the ground fractures and fluid escapes to the surface and may affect surface waters.

Ground disturbance: Any activity that compacts, relocates, overturns, removes, mixes, or otherwise disturbs the ground, including under water. Ground disturbance can be caused by the use of hand tools (shovels, pick axe, posthole digger, etc.), heavy equipment (excavators, backhoes, bulldozers, dredgers, trenching and earthmoving equipment, etc.), and heavy trucks (large four wheel drive trucks, dump trucks and tractor trailers, etc.). Trenching, bulldozing, dredging, excavating, scraping, and plowing are typical examples of ground disturbance activities.

Height:width ratio: The height of structures shall at all points be equal to or exceed the width of the deck. For the purpose of this definition, height shall be measured from the marsh substrate to the bottom of the longitudinal support beam.

High Tide Line (HTL): The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides 58 that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds. (33 CFR 328). Refer to the highest predicted tide for the current year at the nearest NOAA tide gage. https://tidesandcurrents.noaa.gov/map/index.html

Historic Property: Any prehistoric or historic site (including archaeological sites), district, building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Impacts:

<u>Direct Impacts:</u> Effects that are caused by the activity and occur at the same time and place (40 CFR 1508.7).

<u>Indirect impacts:</u> Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

<u>Secondary impacts:</u> Effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredged or fill material.

Information about secondary effects on aquatic ecosystems shall be considered prior to the time final section 404 action is taken by permitting authorities. Some examples of secondary effects on an aquatic ecosystem are: aquatic areas drained, flooded, fragmented; fluctuating water levels in an impoundment and downstream associated with the operation of a dam; septic tank leaching and surface runoff from residential or commercial developments on fill; and leachate and runoff from a sanitary landfill located in waters of the U.S. See 40 CFR 230.11(h).

Incidental Fallback: Incidental fallback is the redeposit of small volumes of dredged material that is incidental to excavation activity in waters of the U.S. when such material falls back to substantially the same place as the initial removal (33 CFR 323.2(d)(2)(iii)).

In the dry: Work that is done under dry conditions, e.g., work behind cofferdams or when the stream or tide is waterward of the work.

Independent utility: A test to determine what constitutes a single and complete non-linear project in the USACE Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Individual permit: A Department of the Army authorization that is issued following a case-by-case evaluation of a specific structure or work in accordance with the procedures of 33 CFR 322, or a specific project involving the proposed discharge(s) in accordance with the procedures of 33 CFR 323, and in accordance with the procedures of 33 CFR 325 and a determination that the proposed discharge is in the public interest pursuant to 33 CFR 320.

Intermittent stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Intertidal: The area in between mean low water and the high tide line.

Living reef: See the definition of "artificial or living reef."

Living shoreline: A term used to describe a low-impact approach with a substantial biological component to shoreline protection and restoration along coastal shores, riparian zones, lacustrine fringe wetlands, or oyster or mussel reef structures. This approach integrates natural features to restore, enhance, maintain, or create habitat, functions, and processes while also functioning to mitigate flooding or shoreline erosion. Living shorelines may stabilize banks and shores with small fetch and gentle slopes that are subject to low-to mid-energy waves. A living shoreline has a footprint that is made up mostly of native material. It incorporates vegetation or other living, natural "soft" elements alone or in combination with some type of harder shoreline structure (e.g., oyster or mussel reefs or rock sills) for added protection and stability. Living shorelines should maintain the natural continuity of the land-water interface and retain or enhance shoreline ecological processes. Loss of waters of the United States: Waters of the U.S. that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. The loss of stream bed includes the acres of stream bed that are permanently adversely affected by filling or excavation because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the U.S. is a threshold measurement of the impact to jurisdictional waters or wetlands for determining whether a project may qualify for a GP; it is not a net threshold that is calculated after considering compensatory mitigation that maybe used to offset losses of aquatic functions and services. Waters of the U.S. temporarily filled, flooded, excavated, or drained, but restored to preconstruction contours and elevations after construction, are not included in the measurement of loss of waters of the U.S. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the U.S.

Maintenance: The repair, rehabilitation, or in-kind replacement of any previously authorized, currently serviceable structure or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3 – "Activities occurring before certain dates," provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Maintenance includes minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, or current construction codes or safety standards that are necessary to make repair, rehabilitation, or replacement are authorized. Currently serviceable means useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Maintenance Exemption: In accordance with 33 CFR 323.4(a)(2), any discharge of dredged or fill material that may result from any of the following activities is not prohibited by or otherwise subject to regulation under Section 404 of the CWA: "Maintenance, including emergency reconstruction of recently damaged parts, of currently serviceable structures such as dikes, dams, levees, groins, riprap, breakwaters, causeways, bridge abutments or approaches, and transportation structures. Maintenance does not include any modification that changes the character, scope, or size of the original fill design."

Mean high water: Line on the shore reached by the plane of the average high water. Where precise determination of the actual location of the line becomes necessary, it must be established by survey with reference to the available tidal datum, preferably averaged over a period of 18.6 years. Less precise methods, such as observation of the "apparent shoreline" which is determined by reference to physical markings, lines of vegetation, or changes in type of vegetation, may be used only where an estimate is needed of the line reached by the mean high water.

Mechanized land clearing: Land clearing activities using mechanized equipment such as backhoes or bulldozers with sheer blades, rakes or discs constitute point source discharges and are subject to section 404 jurisdiction when they take place in wetlands or waters of the U.S (Regulatory Guidance Letter 90-05).

Metallic mineral: Any ore or material to be excavated from the natural deposits on or in the earth for its metallic mineral content to be used for commercial or industrial purposes. "Metallic mineral" does not include thorium or uranium.

Minor deviations: Deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, or current construction codes or safety standards, which are necessary to make repair, rehabilitation, or replacement are permitted, provided the adverse environmental effects resulting from such repair, rehabilitation, or replacement are minimal. Natural Rocky Habitats: Intertidal and subtidal substrates of pebble-gravel, cobble, boulder, or rock ledge and outcrops. Manufactured stone (e.g., cur or engineered riprap) is not considered a natural rocky habitat. Natural rocky habitats are either found as pavement (consolidated pebblegravel, cobble, or boulder areas) or as a mixture with fines (i.e., clay and sand) and other substrates. Rocky habitats as EFH are defined as follows: (1) All pebble-gravel, cobble, or boulder pavements; (2) Pebble-gravel mixed with fines: mixed substrate of pebble-gravel and fines where pebble-gravel is an evident component of the substrate (either through visual observation or within sediment samples). Sediment samples with a content of 10% or more of pebble-gravel in the top layer (6-12 inches) should be delineated; (3) Scattered cobble, scattered boulder, scattered cobble/boulder: mixed substate of cobble and/or boulder and other substrates. The aerial extent of cobbles and/or boulders should be delineated; and (4) All rock ledge outcrops: area should be delineated along the edge of the ledge/outcrop (as defined by NMFS Habitat and Ecosystems Services Branch, Gloucester, MA).

Navigable waters or Navigable waters of the U.S.: These waters are subject to section 10 of the Rivers and Harbors Act of 1899 and are defined as those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce (33 CFR Part 329). Work or structures in navigable

waters require permits pursuant to §9 and §10 of the Rivers and Harbors Act of 1899. Also see the definition of "waters of the U.S." below.

Note: Currently the following non-tidal waters have been determined to be navigable waters of the U.S. subject to permit jurisdiction in Massachusetts: Merrimack River, Connecticut River, and Charles River to the Watertown Dam.

Nearshore disposal: This is defined in the USACE Coastal Engineering Manual as "(1) In beach terminology an indefinite zone extending seaward from the shoreline well beyond the breaker zone. (2) The zone which extends from the swash zone to the position marking the start of the offshore zone, typically at water depths of the order of 20m." A nearshore berm is an artificial berm built in shallow water using dredged material. Often, the berm is intended to renourish the adjacent and downdrift shore over time under the influence of waves and currents.

Non-regulated activity: Only structures or fills that were previously authorized and are in compliance with the terms and condition of the original authorization can be maintained as a non-regulated activity under 33 CFR 323.4(a)(2). Minor deviations from the previously authorized footprint do not qualify as a non-regulated activity and require new authorization from the USACE. The state's maintenance provisions may differ from the USACE and a project may require reporting and written authorization from the state.

Non-tidal wetlands: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non-tidal wetlands contiguous to tidal waters are located landward of the HTL (*i.e.*, spring HTL). Also see the definition of "Waters of the U.S." below.

Oil or natural gas pipeline: Any pipe or pipeline for the transportation of any form of oil or natural gas, including products derived from oil or natural gas, such as gasoline, jet fuel, diesel fuel. heating oil, petrochemical feedstocks, waxes, lubricating oils, and asphalt.

Ordinary High Water Mark (OHWM): A line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas. See 33 CFR 328.3(e).

Overall project: The overall project, for purposes of these GPs, includes all regulated activities that are reasonably related and necessary to accomplish the project purpose. Also see the definition of "single and complete linear project."

Perennial stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Permanent impacts: Permanent impacts means waters of the U.S. that are permanently affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent impacts include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody.

Preconstruction notification (PCN): A request submitted by the applicant to the USACE for confirmation that a particular activity is authorized by these GPs. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Preconstruction notification may be required by the terms and conditions of these GPs. A PCN may be voluntarily submitted in cases where PCN is not required and the applicant wants confirmation that the activity is authorized under these GPs.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions (33 CFR 332.2).

Real estate subdivision: Includes circumstances where a landowner or developer divides a tract of land into smaller parcels for the purpose of selling, conveying, transferring, leasing, or

developing said parcels. This would include the entire area of a residential, commercial or other real estate subdivision, including all parcels and parts thereof

Reconfiguration zone: A USACE authorized area in which permittees may rearrange pile-supported structures and floats without additional authorizations. A reconfiguration zone does not grant exclusive privileges to an area or an increase in structure or float area.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/ historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in again in aquatic resource area and functions (33 CFR 332.2).

Reference Site: Reference sites - Compensatory restoration, rehabilitation, and creation mitigation projects should seek to duplicate the features of reference aquatic resources or enhance connectivity with adjacent natural upland and aquatic resource landscape elements. Performance standards related to reference sites are encouraged. Mitigation project sites must be selected based on their ability to be, and continue to be, resistant to disturbance from the surrounding landscape, by locating them adjacent to refuges, buffers, green spaces, and other preserved natural elements of the landscape. In general, aquatic resource mitigation projects must be designed to be self-sustaining, natural systems within the landscape and climate in which they are located, with little or no ongoing maintenance and/or hydrologic manipulation.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area (33 CFR 332.2).

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation (33 CFR 332.2).

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools. Sedimentation: Sedimentation is defined as the process of deposition of a solid material from a state of suspension. Deposited sediments may accumulate and have temporal impacts to aquatic resource areas. See secondary effects definition above. For the purposes of this document, "greater than minimal sedimentation" is generally not considered to occur when using proper erosion controls (GC 25) or when sedimentation is considered "de minimis" 33 CFR 323.2(d)(5). Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term "single and complete project" is defined as that portion of the total linear project proposed or accomplished by one owner/ developer or partnership or other association of owners/developers that includes all crossings of a single water of the U.S. (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations. each crossing is considered a single and complete project for the purposes of these GPs. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete

non-linear project must have independent utility (see the definition of "independent utility"). Single and complete non-linear projects may not be "piecemealed" to avoid the limits in a GP authorization.

Special aquatic sites (SAS): These include inland and saltmarsh wetlands, mud flats, vegetated shallows, sanctuaries and refuges, coral reefs, and riffle and pool complexes. These are defined at 40 CFR 230.3 and listed in 40 CFR 230 Subpart E.

Streambed: The stream substrate between the OHW marks on each side. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the streambed, but outside of the OHW marks, are not considered part of the streambed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the U.S.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Temporal loss: The time lag between the loss of aquatic resource functions caused by the permitted impacts and the replacement of aquatic resource functions at the compensatory mitigation site(s) (33 CFR 332.2).

Temporary impacts: Temporary impacts include, but are not limited to, jurisdictional waters that are temporarily filled, flooded, excavated, or drained because of the regulated activity. Impacts are considered temporary when they are removed immediately upon completion of the activity. Note: An impact is considered temporary when the aquatic resource is restored to pre-project conditions, but effects to archaeological and/or cultural resources may be permanent in duration.

Tidal wetlands: A wetland that is subject to the ebb and flow of the tide. See the definition of "Waters of the U.S." below.

Tide gates: Structures such as duckbills, flap gates, manual and self-regulating tide gates, etc. that regulate or prevent upstream tidal flows.

Turbidity: A measure of the level of particles such as sediment, plankton, or organic by-products, in a body of water. As the turbidity of water increases, it becomes denser and less clear due to a higher concentration of these light-blocking particles. Suspended solids are more likely to carry toxic chemicals, and can also negatively affect aquatic organisms, water temperature, and dissolved oxygen levels.

Utility line: Any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose that is not oil, natural gas, or petrochemicals. A utility line also includes any cable, line, or wire for the transmission for any purpose of electrical energy, telephone, and telegraph messages, and radio and television communication. The term 'utility line' does not include activities that drain a water of the U.S., such as drainage tile or French drains, but it does apply to pipes conveying drainage from another area.

Vegetated shallows: Permanently inundated areas that under normal circumstances support communities of rooted aquatic vegetation, such as eelgrass (*Zostera marina*) and widgeon grass (*Rupia maritima*) in marine systems (does not include salt marsh) as well as a number of freshwater species in rivers and lakes. These are a type of SAS defined at 40 CFR 230.43. Vegetated shallows are commonly referred to as submerged aquatic vegetation or SAV. Vegetated shallow survey guidance is located at www.nae.usace.army.mil/missions/regulatory/state-general-permits/massachusetts-general-permit.

Vernal pools: For the purposes of these GPs, vernal pools are depressional wetland basins that typically dry up in most years and may contain inlets or outlets, typically of intermittent flow. Vernal pools range in both size and depth depending upon landscape position and parent material(s). In

most years, vernal pools support one or more of the following obligate indicator species: wood frog, spotted salamander, blue-spotted salamander, marbled salamander, Jefferson's salamander and fairy shrimp. However, they should preclude sustainable populations of predatory fish.

Water diversions: Water diversions are activities such as bypass pumping (e.g., "dam and pump") or water withdrawals. Temporary flume pipes, culverts or cofferdams where normal flows are maintained within the stream boundary's confines aren't water diversions. "Normal flows" are defined as no change in flow from pre-project conditions.

Waters of the United States (U.S.) These waterbodies are the waters where permits are required for the discharge of dredged or fill material pursuant to §404 of the CWA. These waters include but are not limited to navigable waters of the U.S. and tidal wetlands and include many non-tidal wetlands and other waterbodies. See definitions for navigable waters of the U.S., tidal wetlands, waterbody, and non-tidal wetlands. (33 CFR 328)

Waterbody: Examples of "waterbodies" include oceans, coastal waters, rivers, streams, ditches, lakes, ponds, and wetlands. If a wetland is adjacent to a waterbody determined to be a water of the U.S., that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)).

Weir: A barrier across a river designed to alter the flow characteristics. In most cases, weirs take the form of a barrier, smaller than most conventional dams, across a river that causes water to pool behind the structure and allows water to flow over the top. Weirs are commonly used to alter the flow regime of a river, prevent flooding, measure discharge and help render a river navigable. **Wetland:** Wetlands are areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. The Corps of Engineers Wetlands Delineation Manual in conjunction with the associated regional supplement should be used to determine if a wetland is present and delineate wetland boundaries.

Acronyms

BMPs Best Management Practices

BUAR Massachusetts Board of Underwater Archaeological Resources

CWA Clean Water Act

CZM Coastal Zone Management

EPA U.S. Environmental Protection Agency

ESA Endangered Species Act
EFH Essential Fish Habitat
FNP Federal Navigation Project

GC General Condition
GP General Permit
HTL High Tide Line
IP Individual Permit

LID Low impact development

Massachusetts Department of Environmental Protection

MA DMF Massachusetts Division of Marine Fisheries MHC Massachusetts Historical Commission

MHW Mean High Water
MLLW Mean Lower Low Water

MLW Mean Low Water

NHPA National Historic Preservation Act NMFS National Marine Fisheries Service

OHW Ordinary High Water Mark PCN Preconstruction Notification

SAS Special Aquatic Sites

SF Square Feet SV Self-Verification

SHPO State Historic Preservation Officer
THPO Tribal Historic Preservation Officer
USFWS U.S. Fish and Wildlife Service

USCG U.S. Coast Guard
USFS U.S. Forest Service
USGS U.S. Geological Service
WQC Water Quality Certification

Appendix A: Guidance for NHPA Section 106 Compliance in Massachusetts

1. Purpose & Applicability

Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA) (54 U.S.C § 306108), requires Federal agencies to take into account the effects of their undertakings on Historic Properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. Therefore, in order for an activity to be eligible for authorization under the 2023 Massachusetts General Permit, the USACE must consider the effect the activity may have on historic properties. Historic properties may include, but are not limited to, historic districts, archaeological districts, sites, buildings, structures, objects, sacred sites, traditional cultural places, and traditional cultural landscapes that are included in, or eligible for inclusion in, the National Register of Historic Places (NRHP).

This guidance applies to projects that require authorization under Section 404 of the Clean Water Act (33 U.S.C. § 1344) and/or Section 10 of the Rivers and Harbors Act (33 U.S.C. §403) and will assist applicants when evaluating and documenting the presence of historic properties within or near their project site(s). The prospective applicant will evaluate their proposed project using the criteria below to determine if their project has the potential to affect historic properties and if so, whether or not historic properties are present or are likely to be present. All activities authorized under these GPs shall follow the terms outlined in General Condition 14: Historic Properties and General Condition 6: Tribal Rights & Burial Sites. Prospective applicants shall complete their due diligence according to the procedures below for their application to be deemed complete.

2. No Potential to Affect Historic Properties

Certain activities do not have the potential to cause effects on historic properties, assuming such historic properties were present, based on the nature of the activity and site-specific conditions. Therefore, these activities <u>do not</u> require historic property identification efforts or notification of the SHPO, THPOs, and/or BUAR under Section 106. The USACE has determined the following activities within the stated parameters have no potential to affect historic properties:

General Permit	Activity Parameters
1	Temporary buoys, markers and similar structures that are placed during winter events on ice and removed before spring thaw.
2	Repair or rehabilitation of structures that are less than 45 years in age. Any temporary structures or fills or work necessary to complete repairs or rehabilitation must not result in any ground disturbance.
3	Maintenance and replacement of moorings that are less than 45 years in age.
6	Maintenance, repair, replacement, or removal of utility lines, oil or natural gas pipelines, outfall or intake structures, and/or appurtenant features that are less than 45 years in age when all access, staging, and ground disturbance is strictly limited to previously disturbed areas (including any previous ground disturbance). Replacement must be in kind or smaller in size. Installation of tide gates on outfall structures that are less than 45 years in age.
7	Maintenance dredging of previously dredged areas where dredging does not extend beyond the original bottom elevations.

	Disposal of dredged material at an existing established and USACE-approved confined aquatic disposal cell. Beach nourishment in ongoing existing nourishment areas.
44	
11	Fish and wildlife harvesting and attraction devices and activities.
13	Cleanup of hazardous and toxic waste materials, including contaminated sediments, that are less than 45 years in age.
16	Removal of land-based and water-based renewable energy generation facilities and hydropower projects that are less than 45 years in age.
18	Installation of buoys, floats, racks, trays, nets, lines, tubes, containers, and other structures for previously authorized by the USACE and ongoing aquaculture activities.
10	Discharges of dredged or fill material into tidal or non-tidal waters necessary for shellfish seeding, rearing, cultivating, transplanting, and harvesting activities for previously authorized and ongoing aquaculture activities.
20	Maintenance activities for existing living shorelines <u>excluding</u> maintenance activities that require new ground disturbance such as excavation or re-sloping of the bank/shoreline.
22	Reshaping or maintenance of existing drainage ditches less than 45 years in age <u>excluding</u> ditch enlargement.
23	Placement of temporary and removable linear transportation and wetland/stream crossings that have no ground disturbance prior to placement, during placement, and during removal (i.e., placed on the surface and subsequently removed within one year of placement).
24	Placement of temporary and removable crossings and cofferdams that have no ground disturbance prior to placement, during placement, and during removal (i.e., placed on the surface and subsequently removed within one year of placement).
25	Emergency repair of existing structures and/or fills less than 45 years in age.

3. Historic Property Identification

If the activity does not fit under the criteria above, the following historic property identification efforts must be completed to demonstrate compliance with Section 106 of the NHPA. This includes documenting previously identified and unidentified historic properties in the project area.

a. <u>Previously Identified Historic Properties</u>: The prospective applicant shall document if previously identified historic properties are present on or adjacent to the project site by notifying the Massachusetts Historical Commission (MHC) and the Massachusetts Board of Underwater Archaeological Resources (BUAR), as appropriate, of the proposed project. The MHC and BUAR will check their records for the presence of any previously identified historic properties. The following outlines how prospective applicants should notify the MHC and BUAR.

- i. The prospective applicant will notify the SHPO and BUAR to identify any previously recorded cultural resources. Applicants shall mail a completed Project Notification Form¹⁸, project narrative, location (coordinates), plans, soil maps, and information on known cultural resources to the MHC. The MHC does not accept submissions via email. Applicants shall email or mail this information to the BUAR when the activity is located in lakes, ponds, rivers, and/or navigable waters in MA. Emailed file attachments should be <10MB. Any files >10MB shall be delivered via a file exchange system or the hard copy documents shall be mailed. Preferred contact information is listed below.
- ii. When sending this information, applicants must also document proof of receipt OR proof the information was delivered. Proof of receipt constitutes a certified mail receipt, read email receipt, or other mail/email/online tracking services that document the information has reached the intended recipient(s). Proof the information was delivered constitutes a certificate of mailing, email delivery receipt, or other mail/email/online services that document the information was sent at a particular time. When using proof of delivery such (e.g., certificate of mailing), applicants should add 5 days to the 30-day notification period so the mail has time to reach its intended recipient. When using proof of receipt, the applicant may begin the 30-day notification period from the date received by the intended recipient.
- iii. When mailing or emailing the application materials, applicants should include the following statement: "Please send responses to this notification directly to the USACE via email: cenae-r-ma@usace.army.mil or address regular mail responses to: Regulatory Division, U.S. Army Corps of Engineers, New England District, 696 Virginia Road, Concord, Massachusetts 01742-2751." Email responses to the USACE are strongly preferred. The SHPO and BUAR will contact the USACE and cc the applicant(s) within 30 days of receiving the notification if their records indicate that historic properties are located in the project vicinity, and if additional review and/or surveys are recommended to ensure NHPA compliance. If the SHPO and/or BUAR do not respond within 30 days of receiving the notification, is it presumed that no known historic properties are present.
- b. Previously Unidentified Historic Properties: The prospective applicant shall evaluate the project site and determine the sensitivity for the presence of historic properties if the project site has not been previously surveyed for cultural resources within the last 10 years. If the sensitivity is determined to be moderate to high, an intensive archaeological and/or architectural survey is required to investigate the potential presence of historic properties. The individual conducting this survey must meet the Secretary of the Interior's Standards for Professional Qualifications (48 FR 44738-44739) in the discipline relevant to a particular resource type. For example, archeologists should not document and evaluate buildings or structures and architectural historians should not document and evaluate archaeological sites. The identification and qualifications for those participating in any survey and evaluation of resources should be included with the survey results. The criteria listed below are indicators of low sensitivity for the presence of historic properties for consideration when determining if an archaeological or architectural survey is needed.

Low sensitivity indicators:

- Previous archaeological and/or architectural survey within the last 10 years with negative results.
- In a location created in modern times (i.e., built on fill placed within the last 45 years or within an area excavated within the last 45 years).
- USACE has reviewed the project description and determined that a survey is not warranted based on the proposed activity and its location.

State survey guidance and standards are provided in the September 1995 Historic Properties Survey Manual Guidelines for the Identification of Historical and Archaeological Resources in Massachusetts available. State survey guidance and standards for underwater surveys are provided

¹⁸ https://www.sec.state.ma.us/mhc/mhcform/formidx.htm

in the Board of Underwater Archaeological Resources' 2022 Policy Guidance on Archaeological Investigations and Related Survey Standards for the Discovery of Underwater Archaeological Resources. This guidance is available on the NAE Regulatory website: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/.

Please note, a negative result from MHC and/or BUAR does not necessarily mean no historic properties are present. Often proposed project sites have not been previously subject to a survey, so historic properties which may be present have not been previously recorded.

4. Tribal Coordination

Prospective applicants shall mail the Project Notification Form, project narrative, location (coordinates), plans with locus map, soil maps, and information on cultural resources to the Wampanoag Tribe of Gay Head (Aquinnah), Mashpee Wampanoag Tribe, Narragansett Indian Tribe, and/or Stockbridge-Munsee Community Band of Mohican Indians with interests in the project location. Preferred tribal contact information, including their respective areas of interest, can be found below. Applicants shall follow the same procedures as identified in Section 3(a)i-iii above when notifying Tribes of the proposed activity. Applicants shall provide the USACE with any responses received from the tribe(s) with their PCN application. If a tribe does not respond within 30 days of receiving the notification, the applicant shall provide USACE with all documentation of tribal outreach with their SV or PCN submission (e.g., emails, letters, phone call log, etc.). If the tribe indicates the presence of a previously unrecorded cultural resource, including a traditional cultural property (TCP) or traditional cultural landscape (TCL), a PCN is required.

5. Effect Determination

The project may have the potential to affect historic properties and/or tribal resources if 1) notification recipients respond within 30 calendar days of notification with concerns, 2) historic properties eligible for listing, or potentially eligible for listing in the NRHP, are present or 3) tribal resources are known to be present. The USACE may need to further review the project to confirm potential effects to historic properties and/or tribal resources. A PCN is required for any activity that may affect a historic property.

The USACE may determine the project will have 'no effect' on historic properties (i.e., no historic properties affected) when procedures outlined in Section 3 above are followed and no cultural resources are identified. Similarly, if historic properties are identified and will be completely avoided, the USACE may determine 'no effect.'

6. Contact Information:

Massachusetts Historical Commission

The Massachusetts Archives Building 220 Morrissey Boulevard Boston, Massachusetts 02125

No email. Applicants or their representatives must send project information via certified mail and submit the certified mail receipt to the USACE or send via regular mail and submit proof of delivery.

Area of concern: All of Massachusetts.

Massachusetts Board of Underwater Archaeological Resources (BUAR)

100 Cambridge Street, Suite 900 Boston, Massachusetts 02114 Email: david.s.robinson@mass.gov

Applicants or their representatives must send project information via email (**<u>strongly preferred</u>**) or regular mail and provide proof of receipt or proof of delivery.

Area of concern: All waterbodies in Massachusetts.

Wampanoag Tribe of Gay Head (Aquinnah)

Bettina Washington
Tribal Historic Preservation Officer (THPO)
20 Black Brook Road
Aquinnah, Massachusetts 02535
Email: thpo@wampanoagtribe-nsn.gov

Applicants or their representative must send project information via email (*preferred*) or regular mail and provide proof of receipt or proof of delivery.

Area of concern: All of Massachusetts.

Mashpee Wampanoag Tribe

ATTN: David Weeden
Tribal Historic Preservation Officer (THPO)
483 Great Neck Road South
Mashpee, Massachusetts 02649
Email: 106review@mwtribe-nsn.gov
Cc: David.weeden@mwtribe-nsn.gov

Applicants or their representative must send project information via email (*preferred*) or regular mail and provide proof of receipt or proof of delivery.

Area of concern: All of Massachusetts.

Narragansett Indian Tribe

ATTN: John Brown
Tribal Historic Preservation Officer (THPO)
Narragansett Indian Longhouse
4425 South County Trail
Charlestown, Rhode Island 02813

Email: tashtesook@aol.com

Applicants or their representative must send project information via email (*preferred*) or regular mail and provide proof of receipt or proof of delivery.

Area of concern: Massachusetts east of the Connecticut River.

Stockbridge-Munsee Community Band of Mohican Indians

ATTN: Jeff Bendremer
Tribal Historic Preservation Manager
Stockbridge-Munsee Community
Tribal Historic Preservation Extension office
86 Spring Street
Williamstown, Massachusetts 01267
Email: thpo@mohican-nsn.gov

Applicants or their representative must send project information via email (*preferred*) or regular mail and provide proof of receipt or proof of delivery.

<u>Area of concern:</u> West of the Connecticut River and Northfield, Montague, Miller's Falls, Turner's Falls, Sunderland, Amherst, Hadley, South Hadley, Chicopee, Springfield and Longmeadow.

APPENDIX B PRE-CONSTRUCTION NOTIFICATION

	U.S. Ar	my Corps of Engineers PRE-CONSTRUCT	•		•	E)		
		DATA REQUIRED B	Y THE PRI	/ACY ACT (OF 1974			
Authority Principal Purpose	Engineers; Final Rule 33 (ection 10, 33 USC 403; Clea CFR 320-332. /ill be used in evaluating activ						
Routine Uses		nared with other federal, state					-	
Disclosure		voluntary. However, if inform						
Instructions	The applicant must complete ALL required sections of this document before their submission to USACE. The PCN submission to USACE shall include one set of drawings which show the location and character of the proposed activity, statements that address each required field							
	submissions to the following	that supports each field (e.g. address are strongly prefetty/Town, and data submitted	rred: <u>cenae</u>	-r-ma@usac	ce.army.mil. The emai	l subject line shall	•	
	General Permit #, PCN, C	ity/Town, and date submitted			-	/iii be returned.		
4 ADDUGATIONA	10	1	TO BE FIL		•	4 DATE ADDITION	A TION COMPLETE	
1. APPLICATION N	NO.	2. FIELD OFFICE CODE			RECEIVED	4. DATE APPLIC	CATION COMPLETE	
		(ITEMS BELOW TO	BE FILLE	D BY APPLI	CANT)			
5. APPLICANT'S N	AME		8. A	JTHORIZED	AGENT'S NAME AN	D TITLE (agent is	not required)	
First -	Middle -	Last -	First		Middle -	Last -		
Company -			Com	any -				
E-mail Address -			E-ma	il Address -				
6. APPLICANT'S A	DDRESS:		9. A	SENT'S ADD	RESS:			
Address-			Addr	ess-				
City -	State -	Zip - Country -	City -		State -	Zip -	Country -	
7. APPLICANT'S PHONE NOs. with AREA CODE				10. AGENT'S PHONE NOs. with AREA CODE				
a. Residence	b. Business c. Fax	d. Mobile	a. Re	sidence	b. Business	c. Fax	d. Mobile	
		STATEMEN						
11. I hereby author furnish, upon reques		to act on my beha		•	ocessing of this genera	ai permit PCN appi	lication and to	
	_	SIGNATURE OF APF	PLICANT		DATE			
	N	AME, LOCATION, AND DES	SCRIPTION	OF PROJE	CT OR ACTIVITY			
12. PROJECT NAM	IE or TITLE (see instructions	s)						
13. NAME OF WAT	ERBODY, IF KNOWN (<i>if ap</i>	plicable)	14. P	ROPOSED /	ACTIVITY STREET A	DDRESS (if applio	cable)	
15. LOCATION OF	PROPOSED ACTIVITY (se	ee instructions)	City:		State	e:	Zip:	
Latitude:	°N Longit	ude: °V	N					

Proposal No. 609187-130387

16. OTHER LOCATION	ON DESCRIPTIONS, II	F KNOWN (see instructi	ions)	
State Tax Parcel ID:			Municipa	ality:
Section:		Township:		Range:
		· ·		3
17. DIRECTIONS TO	THE SITE			
17. DIRECTIONS TO	THE SHE.			
40 IDENTIFY THE C	DECIFIC CENEDAL D	EDMIT(C) VOLL DDODG	OCE TO LICE.	
10. IDENTIFY THE S	PECIFIC GENERAL P	ERMIT(S) YOU PROPO	03E 10 03E.	
40 DECODIDATION O	AF DDODOCED OFNE	DAL DEDMIT ACTIVITY	((instructions)	
19. DESCRIPTION C	IF PROPOSED GENE	RAL PERMIT ACTIVITY	(see instructions)	
20. DESCRIPTION C	F PROPOSED MITIGA	ATION MEASURES (se	e instructions)	
21. PURPOSE OF G	ENERAL PERMIT ACT	TIVITY (Describe the rea	ason or purpose of the p	project, see instructions)
22. Quantity of Wetla	nds, Streams, or Other	Types of Waters Direct	tly Affected by Propose	d General Permit Activity (see instructions)
Area (square feet)	Length (linear feet)	Volume (cubic yards)	Duration	Purpose
Each PCN must inc	lude a delineation of	-	-	ther waters, such as lakes and ponds, and perennial, intermittent,
		and ephe	emeral streams, on the	e project site.
23. List any other GP	(s), regional general pe	ermit(s), or individual pe	ermit(s) used or intende	d to be used to authorize any part of the proposed project on any
related activity (s	ee instructions)			
				ified in the New England District Compensatory Mitigation Thresholds,
		n requirement will be sa		

Proposal No. 609187-130387

25. Is Any Portion of the General Permit Activity Alread	y Complete?	Yes	No	If Yes, d	escribe the complete	ed work:	
26. List the name(s) of any species listed as endangere utilize the designated critical habitat that might be a			_		=	fected by the pro	posed GP activity or
27. List any historic properties that have the potential to property or properties. Attach relevant project information of the properties							
28. For a proposed GP activity that will occur in a comp "study river" for possible inclusion in the system when the system were also because it is a complete to the system where the system were also because it is a comp							
00 1511					2 21 11		
29. If the proposed GP activity also requires permissic use a U.S. Army Corps of Engineers federally auth district having jurisdiction over that project?		•					• • • •
If "yes", please provide the date your request was	submitted to the U	SACE Distr	ict:				
30. Does the activity require a 401 Water Quality Certi an individual 401 WQC is required, provide the da							•
31. If the terms of the GP(s) you want to use require ac information in this space or provide it on an addition						alysis plan), pleas	se include that
32. I certify that the information in this pre-construction described herein or am acting as the duly authorize			accurate.	I further c	ertify that I possess t	the authority to u	ndertake the work
SIGNATURE OF APPLICANT	DATE			SIG	NATURE OF AGEN	Т	DATE
The Pre-Construction Notification must be signed by the been filled out and signed, the authorized agent.	e person who desi	res to unde	ertake the	e proposed	d activity (applicant)	and, if the staten	nent in block 11 has
18 U.S.C. Section 1001 provides that: Whoever, in any falsifies, conceals, or covers up any trick, scheme, or dor uses any false writing or document knowing same to imprisoned not more than five years or both.	isguises a materia	I fact or ma	ikes any	false, fictit	ious or fraudulent sta	atements or repre	esentations or makes

Instructions for Preparing a Department of the Army

General Permit (GP) Pre-Construction Notification (PCN)

Blocks 1 through 4. To be completed by the U.S. Army Corps of Engineers.

Block 5. Applicant' Name. Enter the name and the e-mail address of the responsible party or parties. If the responsible party is an agency, company, corporation, or other organization, indicate the name of the organization and responsible officer and title. If more than one party is associated with the PCN, please attach a sheet of paper with the necessary information marked Block 5.

Block 6. Address of Applicant. Please provide the full address of the party or parties responsible for the PCN. If more space is needed, attach an extra sheet of paper marked Block 6.

Block 7. Applicant Telephone Number(s). Please provide the telephone number where you can usually be reached during normal business hours.

Blocks 8 through 11. To be completed, if you choose to have an agent.

Block 8. Authorized Agent's Name and Title. Indicate name of individual or agency, designated by you, to represent you in this process. An agent can be an attorney, builder, contractor, engineer, consultant, or any other person or organization. Note: An agent is not required.

Blocks 9 and 10. Agent's Address and Telephone Number. Please provide the complete mailing address of the agent, along with the telephone number where they can be reached during normal business hours.

- Block 11. Statement of Authorization. To be completed by the applicant, if an agent is to be employed.
- Block 12. Proposed General Permit Activity Name or Title. Please provide a name identifying the proposed GP activity, e.g., Windward Marina, Rolling Hills Subdivision, or Smith Commercial Center.
- Block 13. Name of Waterbody. Please provide the name (if it has a name) of any stream, lake, marsh, or other waterway to be directly impacted by the GP activity. If it is a minor (no name) stream, identify the waterbody the minor stream enters.
- Block 14. Proposed Activity Street Address. If the proposed GP activity is located at a site having a street address (not a box number), enter it in Block 14.
- **Block 15. Location of Proposed Activity.** Enter the latitude and longitude of where the proposed GP activity is located. Indicate whether the project location provided is the center of the project or whether the project location is provided as the latitude and longitude for each of the "corners" of the project area requiring evaluation. If there are multiple sites, please list the latitude and longitude of each site (center or corners) on a separate sheet of paper and mark as Block 15.
- **Block 16. Other Location Descriptions.** If available, provide the Tax Parcel Identification number of the site, Section, Township, and Range of the site (if known), and / or local Municipality where the site is located.
- Block 17. Directions to the Site. Provide directions to the site from a known location or landmark. Include highway and street numbers as well as names. Also provide distances from known locations and any other information that would assist in locating the site. You may also provide a description of the location of the proposed GP activity, such as lot numbers, tract numbers, or you may choose to locate the proposed GP activity site from a known point (such as the right descending bank of Smith Creek, one mile downstream from the Highway 14 bridge). If a large river or stream, include the river mile of the proposed GP activity site if known. If there are multiple locations, please indicate directions to each location on a separate sheet of paper and mark as Block 17.
- Block 18. Identify the Specific General Permit(s) You Propose to Use. List the number(s) of the General Permit(s) you want to use to authorize the proposed activity (e.g., GP 4).
- Block 19. Description of the Proposed General Permit Activity. Describe the proposed GP activity, including the direct and indirect adverse environmental effects of the proposed activity. The description of the proposed activity should be sufficiently detailed for USACE to determine that the adverse environmental effects of the activity will be no more than minimal. Identify the materials to be used in construction, as well as the methods by which the work is to be done.

Provide drawings to show that the proposed GP activity complies with the terms of the applicable GP(s). Drawings should contain sufficient detail to provide an illustrative description of the proposed GP activity, but do not need to be detailed engineering plans. The written descriptions and illustrations are an important part of the application. Please describe, in detail, what you wish to do. If more space is needed, attach an extra sheet of paper marked Block 19.

- Block 20: Description of Proposed Mitigation Measures. Describe any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed GP activity. The description of any proposed mitigation measures should be sufficiently detailed for USACE to determine how the measures would avoid and minimize adverse environmental effects. If adverse effects exceed the New England District compensatory mitigation thresholds, you must document how compensatory mitigation would be satisfied in Block 24.
- **Block 21. Purpose of General Permit Activity.** Describe the purpose and need for the proposed GP activity. What will it be used for and why? Also include a brief description of any related activities associated with the proposed project. Provide the approximate dates you plan to begin and complete all work.

Block 22. Quantity of Wetlands, Streams, or Other Types of Waters Directly Affected by the Proposed General Permit Activity. For discharges of dredged or fill material into Waters of the U.S., provide the amount of wetlands, streams, or other types of waters filled, flooded, excavated, or drained by the proposed GP activity. For structures or work in Navigable Waters of the U.S. subject to Section 10 of the Rivers and Harbors Act of 1899, provide the amount of navigable waters filled, dredged, occupied by one or more structures (e.g., aids to navigation, mooring buoys) by the proposed GP activity. The area of impact includes the structures or fills with direct or indirect effects to waters of the U.S. The length of impact includes the length of a stream, including is banks, that are directly affected by the structures or fills. The duration of impact should be identified as temporary (xx days) or permanent. The impact purpose should briefly describe what structure or fill is responsible for the impact.

Block 23. Identify Any Other General Permit(s), Regional General Permit(s), or Individual Permit(s) Used to Authorize Any Part of Proposed Activity or Any Related Activity. List any other GP(s) or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. For linear projects, list other separate and distant crossings of waters and wetlands authorized by these GPs that do not require PCNs. If more space is needed, attach an extra sheet of paper marked Block 23.

Block 24. Compensatory Mitigation Statement for Losses Greater Than the New England District Compensatory Mitigation Thresholds. New England District requires compensatory mitigation at a minimum one for one replacement ratio or greater for all aquatic resource losses that require a PCN and exceed the New England District Compensatory Mitigation Thresholds, unless USACE determines in writing that either some other form of mitigation is more environmentally appropriate or the adverse environmental effects of the proposed GP activity are no more than minimal without compensatory mitigation, and provides an activity specific waiver of this requirement. Describe the proposed compensatory mitigation for wetland losses greater than the New England District Compensatory Mitigation Thresholds or provide an explanation of why USACE should not require wetland compensatory mitigation for the proposed GP activity. If more space is needed, attach an extra sheet of paper marked Block 24.

Block 25. Is Any Portion of the General Permit Activity Already Complete? Describe any work that has already been completed for the GP activity.

Block 26. List the Name(s) of Any Species Listed As Endangered or Threatened under the Endangered Species Act that Might be Affected by the General Permit Activity. If you are not a federal agency, and if any listed species or designated critical habitat might be affected or is in the vicinity of the proposed GP activity, or if the proposed GP activity is located in designated critical habitat, list the name(s) of those endangered or threatened species that might be affected by the proposed GP activity or utilize the designated critical habitat that might be affected by the proposed GP activity. If you are a Federal agency, and the proposed GP activity requires a PCN, you must provide documentation demonstrating compliance with Section 7 of the Endangered Species Act.

Block 27. List Any Historic Properties that Have the Potential to be Affected by the General Permit Activity. If you are not a federal agency, and if any historic properties have the potential to be affected by the proposed GP activity, list the name(s) of those historic properties that have the potential to be affected by the proposed GP activity. Provide all relevant documentation about these historic properties in the PCN submittal. If you are a Federal agency, and the proposed GP activity requires a PCN, you must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

Block 28. List the Wild and Scenic River or Congressionally Designated Study River if the General Permit Activity Would Occur in such a River. If the proposed GP activity will occur in a river in the National Wild and Scenic River System or in a river officially designated by Congress as a "study river" under the Wild and Scenic Rivers Act, provide the name of the river. For a list of Wild and Scenic Rivers and study rivers, please visit http://www.rivers.gov/

Block 29. General Permit Activities that also Require Permission from the USACE Under 33 U.S.C. 408. If the proposed GP activity also requires permission from the USACE under 33 U.S.C. 408 because it will temporarily or permanently alter, occupy, or use a USACE federal authorized civil works project, indicate whether you have submitted a written request for section 408 permission from the USACE district having jurisdiction over that project.

Block 30. 401 Water Quality Certification. As described above, specify if the activity requires a 401 WQC from the certifying authority.

Block 31. Other Information Required For General Permit Pre Construction Notifications. The terms of some of the General Permits include additional information requirements for preconstruction notifications:

- * Maintenance information regarding the original design capacities and configurations of the outfalls, intakes, small impoundments, and canals.
- * Temporary Construction, Access, and Dewatering a restoration plan showing how all temporary fills and structures will be removed and the area restored to pre-project conditions.
- * Repair of Uplands Damaged by Discrete Events documentation, such as a recent topographic survey or photographs, to justify the extent of the proposed restoration.
- *Commercial Shellfish Aquaculture Activities (1) a map showing the boundaries of the project area, with latitude and longitude coordinates for each corner of the project area; (2) the name(s) of the species that will be cultivated during the period this GP is in effect; (3) whether canopy predator nets will be used; (4) whether suspended cultivation techniques will be used; and (5) general water depths in the project area (a detailed survey is not required). Dredging (1) a proposed sampling and analysis plan shall be provided to USACE for approval prior to its execution. Pre-application meetings are encouraged.
- * Beach Nourishment sediment grain size should be determined for the length of the beach where nourishment is proposed. The frequency and locations of sediment sampling shall be sufficient to identify the sediment composition of the beach profile. This data shall be consolidated to generate a sediment gradation curve for each sampled transect. Each sampled transect should also be identified on the project plans (drawings).

If more space is needed, attach an extra sheet of paper marked Box 31.

Block 32. Signature of Applicant or Agent. The PCN must be signed by the person proposing to undertake the GP activity, and if applicable, the authorized party (agent) that prepared the PCN. The signature of the person proposing to undertake the GP activity shall be an affirmation that the party submitting the PCN possesses the requisite property rights to undertake the GP activity (including compliance with special conditions, mitigation, etc.).

DELINEATION OF WETLANDS, OTHER SPECIAL AQUATIC SITES, AND OTHER WATERS

Each PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current wetland delineation manual and regional supplement published by the USACE. The permittee may ask the USACE to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the USACE does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. The 60-day PCN review period will not start until a delineation has been completed.

DRAWINGS AND ILLUSTRATIONS

General Information.

Three types of illustrations are needed to properly depict the work to be undertaken. These illustrations or drawings are identified as a Vicinity Map, a Plan View or a Typical Cross Section Map. Identify each illustration with a figure or attachment number. For linear projects (e.g. roads, subsurface utility lines, etc.) gradient drawings should also be included. Please submit one copy of all drawings on 8½ x 11 inch plain white paper (electronic submissions preferred). Use the fewest number of sheets necessary for your drawings or illustrations. Each illustration should identify the project, the applicant, and the type of illustration (vicinity map, plan view, or cross section). While illustrations need not be professional (many small, private project illustrations are prepared by hand), they should be clear, accurate, and contain all necessary information.

ADDITIONAL INFORMATION AND REQUIREMENTS

For proposed GP activities that involve discharges into waters of the United States, water quality certification from the State, Tribe, or EPA must be obtained or waived. Some States, Tribes, or EPA have issued water quality certification for one or more GPs. Please check the New England District website to see if water quality certification has already been issued for the GP(s) you wish to use. For proposed GP activities in coastal states, state Coastal Zone Management Act consistency concurrence must be obtained, or a presumption of concurrence must occur. Some States have issued Coastal Zone Management Act consistency concurrences for one or more GPs. Please check the New England District website to see if Coastal Zone Management Act consistency concurrence has already been issued for the GP(s) you wish to use.

APPENDIX C SELF-VERIFICATION NOTIFICATION

	SE	U.S. Army Corps of ELF-VERIFICATION					
Authority	Rivers and Harbors Act, Section Engineers; Final Rule 33 CFR 3			_		Regulatory Programs	of the Corps of
Principal Purpose Routine Uses	This information will be used in a Routine uses will include: (1) Do require authorization pursuant to	evaluating activities under ocumenting compliance w o one or more of USACE	vith the term E's Regulato	s and cond	ditions of the Gener	ral Permit (GP) for ac	-
Disclosure	and local agencies for evaluation and enforcement purposes. Failure to fully comply and abide by the GP terms and conditions prior to commencing work and after completion project may result in formal enforcement action, up to and including monetary penalties and/or legal action, pursuant to 33 CFR Part 326.						
Instructions	The permittee must complete a completed SVN must be kept of regulatory authorities at any till USACE. The SVN shall be subleach field (e.g., emails, letters, cenae-r-ma-sv@usace.army.m	on site during construction me. Within 30 days of in mitted to USACE as <u>ONE</u> description, phone calls,	n and be mand the man	ade availab oject constr ocument th Electronic su	ole for review by U ruction, the permit hat includes projec ubmissions to the	SACE and other Fed tee shall submit the t plans and documer following address are	leral, State, & Local completed SVN to nation that supports e strongly preferred:
		(ITEMS 1 THRU 3 To	O BE FILLE	ED BY USA	ACE)		
1. APPLICATION N	O.	2. FIELD OFFICE CODE	E		3. DATE RECEI	VED	
		APPLICANT AND	AGENT IN	FORMATIO	ON		
4. APPLICANT'S NA	AME			7. AGEN	T'S ADDRESS:		
First -	Middle - L	_ast -		First -		Middle -	Last -
Company -				Company	′ –		
E-mail Address -				E-mail Ad	Idress -		
5. APPLICANT'S ADDRESS:				8. AGENT	T'S ADDRESS:		
Address-				Address-			
City -	State - Zip -	Country -		City -	Sta	ate - Zip -	Country -
6. APPLICANT'S PHONE NOs. w/AREA CODE				9. AGENTS PHONE NOs. w/AREA CODE			
a. Residence b. Business c. Fax				a. Reside	ence b	o. Business	c. Fax
	NA	ME, LOCATION, AND DI	ESCRIPTIO	N OF PRO	DJECT SITE		
10. PROJECT NAM	ME OR TITLE						
11. FILE NUMBER(S) OF PREVIOUS USACE ACT	IONS ON THE SITE (if ap	pplicable)	12. NAME	OF WATERBOD	Y	
13. PROJECT COC	RDINATES (in decimal degrees	;)		14. PROJI	ECT STREET ADD	ORESS (if applicable))
Latitude: ∘N	Longitude:	۰W		Address			
				City -	Sta	ate -	Zip -
	ACTIVITY	Y TYPE, PROJECT IMPA	-				
15. GENERAL PER	MIT ACTIVITIES (CHECK ALL	THAT APPLY)	16. SUMMA	ARY OF PF	ROJECT IMPACTS	S (see instructions)	
1 6	11 16 _	21	Area (squ	uare feet) I	Length (linear feet)	Volume (cubic yards)	Duration
2 7	12 17 _	22					
3 8	13 18 _	23					
4 9	14 19 _	24					
5 10	15 20 _	25					

17. PROJECT PLANS (BY CHECKING THE BOXES BELOW, YOU CERTIFY THESE ITEMS ARE COMPLETE) (see instructions)

- a. Plans shall at least contain the following: Vicinity Map, Plan View, and Typical Cross Section View of the proposed activity.
- b. All direct, indirect and secondary impacts from USACE regulated activities are shown on the project plans.
- c. The size of the impact area for each activity (acre, square feet, linear feet) are shown on the project plans.
- d. For discharges of fill material (§404), the volume of fill material is identified on the project plans.
- e. The duration of each impact, permanent or temporary (X days), is identified on the project plans.
- f. Do activities with permanent impacts result in the loss of waters? If so, this is identified on the project plans.
- g. All aquatic resources in the vicinity of the USACE regulated activities are delineated on the project plans.

18. AVOIDANCE & MINIMIZATION (BY CHECKING THE BOXES BELOW, YOU CERTIFY THESE CRITERIA ARE MET) (see instructions)

- a. The project has been designed to avoid and minimize impacts to aquatic resources.
- b. The footprint of activities in waters of the U.S. has been reduced to only what is necessary to achieve the overall project purpose.
- c. All practicable measures have been taken to avoid and minimize impacts to aquatic resources through construction techniques and site access (e.g., Best Management Practices, Time of Year Restrictions).
- d. All temporary impacts from USACE regulated activities will be restored upon completion of construction and the project area will be returned to preconstruction contours and conditions.

COMPLIANCE WITH FEDERAL REGULATIONS & SUPPLEMENTAL INFORMATION

19. DUE DILIGENCE (see instructions)

Complete the entries below to document compliance with the following Federal requirements. Construction may NOT begin if a PCN is/may be required, and you must contact USACE to determine permitting requirements. Documentation that demonstrates how the activity complies with each field below shall be submitted to the USACE as noted in the instructions block. See each General Condition (GC) in the GP for how to comply with each requirement.

- a. State Historic Preservation Officer
- b. Massachusetts BUAR
- c. Tribal Historic Preservation Officers
- d. Endangered Species Act NOAA
- e. Endangered Species Act USFWS
- f. Northern Long Eared Bat (ESA)
- g. Essential Fish Habitat
- h. Wild & Scenic Rivers
- i. 401 Water Quality Certification 401

401 WQC/OOC File Number: OOC issued: 401 issued:

- j. Section 408 Permission
- k. Coastal Zone
- I. Construction Mats
- m. Time of Year Restrictions
- n. Vernal Pools
- o. Sediment & Erosion Controls
- p. Stream/Wetland Crossings

20. AQUACULTURE ACTIVITIES - GP 18 (see instructions)

- a. If required, an Aquaculture Certification from the Massachusetts Division of Marine Fisheries was obtained prior to commencing work.
- b. Coordination with the U.S. Coast Guard pursuant to Private Aids to Navigation has occurred prior to commencing work.
- c. If required, a MEPA Certificate was obtained from the Massachusetts Environmental Protection Agency prior to commencing work.
- d. The prospective permittee contacted local authorities (e.g. harbormaster, select board, shellfish constable) for authorization of their facility prior to commencing work.

21. ADDITIONAL INFORMATION/ATTACHMENTS (see instructions)

- a. The project plans are enclosed in this SVN submittal (see block 17).
- b. The activity funded through the Bipartisan Infrastructure Bill (also known as the Infrastructure Investment and Jobs Act).
- c. All required state, local and federal approvals were acquired prior to starting construction in USACE jurisdiction.
- d. After construction of the activity is completed, a complete Certificate of Compliance will be submitted to USACE.

22. IS THERE ANOTHER LEAD FEDERAL AGENCY:

YES NO

ereby certify that the information in this Self-Verification Notification is complete and accurate. As the applicant or their duly authorized agent, I certify thity was completed in accordance with the terms and conditions of the GP. This includes all applicable terms, general conditions, and activity-specific tritical, agree to allow the duly authorized representatives of the Corps of Engineers Regulatory Program and other regulatory or advisory agencies to e on the premises of the project site at reasonable times to evaluate inspect and photograph site conditions. This consent to enter the property is supritatives precedence over, and waives any communication to the contrary. For example, if the property is posted as "no trespassing" this consent specific persedes and waives that prohibition and grants permission to enter the property despite such posting. SIGNATURE OF APPLICANT DATE SIGNATURE OF MEDITAL States knowingly and will siffes, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representation alakes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more to 0,000 or imprisoned not more than five years or both.	SIGNATURE OF APPLICANT	DATE	SIGNATURE OF AGENT	DATE
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	0,000 or imprisoned not more than five years or both	h.		

Instructions for Preparing a Department of the Army General Permit (GP) Self-Verification

Blocks 1 through 3. To be completed by the Corps of Engineers.

- **Block 4. Applicant' Name.** Enter the name and the e-mail address of the responsible party or parties. If the responsible party is an agency, company, corporation, or other organization, indicate the name of the organization and responsible officer and title. If more than one party is associated with the self-verification, please attach a sheet of paper with the necessary information marked Block 4.
- **Block 5. Address of Applicant.** Please provide the full address of the party or parties responsible for the self-verification. If more space is needed, attach an extra sheet of paper marked Block 5.
- Block 6. Applicant Telephone Number(s). Please provide the telephone number where you can usually be reached during normal business hours.
- Blocks 7 through 9. To be completed, if you choose to have an agent.
- **Block 7. Authorized Agent's Name and Title.** Indicate name of individual or agency, designated by you, to represent you in this process. An agent can be an attorney, builder, contractor, engineer, consultant, or any other person or organization. Note: An agent is not required.
- Blocks 8 and 9. Agent's Address and Telephone Number. Please provide the complete mailing address of the agent, along with the telephone number where they can be reached during normal business hours.
- **Block 10. Proposed General Permit Activity Name or Title.** Please provide a name identifying the proposed GP activity, e.g., Windward Marina, Rolling Hills Subdivision, or Smith Commercial Center.
- Block 11. File Number(s) of Previous USACE Actions on the Site Please provide any known USACE file number. If the activity does not have a known USACE file number, you may state N/A.
- **Block 12. Name of Waterbody.** Please provide the name (if it has a name) of any stream, lake, marsh, or other waterway to be directly impacted by the GP activity. If it is a minor (no name) stream, identify the waterbody the minor stream enters.
- **Block 13. Proposed Activity Coordinates.** Please enter the latitude and longitude of where the proposed GP activity is located. Indicate whether the project location provided is the center of the project or whether the project location is provided as the latitude and longitude for each of the "corners" of the project area. If there are multiple sites, please list the latitude and longitude of each site (center or corners) on a separate sheet of paper and mark as Block 13.
- Block 14. Proposed Activity Street Address. If the proposed activity is located at a site having a street address (not a box number), enter it in Block 14.
- **Block 15. General Permit Activity Type.** Please select all GP activity types that apply to the proposed activity. A list of GP activity types can be found in Section III of the GP.
- Block 16. Summary of Project Impacts. Please provide ALL proposed impacts, both temporary and permanent in duration, that are located in Waters of the United States. The area of impact shall be provided in square feet (SF). When applicable, impacts that result in conversion of stream bank or shoreline must also be identified in linear feet (LF). Dredging or the discharge of dredged or fill material shall also include the volume, cubic yards (CY), of material removed from or placed into Waters of the U.S. If more entries are required, please attach a table matching the desired format in Block 16.
- Block 17. Project Plans. Please verify that items a-g are included in the project plans. Three types of illustrations are necessary to properly depict the proposed work. These illustrations or drawings are identified as a Vicinity Map, a Plan View (Aerial view) and a Cross Section Map. For linear projects (e.g. roads, subsurface utility lines, etc.) gradient drawings (longitudinal profile) should also be included. Plans must accurately depict the existing conditions and all aspects of the proposed activity located in waters of the U.S. Please submit one copy of all drawings formatted to print on 8½ x 11 inch or 11 x 17 inch plain white paper. Use the fewest number of sheets necessary for your drawings or illustrations. Each illustration should identify the project, the applicant, and the type of illustration (vicinity map, plan view, or cross section). While illustrations need not be certified engineering sheets; they should be clear, accurate, contain all necessary information, and depict all proposed work. Each submission must also include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current wetland delineation manual and regional supplement published by USACE.
- Block 18. Avoidance & Minimization. Please verify that items a-d have been implemented for the proposed activity.
- Block 19. Due Diligence. Please complete all the fields and submit documentation to USACE to demonstrate compliance with the above requirements. This Documentation may include emails, letters, meeting notes, phone call log, project narrative, project plans, a species list from the NOAA Section 7 Mapper, a completed copy of the IPAC determination keys, etc. Documentation should be limited to what is necessary to demonstrate how the proposed activity meets each requirement. Refer to the MA GP, Appendix A, for specific guidance on the identification of previously identified historic properties and previously unidentified historic properties. Endangered Species: *The applicant must be designated as the non-federal representative for the purposes of Section 7 consultation to select the Rangewide D-Key options. Otherwise, the applicant shall select the following option when IPAC indicates the NLEB is present: "The activity IS located within the NLEB Species Range (PCN Required)."
- Block 20. Aquaculture Activities. Please verify that items a-d have been obtained or completed prior to commencing work in waters of the U.S.
- Block 21. Additional Information/Attachments. Please verify that items a-d have been completed prior to commencing work in waters of the U.S.
- Block 22. Lead Federal Agency. Please identify if there is another lead federal agency involved with the proposed activity. Enter the lead federal agency name (e.g., the Federal Emergency Management Agency, FEMA) and the agency's designated person of contact for the activity.
- **Block 23. Statement of Authorization.** The applicant shall sign this section for all activities. If an agent is to be employed, the agent shall sign this section.
- **Block 24. Signatures.** The SVN must be signed by the person proposing to undertake the GP activity, and if applicable, the authorized party (agent) that prepared the SVN. The signature of the person proposing to undertake the GP activity shall be an affirmation that the party submitting the SVN possesses the requisite property rights to undertake the GP activity.



APPENDIX D: PCN APPLICATION CHECKLIST

The following information shall be submitted for all PCNs for USACE to properly evaluate your application. Some applications may require more information and this checklist is offered as a tool to assist applicants with submitting a complete application.

SECTION 1: GENERAL APPLICATION INFORMATION

1.	☐ Complete the Pre-Construction Notification document (Appendix B).
2.	☐ Specify which local/state/federal authorizations are required for the project and if any have been obtained or applied for at the time of USACE application submittal.
3.	☐ Identify all funding sources the project will receive or has received to date. Provide any relevant information in the application submission.
4.	\square Is this part of a larger project that is being implemented in phases? If so, describe the project schedule and how each phase will be implemented.
5.	☐ Describe the existing conditions on the site and the general land use in the vicinity of the project at the time application submittal.
6.	□ Provide any historic information available that you may have of project area, e.g., existing USACE permit numbers, the names under which the permits were obtained if the permit numbers are unknown, construction dates and proof of prior existence (aerials, photos, town hall records, affidavits, state or local permits, etc.) to verify that the project predates regulation and is "vested". ¹⁹

7. The anticipated start and end dates for construction.

SECTION 2: WETLAND DELINEATION

- 8.

 Data used to support aquatic resource boundary determinations (delineation forms, delineation map(s) that show the locations of each aquatic resource in the project area, aerial and ground photographs, LIDAR imagery, national wetland inventory maps, soil maps, national hydrography dataset maps, floodplain maps, historical imagery, etc.).
- 9. □ Photographs of the wetland(s) and/or waterway(s) where impacts are proposed. Photos at low tide are preferred for work in tidal waters.
- 10. ☐ Indicate the relationship of the project area to waters of the U.S., i.e., adjacent wetlands, tidal influence or hydraulic connectivity through culverts, or other conveyances, etc.
- 11. ☐ At minimum the delineation map/figure should include the following:
 - a. Contour lines showing topography.
 - b. North arrow.
 - c. Bar and text scale.
 - d. Legend.
 - e. Drawn project boundary.
 - f. High tide line, mean high water, mean low water, ordinary high water mark, and/or wetland boundaries.
 - g. Captions with a unique name for each aquatic resource and the area or length of the aquatic resource within the project area.

¹⁹ Vested is exempt (someone or something) from a new law or regulation.

- h. Appropriate landmarks and features (e.g., culverts, special aquatic sites, etc.).
 - i. Points showing the paired upland and wetland delineation locations for tidal and non-tidal wetlands only.

SECTION 3: AVOIDANCE & MINIMIZATION

12. □ Describe specific measures taken to avoid impacts to aquatic resources or describe why aquatic resources could not be avoided while achieving the project purpose and need.
13. □ For impacts to aquatic resources that could not be avoided, describe specific considerations/ measures taken to minimize the area of proposed impacts to aquatic resources in designing the project.
14. □ Describe specific measures taken to avoid and minimize the proposed direct, indirect, and secondary impacts to aquatic resources and their functions through construction techniques and timing.
15. □ If applicable, provide a restoration plan that describes how all temporary fills and structures will be removed and the area restored to pre-impact conditions (see GC 22).
16. □ If applicable, provide an Invasive Species Control Plan (see GC 29). For sample control plans, see www.nae.usace.army.mil/missions/regulatory/invasive-species.
17. □ If applicable, describe how the proposed wetland/waterbody crossing is compliant with GC 31, Stream Work and Crossings, and Wetland Crossings.

SECTION 4A: PROJECT IMPACTS

- 18. ☐ Describe the overall project and the activities located in Waters of the U.S. (WOTUS) that you are seeking authorization for.
- 19. ☐ Identify the following for project impacts in WOTUS:
 - a. □ Direct, indirect, secondary impacts²⁰ within WOTUS.
 - b. □ The size of each impact (square feet or acres, or linear feet).
 - c. □ For discharges of fill material (§404), specify the volume of fill material to be discharged (cubic yards).
 - d. □ The impact duration from each activity, permanent or temporary (X days).

SECTION 4B: PROJECT PLANS

20. ☐ Submit project plans that depict all impacts in WOTUS. On the project plans, applicants shall provide:

General Information

- a.
 □ Plan view and typical cross-section view sheets that show the existing and proposed conditions. These illustrations should each be identified with a figure number, date of the map, the project title, the name of the applicant and the type of illustration (vicinity map, plan view, or cross section).
- b. □ Drawings, sketches, or plans that are legible, reproducible (color is encouraged, but features must be distinguishable in black and white), drawn to scale, and no larger than 11"x17" and 10 MB when submitted in digital format. Numeric and graphic/bar scales must agree, and plan details must be measurable using a standard engineer's scale on printed plans. Reduced plans are not acceptable.
- c.

 The north arrow and remove miscellaneous non-wetland or water project related features such as conduits, utility poles, guardrails, etc.

²⁰ See definitions section for the definitions of direct, indirect, secondary impacts.

- d. □ Clearly draw the overall limits of work, staging areas, disposal sites, access routes, and any permittee responsible mitigation sites. These areas may include both aquatic resources and upland areas.
- e. □ Names or numbers of all roads in the site's vicinity and ownership and numbers of abutting parcels.
- f.

 Datum in plan and elevation views. The horizontal datum shall be in the NAD 83 Massachusetts State Plane Coordinate System (INSERT) in U.S. survey feet. The vertical data in coastal projects shall be referenced to either MLLW or the North American Vertical Datum of 1988 (NAVD 88). Both the distance and depth units shall be U.S. survey feet and specified on the project plans.

Aquatic Resources & Project Impacts

- g.

 Delineation of all aquatic resource types on site including salt marsh; other special aquatic sites (vegetated shallows, mudflats, riffles and pools, coral reefs, and sanctuaries and refuges); other waters, such as lakes, ponds, vernal pools, natural rocky habitat (tidal only), and perennial, intermittent, and ephemeral streams.
- h.

 Identify the substrate type (cobble/gravel, organic detritus, sand/shell, silt, mud) and the approximate percentage of each substrate type on site. Grain sizes shall be based on Wentworth grain size classification scale for granules, pebbles, cobbles, and boulders. Sediment samples with a content of 10% or more of pebble-gravel-cobble and/or boulder in the top layer (6-12 inches) should be delineated and material with epifauna/macroalgae should be differentiated from bare pebble-gravel-cobble and boulder.
- i. \Box The direction of ebb and flood in tidal waters and direction of flow in non-tidal waters.
- j.

 In tidal waters, the project boundary distance from special aquatic sites identified in 20g above if within 25 feet from that resource.
- k.

 USACE jurisdictional boundaries including ordinary high-water mark (OHWM), high tide line (HTL), mean high water (MHW). Other boundaries include mean low water (MLW), mean lower low water (MLLW), as applicable.
 - Non-tidal: OHWM and/or wetland boundaries.
 - Tidal (structures/work only): MHW, MLW.
 - Tidal (Fill and Structures/work): HTL, MHW, MLW.
 - Tidal (Dredging/Beach Nourishment): HTL, MHW, MLW, MLLW.
- I. ☐ Identification of each aquatic resource with a unique name (ex. Wetland 1, Wetland 2, Tributary 1, Beaver Brook, Atlantic Ocean) and the size of each aquatic resource within the project area (square feet or acres).
- m. \square Impacts to each aquatic resource with captions denoting the size of each impact (square feet, acres, or linear feet) and the duration of the impact (ex. Permanent, Temporary (X days).

SECTION 4C: PROJECT PLANS - SPECIFIC PROJECT INFORMATION

21. ☐ For projects involving Navigation, Structures, Dredging, and/or Beach Nourishment, the applicant shall also address the following:

Navigation

- a.

 Identify the locations of adjacent Federal navigation project (FNP) and/or state/local navigation projects on the project plans.
- b.

 Specify the distance between the FNP and proposed project boundary, the authorized depths of the FNP, and state plane coordinates of seaward end(s) of project structures near an FNP.

Structures

- a. \square Identification of the piling type (steel, timber, concrete) and diameter to be removed and/or installed.
- b. ☐ Specify the minimal height of the structures' frame over saltmarsh. To meet the SV threshold, piers must be ≤4 feet in width and this minimal height must achieve a 1.5:1 ratio (i.e., a 4-foot-wide pier is 6 feet above a saltmarsh).
- c.

 For floats, the methods of securing them (piles, bottom anchors) and for keeping them off substrate (skids, stops) at low water. To meet the SV threshold, a minimum depth of 18-inches of water should be maintained below a floating dock/structure at lower tide levels.

Dredging

- a. \square The area (SF, acre) and volume (CY) of material to be dredged waterward of MHW for each dredge location.
- b. □ Dredge boundaries.
- c. □ Bathymetry for existing, proposed, and historical (include dates and USACE permits) dredge depths.
- d. ☐ The likely final angle of repose of the side cuts based on the physical characterization of the material to be dredged and based upon the high/ medium/low, wave or current energy of the location.
- e. \square Label area whether the dredging is new, maintenance, improvement, or a combination.
- f.

 Location of the disposal site (include location sheet). NOTE: For projects proposing open water, nearshore disposal, or beach nourishment, contact USACE as early as possible for sampling and testing protocols. Sediment testing, including physical (e.g., grain-size analysis), chemical and biological testing may be required. Sampling/testing of sediments without such contact should not occur and if done, will be at the applicant's risk.
- g.

 The methods and areas used to retain or prevent dredged material from running back into the wetland or waterway. Provide the capacity of the storage area and points of runback, including the overflow route, into the aquatic system.
- h. ☐ For open-water disposal, explain why inland or beneficial reuse sites are not practicable.
- i. \square Show the finished top elevation of the disposal site.

Beach Nourishment

- a. □ For beach nourishment, identify the disposal footprint, existing and proposed nourishment profiles (multiple profiles are appropriate if the site is more than 150 feet long or non-contiguous), total fill area (SF) and volume (CY), fill area and volume waterward of the HTL, and delineation of dunes, banks, existing beach vegetation, and contours.
- b. □ For beach nourishment identify the substrate type (fine sand, sand, cobble, boulder) and/or grain-size of existing material.

SECTION 5: STRUCTURES

- 22. ☐ For projects with the removal of existing pilings identify the number, type (steel, timber, concrete) and diameter of pilings to be removed and the methodology for removal (cut off at mud line, pulling, vibratory, etc.).
- 23. ☐ For projects with the installation of new pilings identify the number, type (steel, timber, concrete) and diameter of pilings to be installed and the methodology for installation (vibratory hammer, impact hammer etc.).
- 24. ☐ Identify any existing structures and moorings in waters adjacent to the proposed activity, their dimensions, and the distance to the limits and coordinates of any proposed mooring field or reconfiguration zone. For reconfiguration zone and mooring fields, provide the coordinates for all

- corners based on the Massachusetts State Plane Coordinate System. Specify the maximum number of slips and/or moorings within proposed reconfiguration zones or anchorage areas.
- 25. ☐ The dimensions of the structure or work and extent of encroachment waterward of MHW and from affixed point on the shoreline or upland.
- 26. ☐ Shoreline of adjacent properties and property boundary offset for structures. In narrow waterbodies, the distance to opposite shoreline, waterway width, and structures across from proposed work.
- 27. ☐ For new commercial boating facilities, anchorage areas or reconfiguration zones, provide a description of the type of vessels that would use the facility, and any plans for sewage pumpout facilities, fueling facilities and contingency plans for oil spills.
- 28. ☐ See Sections 4A-C above.

SECTION 6: AQUACULTURE

- 29. \square Identify the coordinates for lease area corners and gear configuration area on the project plans.
- 30. ☐ Identify the proposed aquaculture gear type (buoys, floats, racks, trays, nets, lines, tubes, cages, containers, and other structures). Provide the impacts for each aquaculture gear type (see Section 4A 19a-d).
- 31. ☐ For a GP 18 to be valid, applicants must have (a) their MA DMF Aquaculture Certification letter for licensed shellfish aquaculture sites, (b) documentation that the applicant has coordinated with the U.S. Coast Guard regarding USCG Private Aids to Navigation standards, (c) their MEPA Certificate (if required), and (d) documentation that the applicant has contacted their local authorities (ex. harbormaster, select board, shellfish constable) for authorization of their facility.
- 32. Provide information on site the operation, maintenance, and access. Will the site be accessed via boat, kayak, etc.? Will cages be removed in the winter? How often will gear be checked on? Is there an operations plan for the proposed aquaculture area?
- 33. ☐ See Sections 4A-C above.

SECTION 7: DREDGING

- 34. ☐ Sampling plan requests for new, improvement or maintenance dredging must submit completed Dredged Material Evaluation Checklist, army.mil) and identify the method of handling/transporting the dredged material.
- 35. ☐ Identify grain-size of material to be dredged (e.g., silty sand) and provide any existing sediment grain size and bulk sediment chemistry data from the proposed project or nearby projects. Include information on any recent spills of oil and/or other hazardous materials and/or nearby outfalls. Document the information source, e.g., EPA database, the harbormaster or fire chief. If there are none, state "none".
- 36. ☐ See Section 4A, 4B and 4C, Dredging 21(a-i) above.

SECTION 8: WETLAND/WATERBODY CROSSINGS

- 37. ☐ For the stream crossing, identify the crossing methodology on the project plan (e.g., dam and pump, dry, wet, etc.). Submit a waterway crossing sequencing plan with the application.
- 38. ☐ If the project includes a permanent crossing of a tidal waterway, your project design should be modified to match the velocity, depth, cross-sectional area, and substrate of the existing waterbody adjacent to the crossing and provide documentation (hydraulic analysis including low lying property analysis) that the size of the crossing will not restrict tidal flow over the full natural tide range and will not adversely affect abutting infrastructure.

- 39. ☐ If the work includes a permanent crossing of a non-tidal stream, your project design should be modified to match the culvert gradient of the existing stream channel profile, provide clearance for ≥1.2 times bank full width and conveyance should be embedded ≥1-2 feet for box culverts and pipe arches or ≥1-2 feet and at least 25 percent for rounded pipes/culverts in accordance with the Massachusetts Stream Crossing Standards. Provide the basis for any variation to this requirement.
- 40. ☐ If the work includes a permanent crossing of a non-tidal stream, the structure should be designed to include a natural bottom substrate within the conveyance that matches the characteristics of the substrate in the natural stream channel and the character of the banks (mobility, slope, stability, confinement, grain and rock size). The conveyance should be designed with a minimum openness ratio ≥0.82-feet (0.25-meters). For how to calculate openness ratio and stream simulation ecological approach for road and stream crossings, see https://www.nae.usace.army.mil/Missions/Regulatory/Stream-and-River-Continuity/.

SECTION 9: COMPENSATORY MITIGATION

- 41. □ Does the project require Compensatory Mitigation²¹ for impacts to Waters of the U.S.? (See Section V in the 2023 Massachusetts General Permit)
- 42. ☐ If the project requires mitigation, does the selected compensatory mitigation option (i.e., In-Lieu Fee, permittee-responsible mitigation) deviate from the order of the options presented in §332.3(b)(2)-(6)? If so, please explain why. https://www.ecfr.gov/current/title-33/chapter-II/part-332/section-332.3
- 43. ☐ For any compensatory mitigation that involves preservation, the applicant must use a site protection instrument to preserve the parcel in perpetuity. (Conservation Easement, Deed Restriction, etc.) https://www.mass.gov/service-details/conservation-restriction-review-program.

SECTION 10: HISTORIC PROPERTIES & NOTIFICATIONS TO SHPO, THPOS, BUAR

- 44. ☐ Notify the SHPO, Massachusetts Historical Commission, of the Project via Certified Mail and include proof of delivery or receipt in the application package (See Appendix A).
- 45. ☐ As applicable, notify the THPOs, Narragansett Indian Tribe, Wampanoag Tribe of Gay Head (Aquinnah), and Mashpee Wampanoag Tribe, of the Project via email OR mail and include proof of delivery or receipt in the application package (See Appendix A).
- 46. ☐ As applicable, notify the BUAR via email (*strongly preferred*) OR mail and include proof of delivery or receipt in the application package (See Appendix A).
- 47. ☐ Include responses to this notification in the permit application.
- 48. ☐ As applicable, information on historic properties (Tribal and Archaeological) within the project area should be provided in the permit application.

SECTION 11: ENDANGERED SPECIES & ESSENTIAL FISH HABITAT

- 49. ☐ Provide a USFWS Information for Planning and Consultation (IPaC) Official Species List from https://ecos.fws.gov/ipac and the email of the individual who generated the list (see GC 10 of the 2023 Massachusetts General Permit for more information).
- 50.
 Provide a species list from the NMFS Section 7 Endangered Species Act mapper at https://noaa.maps.arcgis.com/apps/webappviewer/index.html.
- 51. ☐ Provide a species list from the NMFS Essential Fish Habitat Mapper at https://www.habitat.noaa.gov/apps/efhmapper/?page=page_3.

²¹ Your mitigation proposal must be consistent with the December 29, 2020 Compensatory Mitigation Standard Operating Procedures at https://www.nae.usace.army.mil/Portals/74/docs/regulatory/Mitigation/Compensatory-Mitigation-SOP-2020.pdf and 2008 Mitigation Rule.

52. ☐ If the project will generate turbidity, describe the extent of turbidity and if erosion controls will be used to contain turbidity. If turbidity controls are not operationally feasible, explain the basis
for your conclusion and identify any other measures that you will implement to minimize
resuspension of sediment.
53. ☐ Identify the substrate type and any aquatic resources that will be affected by the proposed
action. (SAV, salt marsh, sand, silt/clay, rocky/hard bottom)
54. ☐ For projects which will include the installation of pilings/sheet-piles, identify the substrate at the project site (sand, cobble, silt/mud/clay), the installation method (vibratory hammer, impact
hammer, combination) and indicate whether the following "soft start" procedures at beginning of the workday and after a 30-minute period of rest will be deployed:
a. Vibratory Pile Installation: pile driving will be initiated for 15 seconds at reduced energy
followed by a one-minute waiting period. This sequence of 15 seconds of reduced energy driving, one-minute waiting period will be repeated two additional times, followed
immediately by pile-driving at full rate and energy.
b. Impact Pile Installation: pile driving will commence with an initial set of three strikes by
the hammer at 40% energy, followed by a one-minute wait period, then two subsequent 3-strike sets at 40% energy, with one-minute waiting periods, before initiating continuous impact driving.
55. ☐ If the project involves dredging, describe any dredge history, number of dredge events to be
covered by the permit, erosion/sediment controls, dredge type, intake structures (mesh screen size), dredged material disposal site.
56. ☐ For project activities associated with structures, identify the number, type (drill barge, work
boat, tugboat, etc.), and size of any temporary vessels that will be used. Specify measures that will be implemented to ensure vessels are not berthed in shallow water or will "ground out" at
low tide.
57. ☐ For aquaculture projects identify whether any component of the gear is seasonal (will be removed annually) or will be in place year-round. If gear will be present year-round and will be variably managed (e.g., floating in summer, bottom in winter) identify month/date for such
configurations.
58. ☐ For aquaculture projects identify whether the project will involve use of an existing vessel or new vessel. Identify the length for all work vessels and identify the distance round trip from vessel berthing location and aquaculture area.
59. ☐ For project activities associated with docking structures (either commercial, industrial, or
recreational) identify the number, type (motorized/non-motorized, jet-ski, sailboat, kayak,
canoe, other that will be berthed there and the sizes of each.
60. ☐ Information required for Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation
and Management Act:
a. Results of an eelgrass survey completed per the INSERT.
 Essential Fish Habitat Assessment to determine project-related impacts to essential fish habitat, using guidance developed by the National Marine Fisheries Service.
61. ☐ A document containing the following information (requirements of 50 CFR §600.920(e)(3)):
a. Description of proposed action.
b. Analysis of potential adverse effects on essential fish habitat.
c. Conclusions regarding the effects of the action on essential fish habitat.
d. If applicable, proposed mitigation.
e. Analysis of alternatives to the proposed action.
f. Other:

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DOCUMENT A00840

MASSACHUSETTS Department of Environmental Protection

Water Quality Certificate Application

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November 8, 2024

Heidi Davis Massachusetts Department of Environmental Protection Wetlands Program 100 Cambridge Street, Suite 900 Boston, MA 02114

Dan Vasconcelos Regulatory Division Department of the Army New England District, Corps of Engineers 696 Virginia Road Concord, MA 01742

RE: Water Quality Certification

Williamsville Road (Bridge H-24-003) REPLACEMENT PROJECT

Hubbardston, MA

MassDOT Project 609187

Dear Ms. Davis and Mr. Vasconcelos,

Massachusetts Department of Transportation – Highway Division, (the Applicant or MassDOT), is submitting this application for coverage under the Massachusetts Department of Environmental Protection (MassDEP) Section 401 Water Quality Certification (WQC). This application is filed pursuant to Section 401 of the federal Clean Water Act (33 U.S.C. 1341), Massachusetts General Laws c. 21, §§ 26-53, and the Massachusetts Department of Environmental Protection's (DEP) Water Quality Certification Regulations at 314 CMR 9.00 (Water Quality Certification Regulations). U.S. Army Corps of Engineers Section 404 Authorization under the Pre-Construction Notification form process for coverage under 2023 Massachusetts General Permits 23 – Temporary Construction Access is also necessary for the proposed Project because it has less than 5,000 square feet (sf) of impact (permanent and temporary impacts) and occurs in navigable waters.

The purpose of the project is to replace the structurally deficient Bridge Number H-24-003 Williamsville Road over the Burnshirt River in Hubbardston. Approximately 880 linear feet of roadway will also be reconstructed and realigned with the new bridge. Work includes excavation and embankment construction, roadway side slopes clearing and hazardous tree removal, pavement milling and resurfacing, full-depth roadway construction, granite curbing, drainage system improvement, guardrails and end treatments, traffic signage and pavement markings, and erosion and sedimentation control. The proposed bridge cross-section will feature two 11-foot travel lanes and two 5-foot shoulders. The total bridge width will be 32 feet. The bridge span length will be 57 feet, 6 inches. The bridge vertical profile will be raised and provide a minimum freeboard of 2-feet over the FEMA 10-year flood elevation (776.6 feet).

The project will temporarily disturb approximately 2,426 square feet (sf) of Waters of the US (WOTUS) due to cofferdam dewatering to enable construction of bridge foundation and wingwalls. Dredging for the new bridge footings will remove approximately 352 cubic yards (cy) of riverbed material directly beneath the bridge. These construction activities will trigger WW 08 Minor Dredging requirements. The project will also permanently fill approximately 17 sf of WOTUS due to the northwest abutment construction.

A pre-application meeting for this project was held on October 21, 2024 with the Massachusetts Department of Environmental Protection. The project proponent hereby certifies that all information contained herein is true, accurate, and complete to the best of my knowledge and belief. The project proponent hereby requests that the certifying authority review and take action on this CWA 401 certification request within the applicable reasonable period of time.

If you require any additional information regarding the subject project, please contact me at (857) 262-0757 or by email at courtney.l.walker@dot.state.ma.us.

Sincerely,

Courtney Walker
Wetlands & Water Resources Coordinator
MassDOT Highway Division, Environmental Services

Cc: Kristine Chestna, MassDOT
Michael Joa, MassDOT
Tyler Lewis, MassDEP
Ryan Hale, MassDEP
Kevin Newton, US Army Corps of
Engineers
Hubbardston Conservation Commission

401 Water Quality Certification Application (BRP WW 08 and BRP WW 11)

&

Section 404 Pre-Construction Notification Review



Bridge No. H-24-003 Replacement Project – Williamsville Road over Burnshirt River, Hubbardston, MA

Submitted to:

MassDEP Wetlands Program 1 Winter Street Boston, MA 02018

U.S. Army Corps of Engineers – N.E. District Regulatory Division 696 Virginia Road Concord, MA 01742-2751

November 12, 2024

Prepared for:

Massachusetts Department of Transportation – Highway Division

10 Park Plaza – Environmental Services

Boston, MA 02116

Submitted by: Epsilon Associates, Inc. 3 Mill & Main Place, Suite 250 Maynard, MA 01754



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TABLE OF CONTENTS

USACE PCN FORM

APPLICATION FORM (BRP WW 08 MINOR DREDGING, WW 11 MINOR FILL PROJECT CERTIFICATION)

ATT/	ACHMEN	T A – PRC	DJECT NARR	ATIVE	1		
	1.0	Introd	uction		1		
		1.1	Project P	urpose & Need	1		
		1.2	Project I	mpacts to Vegetated Wetlands and WOTUS and Mitigation Measo	ures2		
		1.3	Project P	ermits and Regulatory Review Requirements	2		
	2.0	Existin	g Conditions	5	3		
		2.1	Project A	rea	3		
		2.2	Existing (Bridge Conditions	3		
		2.3	Existing S	Stormwater Management	4		
		2.4	Environn	nental Constraints	4		
			2.4.1	Burnshirt River	4		
			2.4.2	Vegetated Wetlands	5		
			2.4.3	Watershed and Floodplain	6		
			2.4.4	Rare Species	6		
			2.4.5	Outstanding Resource Areas	6		
			2.4.6	Areas of Critical Environmental Concern	6		
			2.4.7	Wild and Scenic Rivers	6		
	3.0	Projec	t Descriptior	1	6		
		3.1	Bridge Re	eplacement	7		
		3.2	Roadway	Improvements	7		
		3.3	Construc	tion Methods and Sequencing	7		
	4.0	Water	s of the US II	mpacts	9		
		4.1	Direct Ef	fects	9		
			4.1.1	Wetland Impacts	9		
			4.1.2	Waterway Impacts	9		
	5.0	Avoida	ance and Mit	igation Measures	10		
		5.1	Construc	tions Best Management Practices	10		
		5.2	Minimiza	ation and Avoidance Measures	11		
		5.3	Riverbed	restoration	11		
	6.0	Storm	water Mana	gement	11		
	7.0	.0 Alternatives Analysis					
		7.1	No Actio	n Alternative	12		
		7.2	Preferre	d Alternative – Complete Bridge Replacement with Single Span	13		
		7.3	Alternati	ve Bridge Layout with Sidewalks	13		
	8.0	Fisheri	es and Wild	life	13		
	9.0	Compl	iance with C	riteria for the Evaluation of Application for Discharge of Dredged	or		
		Fill Ma	terial		14		

TABLE OF CONTENTS (CONTINUED)

	9.1	Compliance with 314 CMR 9.06	15
	9.2	General Performance Standards of 314 CMR 9.07(1)	16
	9.3	Dredging Performance Standards	19
10.0	Compli	iance with Other Applicable Regulations	20
	10.1	Section 7 of the Endangered Species Act	20
	10.2	Section 106 of the National Historic Preservation Act	20
	10.3	National Environmental Policy Act	21
	10.4	Section 4(f) of the Department of Transportation Act	21
11.0	Conclu	sion	21

LIST OF ATTACHMENTS

ATTA	ACHN	ΛENT	B - F	IGL	JRES
------	-------------	------	-------	-----	------

ATTACHMENT C – SITE PHOTOGRAPHS

ATTACHMENT D - PERMIT DRAWINGS

ATTACHMENT E – 401 PUBLIC NOTICE

ATTACHMENT F - STORMWATER MANAGEMENT REPORT

ATTACHMENT G - SECTION 7 CONSULTATION

ATTACHMENT H – SECTION 106 CONSULTATION

ATTACHMENT I – WETLAND DELINEATION DATA FORMS

ATTACHMENT J – SEDIMENT SAMPLING PLAN

ATTACHMENT K – ENVIRONMENTAL SPECIFICATIONS

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Home **DEP Applications** Record Number: 24-WW26-0060-APP: Add to collection **Record Status: In Review** Record Info > Payments < Facility / Location Burnshirt River | 0 Williamsville Road Hubbardston MA 01452 **Record Details Project Description:** Combined Licenses/Permits for Waterways and Water Quality Certification Application ▼More Details ■ Related Contacts ■ Application Information PRE-CONSULTATION INFORMATION Have you consulted with MassDEP about the combined application process?: Yes Date you consulted with MassDEP: 10/21/2024 APPLICATION INFORMATION Please select the 401 Water Quality Certification for Dredging Application (if applicable): WW08 - 401 Minor Dredging - Minor < 5000 cubic yards Please select the 401 Water Quality Certification for Fill/Excavation Application (if applicable): WW11 - 401 Minor Fill and Excavation - Minor < 5000 square feet OTHER PRIMARY LOCATION INFO Parcel ID: n/a Municipality: HUBBARDSTON **PROJECT LOCATION INFO** Will the project occur in multiple municipalities?: PRE-APPLICATION INFORMATION No Has the DEP Agency specified that you are exempt from this process?: Has the project's Sampling Analysis Plan been approved by the DEP Agency? If yes, please attach a Yes document 'DEP Sampling Analysis Plan' in the document section.: Briefly describe in general the proposed project or activity, including the purpose and intended use of the project, and the duration of the work within any waterbody:

The purpose of this project is to replace the existing outdated bridge with a safer bridge that complies with current bridge

design standards. The replacement bridge is designed for a bridge service life of 75 years and will be a single-span, concrete beam bridge with 8-inch composite concrete deck slabs. The bridge substructure will consist of conventional cantilevered abutments which will be installed in a location behind the existing abutments, widening the bridge span length to 57 feet, 6 inches. An approximately 880-foot section of Williamsville Road extending approximately 335 feet westward and 545 feet eastward from the bridge will undergo complete roadway reconstruction. Roadway improvements will include improved roadway geometry and wider travel lanes to improve safety. Five foot wide shoulders are also provided which results in a modest increase in impervious surface for the project of 4,624 sf. Roadway drainage will also be improved

Proposed Start Date:

05/01/2024

What is the expected frequency of maintenance dredging of this project?:	n/a
Length of the proposed project (If applicable, please include the maximum and minimum):	50
Width of the proposed project (If applicable, please include the maximum and minimum):	57
Depth of the proposed project (If applicable, please include the maximum and minimum):	0-15
Volume of the proposed project(Cubic yards):	352

Type of proposed project:

Improvement dredging

Briefly describe the physical dredging operation (such as., dredging methods), the method of release of the dredged material into the disposal site, and the name of the contractor if other than the applicant. (Please attach a detailed document - "Dredging and Disposal Operation" in the document section of the application):

Permanent impacts within the waterway due to the bridge widening are associated with the bridge abutments totaling 17 sf. 352 cubic yards will be dredged for excavation of the footings for the proposed new abutments. Excavation will occur at a 2:1 slope in riverbed to the existing bottom of the footing of the abutment. All excavated materials will be loaded into dump trucks and hauled off site following construction. The excavated areas will be backfilled and finished with native streambed materials.

Briefly describe all measures designed to avoid and minimize adverse impacts of the project on aquatic life and the aquatic ecosystem. Where impacts cannot be avoided or minimized, what mitigation measures are proposed? (If necessary, please attach a document - "Performance Standard to avoid and minimize and mitigate impact" in the document section of the application):

The bridge replacement will require temporary water controls so that abutment demolition and construction can be performed in dry conditions. This will be achieved by utilizing a combination of temporary sandbag cofferdams and a water diversion system which will pump the water into a settling basin and diverting flow to the opposite side of the river. Water from inside the work area will be pumped to a settling basin in an upland location to infiltrate the pumped water. The settling basin will be surrounded by compost filter tubes and silt fence sediment controls for added protection. Non structural practices that will be used during construction include temporary stabilization, temporary seeding, permanent seeding, pavement sweeping, and dust control. These practices will be initiated as soon as practicable in appropriate areas of the site. Structural erosion and sedimentation controls will include erosion control barriers and catch basin inlet protection.

Does the proposed project have any past history of chemical or oil spills	of discharge?:	No
Does the proposed project have any past history of Upstream or on-site discharge within 1,000 feet of the proposed project?:	industrial or municipal	No
Does the proposed project have any past history of chronic pollutant loa and/or other sources of pollutants? (eg. CSO or POTW discharges):	nding from port or harbor use	No

PROPOSED LAND SITE

Location of proposed disposal and dewatering sites and physical boundaries:

Disposal of excavated materials will be off site at a location chosen by the contractor

Indicate drainage characteristics of dewatering and disposal sites from the results of test pits, borings, and percolation tests as applicable:

Dewatering of excavated material is not anticipated.

How long are the dewatering and disposal sites estimated to be in use from this project?:

PROPOSED BARGE SITE

Are you proposing dewatering of dredged sediment on a barge? If yes, please attach a document 'Plans for adequate containment' in the document section.:

ADDITIONAL INFORMATION

Is your project subject to U.S. Army Corps of Engineers – Section 404 of Federal Clean Water Act? If yes, please attach a document 'USACE Authorization' in the document section.:

No

No

No

Yes

Is your project subject to Massachusetts Environmental Policy Act (MEPA)? If yes, application cannot be submitted until 1) the MEPA process is completed and 2) a Final certificate issued by MEPA is submitted to the "Document(s)" Tab. If no, please attach a document with justification that this project is not subject to MEPA review in the document section (including addressing the applicability of the MEPA review thresholds at 301 CMR 11.03):

Is your project subject to Massachusetts Wetlands Protection Act?:

Is the project going to impact Eelgrass bed? If yes, please attach a document 'Eelgrass Management Plan' in the document section.:

Does this project contain an attached written Alternatives Analysis? If yes, please attach a document Yes 'Alternatives Analysis' in the document section.:

If yes, does this Alternatives Analysis screen all practicable alternatives to the proposed discharge that would have less adverse impact on the aquatic ecosystem?:

Does this project require a license from the Federal Energy Regulatory Commission?: No

Is any of your proposed work exempt from the Massachusetts Wetlands Protection Act or taking place in a federal non-state wetland?:

If yes, please provide additional information:

Project is bridge exempt

PROJECT TYPE

Other: Yes

Please provide additional information for the selection of your project major type:

PROPOSED AREAL EXTENT INFO

•	
Bordering Vegetated Wetland (sqft):	138
Isolated Vegetated Wetland (sqft):	0
Non-tidal Land Under Water (sqft):	2581
Salt Marsh (sqft):	0
Land Under the Ocean (sqft):	0
Intertidal Zone (sqft):	0
Total cumulative loss (sqft):	2719
COMPLIANCE WITH 314 CMR 9.00	
Does the proposed project meet the definition of a Single and Complete Project at 314 CMR 9.02?:	Yes
Does the proposed project include "multi-phased activities"?:	No
Does the proposed project meet the definition of an Ecological Restoration Project?: Have you completed the Public Notice as per 314 CMR 9.05(3)? If yes, please attach a completed 'Proof of Public Notice' document in the document section.:	No Yes
Date of Public Notice per 314 CMR 9.05(3):	
11/14/2024	
Does the required Alternatives Analysis screen all practicable alternatives to the proposed discharge that would have less adverse impact on the aquatic ecosystem?:	Yes
Does this proposed project meet the definition of Water-Dependent at 314 CMR 9.02?:	Yes
Is the proposed project restricted to access to one dwelling unit?:	No
Will the cumulative discharges of dredged or fill material to Waters of the United States within the Commonwealth exceed 1 acre in areal extent?:	No
Report the areal extent, as expressed in square feet, of all proposed restoration or replication of Bordering Vegetated Wetlands and/or Isolated Vegetated Wetlands:	138
Will any proposed discharges of dredged or fill material or any proposed restoration or replication occur within Rare Species Habitat as defined at 314 CMR 9.02?:	No
Will the proposed project include or consist of the construction of a new non-tidal crossing of any Land Under Water?:	No
Will the proposed project include or consist of the construction of a new tidal crossing of any Land Under Water?:	No
Will the proposed project include or consist of the repair, replacement, and/or expansion of an existing non-tidal crossing of any Land Under Water?:	Yes
If yes, will such repair, replacement, and/or expansion of an existing crossing comply with the Massachusetts River and Stream Crossing Standards (March 8, 2012) to the maximum extent practicable (see Practicable at 314 CMR 9.02)?:	Yes
Will the proposed project include or consist of the repair, replacement, and/or expansion of an existing tidal crossing of any Land Under Water?:	No
Does the proposed project include any amount of discharges of dredged or fill material to any Outstanding Resource Water?:	No
Will any proposed "discharge of dredged or fill materials" occur within any certified Vernal Pool (as defined at 314 CMR 9.02)? :	No
W78PROJECT INFORMATION	
Project Name:	
Williamsville Road Bridge Replacement Project, Hubbardston MA Have you completed the Public Notice as per 314 CMR 9.00? If yes, please attach a completed 'Proof of Public Notice' document in the document section.:	Yes
Date of Public Notice per 314 CMR 9.05(3): 11/22/2024	
Name of the Local Newspaper :	
Barre Gazette	
Will the proposed project occur in any wetlands or waters designated as 'Outstanding Resource Waters'?:	No
Identify the loss, or alteration, in square feet for Land under water:	2564
Identify the loss, or alteration, in square feet for Other Resources:	138
SPECIAL FEE PROVISION	
Exemption:	Yes
W11PROJECT INFORMATION	103
Project Name:	
Williamsville Road Bridge Replacement Project, Hubbardston MA Proposed Activity:	
The purpose of this project is to replace the existing outdated bridge with a safer bridge that complies with current b design standards. will be a single-span, concrete beam bridge with 8-inch composite concrete deck slabs. The bridge substructure will consist of conventional cantilevered abutments which will be installed in a location behind the exist abutments, widening the bridge span. The proposed bridge cross-section will feature two 11-foot travel lanes and tw shoulders. The total bridge will the 32 feet. The bridge span length will be 57 feet, 6 inches. An approximately 88 section of Williamsville Road extending approximately 335 feet westward and 545 feet eastward from the bridge will complete roadway reconstruction.	e ing o 5-foot 80-foot
W11ADDITIONAL INFORMATION	
Is your project subject to Massachusetts Environmental Policy Act (MEPA)?:	No
Is your project subject to Massachusetts Environmental Policy Act (MEPA):	No
Is your project subject to Massachusetts Public Waterfront Act?:	No
The state of the s	Vee

Yes

Yes

Is your project subject to Massachusetts Historical Commission?:

Is your project subject to Massachusetts Bureau of Underwater Archeological Resources?:

Is your project subject to U.S. Army Corps of Engineers – Section 404 of Federal Clean Water Act?:

List of Documents

Documents:

Please upload 12 Required Document(s) which are mandatory to submit this Application: 1. Alternatives Analysis \$#10004;

consultation Letter from DMF and/or DFW \$#10004;

br>2. Consultation Letter from DMF and/or DFW \$#10004;

br>3. DEP Sampling Analysis Approval \$#10004;

br>4. Dredging and Disposal Operation \$#10004;

br>5. Grain Size Analysis \$#10004;

br>6. NHESP Determination Letter or Conservation Management Permit \$#10004;

br>7. Plans for adequate containment during dewatering on a barge \$#10004;

br>8. Project Narrative \$#10004;

br>9. Project Plan Set \$#10004;

br>10. Proof of Public Notice \$#10004;

br>11. Site Plans \$#10004;

■ Application Information Table

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USACE ENG Form 4345

U.S. Army Corps of Engineers (USACE), New England District (NAE)									
		PRE-CONSTRUC	CTION	NOTII	FICATION (PCN)				
		DATA REQUIRED	BY TH	E PRIVA	ACY ACT OF 1974				
Authority Principal Purpose Routine Uses Disclosure	Engineers; Final Rule 33 CFR 320-332. Incipal Purpose The information provided will be used in evaluating activities under Pre-Construction Notification procedures within New England. This information may be shared with other federal, state, and local government agencies during the application review process. Submission								
Instructions	The applicant must complete ALL required sections of this document before their submission to USACE. The PCN submission to USACE shall include one set of drawings which show the location and character of the proposed activity, statements that address each required field below, and documentation that supports each field (e.g., emails, letters, description/narrative, phone calls, surveys, reports, etc.). Electronic submissions to the following address are strongly preferred: cenae-r-ma@usace.army.mil . The email subject line shall contain the following: General Permit #, PCN, City/Town, and date submitted. An application that is not completed in full will be returned.								
		(ITEMS 1 THRU	J 4 TO E	BE FILLI	ED BY USACE)				
1. APPLICATION NO. 2. FIELD OFFICE CODE					3. DATE RECEIVED	4. DATE	APPLICATION COMPLETE		
		(ITEMS BELOW	TO BE	FILLED	BY APPLICANT)				
5. APPLICANT'S N	AME			8. AUT	HORIZED AGENT'S NAM	E AND TITLE (a	agent is not required)		
First - Middle - Last -				First -	Mic	idle -	Last -		
Company -				Company -					
E-mail Address -				E-mail Address -					
6. APPLICANT'S A	DDRESS:			9. AGENT'S ADDRESS:					
Address-				Addres	S-				
City -	State -	Zip - Country -		City - State - Zip - Country -					
7. APPLICANT'S PH	HONE NOs. with AREA COL	DE		10. AGENT'S PHONE NOs. with AREA CODE					
a. Residence	b. Business c. Fax	d. Mobile		a. Resi	dence b. Business	c. Fax	d. Mobile		
		STATEME							
11. I hereby author	ize,st, supplemental information				it in the processing of this opplication.	general permit P0	ON application and to		
		SIGNATURE OF A	PPLICA	NT	DATE				
	N/	AME, LOCATION, AND D	ESCRI	PTION C	F PROJECT OR ACTIVIT	Υ			
12. PROJECT NAME or TITLE (see instructions)									
13. NAME OF WATI	ERBODY, IF KNOWN (if ap	plicable)		14. PR	OPOSED ACTIVITY STRE	ET ADDRESS ((if applicable)		
15. LOCATION OF	PROPOSED ACTIVITY (se	e instructions)		City:		State:	Zip:		
Latitude: °N Longitude: °W									

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)							
State Tax Parcel ID:			Municipa	ality:			
Section:		Township:		Range:			
		· ·		3			
17. DIRECTIONS TO	THE SITE						
17. DIRECTIONS TO	THE SHE.						
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10. IDENTIFY THE S	PECIFIC GENERAL P	ERMIT(S) YOU PROPO	03E 10 03E.				
40 DECODIDATION O	AF DDODOCED OFNE	DAL DEDMIT ACTIVITY	((instructions)				
19. DESCRIPTION C	IF PROPOSED GENE	RAL PERMIT ACTIVITY	(see instructions)				
20. DESCRIPTION C	F PROPOSED MITIGA	ATION MEASURES (se	e instructions)				
21. PURPOSE OF G	ENERAL PERMIT ACT	TIVITY (Describe the rea	ason or purpose of the p	project, see instructions)			
22. Quantity of Wetla	nds, Streams, or Other	Types of Waters Direct	tly Affected by Propose	d General Permit Activity (see instructions)			
Area (square feet)	Length (linear feet)	Volume (cubic yards)	Duration	Purpose			
Each PCN must inc	lude a delineation of	-	-	ther waters, such as lakes and ponds, and perennial, intermittent,			
and ephemeral streams, on the project site.							
23. List any other GP	(s), regional general pe	ermit(s), or individual pe	ermit(s) used or intende	d to be used to authorize any part of the proposed project on any			
related activity (s	related activity (see instructions)						
				ified in the New England District Compensatory Mitigation Thresholds,			
		n requirement will be sa					

25.	Is Any Portion of the General Permit Activity Already Complete?		Yes	No	If Y	es, describe the completed work:	
26.	List the name(s) of any species listed as endangered or threatened u utilize the designated critical habitat that might be affected by the pro-			_			y the proposed GP activity or
27.	List any historic properties that have the potential to be affected by th property or properties. Attach relevant project information, along with						
28	For a proposed GP activity that will occur in a component of the Natio	anal \	Mild ar	nd Scenic	Pive	or System or in a river officially d	ecianated by Congress as a
20.	"study river" for possible inclusion in the system while the river is in a						
29.	If the proposed GP activity also requires permission from the USAC use a U.S. Army Corps of Engineers federally authorized civil works district having jurisdiction over that project?						
	If "yes", please provide the date your request was submitted to the $\ensuremath{\text{U}}$	ISAC	E Distr	rict:			
30.	Does the activity require a 401 Water Quality Certification (WQC)? If an individual 401 WQC is required, provide the date the 401 WQC of						-
31.	If the terms of the GP(s) you want to use require additional informatic	on to	be incl	luded in th	ne P	CN (i.e. sampling and analysis pl	an), please include that
	information in this space or provide it on an additional sheet of paper	marl	ked Bl	ock 30. (s	see i	instructions)	
32.	I certify that the information in this pre-construction notification is com	nplete	e and a	accurate.	l furt	ther certify that I possess the auth	nority to undertake the work
	described herein or am acting as the duly authorized agent of the applications are the appli	plica	nt.		\	Alyra Jacobs	
	SIGNATURE OF APPLICANT DATE	E				SIGNATURE OF AGENT	DATE
	e Pre-Construction Notification must be signed by the person who des en filled out and signed, the authorized agent.	sires t	to unde	ertake the	pro	posed activity (applicant) and, if t	he statement in block 11 has
fals	U.S.C. Section 1001 provides that: Whoever, in any manner within the iffies, conceals, or covers up any trick, scheme, or disguises a material uses any false writing or document knowing same to contain any false prisoned not more than five years or both.	al fac	t or ma	akes any f	alse	, fictitious or fraudulent statement	ts or representations or makes

Attachment A

Project Narrative

ATTACHMENT A – PROJECT NARRATIVE

1.0 Introduction

On behalf of the Massachusetts Department of Transportation – Highway Division, (the Applicant or MassDOT), Epsilon Associates, Inc. (Epsilon) is pleased to submit this joint application for coverage under the United States Army Corps of Engineers (ACOE) General Permits Section 404 Pre-Construction Notification (PCN) and Massachusetts Department of Environmental Protection (MassDEP) Section 401 Water Quality Certification (WQC) BRP WW 08 (Minor Dredge) and WW 11 (Minor Fill) for the proposed replacement of the Williamsville Road bridge over the Burnshirt River (MassDOT Bridge No. H-24-003). This application is filed pursuant to Section 404 (33 U.S.C. 1344) of the federal Clean Water Act and its implementing regulations at 40 CFR 230 Parts 22 and 230 through 233 and Section 401 of the federal Clean Water Act (33 U.S.C. 1341), Massachusetts General Laws c. 21, §§ 26-53, and the Massachusetts Department of Environmental Protection's (DEP) Water Quality Certification Regulations at 314 CMR 9.00 (Water Quality Certification Regulations).

MassDOT proposes the replacement of Bridge H-24-003 carrying Williamsville Road over the Burnshirt River in Hubbardston, MA (Attachment B, Figure 1) and referred to herein as the Williamsville Road bridge. The project requires a 401 Water Quality Certificate (401 WQC) from MassDEP for Minor Dredging (BRP WW 08 – less than 5,000 cubic yards) and Minor Fill (BRP WW 11 – cumulative loss of less than 5,000 square feet of Vegetated Wetland or jurisdictional Waters of the United States (WOTUS) within the Commonwealth). The project requires Section 404 of the Clean Water Act authorization from the ACOE through a Pre-Construction Notification (PCN) under General Permit 23 (Linear Transportation Projects and Vegetated Wetland/Stream Crossings) of the 2023 General Permits for Massachusetts (MA GP) as the project does not meet the General Condition 16 requirement for encroachment of less than 25% of the stream channel during construction.

1.1 Project Purpose & Need

The purpose of this project is to replace the existing outdated bridge with a safer bridge that complies with current bridge design standards. The existing bridge was constructed in 1939 and was classified as structurally deficient in a recent bridge inspection report. The bridge beams are in poor condition and deterioration has been observed in the abutments and wing walls. In addition, the existing bridge roadway has an unsafe geometry for the posted 40 mph speed limit and the existing bridge railings are in poor condition. The proposed bridge replacement and roadway reconstruction will result in a project that meets current design standards, provides a 75-year bridge service life, and improves roadway safety.

1.2 Project Impacts to Vegetated Wetlands and WOTUS and Mitigation Measures

Portions of the work will be located in WOTUS within the Commonwealth of Massachusetts, also defined and regulated as Land Under Water (LUW) per the Wetlands Protection Act (WPA). Therefore, a WQC is required under 314 CMR 9.04(4). The project will temporarily disturb approximately 2,426 square feet (sf) of LUW due to cofferdam dewatering to enable construction of the bridge foundation and wingwalls. Dredging for the new bridge footings will remove approximately 352 cubic yards (cy) of riverbed material directly beneath the bridge. These construction activities will trigger WW 08 Minor Dredging requirements. The project will also permanently fill approximately 17 sf of WOTUS due to the northwest abutment construction. Under the ACOE MA GP, General Condition 16, a Pre-Construction Notification (PCN) is required when sediment or turbidity controls encroach >25% of the stream width measured from the Ordinary High Water Mark (OHW) from March 1 to June 30. Because this work will occur during this timeframe, the project requires a PCN.

The proposed project and potential impacts are described in Sections 3 and 4. Project impact avoidance and mitigation measures are described in Section 5.

1.3 Project Permits and Regulatory Review Requirements

This project is being filed under the MassDOT bridge exemption as specified in the 2014 Transportation Bond Bill. The bridge replacement design is substantially the functional equivalent of, and in similar alignment to, the existing bridge. As such, this project is exempt from review under the Massachusetts Environmental Policy Act (MEPA) Regulations (301 CMR 11.00), the Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00), and the Chapter 91 Waterways Regulations (310 CMR 9.00). A list of permits and regulatory reviews that are required to construct this project is provided below.

- National Environmental Policy Act (NEPA) Categorical Exclusion
- Section 7 Endangered Species Act Consultation
- Section 106 of the National Historic Preservation Act Project Effect Determination
- Section 9 of the Rivers and Harbors Act 23 U.S.C. § 144(c) Bridge Permitting Exception
- Section 402 of the Clean Water Act National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) for discharge of stormwater from construction site.

2.0 Existing Conditions

2.1 Project Area

The Williamsville Road bridge is a single span bridge that carries Williamsville Road over the Burnshirt River in Hubbardston, MA (see Attachment B, Figures 1 and 2). The project limits are a total of approximately 880 feet along Williamsville Road, extending approximately 335 feet westwardly and approximately 545 feet eastwardly from the bridge (as shown in yellow in Figure 2).

Williamsville Road is classified as a minor collector road and scenic roadway with a posted speed limit of 40 mph. The bridge is located in Hubbardston approximately 0.7 miles north of the Barre Town Line (Attachment B, Figure 1). According to the Structure's Inventory and Appraisal Report (2022), the approach roadway width of the bridge is approximately 26 feet, including shoulders. There are no sidewalks beyond the bridge on either side of the approach roadways.

The project area is bordered to the north by undeveloped forested land and Wax Factory Pond, to the west by Burnshirt Road and rural residential land and forested land, to the east by rural residential land, and to the south by undeveloped forested land. The Wax Factory Pond dam is located approximately 40 feet upstream of the bridge along the Burnshirt River. The Burnshirt River flows southeasterly to its confluence with the Ware River. The bridge site is adjacent to a Department of Conservation and Recreation (DCR) Water Supply Protection Area. The existing conditions of the bridge, river, and surrounding resource areas are described below.

2.2 Existing Bridge Conditions

Williamsville Road is a two-lane road in an approximately east-west orientation (Figure 1). The bridge was built in 1939 and is a single span, steel-rolled beam bridge with 8 beams and 7 bays. The bridge has a clear span of about 46 feet in length. The bridge has a skew angle of approximately 22° resulting in an approximately 50-foot skew span width. The bridge supports a deck with an out-to-out width of approximately 33 feet. The existing bridge has two 15-foot travel lanes, one in each direction and 18-inch wide safety curbs with no shoulders.

The bridge substructure is comprised of concrete gravity abutments with partially reinforced U-wingwalls founded on spread footings. The flying wingwalls located at the end of the U-wingwalls serve as end posts for the bridge. The bridge carries no utilities but has electric, telephone, and cable located overhead.

The existing bridge was constructed in 1939 and was classified as structurally deficient in a recent bridge inspection report (August 2021). Photographs of the existing bridge conditions are provided in Attachment C. The bridge beams were observed to be in poor condition and there was deterioration observed in the bridge abutments and wingwalls. The existing bridge railings are in poor condition and have not been tested. In addition, the existing bridge roadway has an unsafe geometry for the posted 40 mph speed limit.

2.3 Existing Stormwater Management

The project area features four stormwater drainage areas, as described in Attachment F, with existing stormwater management as follows:

- Drainage area 1 Closed drainage system with catch basins, drainage manholes and pipes. Stormwater runoff is piped to an existing depression north of Williamsville Road.
- Drainage area 2 Stormwater runoff discharges along the south side of Williamsville Road via a paved drainage swale. Stormwater then flows overland in a southeasterly direction to the Burnshirt River.
- Drainage area 3 Closed drainage system with catch basins, drain manholes and pipes.
 Stormwater runoff flowed in a southwesterly direction and discharged via an 18" pipe overland to the Burnshirt River.
- Drainage area 4 Stormwater runoff discharges via sheet and overland flow in a northwesterly direction to the Burnshirt River.

Project stormwater drainage area locations and sizes are shown in Attachment F, Figure 2.

2.4 Environmental Constraints

The project site is within a mapped watershed of a Ware River public water supply and is adjacent to DCR Water Supply Protection property which constrains any right of way acquisition. The Burnshirt River itself is not a public water supply. The project is not on or adjacent to any federal lands. Descriptions of environmental constraints are provided below.

2.4.1 Burnshirt River

The Burnshirt River flows south from Wax Factory Pond, beneath Williamsville Road. A low dam is located upgradient of the bridge. The Ordinary High Water (OHW) of the Burnshirt River is shown on the Permit Drawings and the Wetland Resource Areas map (Figure 4). Wax Factory Pond is situated approximately 40 feet north of the bridge and features a dam at the downstream outlet. A recent hydraulic study found that the bankfull width of the Burnshirt River in the vicinity of the bridge is 41.7 feet.

The substrate of the stream is sandy with cobbles. Bank vegetation included honeysuckle (Lonicera tatarica), American elm (Ulmus americana), red maple (Acer rubrum), yellow birch (Betula alleghaniensis), Asian bittersweet (Celastrus orbiculatus), tussock sedge (Carex stricta), grasses (Poa spp.), poison ivy (Toxicodendron radicans) and bristly dewberry (Rubus hispidus).

Water quality in the Burnshirt River is classified as good with the river meeting aesthetic, fish, other aquatic life and wildlife, primary contact recreation, and secondary contact recreation

designated uses¹. The Burnshirt River is not mapped by the Massachusetts Division of Fisheries and Wildlife as a coldwater fisheries resource nor is it located in a regulatory floodway.

2.4.2 Vegetated Wetlands

Vegetated Wetlands within the project area were delineated by Epsilon on September 27 and October 28, 2022. (Attachment F). Vegetated Wetlands were delineated in accordance with the U.S. Army Corps of Engineers Wetland Delineation Manual (USACE, 1987), the "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0" (2012), the WPA and implementing regulations (310 CMR 10.00), and the MassDEP's handbook, Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act (MADEP, 1995).

Pockets of vegetated wetlands associated with the River and Wax Factory Pond were flagged in the field. A summary table is provided below, and data forms are provided in Attachment I.

Table 2-1 Delineated Vegetated Wetlands

Flag Series	Cowardin Classification	Description
A1 to A5	Palustrine scrub shrub	Fringe wetland along edge of Wax Factory Pond. Dominant vegetation included American elm, maleberry (Lyonia ligustrina), buttonbush (Cephalanthus occidentalis), buckthorn (Rhamnus frangula), speckled alder (Alnus incana) and tussock sedge.
C1 to C3	Palustrine Forested	Small pocket wetland along bank flags B2/B3 containing elderberry (<i>Sambucus canadensis</i>) and winterberry (<i>Ilex verticillata</i>).
D1 to D	Palustrine Emergent	Wetland contains meadowsweet (Spirea alba), shallow sedge (Carex Iurida)
E1 to E4	Palustrine Forested	Wetland contains eastern hemlock (<i>Tsuga canadensis</i>), cinnamon fern (<i>Osmunda cinnamomea</i>), sensitive fern (<i>Onoclea sensibilis</i>), and red maple (<i>Acer rubrum</i>).
F1 to F5	Palustrine Forested	Located west of the bridge, south of the roadway and appears to connect to the River downstream. Also collects roadway drainage. Wetland contains red maple, American elm, glossy buckthorn, and Virginia creeper (<i>Parthenocissus quinquefolia</i>).

¹ MassDEP. 2023. Final Massachusetts Integrated List of Waters for the Clean Water Act 2022 Reporting Cycle. CN 568.1, Massachusetts Department of Environmental Protection, Bureau of Water Resources, Division of Watershed Management, Watershed Planning Program. Worcester, MA.

2.4.3 Watershed and Floodplain

The Burnshirt River is a tributary of the Ware River originating from its upper watershed in Templeton in Worcester County. It flows in the southeast direction through forest and marshes, southward beneath the bridge, and eventually reaches its confluence with the Ware River. The river's drainage area at the crossing site was estimated to be 12.5 square miles, according to USGS StreamStats.

The site is located within the mapped 100-year floodplain, Zone A (no base flood elevation determined), according to FEMA FIRM Panel 2503110015B for the Town of Hubbardston, dated 6/01/1984 (see Figure 3 in Attachment B). The 100-year floodplain is associated with Wax Factory Pond and the Burnshirt River and extends along the west side of the bridge and Williamsville Road.

2.4.4 Rare Species

Federally listed species identified near the project area via IPaC include one animal, Northern Long Eared Bat (*Myoptis septentrionalis*, status: Endangered) and one insect, the monarch butterfly (*Danaius plexippus*, status: Candidate) (see Attachment G). The U.S. Fish and Wildlife Service (USFWS) has not identified critical habitat for these species. None of these species is listed by the Massachusetts Natural Heritage and Endangered Species Program (NHESP) as within the project area.

According to the Massachusetts Natural Heritage and Endangered Species Program (Natural Heritage Atlas, 2021), there is no mapped Priority or Estimated Habitat, nor any mapped potential or certified vernal pools within the project area (refer to Attachment B, Figure 4).

2.4.5 Outstanding Resource Areas

The project site is within a mapped watershed of the Ware River public water supply, but the Burnshirt River itself is not classified as an Outstanding Resource Water (ORW) according to the Massachusetts Surface Water Quality Standards (314 CMR 4.00).

2.4.6 Areas of Critical Environmental Concern

The project site is not located within an Area of Critical Environmental Concern (ACEC).

2.4.7 Wild and Scenic Rivers

The Burnshirt River is not a federally designated Wild and Scenic River.

3.0 Project Description

The project proposes replacement of the existing steel beam bridge and substructure, along with full-depth reconstruction of an approximately 880-foot section of Williamsville Road (see Attachment D for engineering design plans). Work includes excavation and embankment, roadway side slopes clearing and hazardous tree removal, pavement standard milling and

resurfacing, full-depth roadway construction, granite curbing, drainage system improvement, guardrails and end treatments, traffic signage and pavement markings, and erosion and sedimentation control. Bridge replacement and roadway improvements are described in Section 3.1 and 3.2. Construction methods and sequencing, including water quality-related activities, are described in Section 3.3. Construction-related impacts to Waters of the US are described in Section 3.4.

3.1 Bridge Replacement

The replacement bridge is designed for a bridge service life of 75 years and will be a single-span, concrete beam bridge with 8-inch composite concrete deck slabs. The bridge substructure will consist of conventional cantilevered abutments which will be installed in a location behind the existing abutments, widening the bridge span. The proposed bridge cross-section will feature two 11-foot travel lanes and two 5-foot shoulders. The total bridge width will be 32 feet. The bridge span length will be 57 feet, 6 inches. The bridge vertical profile will be raised and provide a minimum freeboard of 2-feet over the FEMA 10-year flood elevation (776.6 feet). A future utility bay is provided, should utilities need to be installed at a future date.

3.2 Roadway Improvements

An approximately 880-foot section of Williamsville Road extending approximately 335 feet westward and 545 feet eastward from the bridge will undergo complete roadway reconstruction. Roadway improvements will include improved roadway geometry and wider travel lanes to improve safety (See Attachment D Permit Plans). Five foot wide shoulders are also provided. Because of the shoulder additions, there will be a modest increase in impervious surface for the project of 4,624 sf. Roadway drainage will also be improved as described in Section 6.0 below.

3.3 Construction Methods and Sequencing

The bridge construction approach may be summarized by the following construction stages:

- Stage 1: The roadway will be closed with traffic detour established.
- Stage 2: The existing bridge will be demolished. Water control measures and excavation support will be installed for West Abutment demolition and construction. East Abutment demolition and construction will be similar.
- Stage 3: Proposed abutments and wingwalls will be constructed. Concrete beams will be erected. Concrete curbing and steel bridge rail will then be installed.
- Stage 4: Roadway will be completed & opened to traffic.

Roadway reconstruction will be conducted concurrently with bridge construction.

The bridge replacement will require temporary water controls so that abutment demolition and construction can be performed in dry conditions. This will be achieved by utilizing a combination of temporary sandbag cofferdams and a water diversion system which will pump the water into a settling basin and diverting flow to the opposite side of the river (p. 19 in Attachment D – Permitting Plans). A hydraulic opening of approximately 24' 6" will be maintained during construction. Once water control is in place, earth support systems will be installed.

These temporary earth support systems at the side of the river will be installed in phases (i.e., west abutment then east abutment) where necessary while conducting the bridge abutment demolition and installation of the new abutments. Excavation will occur at a 2:1 slope in riverbed to the existing bottom of the footing of the abutment. Native riverbed materials will be stockpiled on site for replacement upon the completion of abutment construction. These materials should be sorted based on from which layer within the excavation materials were removed. The abutment, wingwalls and footings will be demolished and removed. The grade, bedforms and composition of the existing streambed shall be noted to ensure the material is replaced to match existing conditions as closely as possible.

Excavation will continue at a 2:1 slope to the proposed top of bedrock (approximate elevation 763 feet) and 6 inches of bedrock will be removed. The new abutment, wing walls and footings will be constructed in the dry. The excavated areas will be backfilled with native streambed materials noted above under the supervision of MassDOT's fluvial geomorphologist.

The water control structure will then shift to the opposite side of the river and the process will be repeated for abutment construction. Along the east abutment, a concrete mat will replace erodible weathering rock at elevation 764.0 to elevation 760.5 feet and then backfilled to pre-existing elevations. The temporary earth support system will be left in place and cut down to ground level when in close proximity to the proposed substructure. The water control system will be removed upon the completion of the project.

Temporary impacts proposed within WOTUS include the temporary shoring and dewatering areas associated with each stage of construction (see the Water Control Plan). Permanent impacts to WOTUS proposed by the project include the replacement of the eastern and western abutments and wing walls, as well as installation of a concrete mat at the footing of the east abutment to prevent scouring.

The work also includes clearing and grubbing, removal and protection of existing trees in upland areas, as required. Equipment access and staging will be via Williamsville Road. Equipment will be determined by the selected contractor as part of their means and method.

All excavated materials will be loaded into dump trucks and hauled off site following construction. Flow will be restored to the river, and the settling basin will be removed, and the area restored to pre-existing conditions.

The water will be discharged into the settling basin in a controlled manner to not cause erosion. If one settling basin is insufficient to remove the amount of water needed to keep the work area dry, additional settling basins or other means of properly treating the water will be implemented.

4.0 Waters of the US Impacts

During the design phase of the project, every effort was made to avoid and minimize proposed activities within areas subject to the protection and jurisdiction of Sections 401 and 404 of the Clean Water Act. However, the project will result in unavoidable temporary and permanent impacts to Vegetated Wetlands and waterways. Wetland and waterway impacts are described below and summarized in Tables 1 and 2. Impacts are only associated with bridge construction and there are no impacts associated with the reconstruction of Williamsville Road.

4.1 Direct Effects

Direct effects are activities resulting in impacts to WOTUS within the footprint of dredge or fill areas. Table 1 quantifies the direct effects to WOTUS associated with the replacement of the bridge. Refer to the Permit Drawings provided in Attachment D and Section 2.4.2 above for additional information describing the affected wetlands. Temporary and permanent impacts associated with the proposed project are described in detail herein.

4.1.1 Wetland Impacts

A Vegetated Wetland area of 138 sf (Wetland Series E) will be temporarily impacted due to tree cutting and vegetation trimming required for the relocation of the existing overhead electrical distribution line. There will be no direct fill or permanent alteration of this wetland series.

4.1.2 Waterway Impacts

The bridge demolition and construction will require temporary and permanent impacts to Waters of the US associated with the Burnshirt River. Temporary impacts (2,426 sf) are associated with the water control measures needed to maintain the work area in the dry during construction. Permanent impacts within the waterway due to the bridge widening are associated with the bridge abutments totaling 17 sf. 352 cubic yards will be dredged for excavation of the footings for the proposed new abutments. Additionally, there will be 33 linear feet of permanent impact to the bank of the river, and 142 lf of temporary impact. A summary of both temporary and permanent impacts to Waters of the US associated with the project are detailed below in Table 4-1.

Table 4-1 Summary of Anticipated Permanent and Temporary WOTUS Impacts

Impact	Permanent Discharge (sf)	Temporary Fill/ Excavation(sf)	Dredging (cy)	Waterway / Bank Permanent (If)	Waterway / Bank Temporary (If)
Abutment/wingwall construction*	17	2,426	352	33	108**
Tree cutting / vegetation trimming	0	138	0	0	0
Bridge demolition/rip rap removal*	0	0	0	0	34
Total	17 sf	2,564 sf	352 cy	33 lf	142 lf

^{*} Inclusive of the cofferdam installation for both demolition and construction phases.

5.0 Avoidance and Mitigation Measures

5.1 Constructions Best Management Practices

An erosion and sediment control program will minimize the risk of impacts to wetland resource areas throughout the duration of project construction. The program will incorporate construction period best management practices (BMPs) specified in the guidelines developed by MassDEP and the EPA and will comply with the requirements of the 2022 National Pollution Discharge Elimination System (NPDES) Phase II Construction General Permit for Storm Water Discharges from Construction Activities and the Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas. Please refer to the engineering Stormwater Reports provided in Attachment E for a complete discussion of existing and proposed stormwater conditions and proposed controls.

Non-structural practices that will be used during construction include temporary stabilization, temporary seeding, permanent seeding, pavement sweeping, and dust control. These practices will be initiated as soon as practicable in appropriate areas of the site. Structural erosion and sedimentation controls will include erosion control barriers and catch basin inlet protection.

The temporary shoring structures associated with each phase of the bridge replacement will be erected within a dewatered area enclosed by sandbags. The shoring will be installed in dry conditions to minimize sedimentation in the stream. Water from inside the work area will be pumped to a settling basin in an upland location to infiltrate the pumped water. The settling basin will be surrounded by compost filter tubes and silt fence sediment controls for added protection. The water will be discharged into the settling basin in a controlled manner to not cause erosion. If one settling basin is insufficient to remove the amount of water needed to keep the work area dry, additional settling basins or other means of properly treating the water will be implemented.

^{**} Includes existing abutments

5.2 Minimization and Avoidance Measures

In addition to the proposed stormwater management improvements and construction-period BMPs to be implemented for the project, MassDOT has developed the project design to avoid and/or minimize impacts to jurisdictional WOTUS to the greatest extent practicable. These impact avoidance and minimization measures include:

- ♦ Realigning the roadway to avoid vegetated wetland impacts despite the roadway widening,
- ♦ Installing retaining walls and steeper side slopes, where feasible, near wetland encroachment areas,
- Installing the new abutments behind the existing abutments to widen the bridge span and avoid permanent in water impacts
- ♦ Construction period erosion and sediment control measures to be implemented, and
- Vegetation management to avoid ground disturbance in vegetated wetlands.

5.3 Riverbed restoration

The riverbed restoration is proposed to replicate the existing natural channel bed outside the work area in terms of material, roughness, shape, profile, and appearance. Upon the completion of the demolition of the old bridge abutments and installation of the new abutments and wingwalls, the riverbed will be restored to pre-existing conditions and elevations with the stockpiled native materials. This will occur in the dry while the coffer dam is still in place. The excavated riverbed material will be replaced at approximately the same elevations such as excavated. Stockpiled fine material from the top of the pre-construction grade bank will be replaced to reform any sediment bars that may have existed before construction. Voids between larger boulders shall be choked using native sand, gravel, and cobble. MassDOT's fluvial geomorphologist will oversee this work to ensure restoration to pre-existing conditions as much as feasible. Please see Attachment K for the included specification regarding riverbed restoration.

6.0 Stormwater Management

Project area existing and proposed stormwater management is summarized below and described in detail in Attachment F – Stormwater Management Report for each of four drainage areas within the project footprint (Attachment F, Figures 2 & 3). The proposed stormwater management plan complies with the MassDEP Stormwater Management Standards, as described Attachment F.

Drainage Area 1

Existing – Closed drainage system with catch basins, drainage manholes and pipes. Stormwater runoff is piped to an existing depression north of Williamsville Road.

Proposed - The existing closed drainage system will be utilized with new offset grates and granite curb inlets installed on two catch basins. The existing drain manholes and pipes will be maintained. Runoff will be piped to an existing depression on the north side of Williamsville Road. The outfall from the depression will flow beneath Williamsville Road and discharge via an 18" pipe. From the pipe discharge, stormwater will flow in a southeasterly direction overland to the Burnshirt River.

Drainage Area 2

Existing - Stormwater runoff discharges along the south side of Williamsville Road via a paved drainage swale. Stormwater then flows overland in a southeasterly direction to the Burnshirt River.

Proposed – Stormwater runoff will discharge along the south side of Williamsville Road via a paved drainage swale with a new riprap apron. Stormwater will then flow overland in a southeasterly direction to the Burnshirt River

Drainage Area 3

Existing - Closed drainage system with catch basins, drain manholes and pipes. Stormwater runoff flows in a southwesterly direction and discharged via an 18" pipe overland to the Burnshirt River.

Proposed - The existing closed drainage system will utilize four new deep sump catch basins with granite curb inlets installed and connected to existing drain manholes and pipes. Stormwater will flow in a southwesterly direction and will discharge via an 18" pipe with a new riprap apron then overland to the Burnshirt River.

Drainage Area 4

Existing – Stormwater runoff discharges via sheet and overland flow in a northwesterly direction to the Burnshirt River.

Proposed – Stormwater management will not be modified from existing conditions.

7.0 Alternatives Analysis

Alternatives for the Project are described below.

7.1 No Action Alternative

Under the No Action Alternative, the structurally deficient bridge will not be replaced, and the proposed roadway realignment and reconstruction would not occur. Stormwater management upgrades would not be implemented. This alternative would not meet the purpose and need of the project, which is to replace a structurally deficient bridge for vehicular travel.

7.2 Preferred Alternative – Complete Bridge Replacement with Single Span

This alternative would replace the existing bridge with a single-span, concrete beam bridge with 8-inch composite concrete deck slabs and steel bridge rails. The bridge substructure will consist of conventional cantilevered abutments which will be installed in a location behind the existing abutments, widening the bridge span. The proposed bridge cross-section will feature two 11-foot travel lanes and two 5-foot shoulders.

7.3 Alternative Bridge Layout with Sidewalks

This alternative would widen the bridge deck to accommodate a 5-foot wide sidewalk on at least one side. This would increase bridge width, increase in-water impacts to the Burnshirt River, and likely require right-of-way acquisition which would require Article 97 authorization. In addition to the increased environmental impacts, costs would be increased as well. Additionally, there is a lack of pedestrian facilities currently on the bridge, and on the approach roadway, which would provide connectivity. This alternative was dismissed for these environmental and cost reasons.

8.0 Fisheries and Wildlife

The project site is not located within or adjacent to known NHESP Estimated Habitat for Rare Wildlife or Priority Habitat for Rare Species. There are no certified or potential vernal pools identified in the vicinity of the site. The Burnshirt River is not mapped by the Massachusetts Division of Fisheries and Wildlife as a coldwater fisheries resource and is not listed as an ORW or ACEC. The project site is not located within an ACEC. There is one Federally listed species in the project area (Section 2.4.4). Section 7 consultation is described in Section 10.

In 2006, the River and Stream Continuity Partnership published the guidance document "Massachusetts River and Stream Crossing Standards" (the "Standards") which establish design criteria to ensure that stream crossings do not interfere with the passage of fish and wildlife or cause flooding. The 401 Water Quality Certification Regulations (314 CMR 9.06(2)(b) and 314 CMR 9.07(1)(a)) incorporated the Stream Crossing Standards set forth in the guidance as well as Special Condition 31 of the 2023 MA GP.

The project has been designed to meet the Massachusetts stream crossing general standards to the greatest extent practicable, as described below for replacement structures.

Spans (bridges, 3-sided box culverts, open-bottom culverts or arches) that preserve the natural stream channel are strongly preferred.

The bridge will span the Burnshirt River, so the natural channel will be preserved. The project meets this standard.

Crossing Span – Minimum 1.2 times bankfull width.

The bankfull width of the Burnshirt River at the bridge location is 41.7 feet. The current and proposed bridges are single span bridges crossing the Burnshirt River at a 22° skew. The square span (i.e., crossing span) of the existing bridge is 46 feet and the square span of the proposed replacement bridge will be approximately 53.3 feet wide. As a result, the new replacement crossing span is 16% wider than the existing bridge span.

The existing bridge has a minimum 1.1 times bankfull width ratio (46/41.7), and the proposed replacement bridge has a minimum 1.28 times bankfull width ratio. The bridge replacement project meets the 1.2 times bankfull width ratio.

Substrate – natural bottom substrate within the structure.

The bridge is a single span structure. Construction activity for the bridge foundations will be conducted following the Construction BMPs and avoidance and minimization measures described in described in Section 5, thereby preserving natural bottom substrate within the Burnshirt River to the extent feasible. The project meets this standard.

Water Depth and Velocity – Designed with appropriate bed forms and streambed characteristics so that water depths and velocities are comparable to those found in the natural channel at a variety of flows.

The proposed bridge will not significantly alter the water depth or velocity of the Burnshirt River. The project meets this standard.

Openness > 0.82 feet (0.25 meters)

Openness is the vertical cross-sectional area of a structure opening divided by its crossing length. The proposed replacement bridge cross-section area of approximately 400 sf (7.6 feet high and 53 feet wide) and the crossing length is approximately 34 feet. As a result, the openness value is approximately 11 feet, far greater than 0.82-foot minimum openness requirement. The project meets this standard.

Banks should be present on each side of the stream matching the horizontal profile of the existing stream and banks.

The banks on each side of the Burnshirt River will match the horizonal profile of the existing river and banks. The project meets this standard.

9.0 Compliance with Criteria for the Evaluation of Application for Discharge of Dredged or Fill Material

As detailed in Section 5.0, MassDOT has avoided, minimized, and mitigated impacts to jurisdictional WOTUS to the maximum extent practicable consistent with state and local regulatory performance standards and Section 404(b)(1) Guidelines employed by the Corps and EPA under the federal Clean Water Act. The project has been designed to comply with the WQC

regulations codified in 314 CMR 9.00. These regulations contain Criteria for the Evaluation of Applications for Discharge of Dredged or Fill Material (314 CMR 9.06 and 9.07). Under 314 CMR 9.06(1) through (7), the proposed activities conform to the 401 WQC criteria as follows.

9.1 Compliance with 314 CMR 9.06

314 CMR 9.06(1) (in part) - No discharge of dredge or fill material shall be permitted if there is a practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences ...

The proposed discharge of fill material within the streambed of the Burnshirt River is necessary to construct the new bridge abutments. The temporary discharge of fill as a result of the sandbag dam is necessary to perform the work in dry conditions. Alternatives were assessed and are discussed in Section 10 below. This work is necessary as a mitigation measure, and none of the alternatives assessed would have less environmental impacts.

314 CMR 9.06(2) - No discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken which will avoid and minimize potential adverse impacts to the bordering or isolated vegetated wetlands, land under the water or ocean, or the intertidal zone. For discharges to bordering or isolated vegetated wetlands, such steps shall include a minimum of 1:1 restoration or replication. The Department may waive the requirement for 1:1 restoration or replication for projects which will restore or otherwise improve the natural capacity of any wetland or other water of the Commonwealth pursuant to 314 CMR 9.06(8). However, no such project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species as specified in 310 CMR 10.00.

No permanent discharge of dredged or fill material is proposed in bordering or isolated wetlands or the intertidal zone. The discharge of fill material within LUW is necessary to construct the new abutments. The Project is not located in NHESP-mapped habitat for rare species.

314 CMR 9.06(3)(a) through (k) (in part) – No discharge of dredged or fill material shall be permitted to Outstanding Resource Waters, except for the activities specified in 314 CMR 9.06(3)(a) through (k), which remain subject to an alternatives analysis and other requirements of 314 CMR 9.06 and/or 314 CMR 9.07 ...

This criterion is not applicable. No discharge of dredged or fill material is proposed within vernal pools or other Outstanding Resource Waters.

314 CMR 9.06(4) – Discharge of dredged or fill material to an Outstanding Resource Water specifically identified in 314 CMR 4.06(1)(d) (e.g., vernal pools, within 400 feet of a water supply reservoir and any other areas so designated) is prohibited as provided therein unless a variance is obtained under 314 CMR 9.08.

This criterion is not applicable. No discharge of dredged or fill material is proposed within an Outstanding Resource Water per 314 40.06(1)(d).

314 CMR 9.06(5) – No discharge of dredged or fill material is permitted for the impoundment or detention of stormwater for purposes of controlling sedimentation or other pollutant attenuation. Discharge of dredged or fill material may be permitted to manage stormwater for flood control purposes only where there is no practicable alternative and provided that best management practices are implemented to prevent sedimentation or other pollution. No discharge of dredged or fill material is permitted for the impoundment or detention of stormwater in Outstanding Resource Waters for any purpose.

This criterion is not applicable. The project does not involve a discharge of fill material in a wetland for controlling stormwater to control sedimentation or pollutant attenuation.

314 CMR 9.06(6)(a) through (f) (in part) – Except as otherwise provided in 314 CMR 9.06(6), stormwater discharges shall be provided with stormwater best management practices to attenuate pollutants and to provide a setback from the receiving water or wetland in accordance with the following Stormwater Management Standards as further defined and specified in the Massachusetts Stormwater Handbook ...

No landside work is proposed other than the daily staging of vehicles on the roadway. Stormwater discharges during construction will be managed in accordance with MassDEP's Stormwater Standards that were incorporated into the WQC regulations on January 2, 2008 at 314 CMR 9.06(6).

314 CMR 9.06(7) – No discharge of dredged or fill material shall be permitted in the rare circumstances where the activity meets the criteria for evaluation but will result in substantial adverse impacts to the physical, chemical, or biological integrity of surface Waters of the Commonwealth.

The project will not result in substantial adverse impacts on the physical, chemical, or biological integrity of surface Waters of the Commonwealth.

314 CMR 9.06(8) — Notwithstanding the provisions of 314 CMR 9.06(1) through (7), the Department may allow a project which will restore or otherwise improve the natural capacity of any wetland or other water of the Commonwealth. Such projects include, but are not limited to, dam removal, salt marsh restoration, stream restoration, nutrient management, control or removal of aquatic nuisance vegetation, or vegetation management to improve wildlife habitat.

Not applicable.

9.2 General Performance Standards of 314 CMR 9.07(1)

The project will comply with the general performance standards defined at 314 CMR 9.07(1):

(a) No dredging shall be permitted unless appropriate and practicable steps have been taken which will first avoid, and if avoidance is not possible then minimize, or if neither avoidance or minimization are possible, then mitigate, potential adverse impacts to land under water or ocean, intertidal zone and special aquatic sites. No dredging shall be permitted if there is a practicable alternative that would have less impact on the aquatic ecosystem. An alternative is practicable if it is available and capable of being implemented after taking into consideration; costs, existing technology and logistics in light of overall project purposes and is permittable under existing federal and state statutes and regulation.

As discussed in Section 7.0, an alternatives analysis was completed to demonstrate there is no practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem. Dredging has been minimized and mitigated to the extent practicable for the preferred alternative, as described in Section 6.0.

(b) All applications, except for maintenance projects, shall include a comprehensive analysis of practicable alternatives as defined in 314 CMR 9.07(1)(a). The scope of alternatives to be considered shall be commensurate with the scale and purpose of the proposed activity, the impacts of the proposed activity, and the classification, designation and existing uses of the affected wetlands and waters in the Surface Water Quality Standards at 314 CMR 4.00.

An analysis of alternatives is presented in Section 9.0.

(c) Dredging and dredged material management shall be conducted in a manner that ensures the protection of human health, public safety, public welfare and the environment.

The project will comply with this standard. Dredging will occur within cofferdams, which will isolate the work area from the riverine environment. Additionally, public safety and welfare will be maintained by restricting public access to the work site during construction activities.

(d) Applications submitted to the Department shall meet the criteria and performance standards of 314 CMR 9.07. If the project submitted by the applicant does not meet a particular provision of 314 CMR 9.07 and criteria of 314 CMR 4.00, the applicant shall demonstrate to the Department's satisfaction that the project will provide an equivalent level of environmental protection.

The project will meet all criteria and performance standards of 314 CMR 9.07.

- (e) Dredged material shall not be disposed of if a feasible alternative exists that involves the reuse, recycling, or contaminant destruction and/or detoxification. An evaluation of whether such an alternative is feasible shall consider:
 - 1. the volume and physical characteristics of the dredged material;
 - 2. the levels of oil and/or hazardous materials present within the dredged material;
 - 3. the relative public health and environmental impacts of management alternatives; and

4. the relative costs of management alternatives.

The project involves the dredging of approximately 352 cy of sediment related to bridge abutment demolition and construction. The selected contractor will evaluate potential reuse or disposal options. Based on the volume of sediments and the sediment testing results included in Attachment J, it is anticipated that the preferred option will be reuse at a landfill.

(f) The Department may consider any additional information including but not limited to that submitted under MEPA or NEPA on impacts from the dredging activity, management of the dredged material, the alternatives available for reuse or disposal techniques, alternative sites for the various management activities, or information related to other Department programs.

The project involves the dredging of approximately 352 cy of sediment related to bridge abutment demolition and construction. The selected contractor will evaluate potential reuse or disposal options. Based on the volume of sediments and the sediment testing results included in Attachment J, it is anticipated that the preferred option will be reuse at a landfill.

(g) Dredged material management activities or facilities subject to the 401 Water Quality Certification, shall comply with the provisions of 314 CMR 9.00 and the conditions of the 401 Water Quality Certification. The Certification does not relieve the proponent of the obligation to comply with all other applicable federal, state and local statutes and regulations.

The project will comply with all other necessary regulatory approvals.

(h) Dredged material, including sediment, placed on or in the land at an upland location is subject to the release notification requirements and thresholds of 310 CMR 40.0300 and 40.1600 for soil, unless such placement is in accordance with the provisions of 3 10 CMR 40.0317(10) and 314 CMR 9.07 (4), (6), (9), (10), or (11).

The selected Contractor will be required to adhere to any applicable release notification requirements, pending selection of the final sediment reuse or disposal option.

(i) No dredging is permitted for the impoundment or detention of stormwater for purposes of controlling sedimentation or other pollutant attenuation. Dredging may be permitted to manage stormwater for flood control purposes only where there is no practicable alternative and provided that best management practices are implemented to prevent sedimentation or other pollution. No dredging is permitted for the impoundment or detention of stormwater in Outstanding Resource Waters.

This provision is not applicable since no dredging is proposed for management by impoundment of stormwater.

(j) No dredging shall be permitted in rare circumstances where the activity meets the criteria for evaluation but will result in substantial adverse impacts to the physical, chemical, or biological integrity of waters of the Commonwealth.

The project will not result in substantial adverse impacts on the physical, chemical, or biological integrity of surface Waters of the Commonwealth. As discussed in Section 5.0, the project has been designed to avoid, minimize, and mitigate impacts to jurisdictional WOTUS to the greatest extent feasible. Rather, the project will positively impact the water quality of the Burnshirt River by improving water quality of existing stormwater discharges.

(k) No dredging shall be permitted in Outstanding Resource Waters, except for the following activities specified in this paragraph, which remain subject to an alternatives analysis and other requirements of 314 CMR 9.07....

This criterion is not applicable because the Burnshirt River is not an Outstanding Resource Water.

(I) Notwithstanding any other provision of 314 CMR 9.07, the Department may allow a project which will restore or otherwise improve the natural capacity of any wetland or other water of the Commonwealth. Such projects include, but are not limited to, dam removal, salt marsh restoration, stream restoration, nutrient management, control or removal of aquatic nuisance vegetation, or vegetation management to improve wildlife habitat.

This criterion is not applicable.

9.3 Dredging Performance Standards

The project will comply with the dredging performance standards defined at 314 CMR 9.07(3):

(a) The resuspension of silt, clay, oil and grease and other fine particulate matter shall be minimized to protect aquatic life and other existing and designated uses of waters of the Commonwealth.

As discussed in Section 6.0, the project has been designed to avoid, minimize, and mitigate impacts to jurisdictional WOTUS to greatest extent feasible.

(b) Improvement dredging activities shall minimize and, to the maximum extent possible, avoid affecting areas of ecological importance including but not limited to vegetated wetlands, shellfish habitat, spawning habitat, habitat of state-listed rare wildlife, salt marsh, intertidal zone, riffles and pools, and vegetated shallows.

Improvement dredging is not proposed as part of this project.

(c) Where feasible, a minimum of 25 feet shall remain unaltered between the edge of vegetated wetlands, salt marsh or vegetated shallows, and waterward edge of the top of the slope of a dredging area.

The project will not impact Vegetated Wetlands with dredge activities, salt marsh, or vegetated shallows. Impacts to Vegetated Wetlands associated with vegetation management activities are discussed under Section 4.1.

(d) Dredging shall not be undertaken during migration, spawning, or juvenile development periods of finfish, shellfish, crustaceans or merostomatans in locations where such organisms may be affected, except as specifically approved by the Department. Restricted time periods for dredging, or in-water sediment management, will be established by the Department after consultation with Massachusetts Division of Marine Fisheries or Division of Fisheries and Wildlife. Any applicant proposing to dredge during the recommended restricted time period must demonstrate to the Department's satisfaction that measures to minimize impacts (e.g., dredging in the dry, the use of silt curtains, etc.) will be sufficient to avoid adverse affects to the species of concern....

Once cofferdams are installed, the work site will be isolated from the riverine environment, and it is anticipated that construction activities within the coffer dam can occur year-round.

(e) In evaluating the potential effects of suspension of contaminated sediment on aquatic organisms, the Department may compare the bulk sediment chemistry with recognized guideline values...

The sediment testing results will be provided upon completion.

10.0 Compliance with Other Applicable Regulations

10.1 Section 7 of the Endangered Species Act

In accordance with Section 7(a)(2) of the Endangered Species Act of 1973 (ESA), MassDOT completed informal project consultation with U.S. Fish and Wildlife Service (USFWS) via the *Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and NLEB ("the PBO")* on October 27, 2022. The results of the PBO indicated that the project will have no effect on NLEB and no formal consultation with USFWS is required (refer to Attachment G). The project will adhere to the time of year restrictions during the maternity roosting season, limiting tree cutting within the time period of June 1 to July 31.

10.2 Section 106 of the National Historic Preservation Act

MassDOT Cultural Resources Unit (CRU) staff have reviewed Bridge H-24-003 for any potential historical significance, in compliance with the regulations implementing Section 106 of the National Historic Preservation Act of 1966, as amended. A Project Notification Form (PNF) was submitted to the Massachusetts Historical Commission (MHC) and Tribal Historic Preservation Officers (THPOs) on September 25, 2023 (see Attachment H). No responses were received.

Constructed in 1939, Bridge H-24-003 comprises a single-span steel stringer superstructure supported on concrete gravity abutments. CRU staff have determined that the bridge is an

undistinguished example of a common structural type and is not eligible for individual listing in the National Register of Historic Places. A review of the Massachusetts Cultural Resources Information System (MACRIS) database maintained by MHC indicates that the bridge is not within a National Register-listed or -eligible historic district or an MHC inventoried area. The bridge also is not in the vicinity of any recorded archaeological sites.

10.3 National Environmental Policy Act

An Individual Categorical Exclusion (CE) Checklist will be submitted to the Federal Highway Administration (FHWA) to obtain project compliance pursuant to the requirements of the National Environmental Policy Act (NEPA).

10.4 Section 4(f) of the Department of Transportation Act

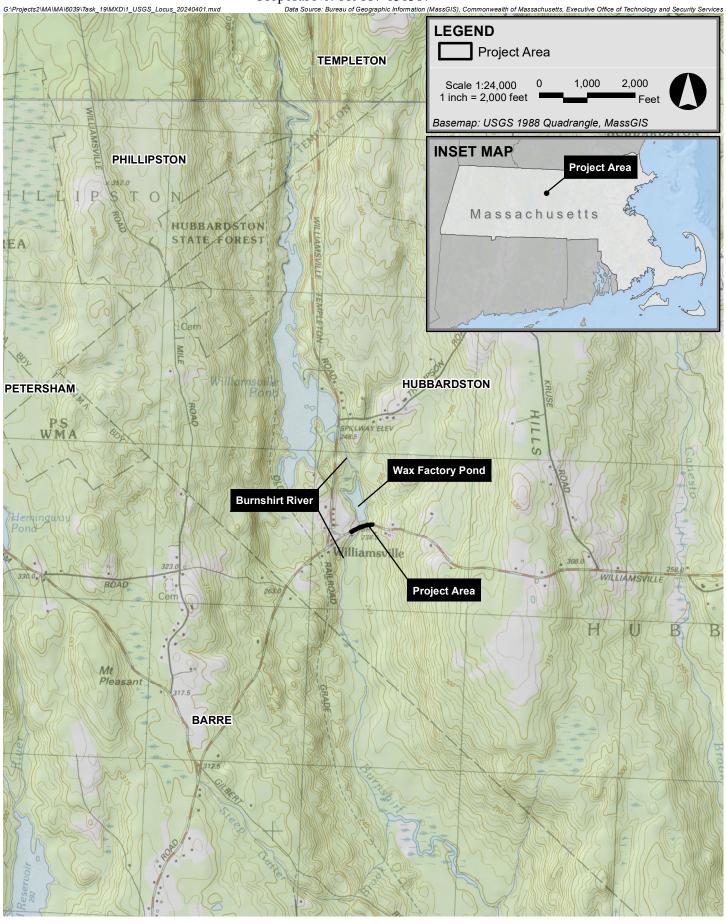
The bridge site is adjacent to a Department of Conservation and Recreation (DCR) Water Supply Protection Area. Any entry onto DCR property will require a DCR Construction Access Permit. Any Temporary Occupancy on DCR park or recreational property will require approval under Section 4(f) of the Department of Transportation Act by the Official With Jurisdiction (OWJ), who must determine that the Temporary Occupancy does not constitute a "use" of the property under Section 4(f). A Watershed Protection Act permit from DCR is required for work within the water supply watershed.

11.0 Conclusion

The proposed work will replace a structural deficient and outdated bridge with a new bridge and roadway that achieves current bridge design standards and improves roadway safety. The project has been designed to avoid and minimize impacts to WOTUS to the extent practicable. Our opinion is that the proposed project was designed, and will be constructed, to meet the standards established in 314 CMR 9.00 et seq. as described above. Whereas this work is "exempt" from the WPA, a Section 401 WQC is required pursuant to 314 CMR 9.04(4) - Activities Exempt under MGL c. 131, § 40. MassDOT seeks authorization from MassDEP for a Section 401 WQC and US Army Corps of Engineers Section 404 Authorization under the PCN process for coverage under Massachusetts General Permits 23.

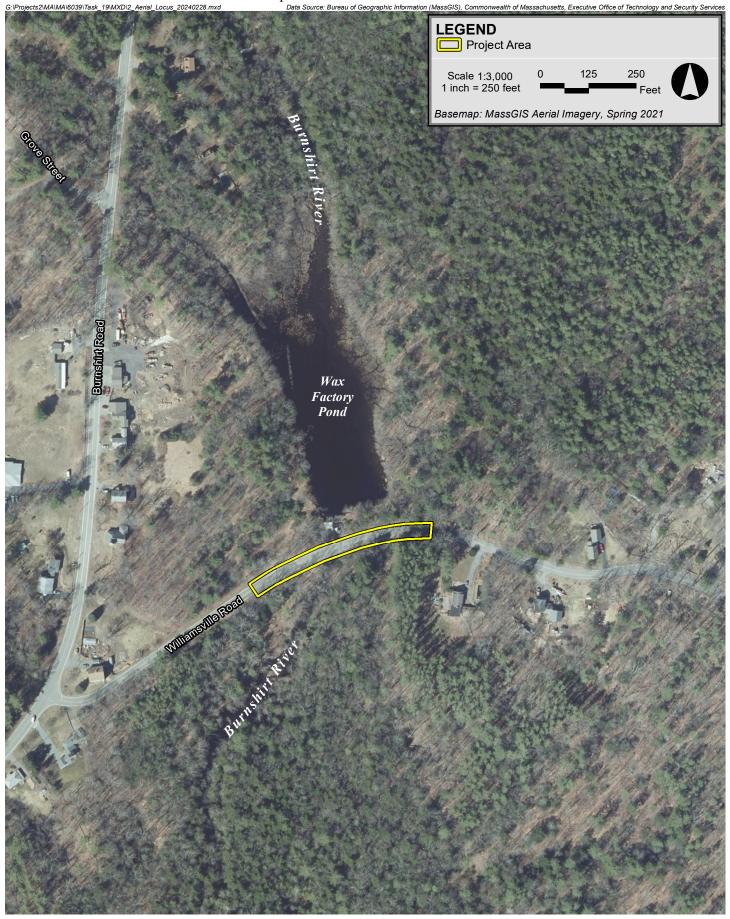
Attachment B

Figures



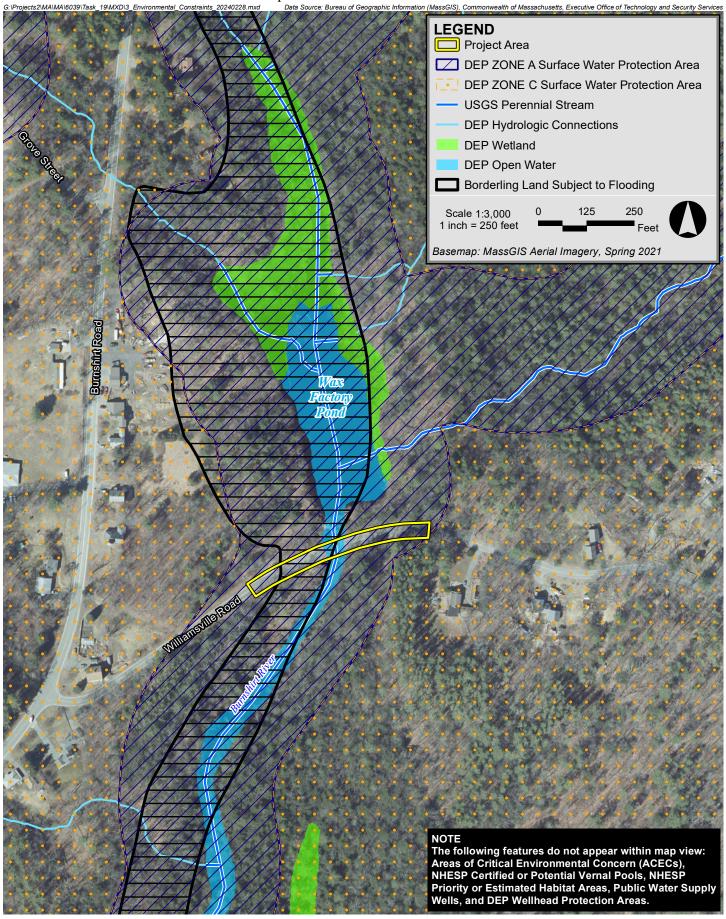
Williamsville Road Hubbardston, Massachusetts





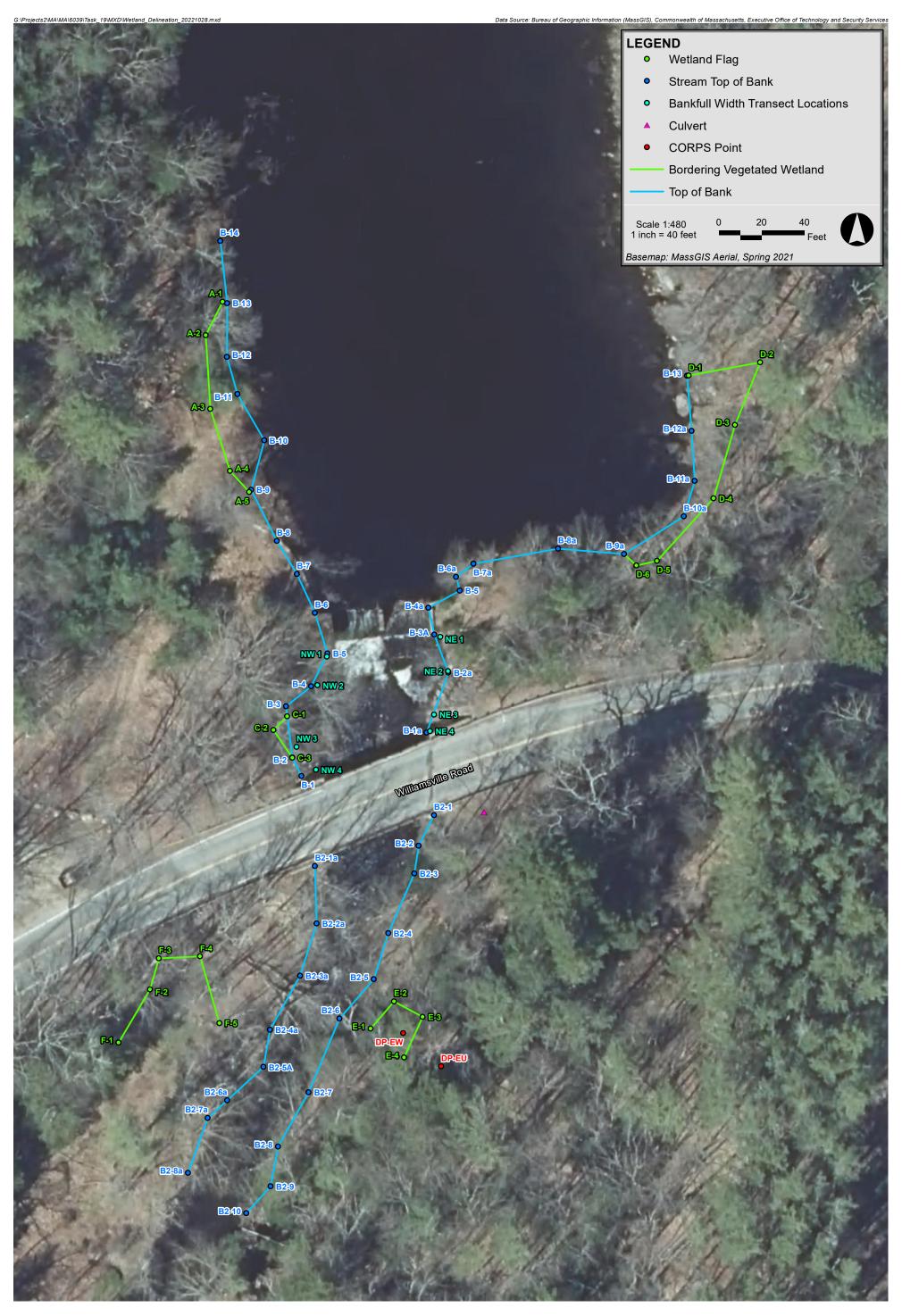
Williamsville Road Hubbardston, Massachusetts





Williamsville Road Hubbardston, Massachusetts





Williamsville Road Hubbardston, Massachusetts



Attachment C

Site Photographs



Photo 1: View of the bridge looking east along Williamsville Road.



Photo 2: View of the north side of the bridge and the Burnshirt River, looking east on Williamsville Road.

Williamsville Road over Burnshirt River – Hubbardston, MA





Photo 3: View of the underside of the existing bridge and the Burnshirt River, looking east from the northwest corner of the bridge.



Photo 4: View of the Burnshirt River, looking north at the bridge.





Photo 5: View of Williamsville Road and the bridge crossing, looking west from the southeast corner of the bridge.



Photo 6: View of spall to the north end of the east breastwall and backwall.

Williamsville Road over Burnshirt River - Hubbardston, MA





Photo 7: View of spalls to the north end of the west breastwall.



Photo 8: View of spall to the bridge seat and breastwall end under around Beam #1 at the east breastwall.

Williamsville Road over Burnshirt River - Hubbardston, MA



Attachment D

Permit Drawings, prepared by MassDOT

56064415%53%

4% 4% 97

DESIGN DESIGNATION (WILLIAMSVILLE ROAD)

DESIGN SPEED ADT (2022) ADT (2043)

HUBBARDSTON WILLIAMSVILLE ROAD FED. AID PROJ. NO. MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION

Plotted on 26-Sep-2024

609187-HD(COV).DWG

TITLE SHEET & INDEX

PROJECT FILE NO.

PLAN AND PROFILE OF

WILLIAMSVILLE ROAD

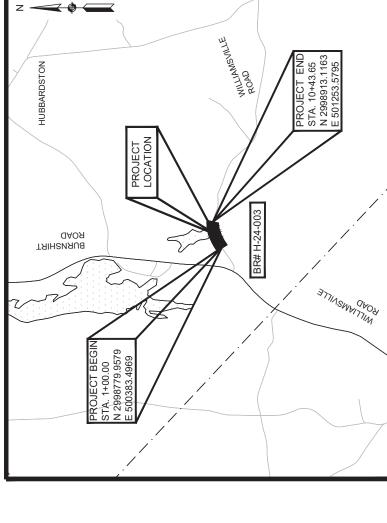
(BRIDGE NO. H-24-003)

HUBBARDSTON WORCESTER COUNTY

THESE PLANS ARE SUPPLEMENTED BY THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, HE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DEAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR SIGNS AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR WASPERY STOCK.

FEDERAL AID PROJECT NO.

401/404 PERMIT PLANS



TEMPORARY TRAFFIC CONTROL PLANS - NOTES & DETAILS TEMPORARY TRAFFIC CONTROL PLANS - DETOUR & SIGNS

LANDSCAPING DETAILS

UTILITY PLAN 2 BRIDGE PLANS

TRAFFIC SIGN & PAVEMENT MARKINGS PLAN 2 TRAFFIC SIGN & PAVEMENT MARKINGS PLAN 1

CURB TIE & GRADING PLAN 1 CURB TIE & GRADING PLAN 2

ENVIRONMENT PLANS

PROFILE 1

RURAL MINOR COLLECTOR

FUNCTIONAL CLASSIFICATION

T (AVERAGE DAY) T (PEAK HOUR)

SCALE: 1" = 2000' WHEN PLOTTED AT 11"x17"

DESCRIPTION

massi

APPROVED

LENGTH OF PROJECT = 943.65 FEET = 0.1787 MILES

DATE

CHIEF ENGINEER

NOT FOR CONSTRUCTION

SEPTEMBER 26, 2024

A00840 - 51

LEGEND, ABBREVIATIONS, & NOTES

TYPICAL SECTION

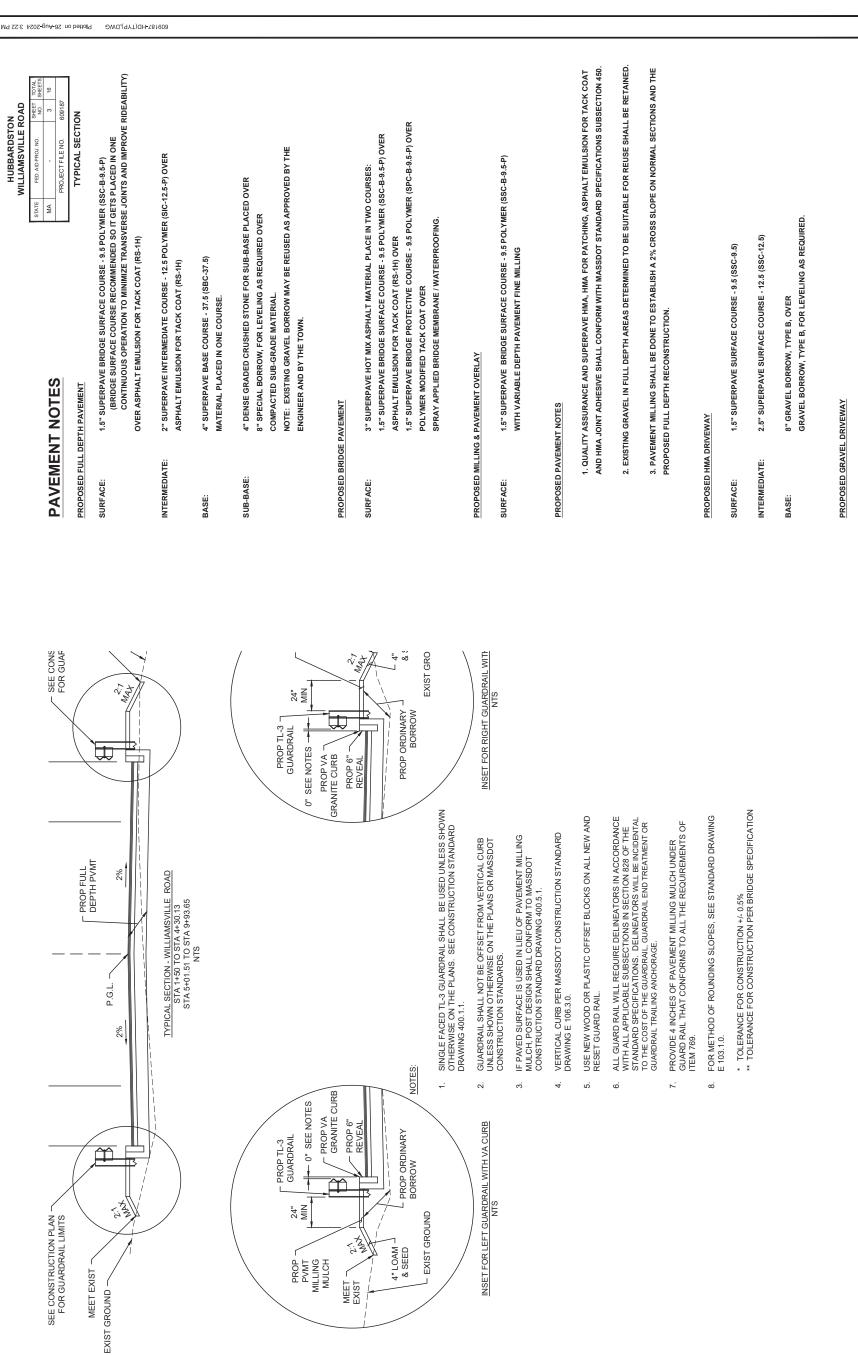
TITLE SHEET & INDEX

DESCRIPTION

CONSTRUCTION PLAN 1 CONSTRUCTION PLAN 2

INDEX

509187-HD(LEG).DWG Plotted on 26-Sep-2024 SUBSURFACE UTILIT LINES, AS SHOWN HEREON, ARE APPROXIMATE AND WERE COMPILED FROM SURFACE EVIDENCE. GCG ASSOCIATE, INC. ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURFED AS ARESULT OF UTILITIES OMITTED OR INACCURFALLY SHOWN. THE CONTRACTOR SHALL DETERMINE THE EXACTION OF ALL EXSTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE EXACTIVE AND TO PRESERVE ANY AND ALL UNDERGROUND UTILITIES. CALL "DIG-SAFE" 1-888-DIGSAFE (344-7233) AT LEAST 72 HOURS BEFORE COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL TAKE EVERY PRECAUTION TO PROTECT ALL EXISTING TREES AND ROOTS THAT ARE NOT DESIGNATED FOR REMOVAL. NORTH IS BASED UPON THE NORTH AMERICAN DATUM OF 1983 (NAD-83)/2011) EPOCH 2010.00. MASSACHUSETTS STATE PLANE COORDINATE SYSTEM, MAINLAND ZONE. COORDINATES ARE BASED ON CONTROL AS PROVIDED BY MASSDOT SURVEY SECTION FOR STATIONS 2817 AND 2618. AN AVERAGE SCALE FACTOR OF 0,999941519912930 HAS BEEN CALCULATED FOR THIS SURVEY. "PLAN OF WILLIAMSY/ILLE-TEMPLETON ROAD AND WILLIAMSY/ILLE ROAD IN THE TOWN OF HUBBARDSTON, WORCESTER COUNTY ALTERED AND LAID OUT AS A COUNTY ROAD BY THE COUNTY COMMISSIONERS" DATED APRIL 25, 1995, SCALE: 40 FEET TO THE INCH. DECREE 387.2 PLAN H4556-R. VERTICAL CONTROL IS BASED UPON THE NORTH AMERICAN VERTICAL DATUM OF 1988 AS PROVIDED BY MASSDOT SURVEY SECTION FOR STATIONS 2617 AND 2618. "THE COMMONWEALTH OF MASSACHUSETTS COUNTY OF WORCESTER PLAN OF WILLIAMSVILLE-TEMPLETON ROAD IN THE TOWN OF HUBBARDSTON, LAID OUT BY THE COUNTY COMMISSIONERS" DATED SEPTEMBER 27, 1940, SCALE: 40 FEET TO THE INCH. DECREE 1228, PLAN H-2714-R. WHERE AN EXISTING UNDERGROUND UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF ELECTRIC, TELEPHONE, AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES. 16. ALL TRANSVERSE JOINTS, AND ALL LONGITUDINAL JOINTS BETWEEN NEW SURFACE PAVEMENT AND EXISTING SURFACE PAVEMENT TO REMAIN SHALL BE COATED WITH A HOT POURED RUBBERIZED ASPHALT SEALANT MEETING THE REQUIREMENTS OF ITEM 453. 23. ALL NEW DRIVEWAY GRADES SHALL MATCH EXISTING GRADES AT LIMIT OF WORK UNLESS SHOWN OTHERWISE ON THE PLANS AND CROSS-SECTIONS. THIS PLAN IS BASED UPON AN ON-THE-GROUND INSTRUMENT SURVEY PERFORMED BY GCG ASSOCIATES BETWEEN SEPTEMBER 8, 2020 AND NOVEMBER 12, 2020. NOT FOR CONSTRUCTION AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE. THE TERM "PROPOSED" (PROP.) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS, OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE & RESET" (R&R). 15. ALL EXISTING STATE, COUNTY, CITY AND TOWN LOCATION LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATIONS ARE NOT GUARANTEED. 20. PRIOR TO THE START OF ANY NEW UTILITY WORK, ALL ELEVATIONS OF EXISTING UTILITIES IN THOSE AREAS ARE TO BE VERIFIED. THE ENGINEER IS TO BE NOTIFIED IMMEDIATELY SHOULD ANY DISCREPANCIES OCCUR. 22. ALL PUBLICLY OWNED GATE BOXES, SERVICE BOXES, MANHOLE FRAMES AND COVERS SHALL BE ADJUSTED TO GRADE BY THE CONTRACTOR. 17. ALL DISTURBED AREAS NOT DESIGNATED TO BE PAVED SHALL HAVE COMPOST TOPSOIL PLACED AND SEEDED. THE COMPOST TOPSOIL SHALL HAVE A MINIMUM DEPTH OF 2 INCHES AND SHALL BE PLACED FLUSH WITH THE TOP OF THE ADJACENT CURB, EDGING, BERM OR PAVEMENT SURFACE. LEGEND, ABBREVIATIONS, & NOTES PROPERTY LINES SHOWN HEREON ARE APPROXIMATE ONLY AND ARE BASED UPON RECORD DEEDS, PLANS AND ASSESSORS INFORMATION. PLANS OF RECORD: BK423/PL119, BK114/PL46, BK400/PL25, BK795/118. SAID PLANS RECORDED AT THE WORCESTER COUNTY REGISTRY OF DEEDS. OWNERSHIP AND DEED INFORMATION WAS OBTAINED FROM THE TOWN OF HUBBARDSTON ASSESSORS OFFICE AND THE WORCESTER COUNTY REGISTRY OF DEEDS. ALL INFORMATION WAS CURRENT AS OF THE DATE OF THIS SURVEY. HUBBARDSTON WILLIAMSVILLE ROAD NO. FED. AID PROJ. NO. PROJECT FILE NO. ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS NOTED OTHERWISE. CONTRACTOR TO CONTACT ENGINEER PRIOR TO INSTALLATION OF BOUNDS FOR FINAL LOCATIONS. THE LIMIT OF WORK AREA SHALL BE THE STREET RIGHT OF WAY UNLESS SHOWN OTHERWISE. **SEPTEMBER 26, 2024** MA 14. ALL PROPOSED PAVEMENT MARKINGS SHALL BE REFLECTORIZED (POLYUREA) (RECESSED) 19. ALL PROPERTY LINES BETWEEN ABUTTERS ARE APPROXIMATE ONLY. 21. ALL CASTINGS SHALL BE SET FLUSH WITH FINISHED GRADE. GENERAL NOTES 10. Έ. 15. 9 6 TANGENT DISTANCE OF CURVE/TRUCK % VERTICAL CURVE
WHEEL CHAIR RAMP
WATER GATE
WAROUGHT IRON PIPE
WATER METERWATER MAIN
GROSS SECTION REMOVE AND DISPOSE REINFORCED CONCRETE PIPE STOPPING SIGHT DISTANCE STATE HIGHWAY LAYOUT LINE SIDEWALK RADIUS OF CURVATURE REMOVE AND RESET REMOVE AND STACK SHOULDER SEWER MANHOLE RETAINING WALL RIGHT OF WAY RAILROAD TOP OF CURB TOP OF SLOPE STONE BOUND TYPICAL UTILITY POLE TEMPORARY ROADWAY TANGENT REMOVE STATION ABBREVIATIONS (cont.) RETAIN STREET VARIES GENERAL REM RET RET WALL ASPHALT CONCRETE
ASPHALT COATED CORRUGATED METAL PIPE DUCTILE IRON PIPE STEADY DON'T WALK - PORTLAND ORANGE PROPOSED
PLANTABLE SOIL BORROW
POINT OF TANGENCY
POINT OF VERTICAL CURVATURE
POINT OF VERTICAL INTERSECTION
POINT OF VERTICAL TANGENCY
PAVEMENT
PAVED WATER WAY POINT OF CURVATURE
POINT OF COMPOUND CURVATURE
PROFILE GRADE LINE
POINT OF INTERSECTION
POINT ON CURVE
POINT ON TANGENT
POINT OF REVERSE CURVATURE MASSACHUSETTS HIGHWAY BOUND ANNUAL AVERAGE DAILY TRAFFIC ABANDON CATCH BASIN CATCH BASIN WITH CURB INLET CEMENT CONCRETE
CEMENT CONCRETE MASONRY CONTINUOUS
CONSTRUCTION
CROWN GRADE
DESIGN HOURLY VOLUME CORRUGATED METAL PIPE CORRUGATED STEEL PIPE GROUND GAS GATE GUTTER INLET GALVANIZED IRON PIPE EMBANKMENT EDGE OF PAVEMENT EXCAVATION
FRAME AND COVER
FRAME AND GRATE
FOUNDATION
FIELDSTONE JUNCTION LENGTH OF CURVE LEACH BASIN LIGHT POLE HEADWALL
HOT MIX ASPHALT
HORIZONTAL BOTTOM OF SLOPE CHAIN LINK FENCE NOT IN CONTRACT BOTTOM OF CURB CAST IRON PIPE **APPROXIMATE** CENTERLINE BENCHMARK BITUMINOUS CURB INLET BASELINE BUILDING OTHERS CONCRETE DROP INLET ELEVATION DIAMETER DRIVEWAY MAXIMUM MANHOLE GRANITE **EXISTING** GARAGE MAILBOX MINIMUM PROJECT NUMBER COUNTY **SRAVEL** BOUND BRIDGE GUARD ABBREVIATIONS GENERAL APPROX. UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER) CONTOURS (ON-THE-GROUND SURVEY DATA)
CONTOURS (PHOTOGRAMMETRIC DATA)
UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER) TOP OR BOTTOM OF SLOPE
LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY
BANKIORDINARY HIGH WATER MARK
BORDER OF WETLAND DESCRIPTION TOWN OR CITY BOUNDARY LINE PROPERTY LINE OR APPROXIMATE PROPERTY LINE EASEMENT *** CHARLOW PART RANGE TO BE T STONE BOUND
TOWN OR CITY BOUND
TTAVERSEE OR TRANGULATION STATION
TROLLEY POLE OR GUY POLE
TRANSMISSION POLE MISC MANHOLE
SEWER MANHOLE
TELEPHONE MANHOLE
WATER MANHOLE
MASSACHUSETTS HIGHWAY BOUND DOTTED YELLOW LINE EXTENSION UTILITY POLE W/ FIREBOX UTILITY POLE WITH DOUBLE LIGHT UTILITY POLE W / 1 LIGHT DOTTED WHITE LINE EXTENSION PAVEMENT ARROW - WHITE LEGEND "ONLY" - WHITE JERSEY BARRIER
CATCH BASIN
CATCH BASIN CURB INLET
FLAG POLE
GAS PUMP STATE HIGHWAY LAYOUT
TOWN OR CITY LAYOUT
-COUNTY LAYOUT
-RAILROAD SIDELINE BROKEN YELLOW LINE SWAWP / MARSH WATER GATE PARKING METER - OVERHEAD CABLE/WIRE BALES/SILT FENCE DOTTED YELLOW LINE DOUBLE YELLOW LINE BROKEN WHITE LINE DOTTED WHITE LINE DOUBLE WHITE LINE SOLID YELLOW LINE SOLID WHITE LINE DRAINAGE MANHOLE ELECTRIC MANHOLE GAS MANHOLE ELECTRIC HANDHOL GAS GATE BORING HOLE MONITORING WELL GPS POINT
CABLE MANHOLE CROSSWALK MAIL BOX
POST SQUARE
POST CIRCULAR HYDRANT LIGHT POLE COUNTY BOUND STOP LINE DWLEx ---30 TPL or GUY FP NELL OF GROWN HELL OF GROWN HELD OF GROWN DYLEX AVEMENT MARKINGS SYMBOLS \geq EXISTING



NOT FOR CONSTRUCTION

SEPTEMBER 26, 2024

NOTE:
UNLESS LABELED OTHERWISE. THE LIMIT OF WORK SHALL
UNLESS LABELED OTHERWISE. THE ENDIT OF THE ROPOSED SLOPE LIMITS
OR TO THE EDGE OF THE PROPOSED WORK AND AS
DIRECTED BY THE ENGINEER.

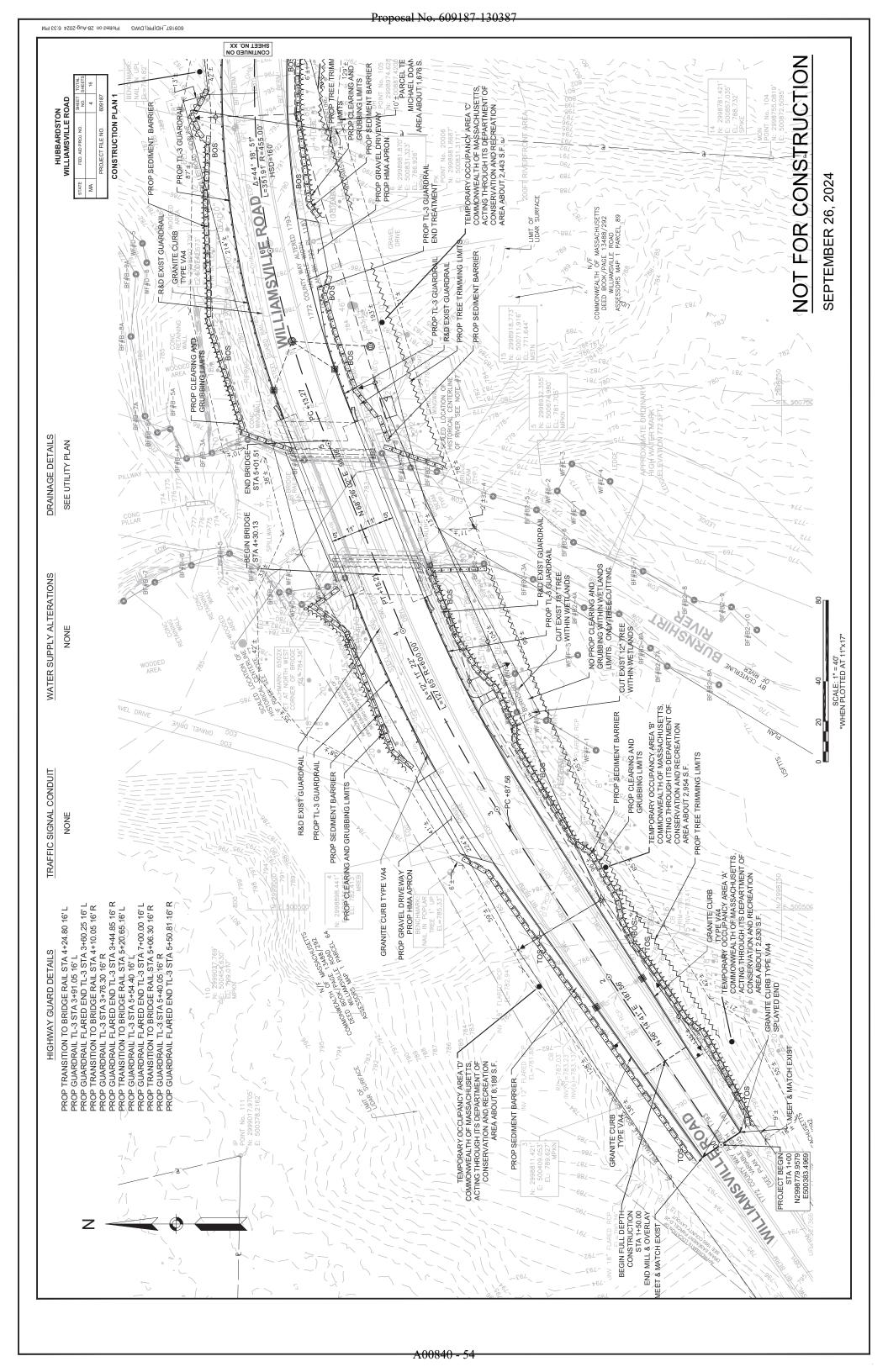
COMPACTED GRAVEL BORROW, TYPE B, FOR LEVELING AS REQUIRED.

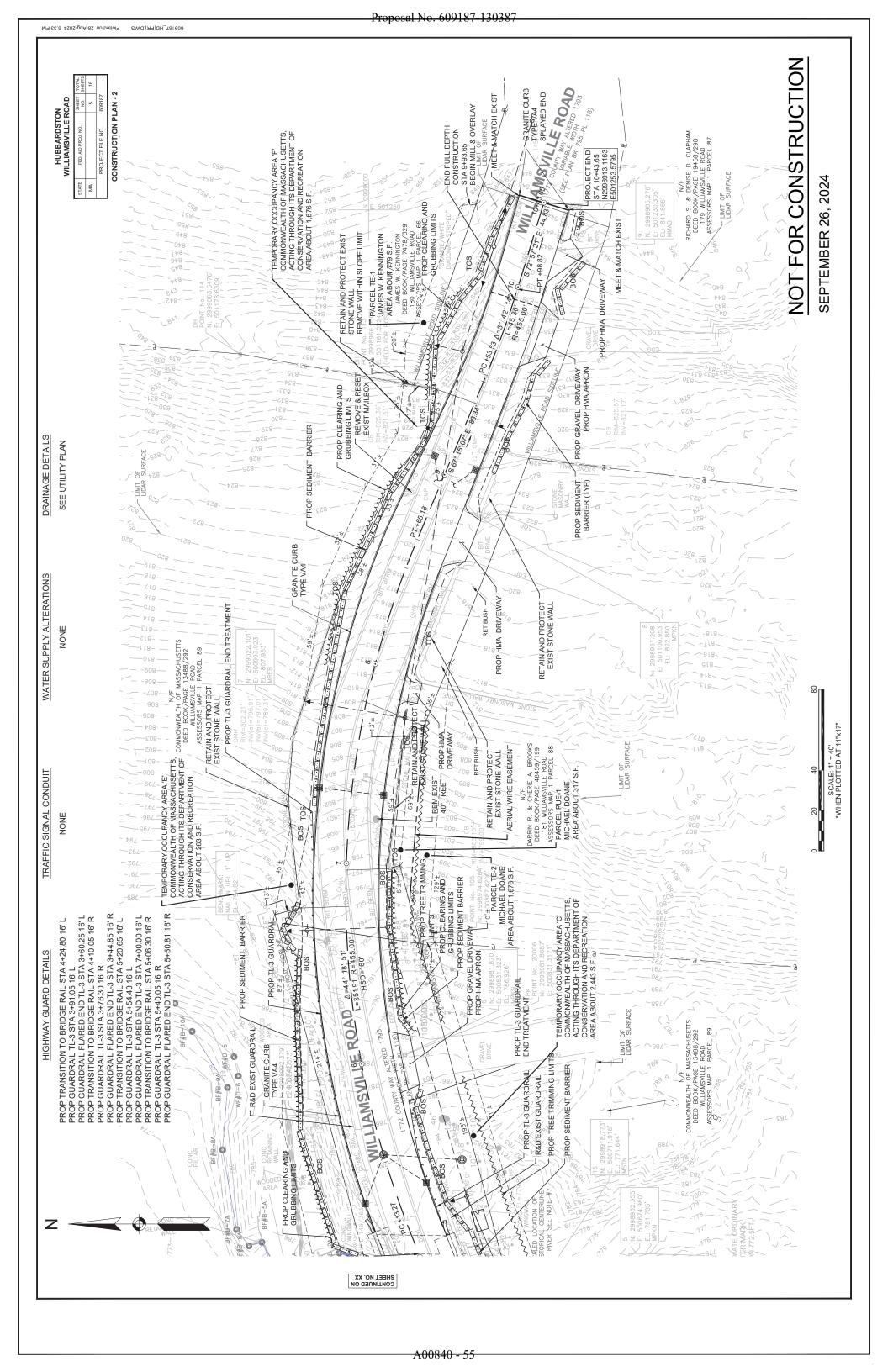
COMPACTED THICKNESS OF 6" GRAVEL BORROW, TYPE B, OVER

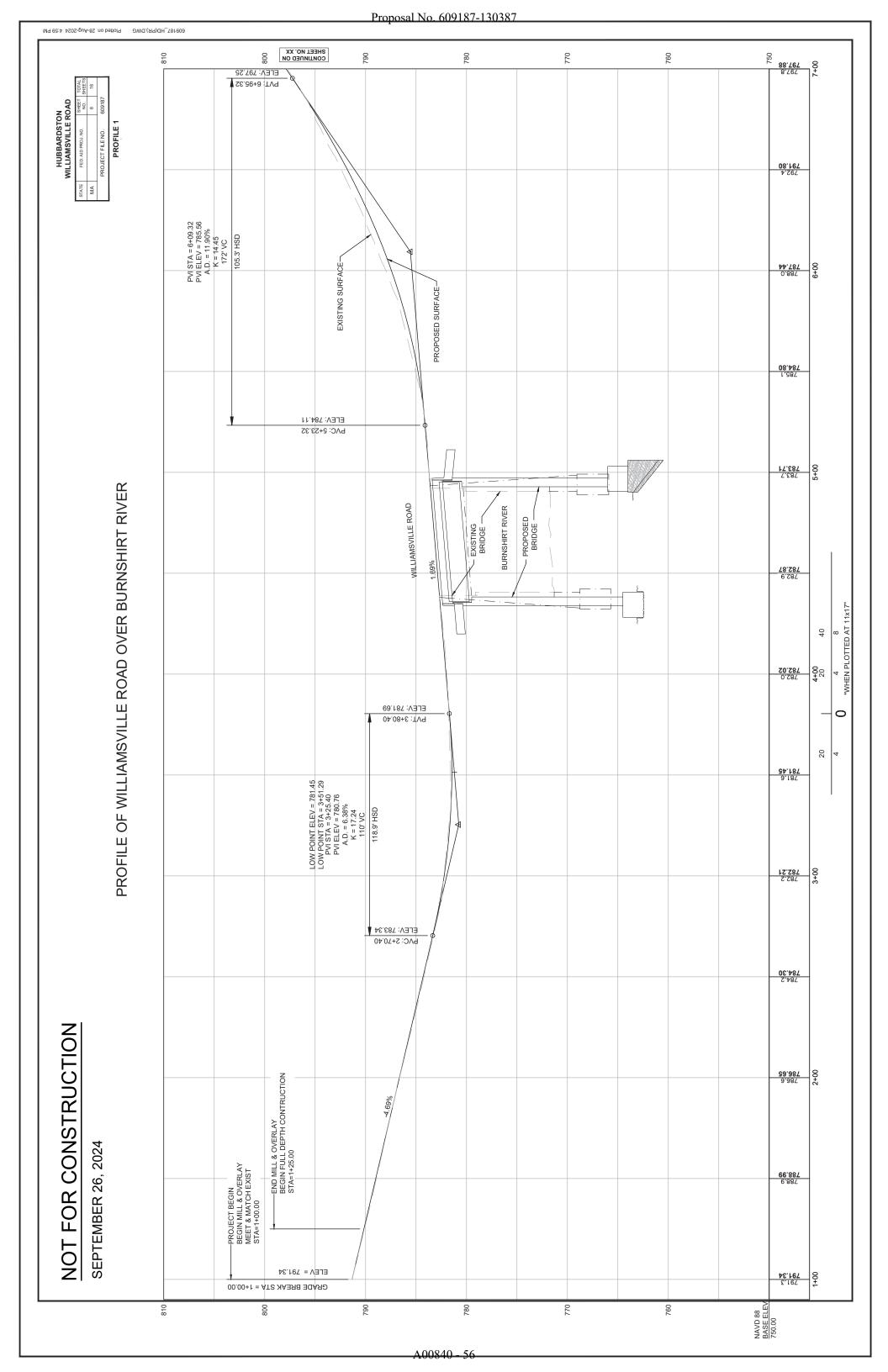
COMPACTED THICKNESS OF 6" GRAVEL BORROW, TYPE B

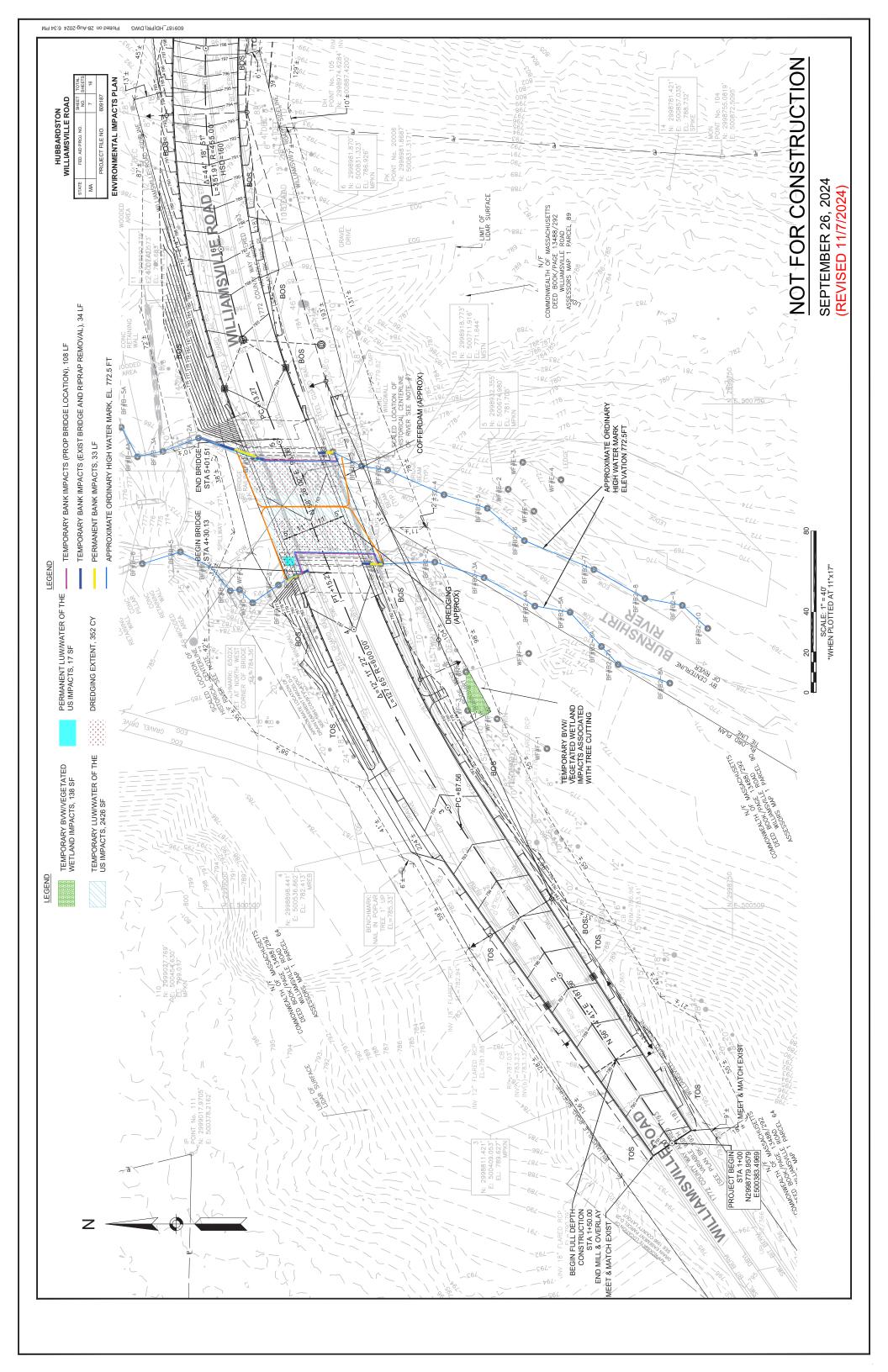
SURFACE:

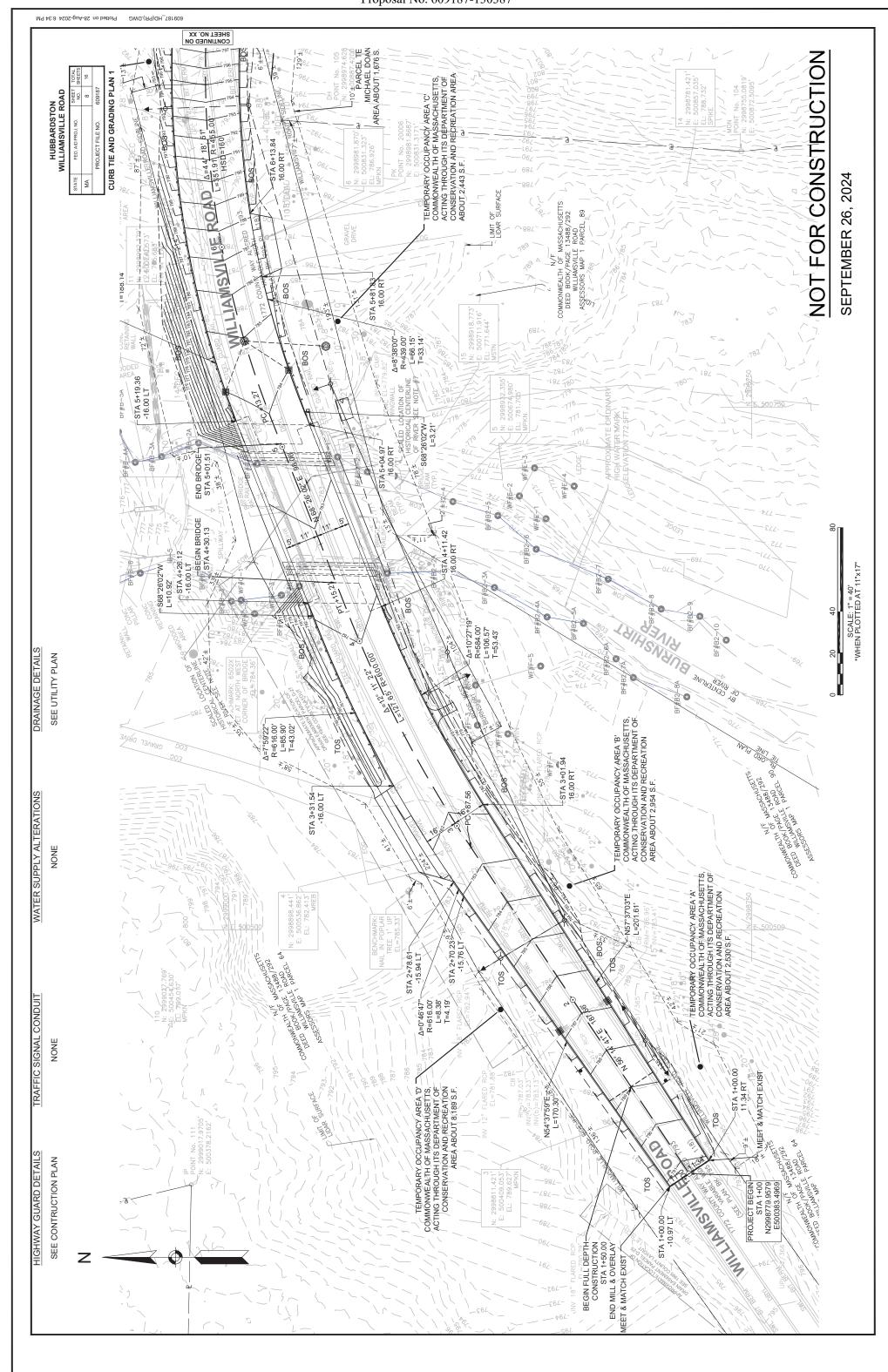
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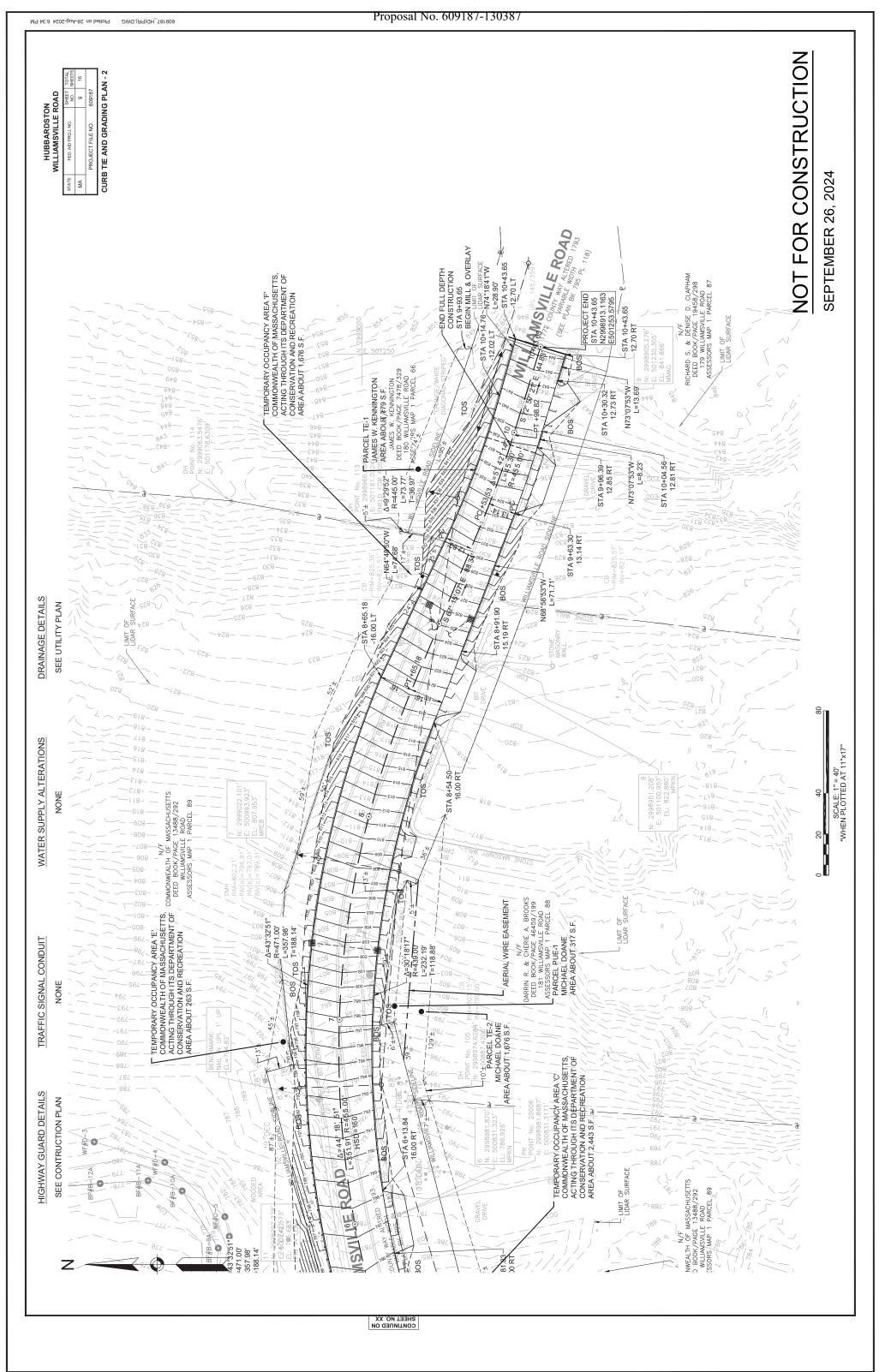


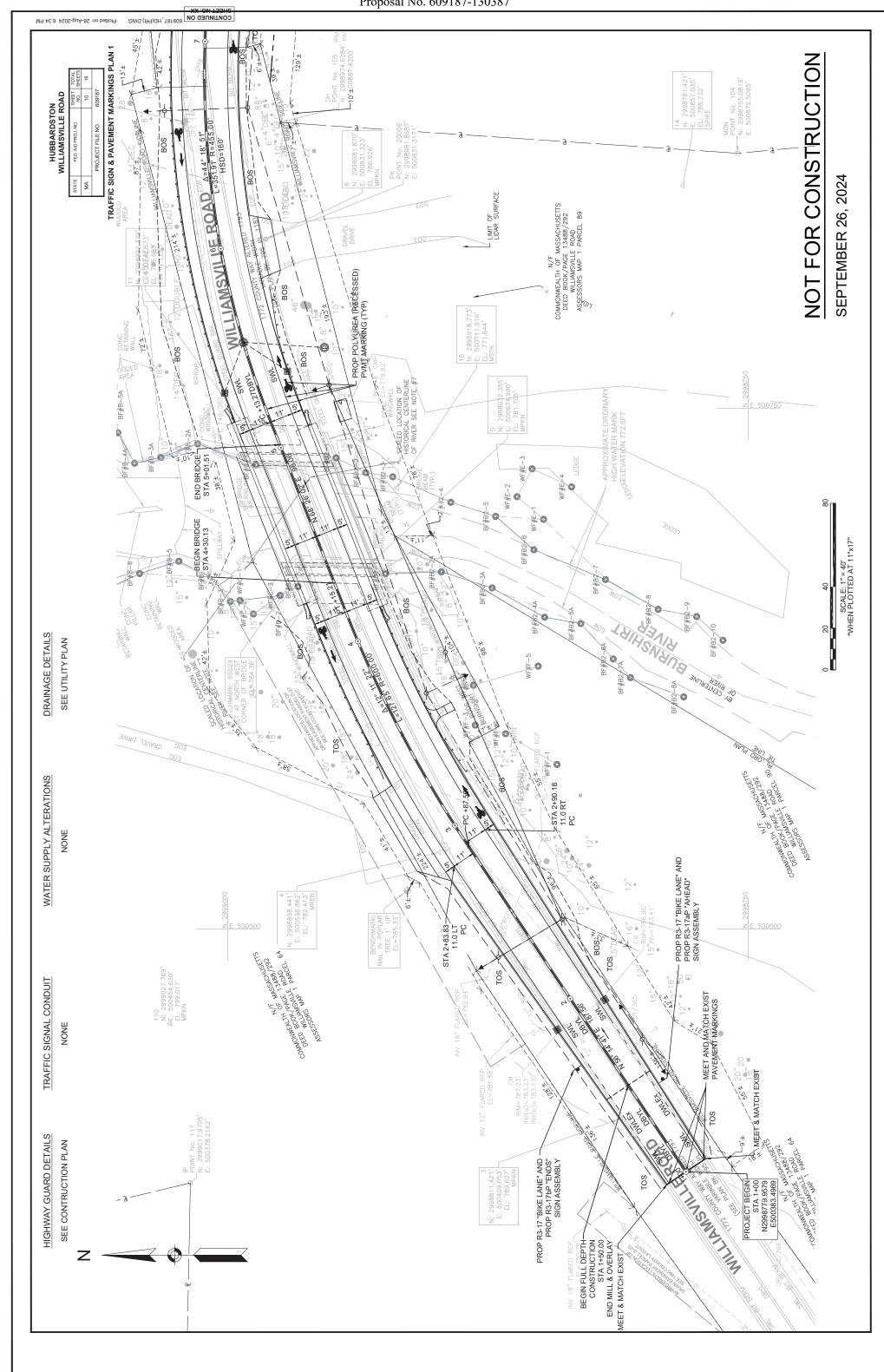


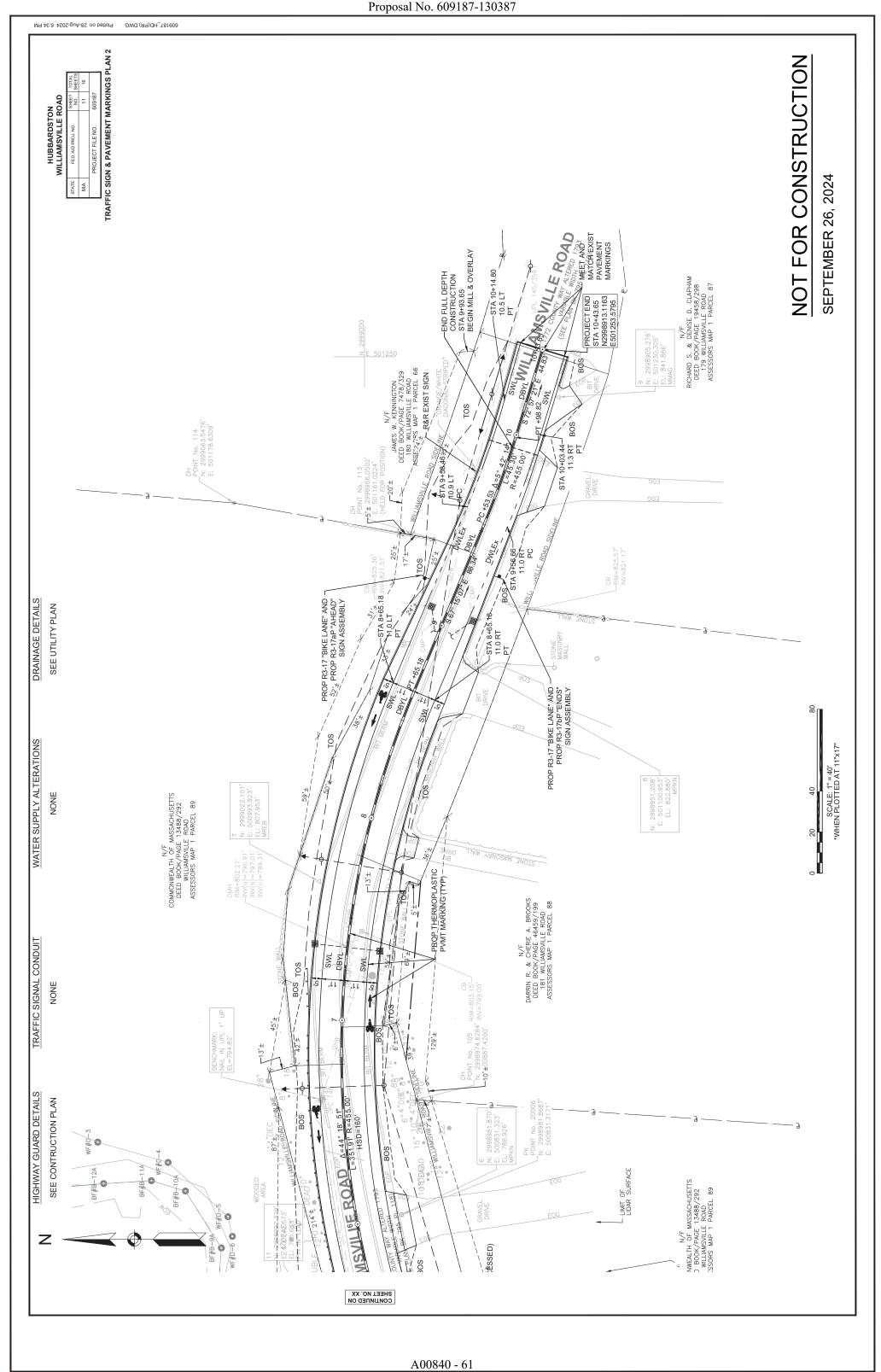


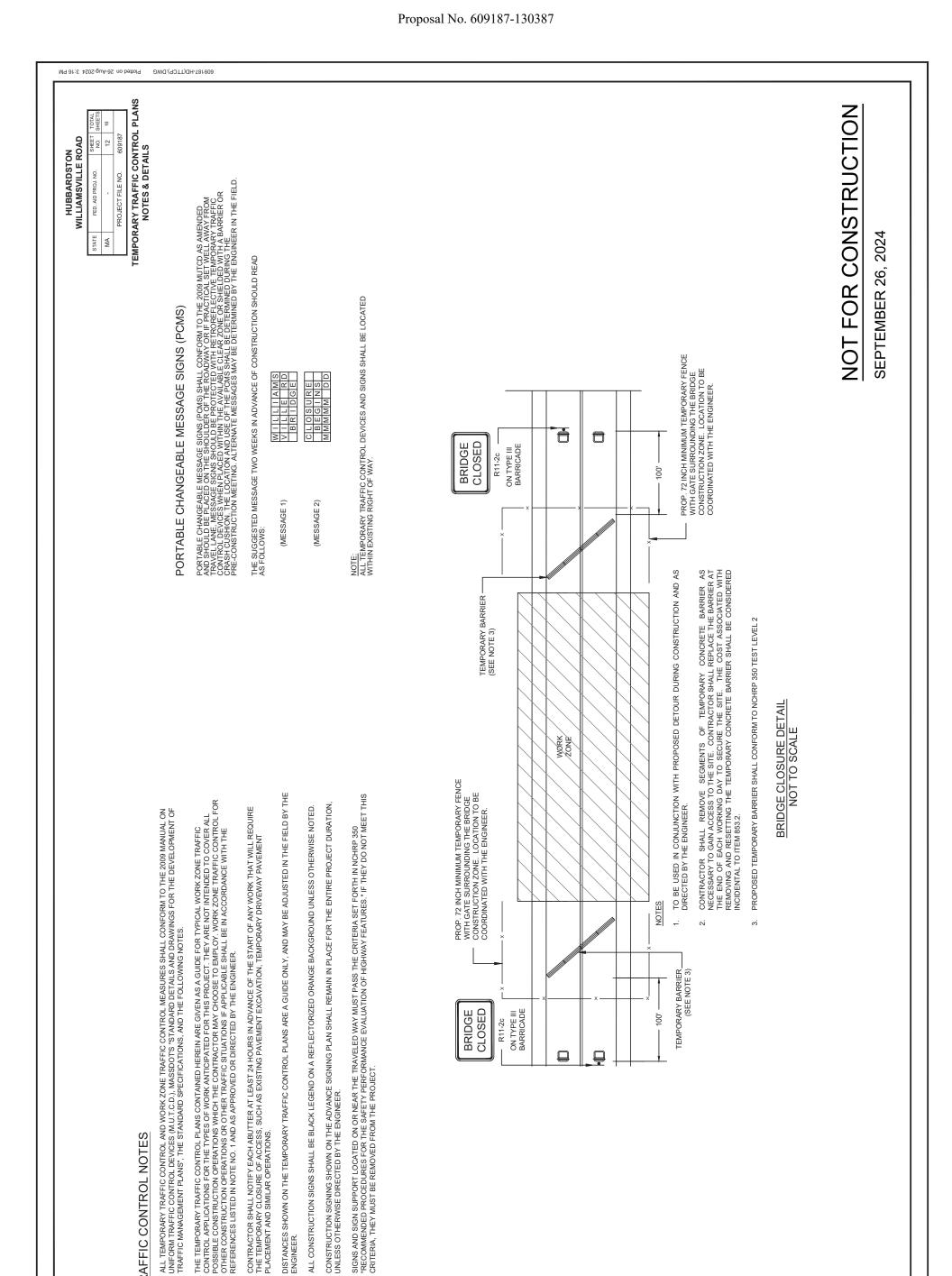












BRIDGE CLOSED

ALL CONSTRUCTION SIGNS SHALL BE BLACK LEGEND CONSTRUCTION SIGNING SHOWN ON THE ADVANCE: UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

9

TRAFFIC CONTROL NOTES

2

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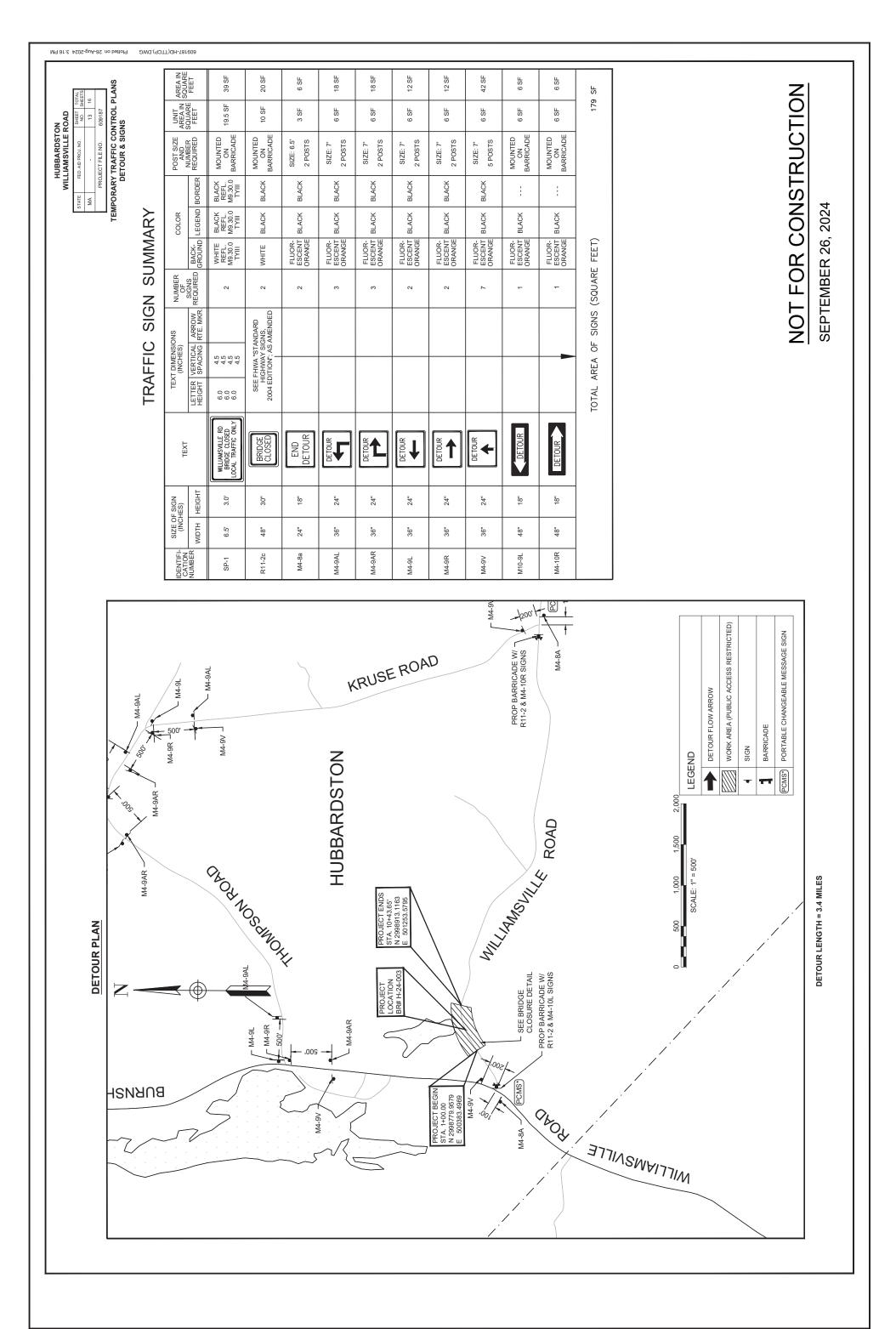
ON TYPE III BARRICADE

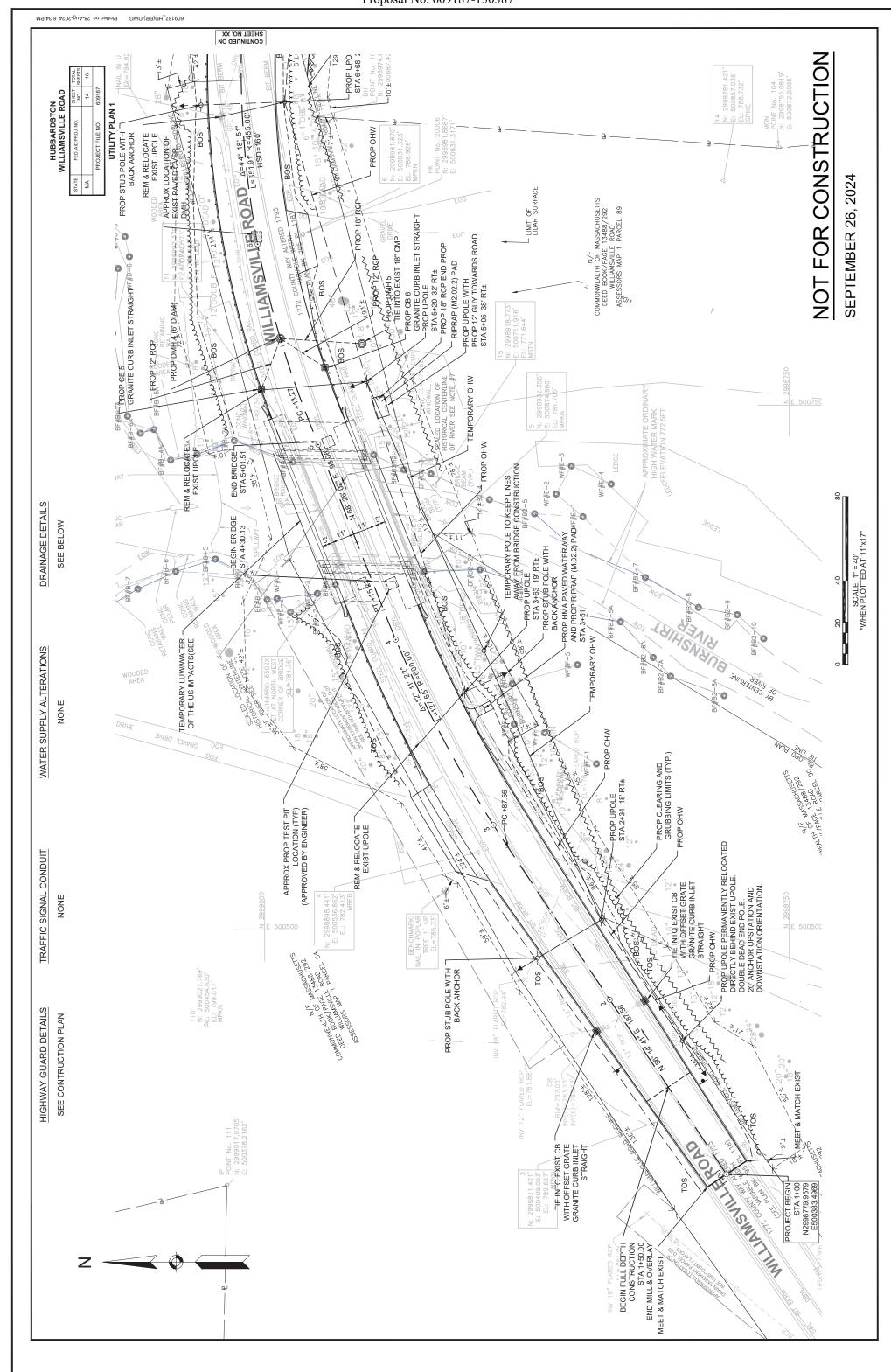
P

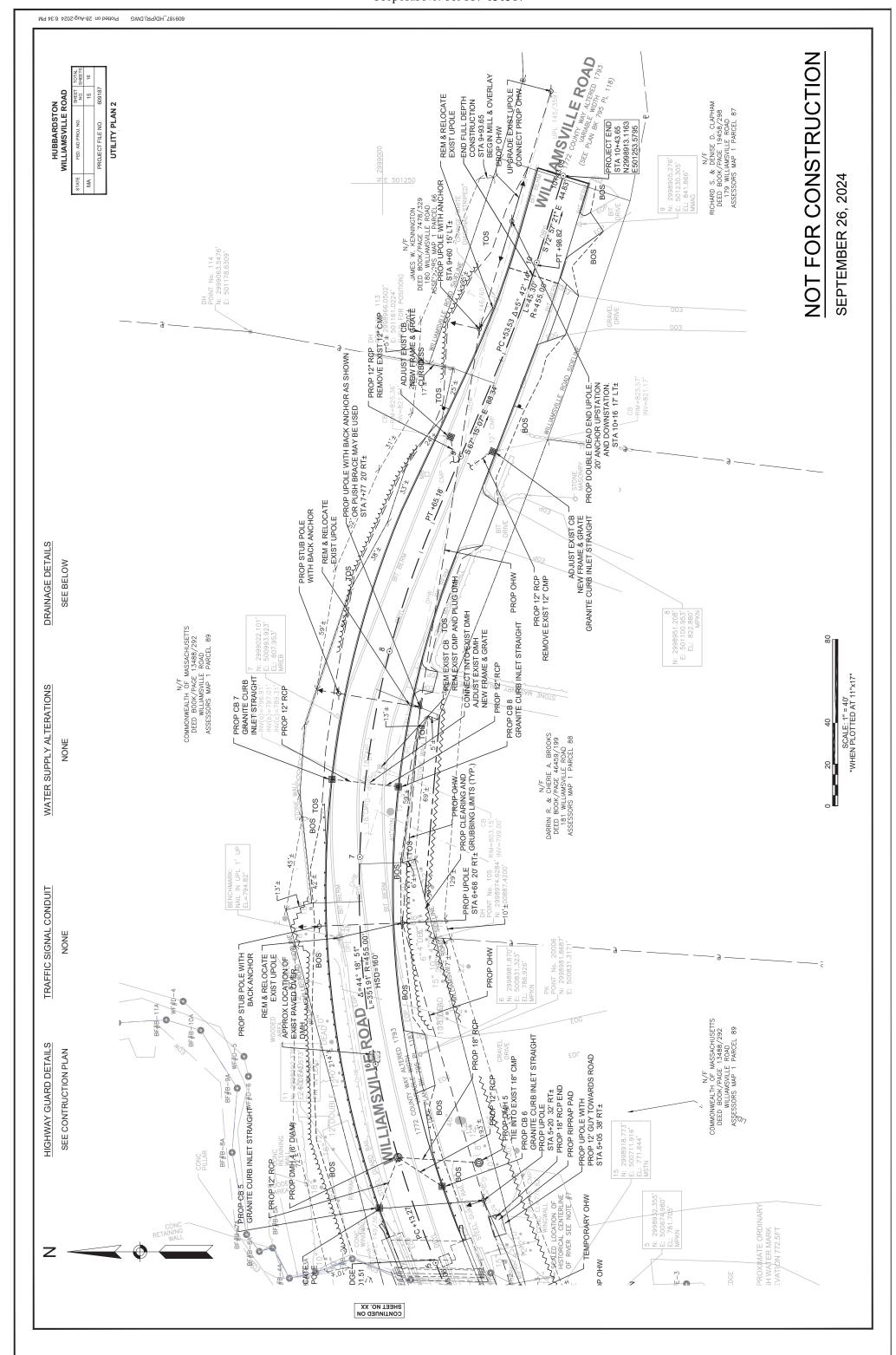
R11-2c

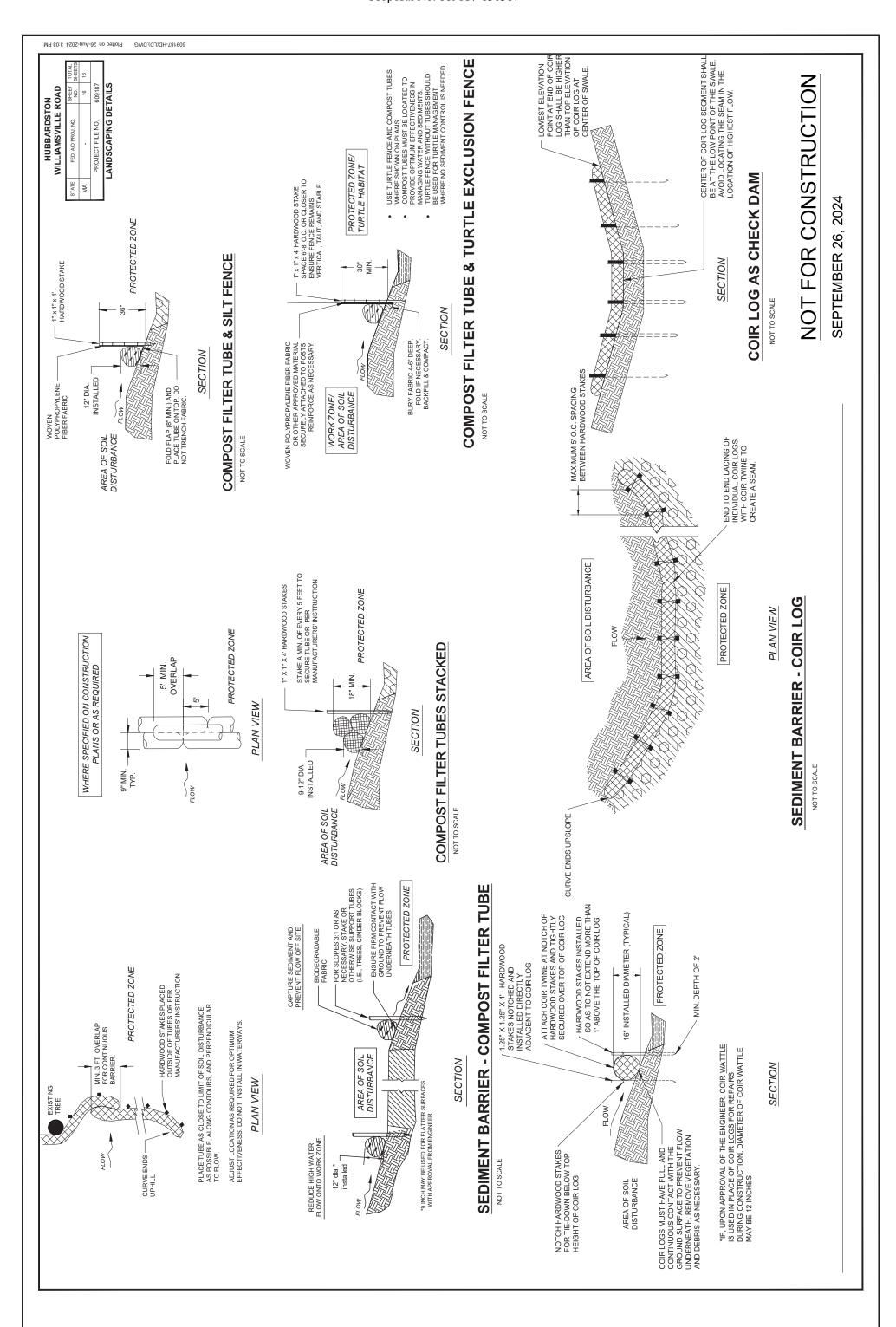
TEMPORARY BARRIER. (SEE NOTE 3)

100'

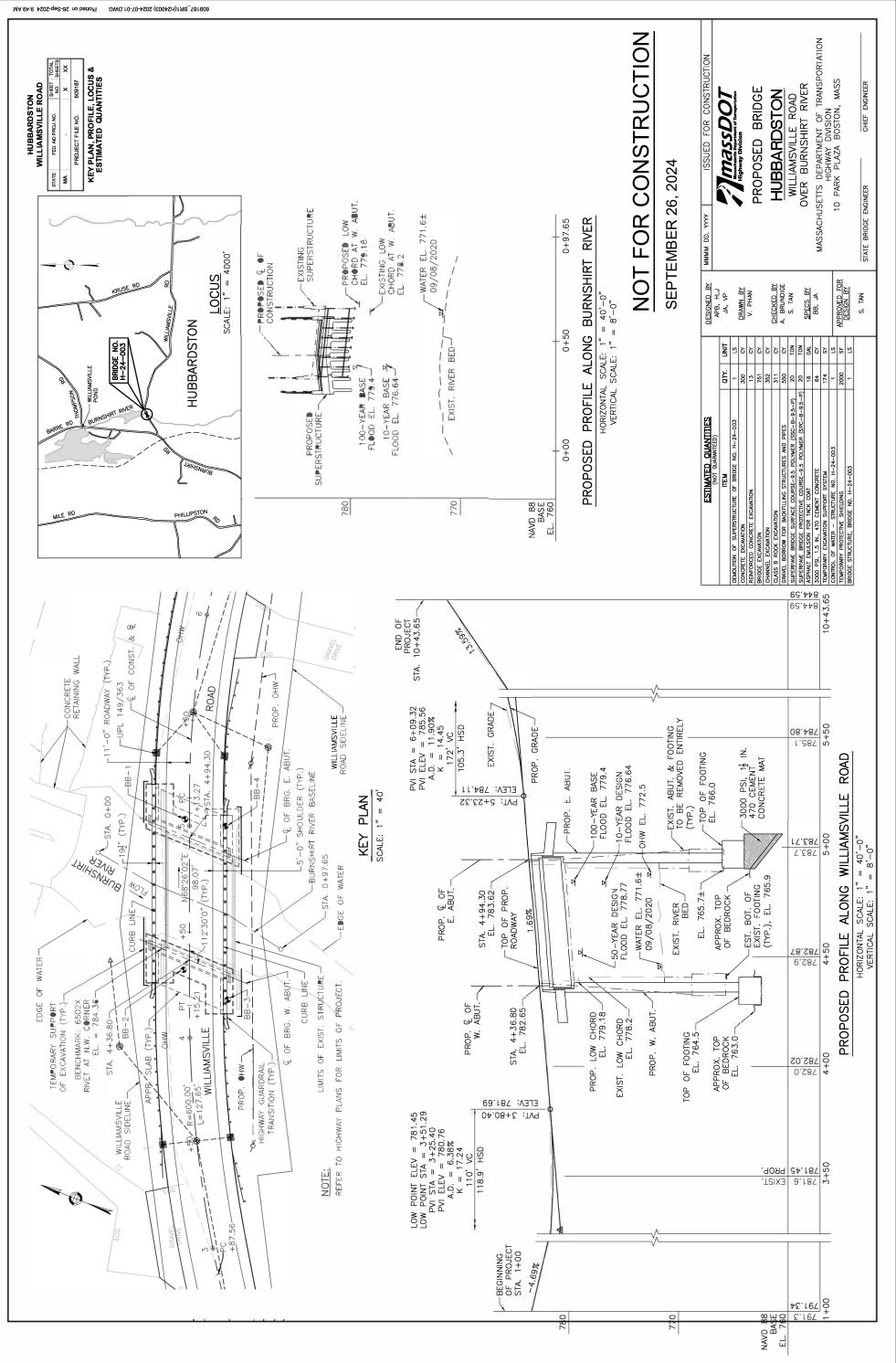


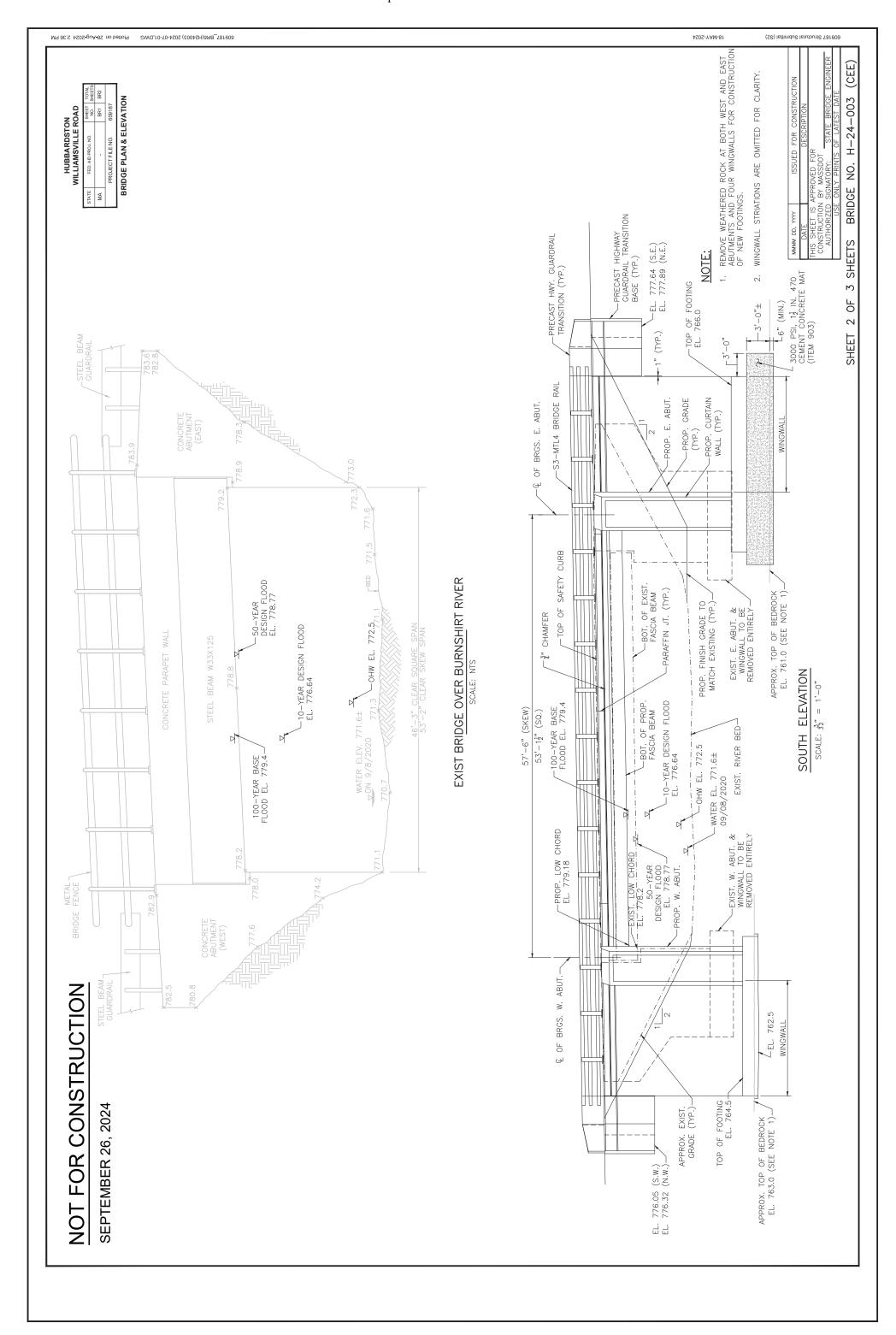


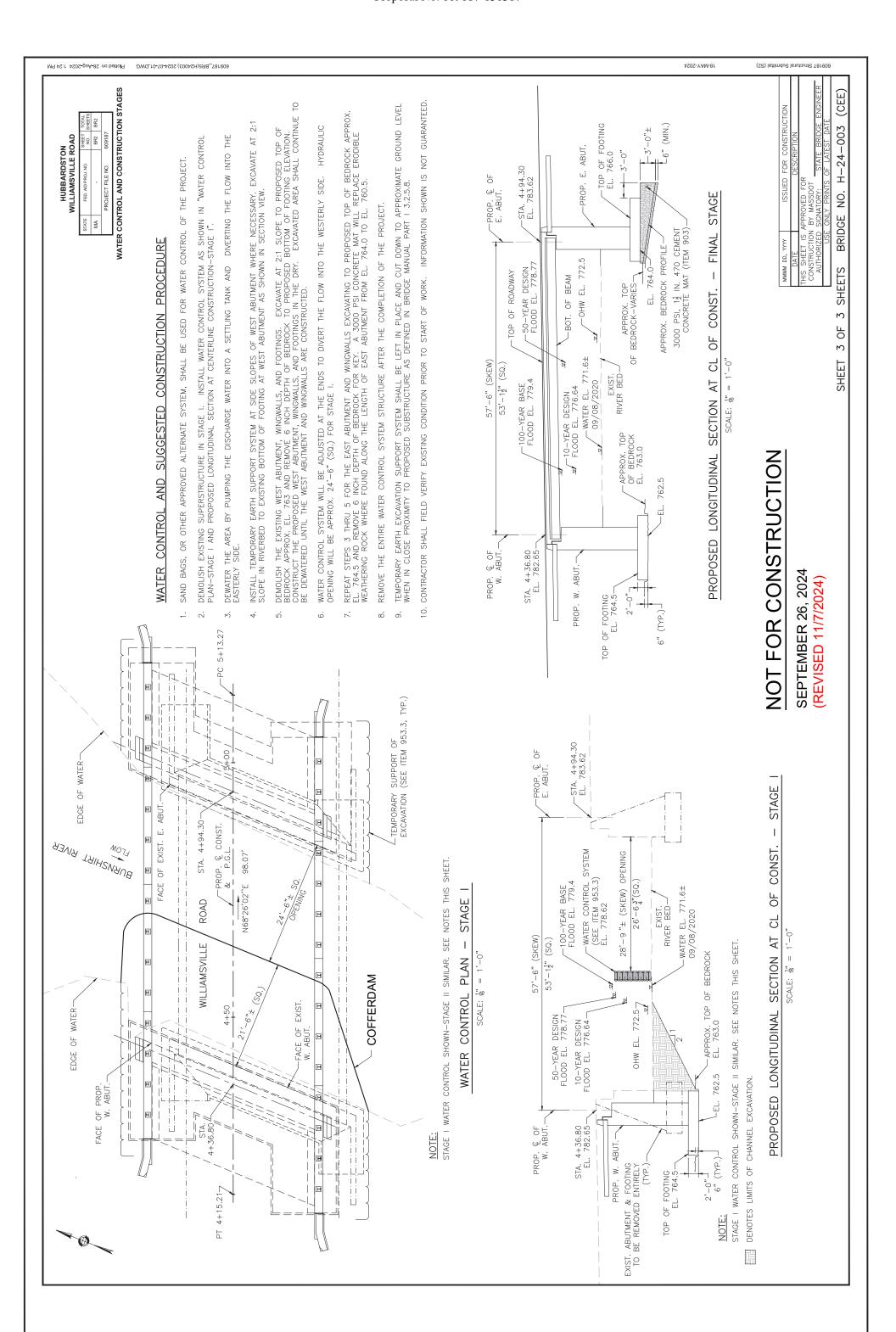




4202-YAM-81







Attachment E

Public Notice

PUBLIC NOTICE

Massachusetts Department of Environmental Protection
Division of Wetlands and Waterways
100 Cambridge Street, Suite 900
Boston, MA 02114

Pursuant to 33 U.S.C. 1341 M.G.L. c. 21 §§ 26 - 53, and 33 U.S.C. 1341 and M.G.L. c. 21 §43, notice is given of a 401 Water Quality Certification application for fill and dredge associated with the replacement of Bridge No. H-24-003 carrying Williamsville Road over the Burnshirt River in the Town of Hubbardston by the Massachusetts Department of Transportation – Highway Division, 10 Park Plaza, Room 7360, Boston, MA 02116. The proposed bridge will feature two 11-foot travel lanes and two 5-foot shoulders. Associated work will include excavation and embankment construction, pavement standard milling and resurfacing, full-depth roadway construction, granite curbing, and drainage system improvements. Additional information may be obtained from the Massachusetts Department of Transportation – Highway Division at the above address, Attention Courtney Walker or by emailing Courtney.l.walker@dot.state.ma.us. Written comments should be sent to Heidi Davis, MassDEP Wetlands Program, 100 Cambridge Street, Suite 900, Boston, MA 02114 or heidi.davis@mass.gov within 21 days of this notice.

Any group of ten persons, any aggrieved person, or any governmental body or private organization with a mandate to protect the environment who submits written comments within 21 days of this notice may appeal the Department's Certification. Failure to submit written comments before the end of the public comment period may result in the waiver of any right to an adjudicatory hearing.

Attachment F

Stormwater Management Report

Template Version: November 2023



To: MassDOT Date: November 12, 2024

Project #: 609187

From: Tetra Tech, Inc.

Re: Williamsville Road over Burnshirt River, Bridge Number H-

24-003

This Stormwater Management Memorandum has been prepared to show compliance with the Massachusetts Stormwater Management Standards in accordance with the Massachusetts Water Quality Certification Regulations (314 CMR 9.00) to support the Project's Section 401 Water Quality Certificate Application. Appendix A includes a completed Massachusetts Department of Environmental Protection (MassDEP) Checklist for Stormwater Report, stamped by a Massachusetts registered professional engineer.

The Project follows the guidance presented in the MassDOT Stormwater Design Guide (SDG), and stormwater management systems are designed in accordance with the Standards.

Project Description

The Applicant, MassDOT, is proposing Project 609187 to construct a bridge replacement (the Project) located in Hubbardston, MA. As proposed, the Project consists of the functional replacement of the bridge that carries Williamsville Road over the Burnshirt River in Hubbardston. The project also involves full depth reconstruction of Williamsville Road approximately 335 feet southwestwardly away from the bridge and approximately 545 feet eastwardly away from the bridge. The work also includes clearing and grubbing, removal and protection of existing trees as required, upgrading existing guardrail, drainage improvements, including installing new deep sump catch basins where inlets do not currently exist,, installation of granite curbing, pavement markings, utility protection and relocation, and placement of temporary traffic control and detour. Additionally, a temporary utility crossing will be constructed for the temporary relocation of the existing utilities.

See Figure 1 for the Project Locus Map.

Existing and Proposed Drainage Conditions

The project is currently an existing roadway consisting of one travel lane in each direction with partial shoulders. Portions of the roadway has bituminous curbing with a closed drainage system. There are some segments that currently do not have curbing. Those lengths amount to approximately 42% of the total project length on the north side of the road and approximately 40% of the total project length on the south side of the road.

Drainage Area E1 includes an existing closed drainage system with catch basins, drain manholes and pipes. Runoff from Drainage Area E1 is piped to an existing depression on the north side of Williamsville Road. The outfall from the depression flows beneath Williamsville Road and discharges via an 18" corrugated metal pipe (CMP). From the pipe discharge, stormwater flows in a southeasterly direction overland to the Burnshirt River.

Runoff from Drainage Area E2 discharges along the south side of Williamsville Road via a paved drainage swale. Stormwater then flows overland in a southeasterly direction to the Burnshirt River.

Drainage Area E3 includes an existing closed drainage system with catch basins, drain manholes and pipes. Runoff from Drainage Area E3 is flows in a southwesterly direction and discharged via an 18" CMP. From the 18" CMP stormwater flows overland to the Burnshirt River.

Drainage Area E4 discharges via sheet and overland flow in a northwesterly direction to the Burnshirt River.

The Burnshirt River, designated as Design Point 1, is located in the center of the project area. The Burnshirt River flows southeast to its confluence with the Ware River. According to USGS StreamStats, the drainage area of the Burnshirt River upgradient of the project is approximately 12.5 square miles.

Table 1 presents the existing drainage areas and their characteristics by design point.

Table 1 Existing Drainage Areas

Drainage Area	Design Point	Area (acres)	Curve Number
DA-E1	DP-#1	0.35	61
DA-E2	DP-#1	0.93	65
DA-E3	DP-#1	0.31	89
DA-E4	DP-#1	0.11	77

Key features in and around the project area include bank buffer and riverfront area as shown on Figures 2 and 3.

Portions of the project area on within Zone A (i.e. 1% annual chance or 100-year) Flood Zone associated with the Burnshirt River as shown on FEMA FIRM panel 250311 0015 B, with effective date June 1, 1984.

Review of the NRCS Soil Survey map of the project area identified Hinkley loamy sand (HSG A), Montauk-Canton association (HSG C) and Ridgebury-Whitman association (HSG D).

The Project will include construction of a new bridge structure, including new roadway pavement and markings, and adding new drainage structures where needed to meet MassDOT roadway design requirements. Work includes excavation and embankment, roadway side slopes clearing and hazardous tree removal, pavement standard milling and resurfacing, full-depth roadway construction, granite curbing, drainage system improvement, guardrails and end treatments, traffic signage and pavement markings, and erosion and sedimentation control.

Drainage Area P1 will utilize the existing closed drainage system with new offset grates and granite curb inlets installed on two catch basins. The existing drain manholes and pipes will be maintained. Runoff from Drainage Area P1 is piped to an existing depression on the north side of Williamsville Road, located on DCR property. The outfall from the depression flows beneath Williamsville Road and discharges via an 18" CMP. From the pipe discharge, stormwater flows in a southeasterly direction overland to the Burnshirt River.

Runoff from Drainage Area P2 discharges along the south side of Williamsville Road via a paved drainage swale with a new riprap apron. Stormwater then flows overland in a southeasterly direction to the Burnshirt River.

Drainage Area P3 will utilize the existing closed drainage system. 4 new deep sump catch basins with granite curb inlets will be installed and connect to existing drain manholes and pipes. Runoff from Drainage Area P3 is flows in a southwesterly direction and discharged via an 18" CMP with a new riprap apron. From the 18" CMP stormwater flows overland to the Burnshirt River.

Table 2 provides a breakdown of the impervious area for the Project.

Table 2 Impervious Area

Condition	Impervious Area (sq. ft)
Existing	29,793
Proposed	34,417
Net	4,624

There is an 15.5% increase in impervious area. The increase also includes minor widening to accommodate 5-foot bicycle lanes on both sides of Williamsville Road. The additional impervious area is dispersed throughout the project and not concentrated upstream of any one outfall.

Table 3 presents the proposed drainage areas and their characteristics under proposed conditions.

Table 3 Proposed Drainage Areas

Drainage Area	Design Point	Area (acres)	Curve Numbers
P-1	DP-1	0.35	61
P-2	DP-1	0.82	62
P-3	DP-1	0.53	91

See Figure 3 for proposed drainage areas by design point.

The proposed SCMs include deep sump catch basins (where new inlets are proposed) and rip rap aprons for outlet protection at two outfalls. Once construction is complete, the project will implement a Stormwater Management System Operation and Maintenance Plan and Long-Term Pollution Prevention Plan.

Massachusetts Department of Environmental Protection (MassDEP) – Stormwater Management Standards

As demonstrated below, the proposed Project complies with the MassDEP Stormwater Management Standards (the Standards). Under the Stormwater Management Standards, the Project is considered a redevelopment project because it involves maintenance and improvement of an existing a bridge structure, including the functional replacement of the bridge that carries Williamsville Road over the Burnshirt River along with new roadway pavement and markings (with dedicated bike lanes), and adding new drainage structures where needed to meet MassDOT roadway design requirements. The project results in a deminimis increase in impervious area due to the addition of bike lanes on each side of the roadway. The Project has been designed to meet the Stormwater Management Standards to the maximum extent practicable and to improve upon existing conditions.

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Standard 1: No New Untreated Discharges

No new stormwater conveyance (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

The Project has been designed to comply with Standard 1.

No new stormwater outfalls are proposed for the Project. The outlet pipe from the existing depression (DA-P1) conveys minimal discharge (0.1 cfs for the 100-year event). The existing outfall for DA-P2, a paved waterway will be fitted with a rip rap apron. The existing 18" outfall for DA-P3 will be cut back approximately 10 feet in order to move the outfall further away from the wetland resource area(s) and fitted with a rip-rap apron. Rip rap aprons improve scour protection. Rip rap sizing calculations are included in Appendix F.

Standard 2: Peak Rate Attenuation

Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.

The Project has been designed to comply with Standard 2 to the maximum extent practicable. Table 2 includes a summary of impervious cover impacts.

There are slight increases to post-development peak runoff rates for the 2-year, 10-year, and 100-year 24-hour design storm events based on NOAA Atlas 14 precipitation data as shown in Table 4.

The increases are de-minimis/negligible, considering these outfalls contribute to the Burnshirt River, which has a contributing area of over 12.5 square miles at the project location and peak discharges of 249 cfs for the 2-year storm, 778 cfs for the 10-year storm and 1,560 cfs for the 100-year storm as determined by the USGS StreamStats program.

Furthermore, the Burnshirt River is tributary to the Ware River which has a contributing area of over 199 square miles at the Gibbs Crossing gauging station and peak discharges of 4,310 cfs for the 10-year storm and 12,720 cfs for the 100-year storm as shown in Table 1 in the Flood Insurance Study for the Town of Ware, Massachusetts dated February 17, 1981.

See Standard 7 for discussion on project constraints.

Table 4 Rainfall Depths (in)

Design Storm Event	Rainfall Depth (in)
2-year	3.04
10-year	4.64
100-year	7.17

Table 5 provides a summary of peak rates for each design point under existing and proposed conditions. Appendix D provides computations and supporting information regarding the hydraulic and hydrologic modeling, including the USGS StreamStats output for the Burnshirt River at the project location.

Table 5 Peak Discharge Rates (cfs)

Design		Existing		Proposed		
Point	2-year	10-year	100-year	2-year	10-year	100-year
DP-1	1.04	2.53	5.32	1.54	3.04	5.74

Standard 3: Stormwater Recharge

Loss of annual recharge to groundwater shall be eliminated or minimized through the use of environmentally sensitive site design, low impact development techniques, stormwater management practices and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil types. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

The Project has been designed to comply with Standard 3 to the maximum extent practicable. The project does not include infiltration SCM's, however, the increase in impervious area and the resulting runoff is deminimis.

See Standard 7 for discussion on project constraints.

Standard 4: Water Quality

Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This Standard is met when:

- a) Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan, and thereafter are implemented and maintained;
- b) Structural stormwater best management practices are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and
- c) Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.

The Project has been designed to comply with Standard 4 to the maximum extent practicable.

The Project has been designed to comply with Standard 4 to the maximum extent practicable. The Project:

> Treats impervious area to MEP with the addition of deep sump catch basins and rip rap outlet projection. See Standard 7 for discussion on project constraints. Appendix C includes the MassDEP TSS Removal Calculation Worksheets as well as the required WQV calculations.

For MassDOT facilities, Long-Term Pollution Prevention Plans (LTPPPs) are implemented at a programmatic level through MassDOT's highway operation and maintenance program by district. Appendix E includes the LTPPP for this project.

Standard 5: Land Uses with Higher Potential Pollutant Loads (LUHPPLs)

For Land Uses with Higher Potential Pollutant Loads (LUHPPLs), source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention all LUHPPLs cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from LUHPPLs shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

Standard 5 does not apply to the Project. There are no Land Uses with Higher Potential Pollutant Loads within the project area.

Standard 6: Critical Areas

Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or to any other critical area require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A "stormwater discharge" as defined in 314 CMR 3.04(2)(a)1 or (b), to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of a public water supply.

The Burnshirt River is within the Ware River Intake ORW, which is a Zone A public water supply watershed. There are no new stormwater outfalls proposed for the project. The outlet pipe from the existing depression (DA-P1) conveys minimal discharge (0.1 cfs for the 100-year event). The existing outfalls for DA-P2 and DA-P3 were retrofitted with rip-rap aprons to improve scour protection. Deep sump catch basins have been added where they did not previously exist..

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the Maximum Extent Practicable

A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

The Project is considered a redevelopment and has been designed to comply with the Stormwater Management Standards to the maximum extent practicable.

The project area is constrained by the existing MassDOT right of way (i.e. state highway layout), the existing topography, which slopes up from the roadway on one side and down towards the river on the other and existing driveways, preventing the installation of SCMs that would provide attenuation, recharge and water quality treatment to fully meet the applicable standards. Within DA-P1 an existing depression was evaluated for conversion to an infiltration basin with a sediment forebay. It was determined that the depression is located on a parcel owned by DCR Division of Water Supply Protection, which is classified as on open space Article 97 property. For this reason, creating an infiltration basin at this location will not be pursued.

Additional SCM's for DA-P2 and P3 that were considered include bioswales and infiltration/detention basins, but were determine to be unfeasible due to the constraints identified above.

The Project will improve existing conditions with the installation of deep sump catch basins (where new inlets are proposed) to allow sediment to settle prior to discharge as well as rip rap outlet protection to reduce discharge velocity and prevent scour and erosion within the buffer zone and riverfront area.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Controls

A plan to control construction-related impacts, including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.

The implementation of erosion and sediment (E&S) controls during construction is considered a standard practice for all MassDOT projects. E&S controls will be installed before any land disturbance begins for the Project and will remain in place for the duration of the Project. The E&S controls for the Project are shown on the project plans and include a sedimentation barrier.

The Project disturbs one or more acres of land; therefore, the project contractor will request coverage under the NPDES Construction General Permit (CGP) and develop a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP follows the requirements of this standard and complies with the NPDES CGP.

Standard 9: Operation and Maintenance Plan

A Long-Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.

MassDOT O&M plans are implemented on a programmatic level by each MassDOT district. Each MassDOT district office is responsible for providing operation and maintenance for the MassDOT stormwater management systems within their respective jurisdictions. Appendix E includes the O&M Plan for this project.

Long-term pollution prevention for the Project includes litter pick-up, inspection and maintenance of stormwater assets, maintenance of landscaped areas, snow and ice management, street sweeping, prohibition of illicit discharges, and spill prevention and response.

Standard 10: Prohibition of Illicit Discharges

All illicit discharges to the stormwater management system are prohibited. Illicit Discharge Statement

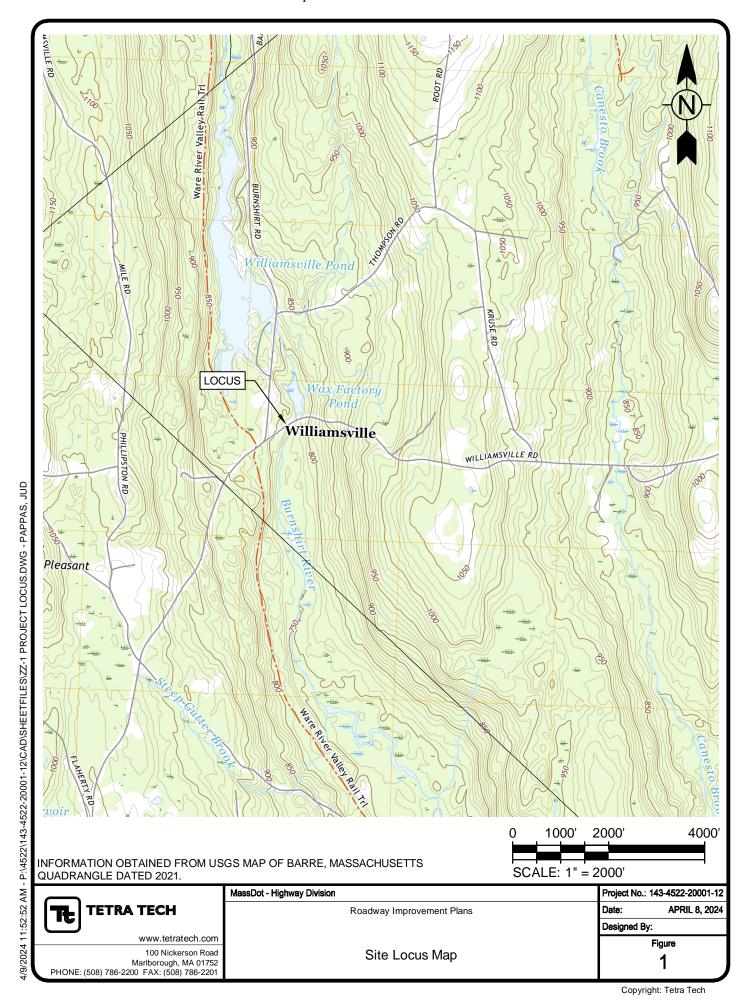
The project's stormwater management system, as shown on the plans submitted with this report, have been designed in full compliance with Standard 10. The project area does not have any known illicit connections. Any illicit connections to the stormwater management system found in the project limit of work during construction will be removed and/or resolved through MassDOT's Illicit Discharge Detention and Elimination (IDDE) Program.

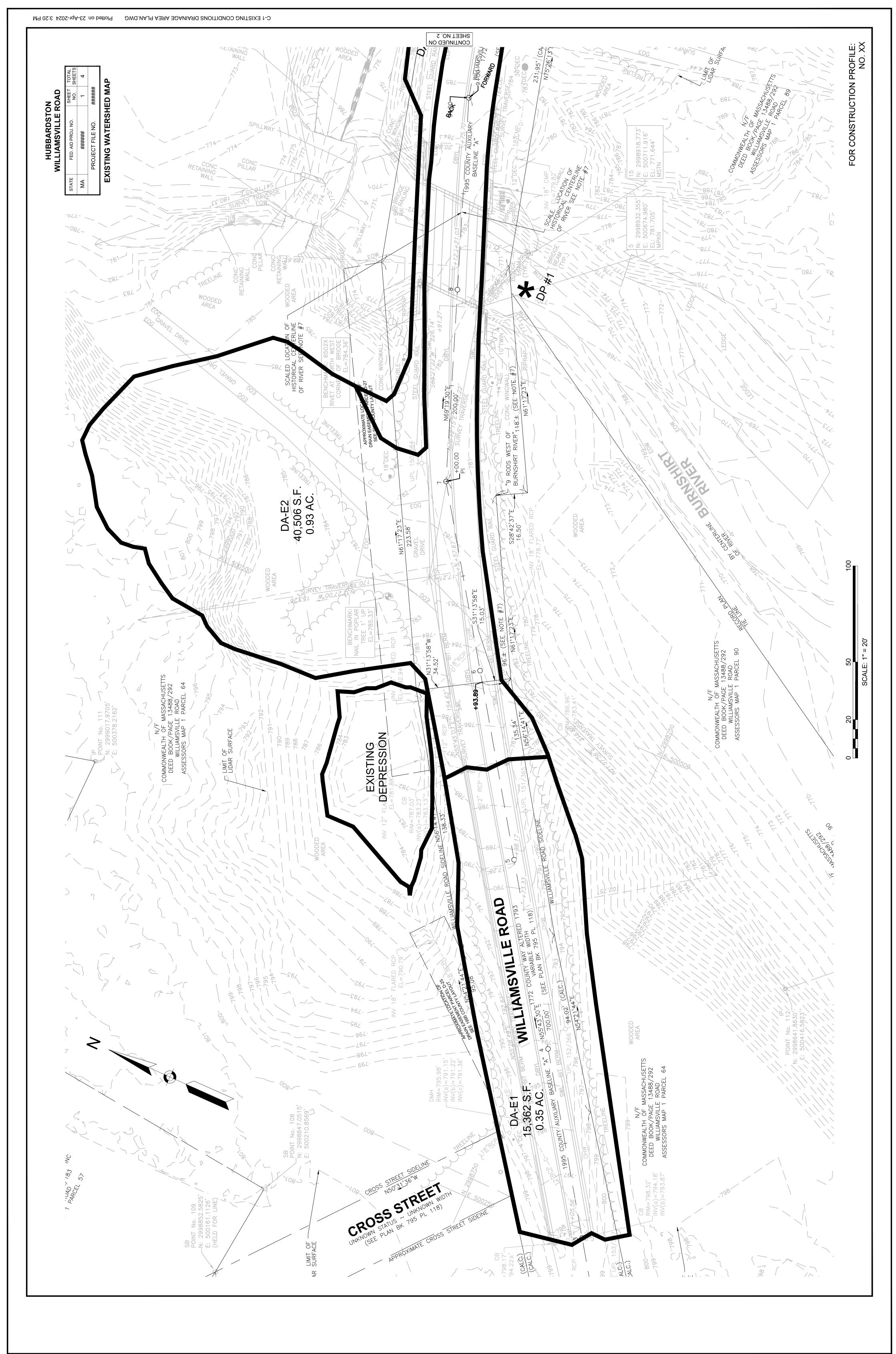
Attachments: Appendix A - Stormwater Checklist

Appendix B - Soils and FEMA Information Appendix C - Supporting Calculations

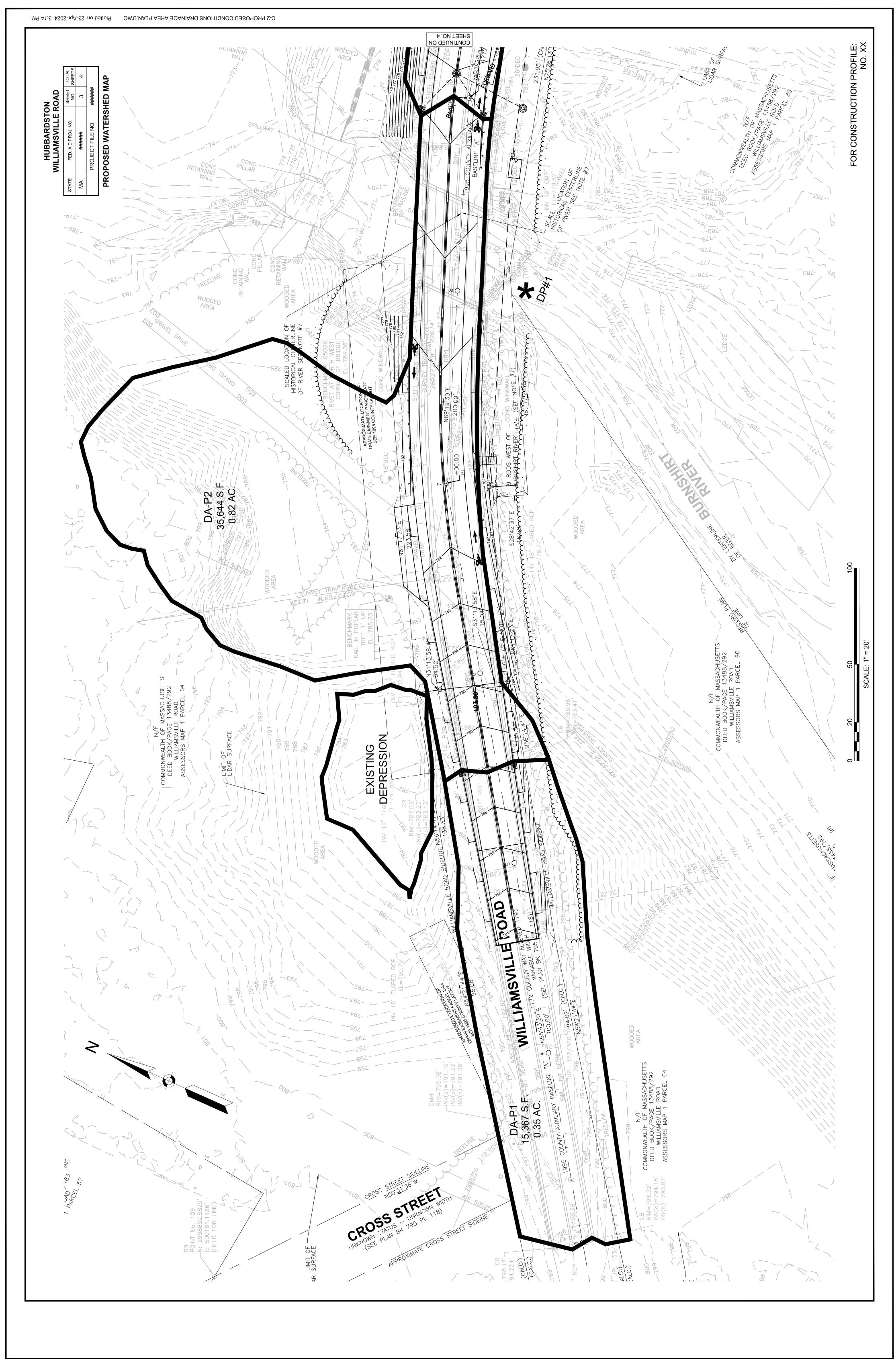
Appendix D - Hydraulic and Hydrologic Data

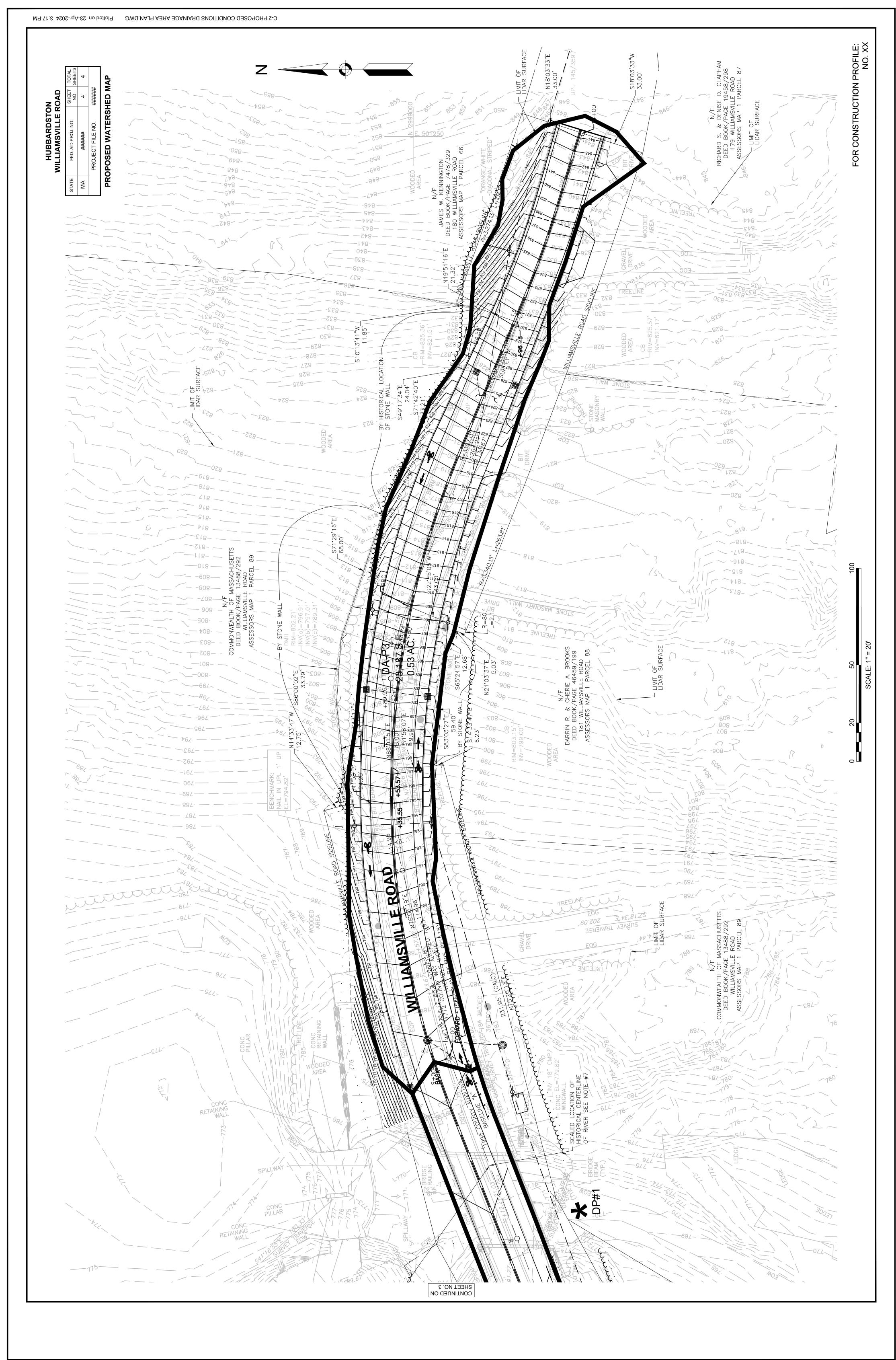
Appendix E - O&M Plan and LTPPP Appendix F - Riprap Apron Sizing











Appendix A: MassDEP Checklist for Stormwater Report



Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.





A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the Massachusetts Stormwater Handbook. The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals. This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

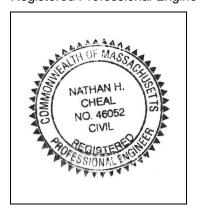
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



Signature and Date

November 12, 2024

Checklist

Project Type:	Is the application for	new development,	redevelopment,	or a mix of r	new and
redevelopment	?				

- New development



Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

\boxtimes	No disturbance to any Wetland Resource Areas
	Site Design Practices (e.g. clustered development, reduced frontage setbacks)
	Reduced Impervious Area (Redevelopment Only)
\boxtimes	Minimizing disturbance to existing trees and shrubs
	LID Site Design Credit Requested:
	☐ Credit 1
	☐ Credit 2
	☐ Credit 3
	Use of "country drainage" versus curb and gutter conveyance and pipe
	Bioretention Cells (includes Rain Gardens)
	Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
	Treebox Filter
	Water Quality Swale
	Grass Channel
	Green Roof
	Other (describe):
Sta	ndard 1: No New Untreated Discharges
\boxtimes	No new untreated discharges
	Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
	$Supporting\ calculations\ specified\ in\ Volume\ 3\ of\ the\ Massachusetts\ Stormwater\ Handbook\ included.$



Checklist for Stormwater Report

CI	necklist (continued)				
Sta	indard 2: Peak Rate Attenuation				
	Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding. Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.				
	Calculations provided to show that post-development peak discharge rates do not exceed pre- development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24- hour storm.				
Sta	andard 3: Recharge				
	Soil Analysis provided.				
\boxtimes	Required Recharge Volume calculation provided.				
	Required Recharge volume reduced through use of the LID site Design Credits.				
	Sizing the infiltration, BMPs is based on the following method: Check the method used.				
	☐ Static ☐ Simple Dynamic ☐ Dynamic Field¹				
	Runoff from all impervious areas at the site discharging to the infiltration BMP.				
	Runoff from all impervious areas at the site is <i>not</i> discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.				
	Recharge BMPs have been sized to infiltrate the Required Recharge Volume.				
	Recharge BMPs have been sized to infiltrate the Required Recharge Volume <i>only</i> to the maximum extent practicable for the following reason:				
	☐ Site is comprised solely of C and D soils and/or bedrock at the land surface				
	☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000				
	☐ Solid Waste Landfill pursuant to 310 CMR 19.000				
	Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.				
	Calculations showing that the infiltration BMPs will drain in 72 hours are provided.				
	Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.				

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



Checklist for Stormwater Report

Cł	necklist (continued)
Sta	ndard 3: Recharge (continued)
	The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
	Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.
Sta	ndard 4: Water Quality
•	E Long-Term Pollution Prevention Plan typically includes the following: Good housekeeping practices; Provisions for storing materials and waste products inside or under cover; Vehicle washing controls; Requirements for routine inspections and maintenance of stormwater BMPs; Spill prevention and response plans; Provisions for maintenance of lawns, gardens, and other landscaped areas; Requirements for storage and use of fertilizers, herbicides, and pesticides; Pet waste management provisions; Provisions for operation and management of septic systems; Provisions for solid waste management; Snow disposal and plowing plans relative to Wetland Resource Areas; Winter Road Salt and/or Sand Use and Storage restrictions; Street sweeping schedules; Provisions for prevention of illicit discharges to the stormwater management system; Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL; Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan; List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
	A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent. Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
	is within the Zone II or Interim Wellhead Protection Area
	is near or to other critical areas
	is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
	involves runoff from land uses with higher potential pollutant loads.
	The Required Water Quality Volume is reduced through use of the LID site Design Credits.

applicable, the 44% TSS removal pretreatment requirement, are provided.

☐ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if



Checklist for Stormwater Report

Cr	necklist (continued)
Sta	ndard 4: Water Quality (continued)
	The BMP is sized (and calculations provided) based on:
	☐ The ½" or 1" Water Quality Volume or
	☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
	The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
	A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.
Sta	ndard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)
	The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report. The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted <i>prior to</i> the discharge of stormwater to the post-construction stormwater BMPs.
	The NPDES Multi-Sector General Permit does <i>not</i> cover the land use.
	LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
	All exposure has been eliminated.
	All exposure has <i>not</i> been eliminated and all BMPs selected are on MassDEP LUHPPL list.
	The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.
Sta	ndard 6: Critical Areas
	The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
\boxtimes	Critical areas and BMPs are identified in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

\boxtimes	The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
	 Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area. Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
	☐ Bike Path and/or Foot Path
	☐ Redevelopment Project
	☐ Redevelopment portion of mix of new and redevelopment.
\boxtimes	Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report. The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.
Sta	andard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control
	Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the owing information:
	 Narrative; Construction Period Operation and Maintenance Plan; Names of Persons or Entity Responsible for Plan Compliance; Construction Period Pollution Prevention Measures; Erosion and Sedimentation Control Plan Drawings; Detail drawings and specifications for erosion control BMPs, including sizing calculations; Vegetation Planning; Site Development Plan; Construction Sequencing Plan; Sequencing of Erosion and Sedimentation Controls; Operation and Maintenance of Erosion and Sedimentation Controls; Inspection Schedule; Maintenance Schedule; Inspection and Maintenance Log Form.
	A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



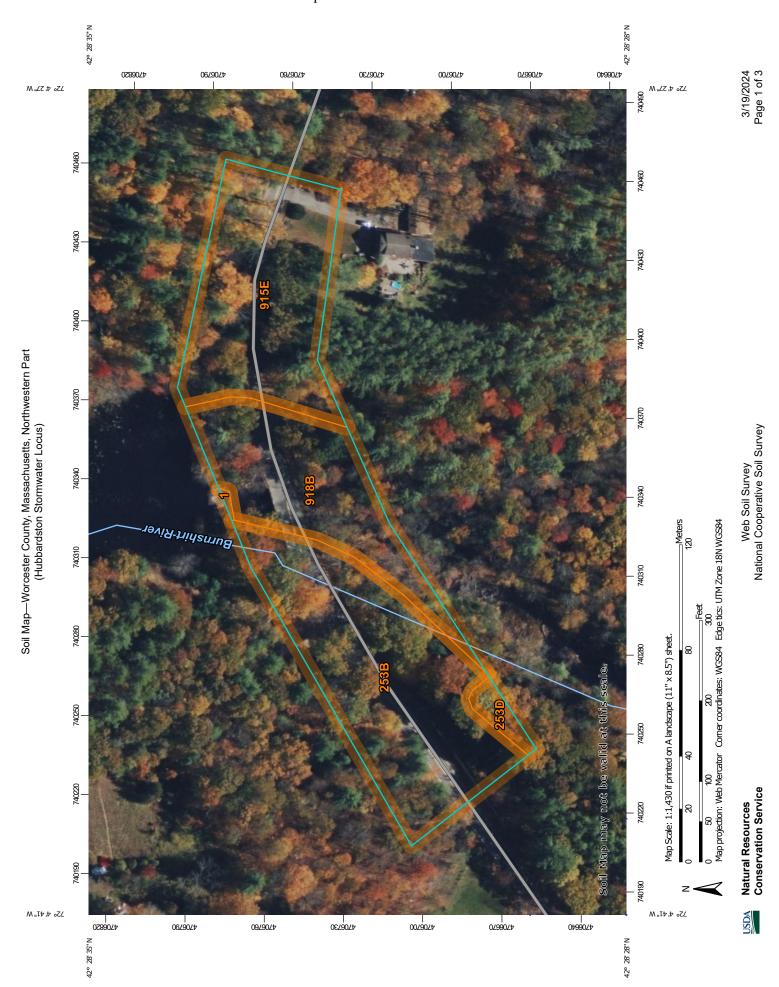
Checklist for Stormwater Report

Checklist (continued)

	Indard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control ntinued)
	The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has <i>not</i> been included in the Stormwater Report but will be submitted <i>before</i> land disturbance begins.
\boxtimes	The project is <i>not</i> covered by a NPDES Construction General Permit.
	The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
	The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.
Sta	ndard 9: Operation and Maintenance Plan
	The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
	Name of the stormwater management system owners;
	□ Party responsible for operation and maintenance;
	Schedule for implementation of routine and non-routine maintenance tasks;
	☑ Plan showing the location of all stormwater BMPs maintenance access areas;
	☐ Description and delineation of public safety features;
	□ Estimated operation and maintenance budget; and
	☐ Operation and Maintenance Log Form.
	The responsible party is <i>not</i> the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
	A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
	A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.
Sta	ndard 10: Prohibition of Illicit Discharges
\boxtimes	The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
\boxtimes	An Illicit Discharge Compliance Statement is attached;
	NO Illicit Discharge Compliance Statement is attached but will be submitted <i>prior to</i> the discharge of any stormwater to post-construction BMPs.

Appendix B: Soils and FEMA Information

- > NRCS Soil Survey Information
- > FEMA Flood Insurance Rate Map (FIRM)



The soil surveys that comprise your AOI were mapped at 1:25,000.

MAP INFORMATION

contrasting soils that could have been shown at a more detailed misunderstanding of the detail of mapping and accuracy of soil Enlargement of maps beyond the scale of mapping can cause line placement. The maps do not show the small areas of Warning: Soil Map may not be valid at this scale.

Please rely on the bar scale on each map sheet for map measurements. Source of Map: Natural Resources Conservation Service Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

distance and area. A projection that preserves area, such as the Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required. This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Worcester County, Massachusetts, Soil Survey Area: Northwestern Part

Survey Area Data: Version 17, Sep 13, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger. Date(s) aerial images were photographed: Oct 15, 2020—Oct

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

MAP LEGEND

Very Stony Spot Spoil Area Stony Spot Wet Spot Other W 8 Soil Map Unit Polygons Area of Interest (AOI) Soil Map Unit Points Soil Map Unit Lines Area of Interest (AOI)

Soils

Special Point Features

Blowout











Borrow Pit Clay Spot



Closed Depression

Interstate Highways





Gravelly Spot

Gravel Pit

Major Roads Local Roads

US Routes













Marsh or swamp

Lava Flow

Landfill

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Slide or Slip Sinkhole A

Sodic Spot

Conservation Service Natural Resources

National Cooperative Soil Survey Web Soil Survey



Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI							
1	Water	0.0	0.2%							
253B	Hinckley loamy sand, 3 to 8 percent slopes	1.4	41.2%							
253D	Hinckley loamy sand, 15 to 25 percent slopes	0.1	2.0%							
915E	Montauk-Canton association, 15 to 35 percent slopes, extremely stony	1.1	31.8%							
918B	Ridgebury-Whitman association, 0 to 8 percent slopes, extremely stony	0.8	24.8%							
Totals for Area of Interest	•	3.4	100.0%							



Appendix C: Supporting Calculations

- > Groundwater recharge calculations
- > Water quality calculations
- MassDEP TSS Removal Calculation Worksheets for SCM treatment trains

Version 1, Automated: Mar. 4, 2008

INSTRUCTIONS:

1. In BMP Column, click on Blue Cell to Activate Drop Down Menu

Select BMP from Drop Down Menu
 After BMP is selected, TSS Removal and other Columns are automatically completed.

		Amount Remaining Removed (C*D) Load (D-E)	0.25 0.75	0.00	0.00	0.00	0.00	Separate Form Needs to be Completed for Each Outlet or BMP Train		*Equals remaining load from previous BMP (E)	which enters the BMP
		Starting TSS / Load* Rem	1.00	0.75	0.75	0.75	0.75	Total TSS Removal =		*Equals r	which en
Location: Hubbardston, MA	O	TSS Removal Rate ¹	0.25	0.00	0.00	0.00	0:00	Total TS	Project: Hubbardston, MA	NHC	11/12/2024
Location:	В	BMP ¹	Deep Sump and Hooded Catch Basin	OLKSI	M UO	ilati	Calc		Project:	Prepared By: NHC	Date:

must be used if Proprietary BMP Proposed 1. From MassDEP Stormwater Handbook Vol. 1 Non-automated TSS Calculation Sheet

ISS Removal

Proposal No. 609187-130387

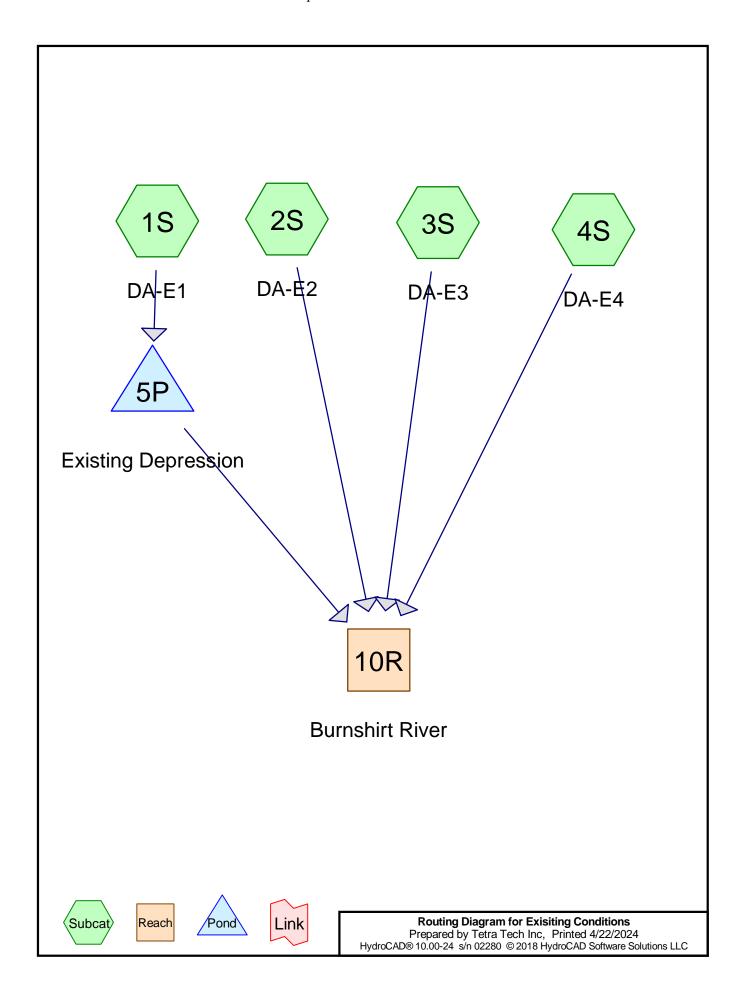
Water Quality and Recharge Calcs

Required Recharge Volumes			
Design Point	RV for New IA	RV for Existing	Total RV (cf)
	(cf)	IA (cf)	
DP-1	1111	987	2098

Required Water Qulaity Volumes			
Design Doint	WQV for New	WQV for	
Design Point	IA (cf)	Existing IA (cf)	Total WQV (cf)
DP-1	1435	1241	2677

Appendix D: Hydraulic and Hydrologic Data

- Node diagrams
- Modeling inputs
- Modeling results



Exisiting Conditions
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Page 2

Area Listing (all nodes)

Area	CN	Description
(acres)		(subcatchment-numbers)
0.250	39	>75% Grass cover, Good, HSG A (1S, 2S)
0.145	74	>75% Grass cover, Good, HSG C (3S, 4S)
0.073	80	>75% Grass cover, Good, HSG D (2S, 4S)
0.062	76	Gravel roads, HSG A (2S)
0.370	98	Paved roadways, HSG A (1S, 2S)
0.193	98	Paved roadways, HSG C (3S)
0.121	98	Paved roadways, HSG D (2S)
0.376	30	Woods, Good, HSG A (1S, 2S)
0.017	70	Woods, Good, HSG C (3S)
0.097	77	Woods, Good, HSG D (2S, 4S)

Exisiting Conditions
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Page 3

Soil Listing (all nodes)

Area	Soil	Subcatchment
(acres)	Group	Numbers
1.058	HSG A	1S, 2S
0.000	HSG B	
0.355	HSG C	3S, 4S
0.291	HSG D	2S, 4S
0.000	Other	

Type III 24-hr 2 YR Rainfall=3.04"

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Page 4

Summary for Subcatchment 1S: DA-E1

Runoff = 0.09 cfs @ 12.14 hrs, Volume= 0.010 af, Depth> 0.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2 YR Rainfall=3.04"

	Area (sf)	CN	Description	l				
*	6,123	98	Paved road	Paved roadways, HSG A				
	6,271	39	>75% Gras	75% Grass cover, Good, HSG A				
	2,973	30	Woods, Go	Voods, Good, HSG A				
	15,367	61	Weighted Average					
	9,244		60.15% Pervious Area					
	6,123		39.85% lmp	39.85% Impervious Area				
	Γc Length	ı Slop	•	Capacity	Description			
(mi	n) (feet)	(ft/	ft) (ft/sec)	(cfs)				
6	.0				Direct Entry,			

Summary for Subcatchment 2S: DA-E2

Runoff = 0.42 cfs @ 12.12 hrs, Volume= 0.036 af, Depth> 0.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2 YR Rainfall=3.04"

	Area (sf)	CN	CN Description					
*	10,002	98	Paved roadway	ys, HSG	A			
*	5,260	98	Paved roadway	ys, HSG	D			
	2,691	76	Gravel roads, F	Gravel roads, HSG A				
	4,606	39	>75% Grass co	>75% Grass cover, Good, HSG A				
	1,151	80	>75% Grass co	>75% Grass cover, Good, HSG D				
	13,401	30	Woods, Good,	Woods, Good, HSG A				
	3,395	77	Woods, Good,	Woods, Good, HSG D				
	40,506	65	Weighted Aver	age				
25,244 62.32% Pervious Area								
	15,262 37.68% Impervious Area							
	Tc Length	n Slo _l	e Velocity Ca	apacity	Description			
<u>(</u> r	min) (feet)) (ft/	ft) (ft/sec)	(cfs)				
	6.0				Direct Entry.			

Summary for Subcatchment 3S: DA-E3

Runoff = 0.79 cfs @ 12.00 hrs, Volume= 0.046 af, Depth> 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2 YR Rainfall=3.04"

Type III 24-hr 2 YR Rainfall=3.04"

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Page 5

	Area (sf)	CN	Description
*	8,408	98	Paved roadways, HSG C
	4,202	74	>75% Grass cover, Good, HSG C
	738	70	Woods, Good, HSG C
•	13,348	89	Weighted Average
	4,940		37.01% Pervious Area
	8,408		62.99% Impervious Area

Summary for Subcatchment 4S: DA-E4

Runoff = 0.14 cfs @ 12.10 hrs, Volume= 0.010 af, Depth> 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2 YR Rainfall=3.04"

A	rea (sf)	CN	Description					
	2,100	74	>75% Grass cover, Good, HSG C					
	2,009	80	>75% Gras	>75% Grass cover, Good, HSG D				
	850	77	Woods, Go	Woods, Good, HSG D				
	4,959 4,959	77	77 Weighted Average 100.00% Pervious Area					
Tc (min)	Length (feet)	Slop (ft/ft	•	Capacity (cfs)	Description			
6.0					Direct Entry,			

-

Summary for Reach 10R: Burnshirt River

Inflow Area = 1.703 ac, 40.16% Impervious, Inflow Depth > 0.65" for 2 YR event

Inflow = 1.04 cfs @ 12.03 hrs, Volume= 0.092 af

Outflow = 1.04 cfs @ 12.03 hrs, Volume= 0.092 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 5P: Existing Depression

Inflow Area = 0.353 ac, 39.85% Impervious, Inflow Depth > 0.33" for 2 YR event

Inflow = 0.09 cfs @ 12.14 hrs, Volume= 0.010 af

Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 782.20' @ 20.00 hrs Surf.Area= 1,166 sf Storage= 423 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Type III 24-hr 2 YR Rainfall=3.04"

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Page 6

Volume	Invert	Avail.Sto	rage Stora	ge Description	
#1	781.50	8,3	55 cf Custo	om Stage Data (Pr	ismatic) Listed below (Recalc)
Elevation (feet)	S	urf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
781.50		0	0	0	
782.00		885	221	221	
783.00		2,319	1,602	1,823	
784.00		3,186	2,753	4,576	
785.00		4,373	3,780	8,355	
Device F	Routing	Invert	Outlet Dev	ices	
#1 F	Primary	782.94'	18.0" Rou	nd Culvert	
	•		L= 72.0' F	RCP, end-section of	conforming to fill, Ke= 0.500

L= 72.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 782.94' / 778.77' S= 0.0579 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=781.50' (Free Discharge) —1=Culvert (Controls 0.00 cfs)

Type III 24-hr 10 YR Rainfall=4.64"

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Page 7

Summary for Subcatchment 1S: DA-E1

Runoff = 0.42 cfs @ 12.11 hrs, Volume= 0.031 af, Depth> 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 10 YR Rainfall=4.64"

_	A	rea (sf)	CN	Description	Description				
4	ŧ	6,123	98	Paved road	Paved roadways, HSG A				
		6,271	39	>75% Gras	75% Grass cover, Good, HSG A				
		2,973	30	Woods, Go	/oods, Good, HSG A				
		15,367	61	Weighted Average					
		9,244		60.15% Pervious Area					
		6,123		39.85% Impervious Area					
	То	Longth	Clan	o Volocity	Conneity	Description			
	Tc	- 3	Slop	,	Capacity	Description			
_	(min)	(feet)	(ft/f	t) (ft/sec)	(cfs)				
	6.0					Direct Entry,			

Summary for Subcatchment 2S: DA-E2

Runoff = 1.43 cfs @ 12.10 hrs, Volume= 0.100 af, Depth> 1.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 10 YR Rainfall=4.64"

	Area (sf)	CN	Description				
*	10,002	98	Paved road	lways, HSG	G A		
*	5,260	98	Paved road	lways, HSG	G D		
	2,691	76	Gravel road	Gravel roads, HSG A			
	4,606	39	>75% Gras	s cover, Go	ood, HSG A		
	1,151	80	>75% Gras	s cover, Go	ood, HSG D		
	13,401	30	Woods, Go	Woods, Good, HSG A			
	3,395	77	Woods, Go	Woods, Good, HSG D			
	40,506	65	Weighted A	verage			
	25,244		62.32% Pei	rvious Area	a		
	15,262		37.68% lmp	pervious Ar	rea		
	Tc Length	Slop		Capacity	· · · · · · · · · · · · · · · · · · ·		
(m		(ft/	t) (ft/sec)	(cfs)			
6	6.0				Direct Entry,		

Summary for Subcatchment 3S: DA-E3

Runoff = 1.38 cfs @ 12.00 hrs, Volume= 0.083 af, Depth> 3.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 10 YR Rainfall=4.64"

Type III 24-hr 10 YR Rainfall=4.64"

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Page 8

	Area (sf)	CN	Description
*	8,408	98	Paved roadways, HSG C
	4,202	74	>75% Grass cover, Good, HSG C
	738	70	Woods, Good, HSG C
13,348 89 Weighted Average			Weighted Average
	4,940		37.01% Pervious Area
	8,408		62.99% Impervious Area

Summary for Subcatchment 4S: DA-E4

Runoff 0.30 cfs @ 12.09 hrs, Volume= 0.020 af, Depth> 2.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 10 YR Rainfall=4.64"

A	rea (sf)	CN	Description				
	2,100	74	>75% Gras	s cover, Go	od, HSG C		
	2,009	80	>75% Gras	s cover, Go	od, HSG D		
	850	77	Woods, Go	od, HSG D			
	4,959 4,959	77	Weighted A 100.00% Pe		a		
Tc (min)	Length (feet)	Slop (ft/ft	•	Capacity (cfs)	Description		
6.0					Direct Entry,		

Direct Entry,

Summary for Reach 10R: Burnshirt River

1.703 ac, 40.16% Impervious, Inflow Depth > 1.43" for 10 YR event Inflow Area =

2.53 cfs @ 12.06 hrs, Volume= Inflow 0.203 af

2.53 cfs @ 12.06 hrs, Volume= Outflow 0.203 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 5P: Existing Depression

Inflow Area = 0.353 ac, 39.85% Impervious, Inflow Depth > 1.04" for 10 YR event

Inflow = 0.42 cfs @ 12.11 hrs, Volume= 0.031 af

0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min Outflow

0.00 cfs @ 5.00 hrs, Volume= Primary 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 782.77' @ 20.00 hrs Surf.Area= 1,995 sf Storage= 1,336 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Type III 24-hr 10 YR Rainfall=4.64"

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Page 9

Volume	Inv	ert Ava	il.Storage	Storage	Description	
#1	781.	50'	8,355 cf	Custom	Stage Data (Pr	ismatic) Listed below (Recalc)
Elevatio	n	Surf.Area	In	c.Store	Cum.Store	
(fee	et)	(sq-ft)	(cub	ic-feet)	(cubic-feet)	
781.5	50	0		0	0	
782.0	00	885		221	221	
783.0	00	2,319		1,602	1,823	
784.0	00	3,186		2,753	4,576	
785.0	00	4,373		3,780	8,355	
Device	Routing	Ir	nvert Out	tlet Device	S	
#1	Primary	782	2.94' 18. 0	0" Round	Culvert	
	•					conforming to fill, Ke= 0.500
			Inle	t / Outlet I	nvert= 782.94' /	778.77' S= 0.0579 '/' Cc= 0.900

n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=781.50' (Free Discharge) —1=Culvert (Controls 0.00 cfs)

Type III 24-hr 100 YR Rainfall=7.17"

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Page 10

Summary for Subcatchment 1S: DA-E1

Runoff = 1.12 cfs @ 12.10 hrs, Volume= 0.076 af, Depth> 2.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 100 YR Rainfall=7.17"

	Area (sf)	CN	Description	l					
*	6,123	98	Paved road	lways, HSG	S A				
	6,271	39	>75% Gras	>75% Grass cover, Good, HSG A					
	2,973	30	Woods, Go	Voods, Good, HSG A					
	15,367	61	Weighted A	verage					
	9,244		60.15% Pei	rvious Area					
	6,123		39.85% lmp	39.85% Impervious Area					
	Γc Length	ı Slop	•	Capacity	Description				
(mi	n) (feet)	(ft/	ft) (ft/sec)	(cfs)					
6	.0				Direct Entry,				

Summary for Subcatchment 2S: DA-E2

Runoff = 3.43 cfs @ 12.10 hrs, Volume= 0.232 af, Depth> 2.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 100 YR Rainfall=7.17"

	Area	(sf)	CN	Description	1			
*	10,	002	98	Paved road	lways, HSG	G A		
*	5,	260	98	Paved road	lways, HSG	GD		
	2,	691	76	Gravel road	ds, HSG A			
	4,	606	39	>75% Gras	s cover, Go	ood, HSG A		
	1,	151	80	>75% Gras	s cover, Go	ood, HSG D		
	13,	401	30	Woods, Go	Voods, Good, HSG A			
	3,	395	77	Woods, Go	od, HSG D)		
	40,	506	65	Weighted A	Average			
	25,	244		62.32% Pe	rvious Area	a		
	15,	262		37.68% Imp	pervious Ar	rea		
			0.		•	5		
		ngth	Slop		Capacity	•		
<u>(m</u>	iin) (feet)	(ft/f	t) (ft/sec)	(cfs)			
(6.0					Direct Entry,		

Summary for Subcatchment 3S: DA-E3

Runoff = 2.29 cfs @ 12.00 hrs, Volume= 0.142 af, Depth> 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 100 YR Rainfall=7.17"

Type III 24-hr 100 YR Rainfall=7.17"

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Page 11

	Area (sf)	CN	Description
*	8,408	98	Paved roadways, HSG C
	4,202	74	>75% Grass cover, Good, HSG C
	738	70	Woods, Good, HSG C
	13,348	89	Weighted Average
	4,940		37.01% Pervious Area
	8,408		62.99% Impervious Area

Summary for Subcatchment 4S: DA-E4

Runoff = 0.59 cfs @ 12.09 hrs, Volume= 0.040 af, Depth> 4.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 100 YR Rainfall=7.17"

A	rea (sf)	CN	Description				
	2,100	74	>75% Gras	s cover, Go	od, HSG C		
	2,009	80	>75% Gras	s cover, Go	od, HSG D		
	850	77	Woods, Go	od, HSG D			
	4,959 4,959	77	Weighted A 100.00% Pe		a		
Tc (min)	Length (feet)	Slop (ft/ft	•	Capacity (cfs)	Description		
6.0					Direct Entry,		

·

Summary for Reach 10R: Burnshirt River

Inflow Area = 1.703 ac, 40.16% Impervious, Inflow Depth > 3.16" for 100 YR event

Inflow = 5.32 cfs @ 12.06 hrs, Volume= 0.448 af

Outflow = 5.32 cfs @ 12.06 hrs, Volume= 0.448 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 5P: Existing Depression

Inflow Area = 0.353 ac, 39.85% Impervious, Inflow Depth > 2.60" for 100 YR event

Inflow = 1.12 cfs @ 12.10 hrs, Volume= 0.076 af

Outflow = 0.10 cfs @ 13.68 hrs, Volume= 0.034 af, Atten= 91%, Lag= 95.2 min

Primary = 0.10 cfs @ 13.68 hrs, Volume= 0.034 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 783.07' @ 13.68 hrs Surf.Area= 2,383 sf Storage= 1,997 cf

Plug-Flow detention time= 213.9 min calculated for 0.034 af (45% of inflow)

Center-of-Mass det. time= 124.6 min (933.8 - 809.1)

Type III 24-hr 100 YR Rainfall=7.17"

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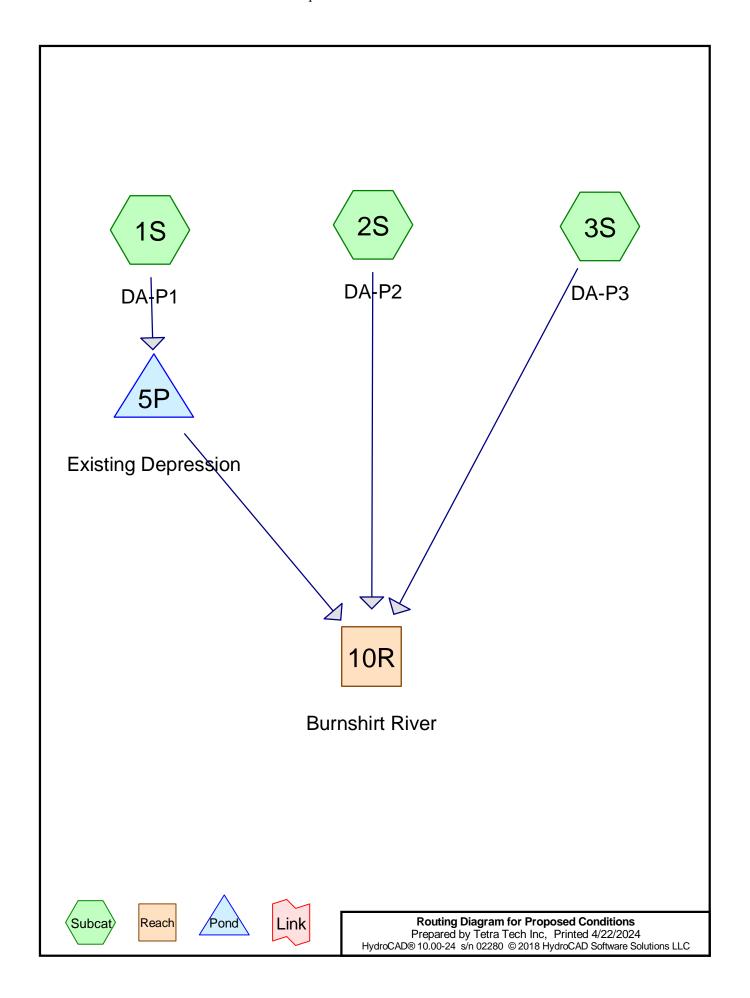
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Page 12

Volume	Inv	vert Ava	il.Storage	Storage	Description	
#1	781.	.50'	8,355 cf	Custom	Stage Data (Pri	ismatic) Listed below (Recalc)
Elevatio		Surf.Area (sq-ft)		c.Store ic-feet)	Cum.Store (cubic-feet)	
781.5		0	(00.10	0	0	
782.0	_	885		221	221	
783.0	00	2,319		1,602 1,823		
784.0	00	3,186		2,753	4,576	
785.0	00	4,373		3,780	8,355	
Device	Routing	ı Ir	vert Out	let Device	es	
#1	Primary	782	2.94' 18. 0)" Round	Culvert	
	•					conforming to fill, Ke= 0.500
			Inle	t / Outlet I	nvert= 782.94' /	778.77' S= 0.0579 '/' Cc= 0.900

n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=0.10 cfs @ 13.68 hrs HW=783.07' (Free Discharge) —1=Culvert (Inlet Controls 0.10 cfs @ 1.25 fps)



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Page 2

Area Listing (all nodes)

Area	CN	Description
(acres)		(subcatchment-numbers)
0.250	39	>75% Grass cover, Good, HSG A (1S, 2S)
0.098	74	>75% Grass cover, Good, HSG C (3S)
0.076	80	>75% Grass cover, Good, HSG D (2S, 3S)
0.054	76	Gravel roads, HSG A (2S)
0.378	98	Paved roadways, HSG A (1S, 2S)
0.253	98	Paved roadways, HSG C (2S, 3S)
0.159	98	Paved roadways, HSG D (3S)
0.376	30	Woods, Good, HSG A (1S, 2S)
0.004	70	Woods, Good, HSG C (3S)
0.055	77	Woods, Good, HSG D (2S)

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Page 3

Soil Listing (all nodes)

Area	Soil	Subcatchment
(acres)	Group	Numbers
1.058	HSG A	1S, 2S
0.000	HSG B	
0.355	HSG C	2S, 3S
0.291	HSG D	2S, 3S
0.000	Other	

Type III 24-hr 2 YR Rainfall=3.04"

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Page 4

Summary for Subcatchment 1S: DA-P1

Runoff = 0.09 cfs @ 12.14 hrs, Volume= 0.010 af, Depth> 0.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2 YR Rainfall=3.04"

Д	rea (sf)	CN	Description							
*	6,123	98	Paved road	Paved roadways, HSG A						
	6,271	39	>75% Gras	s cover, Go	ood, HSG A					
	2,973	30	Woods, Go	od, HSG A						
	15,367	61	Weighted A	verage						
	9,244		60.15% Per	rvious Area						
	6,123		39.85% Imp	39.85% Impervious Area						
Tc	Length	Slop	e Velocity	Capacity	Description					
_	_		,		Description					
(min)	(feet)	(ft/f	t) (ft/sec)	(cfs)						
6.0					Direct Entry.					

Summary for Subcatchment 2S: DA-P2

Runoff = 0.24 cfs @ 12.13 hrs, Volume= 0.025 af, Depth> 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2 YR Rainfall=3.04"

	Area (sf)	CN	Description		
*	10,346	98	Paved road	lways, HSG	S A
*	1,855	98	Paved road		
	2,361	76	Gravel road	ds, HSG A	
	4,606	39	>75% Gras	s cover, Go	ood, HSG A
	670	80	>75% Gras	s cover, Go	ood, HSG D
	13,412	30	Woods, Go	od, HSG A	
	2,394	77	Woods, Go	od, HSG D	
	35,644	62	Weighted A	verage	
	23,443		65.77% Pei	rvious Area	l .
	12,201		34.23% lmp	pervious Ar	rea
-	Tc Length	Slop	e Velocity	Capacity	Description
(mi	n) (feet)	(ft/	t) (ft/sec)	(cfs)	·
6	5.0				Direct Entry,

Summary for Subcatchment 3S: DA-P3

Runoff = 1.49 cfs @ 12.00 hrs, Volume= 0.088 af, Depth> 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2 YR Rainfall=3.04"

Type III 24-hr 2 YR Rainfall=3.04"

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Page 5

	Area (sf)	CN	Description
*	9,148	98	Paved roadways, HSG C
*	6,945	98	Paved roadways, HSG D
	4,278	74	>75% Grass cover, Good, HSG C
	2,651	80	>75% Grass cover, Good, HSG D
	165	70	Woods, Good, HSG C
	23,187	91	Weighted Average
	7,094		30.59% Pervious Area
	16,093		69.41% Impervious Area

Summary for Reach 10R: Burnshirt River

Inflow Area = 1.703 ac, 46.39% Impervious, Inflow Depth > 0.79" for 2 YR event

Inflow = 1.54 cfs @ 12.01 hrs, Volume= 0.113 af

Outflow = 1.54 cfs @ 12.01 hrs, Volume= 0.113 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 5P: Existing Depression

Inflow Area = 0.353 ac, 39.85% Impervious, Inflow Depth > 0.33" for 2 YR event

Inflow = 0.09 cfs @ 12.14 hrs, Volume= 0.010 af

Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 782.20' @ 20.00 hrs Surf.Area= 1,166 sf Storage= 423 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	t Avail.Sto	rage Storage	e Description	
#1	781.50	8,3	55 cf Custon	n Stage Data (Pri	ismatic) Listed below (Recalc)
Elevation		urf.Area	Inc.Store	Cum.Store	
(feet)		(sq-ft)	(cubic-feet)	(cubic-feet)	
781.50		0	0	0	
782.00		885	221	221	
783.00		2,319	1,602	1,823	
784.00		3,186	2,753	4,576	
785.00		4,373	3,780	8,355	
Device I	Routing	Invert	Outlet Devic	es	

#1 Primary 782.94' **18.0" Round Culvert**

L= 72.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 782.94' / 778.77' S= 0.0579 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=781.50' (Free Discharge) —1=Culvert (Controls 0.00 cfs)

Type III 24-hr 10 YR Rainfall=4.64"

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Page 6

Summary for Subcatchment 1S: DA-P1

Runoff = 0.42 cfs @ 12.11 hrs, Volume= 0.031 af, Depth> 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 10 YR Rainfall=4.64"

	Area (sf)	CN	Description					
*	6,123	98	Paved road	ways, HSG	i A			
	6,271	39	>75% Gras	s cover, Go	ood, HSG A			
	2,973	30	Woods, Go	od, HSG A				
	15,367	61	61 Weighted Average					
	9,244		60.15% Per	vious Area				
	6,123		39.85% Imp	39.85% Impervious Area				
T (mir	c Length) (feet)	Slop (ft/i	,	Capacity (cfs)	Description			
6.	0				Direct Entry,			

Summary for Subcatchment 2S: DA-P2

Runoff = 1.04 cfs @ 12.10 hrs, Volume= 0.075 af, Depth> 1.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 10 YR Rainfall=4.64"

	Area (s	f) CN	D	escription		
*	10,34	16 98	Р	aved road	ways, HSG	G A
*	1,85	55 98	Ρ	aved road	ways, HSG	GC
	2,36	31 76	G	ravel road	ls, HSG A	
	4,60	6 39	>	75% Gras	s cover, Go	lood, HSG A
	67	7 0 80	>	75% Gras	s cover, Go	lood, HSG D
	13,41	2 30	V	Voods, Go	od, HSG A	4
	2,39	<u>)4 </u>	V	√oods, Go	od, HSG D)
	35,64	4 62	V	Veighted A	verage	
	23,44	13	6	5.77% Per	vious Area	a
	12,20)1	3	4.23% lmp	pervious Ar	rea
	Tc Len		ope	Velocity	Capacity	Description
(m	in) (fe	et) (f	t/ft)	(ft/sec)	(cfs)	
6	5.0					Direct Entry,

Summary for Subcatchment 3S: DA-P3

Runoff = 2.50 cfs @ 12.00 hrs, Volume= 0.153 af, Depth> 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 10 YR Rainfall=4.64"

Type III 24-hr 10 YR Rainfall=4.64"

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Page 7

	Area (sf)	CN	Description
*	9,148	98	Paved roadways, HSG C
*	6,945	98	Paved roadways, HSG D
	4,278	74	>75% Grass cover, Good, HSG C
	2,651	80	>75% Grass cover, Good, HSG D
	165	70	Woods, Good, HSG C
	23,187	91	Weighted Average
	7,094		30.59% Pervious Area
	16,093		69.41% Impervious Area

Summary for Reach 10R: Burnshirt River

Inflow Area = 1.703 ac, 46.39% Impervious, Inflow Depth > 1.60" for 10 YR event

Inflow = 3.04 cfs @ 12.01 hrs, Volume= 0.228 af

Outflow = 3.04 cfs @ 12.01 hrs, Volume= 0.228 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 5P: Existing Depression

Inflow Area = 0.353 ac, 39.85% Impervious, Inflow Depth > 1.04" for 10 YR event

Inflow = 0.42 cfs @ 12.11 hrs, Volume= 0.031 af

Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 782.77' @ 20.00 hrs Surf.Area= 1,995 sf Storage= 1,336 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Inver	t Avail.Sto	orage Storage	e Description	
#1	781.50)' 8,3	55 cf Custon	n Stage Data (Pri	ismatic) Listed below (Recalc)
Elevation (feet)		Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
781.50)	0	0	0	
782.00)	885	221	221	
783.00)	2,319	1,602	1,823	
784.00)	3,186	2,753	4,576	
785.00)	4,373	3,780	8,355	
Device	Routing	Invert	Outlet Devic	es	

#1 Primary 782.94' **18.0" Round Culvert**

L= 72.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 782.94' / 778.77' S= 0.0579 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=781.50' (Free Discharge)
—1=Culvert (Controls 0.00 cfs)

Type III 24-hr 100 YR Rainfall=7.17"

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Page 8

Summary for Subcatchment 1S: DA-P1

Runoff = 1.12 cfs @ 12.10 hrs, Volume= 0.076 af, Depth> 2.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 100 YR Rainfall=7.17"

	Area (sf)	CN	Description	l				
*	6,123	98	Paved road	lways, HSG	S A			
	6,271	39	>75% Gras	s cover, Go	ood, HSG A			
	2,973	30	Woods, Go	Woods, Good, HSG A				
	15,367	61	Weighted A	verage				
	9,244		60.15% Pei	rvious Area				
	6,123		39.85% Impervious Area					
	Γc Length	ı Slop	•	Capacity	Description			
(mi	n) (feet)	(ft/	ft) (ft/sec)	(cfs)				
6	.0				Direct Entry,			

Summary for Subcatchment 2S: DA-P2

Runoff = 2.71 cfs @ 12.10 hrs, Volume= 0.184 af, Depth> 2.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 100 YR Rainfall=7.17"

	Area (sf)	CN	Description		
*	10,346	98	Paved road	lways, HSG	SA
*	1,855	98	Paved road	lways, HSG	S C
	2,361	76	Gravel road	ds, HSG A	
	4,606	39	>75% Gras	s cover, Go	ood, HSG A
	670	80	>75% Gras	s cover, Go	ood, HSG D
	13,412	30	Woods, Go	od, HSG A	
	2,394	77	Woods, Go	od, HSG D	
	35,644	62	Weighted A	verage	
	23,443		65.77% Per	rvious Area	
	12,201		34.23% lmp	pervious Ar	rea
	T. L	01-		0	Describetes
	Tc Length			Capacity	Description
<u>(m</u>	in) (feet)	(ft/	ft) (ft/sec)	(cfs)	
6	6.0				Direct Entry,

Summary for Subcatchment 3S: DA-P3

Runoff = 4.08 cfs @ 12.00 hrs, Volume= 0.256 af, Depth> 5.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 100 YR Rainfall=7.17"

Type III 24-hr 100 YR Rainfall=7.17"

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Page 9

	Area (sf)	CN	Description
*	9,148	98	Paved roadways, HSG C
*	6,945	98	Paved roadways, HSG D
	4,278	74	>75% Grass cover, Good, HSG C
	2,651	80	>75% Grass cover, Good, HSG D
	165	70	Woods, Good, HSG C
	23,187	91	Weighted Average
	7,094		30.59% Pervious Area
	16,093		69.41% Impervious Area

Summary for Reach 10R: Burnshirt River

Inflow Area = 1.703 ac, 46.39% Impervious, Inflow Depth > 3.34" for 100 YR event

Inflow = 5.74 cfs @ 12.02 hrs, Volume= 0.474 af

Outflow = 5.74 cfs @ 12.02 hrs, Volume= 0.474 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 5P: Existing Depression

Inflow Area = 0.353 ac, 39.85% Impervious, Inflow Depth > 2.60" for 100 YR event

Inflow = 1.12 cfs @ 12.10 hrs, Volume= 0.076 af

Outflow = 0.10 cfs @ 13.68 hrs, Volume= 0.034 af, Atten= 91%, Lag= 95.2 min

Primary = 0.10 cfs @ 13.68 hrs, Volume= 0.034 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 783.07' @ 13.68 hrs Surf.Area= 2,383 sf Storage= 1,997 cf

Plug-Flow detention time= 213.9 min calculated for 0.034 af (45% of inflow)

Center-of-Mass det. time= 124.6 min (933.8 - 809.1)

Volume	Invert	Avail.Sto	rage Storage	Description	
#1	781.50'	8,35	55 cf Custom	Stage Data (Pri	smatic) Listed below (Recalc)
Elevation (feet)		Area sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
781.50		0	0	0	
782.00		885	221	221	
783.00	2	2,319	1,602	1,823	
784.00	3	3,186	2,753	4,576	
785.00	2	1,373	3,780	8,355	
Device R	outing	Invert	Outlet Device	es	

#1 Primary 782.94' **18.0" Round Culvert**

L= 72.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 782.94' / 778.77' S= 0.0579 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=0.10 cfs @ 13.68 hrs HW=783.07' (Free Discharge)

1=Culvert (Inlet Controls 0.10 cfs @ 1.25 fps)

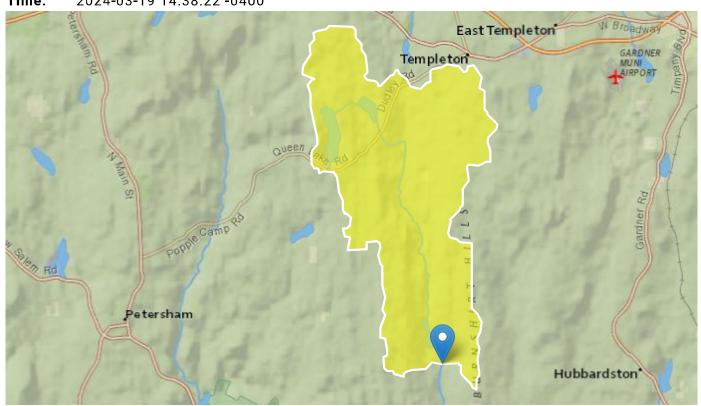
StreamStats Report

Region ID: MA

Workspace ID: MA20240319183758522000

Clicked Point (Latitude, Longitude): 42.47585, -72.07636

Time: 2024-03-19 14:38:22 -0400



Collapse All

> Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLDEM10M	Mean basin slope computed from 10 m DEM	8.294	percent
DRNAREA	Area that drains to a point on a stream	12.5	square miles
ELEV	Mean Basin Elevation	1040	feet
FOREST	Percentage of area covered by forest	77.7	percent
LC06STOR	Percentage of water bodies and wetlands determined from the NLCD 2006	13.5	percent

Parameter Code	Parameter Description	Value	Unit
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	1	dimensionless
PCTSNDGRV	Percentage of land surface underlain by sand and gravel deposits	12.41	percent

> Peak-Flow Statistics

Peak-Flow Statistics Parameters [Peak Statewide 2016 5156]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	12.5	square miles	0.16	512
ELEV	Mean Basin Elevation	1040	feet	80.6	1948
LC06STOR	Percent Storage from NLCD2006	13.5	percent	0	32.3

Peak-Flow Statistics Flow Report [Peak Statewide 2016 5156]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PIL	PIU	ASEp
50-percent AEP flood	349	ft^3/s	175	697	42.3
20-percent AEP flood	585	ft^3/s	289	1190	43.4
10-percent AEP flood	778	ft^3/s	375	1620	44.7
4-percent AEP flood	1060	ft^3/s	492	2280	47.1
2-percent AEP flood	1300	ft^3/s	584	2890	49.4
1-percent AEP flood	1560	ft^3/s	679	3590	51.8
0.5-percent AEP flood	1850	ft^3/s	780	4390	54.1
0.2-percent AEP flood	2260	ft^3/s	908	5630	57.6

Peak-Flow Statistics Citations

Zarriello, P.J.,2017, Magnitude of flood flows at selected annual exceedance probabilities for streams in Massachusetts: U.S. Geological Survey Scientific

> Bankfull Statistics

Bankfull Statistics Parameters [Bankfull Statewide SIR2013 5155]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	12.5	square miles	0.6	329
BSLDEM10M	Mean Basin Slope from 10m	8.294	percent	2.2	23.9

Bankfull Statistics Parameters [Appalachian Highlands D Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	12.5	square miles	0.07722	940.1535

Bankfull Statistics Parameters [New England P Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	12.5	square miles	3.799224	138.999861

Bankfull Statistics Parameters [USA Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	12.5	square miles	0.07722	59927.7393

Bankfull Statistics Flow Report [Bankfull Statewide SIR2013 5155]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	ASEp
Bankfull Width	41.7	ft	21.3
Bankfull Depth	2.01	ft	19.8
Bankfull Area	83.3	ft^2	29
Bankfull Streamflow	280	ft^3/s	55

Bankfull Statistics Flow Report [Appalachian Highlands D Bieger 2015]

Statistic	Value	Unit
Bieger_D_channel_width	43.3	ft
Bieger_D_channel_depth	2.31	ft
Bieger_D_channel_cross_sectional_area	102	ft^2

Bankfull Statistics Flow Report [New England P Bieger 2015]

Statistic	Value	Unit
Bieger_P_channel_width	51.3	ft
Bieger_P_channel_depth	2.4	ft
Bieger_P_channel_cross_sectional_area	126	ft^2

Bankfull Statistics Flow Report [USA Bieger 2015]

Statistic	Value	Unit
Bieger_USA_channel_width	30.1	ft
Bieger_USA_channel_depth	2.06	ft
Bieger_USA_channel_cross_sectional_area	66.8	ft^2

Bankfull Statistics Flow Report [Area-Averaged]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	ASEp
Bankfull Width	41.7	ft	21.3
Bankfull Depth	2.01	ft	19.8
Bankfull Area	83.3	ft^2	29
Bankfull Streamflow	280	ft^3/s	55
Bieger_D_channel_width	43.3	ft	
Bieger_D_channel_depth	2.31	ft	
Bieger_D_channel_cross_sectional_area	102	ft^2	
Bieger_P_channel_width	51.3	ft	
Bieger_P_channel_depth	2.4	ft	
Bieger_P_channel_cross_sectional_area	126	ft^2	

Proposal No. 609187-130387

Statistic	Value	Unit	ASEp
Bieger_USA_channel_width	30.1	ft	
Bieger_USA_channel_depth	2.06	ft	
Bieger_USA_channel_cross_sectional_area	66.8	ft^2	

Bankfull Statistics Citations

Bent, G.C., and Waite, A.M.,2013, Equations for estimating bankfull channel geometry and discharge for streams in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2013–5155, 62 p., (http://pubs.usgs.gov/sir/2013/5155/) Bieger, Katrin; Rathjens, Hendrik; Allen, Peter M.; and Arnold, Jeffrey G.,2015, Development and Evaluation of Bankfull Hydraulic Geometry Relationships for the Physiographic Regions of the United States, Publications from USDA-ARS / UNL Faculty, 17p. (https://digitalcommons.unl.edu/usdaarsfacpub/1515? utm_source=digitalcommons.unl.edu%2Fusdaarsfacpub%2F1515&utm_medium=PDF&utm_ca

> Probability Statistics

Probability Statistics Parameters [Perennial Flow Probability]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	12.5	square miles	0.01	1.99
PCTSNDGRV	Percent Underlain By Sand And Gravel	12.41	percent	0	100
FOREST	Percent Forest	77.7	percent	0	100
MAREGION	Massachusetts Region	1	dimensionless	0	1

Probability Statistics Disclaimers [Perennial Flow Probability]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Probability Statistics Flow Report [Perennial Flow Probability]

Statistic	Value	Unit
Probability Stream Flowing Perennially	0.988	dim

Probability Statistics Citations

Bent, G.C., and Steeves, P.A.,2006, A revised logistic regression equation and an automated procedure for mapping the probability of a stream flowing perennially in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2006–5031, 107 p. (http://pubs.usgs.gov/sir/2006/5031/pdfs/SIR_2006-5031rev.pdf)

Maximum Probable Flood Statistics

Maximum Probable Flood Statistics Parameters [Crippen Bue Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	12.5	square miles	0.1	10000

Maximum Probable Flood Statistics Flow Report [Crippen Bue Region 1]

Statistic	Value	Unit
Maximum Flood Crippen Bue Regional	21900	ft^3/s

Maximum Probable Flood Statistics Citations

Crippen, J.R. and Bue, Conrad D.1977, Maximum Floodflows in the Conterminous United States, Geological Survey Water-Supply Paper 1887, 52p. (https://pubs.usgs.gov/wsp/1887/report.pdf)

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

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USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Application Version: 4.19.4

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

Appendix E: O&M Plan and LTPPP

- > Stormwater Management System Operation and Maintenance (O&M) Plan
- > Long-Term Pollution Prevention Plan (LTPPP)

Operation and Maintenance Plan | Long-Term Pollution Prevention Plan

Williamsville Road over Burnshirt River Bridge No. H-24-003

Stormwater Management System
Operation and Maintenance Plan and
Long-Term Pollution Prevention Plan
Hubbardston, MA

PREPARED FOR



10 Park Plaza Boston, MA 02116

PREPARED BY



Tetra Tech, Inc. 100 Nickerson Road Marlborough, MA 01752

11/12/2024

Table of Contents

1	Storn	nwater M	anagement System Operation and Maintenance (O&M) Pla	an1
	1.1	Respon	nsible Party	1
	1.2	Inspect	ion and Maintenance Measures and Record-Keeping	1
	1.3	Erosion	and Sediment Control Measures during Maintenance Activitie	s 3
	1.4	O&M B	Budget	4
2	Long	-Term Po	Ilution Prevention Plan	5
	2.1	Practice	es for Long-Term Pollution Prevention	5
		2.1.1	Litter Pick-up	5
		2.1.2	Inspection and Maintenance of Stormwater Assets	5
		2.1.3	Maintenance of Landscaped Areas	5
		2.1.4	Snow and Ice Management	6
		2.1.5	Street Sweeping	6
		2.1.6	Prohibition of Illicit Discharges	6

Operation and Maintenance Plan | Long-Term Pollution Prevention Plan Williamsville Road over Burnshirt River, Hubbardston, MA

1

Stormwater Management System Operation and Maintenance (O&M) Plan

This Stormwater Management System Operation and Maintenance (O&M) Plan describes the approach for inspection and maintenance of drainage infrastructure and structural stormwater control measures (SCMs) to minimize contaminant loading for Williamsville Road over Burnshirt River in Hubbardston, MA. In general, inspection and maintenance activities will be conducted consistent with the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer System (MS4) and MassDOT's anticipated NPDES Transportation Separate Storm Sewer System (TS4) Permit.

This document has been prepared per the requirements of Massachusetts Department of Environmental Protection (MassDEP) Regulations 310 CMR 10.05 (6)(k)(9) and satisfies the requirements of Massachusetts Stormwater Standard 9.

1.1 Responsible Party

In accordance with MassDOT procedures, the MassDOT District 3 office located in Worcester, MA, is responsible for the maintenance of all stormwater management systems on MassDOT roads within the project area.

Questions or concerns regarding activities associated with this O&M Plan should be addressed to MassDOT's District 3 office located at 499 Plantation Parkway, Worcester, MA 01605, phone (857) 368-3000, during regular weekday hours, or to MassDOT's Highway Operations Center located in South Boston, MA at (800) 227-0608 during all other times and days, including weekends and holidays.

1.2 Inspection and Maintenance Measures and Record-Keeping

MADEP's handbook represents goals for public works agencies to seek to meet. However, due to funding constraints and low staffing levels, it is very challenging to meet the stated frequencies. MassDOT will continue to strive to meet MADEP's frequencies listed in the tables below until a programmatic operations and maintenance plan is established, which will supercede this project specific operations and maintenance plan.

Operation and Maintenance Plan | Long-Term Pollution Prevention Plan Williamsville Road over Burnshirt River, Hubbardston, MA

See Figure 3 of the Stormwater Management Report for the proposed stormwater system within the project limits. The stormwater management system covered by this O&M Plan consists of the following measures:

- Deep Sump Catch Basins
- · Rip Rap Outlet Protection

MassDOT uses a performance-based inspection and maintenance program for SCMs and catch basins. For SCMs, MassDOT's overall approach is to inspect SCMs, and based on the results of the inspections, perform maintenance to preserve functionality. For catch basins, MassDOT's overall approach is to perform maintenance at an interval that maintains the functionality of the catch basin (e.g., sump is less than 50% full of sediment). Catch basin inspections, including documentation of sediment accumulation, and maintenance will generally occur simultaneously.

MassDOT's O&M program is data driven. Inspections and maintenance are recorded by personnel using hand-held tablets in the field to document sediment accumulation, maintenance action performed, and follow-up actions needed. Data are recorded in MassDOT's asset management system which is accessible in the field (mobile) or the office (desktop).

The table below summarizes data that is generally collected for each asset type. For all assets, the inspector and inspection date are recorded. Photo documentation of structure condition is taken and attached to the inspection record.

Inspection Form	Applicable Stormwater Assets	Information Collected
Inlets	> Catch basins	> Sediment accumulation
		> Trash/Debris accumulation
		> Signs of contamination
		> Frame and grate condition
		Overall structure condition
Storm Discharge	> Outlets to SCMs	> Presence of flow
Points		> Signs of contaminated flow
		> Sediment accumulation
		> Level of erosion
		> Pipe condition
		> Scour protection condition
		> Overall structure condition

Inspection and maintenance records can be made available using the asset management system through request with the MassDOT District 3 Environmental Engineer. Records will be kept for at least three years. Representatives of the Hubbardston Conservation Commission(s), MassDEP, and US EPA may obtain access to these records, upon request. Additionally, MassDOT will allow members and agents of MassDEP and the Conservation

Operation and Maintenance Plan | Long-Term Pollution Prevention Plan Williamsville Road over Burnshirt River, Hubbardston, MA

Commission(s) to enter and inspect the premises, upon request, to evaluate and ensure that the Operation and Maintenance Plan requirements for each SCM are being followed.

Maintenance actions will not occur at any set frequency, but rather will be based on condition and impact to functionality. Maintenance to be performed on the stormwater system includes:

Stormwater Feature	Potential Maintenance Actions	
Inlets and Outlets to SCMs	 Clear inlet and remove and properly dispose of sediment, trash, leaf litter, debris, and vegetation Repair or replace structural components Repair damaged or eroded areas 	 Provide or rehabilitate erosion control at the outlet Regrade and replace the channel materials Remove woody growth Stabilize or reconstruct eroded areas Treat invasive plants according to MassDOT Vegetation Management Plan

Based on the results of the inspection, repairs will be made in accordance with MassDOT standard practices. Maintenance will be prioritized given the urgency of the required maintenance and availability of staff, contracts, etc. Maintenance may require contracting if existing contracts are unavailable to perform the work. More intensive remedial activities may require permitting and/or an engineering solution.

1.3 Erosion and Sediment Control Measures during Maintenance Activities

For maintenance activities that could result in discharges of sediments or other contaminants into wetlands, waterways, or other resource areas regulated under 310 CMR 10.00, the responsible maintenance personnel will employ measures to prevent migration of these sediments/contaminants. Such temporary measures may include, but are not necessarily limited to, the use of siltation barriers, catch basin silt sacks/filter bags, pipe plugs, cofferdams deployed within the stormwater structure, turbidity curtains, or other practices designed to prevent such discharges.

Where maintenance occurs in areas that are confined, with no risk of discharge to adjacent water bodies, no special measures may be needed. Examples include, but are not limited to: (1) cleaning of a forebay under dry conditions when the work can be completed and exposed surfaces stabilized prior to placing it back into service; and (2) catch basin cleaning where the activity is limited to removing material from a sump below the elevation of the outlet pipe.

Proposal No. 609187-130387

Operation and Maintenance Plan | Long-Term Pollution Prevention Plan Williamsville Road over Burnshirt River, Hubbardston, MA

1.4 O&M Budget

MassDOT performs maintenance for stormwater management systems as part of their routine operation and maintenance budget for roadways and bridges. Budgets are managed at the district level and vary by fiscal year, depending on funding sources.

2

Long-Term Pollution Prevention Plan

This Long-Term Pollution Prevention Plan (LTPPP) describes the approach for pollution prevention and related maintenance activities for Williamsville Road over Burnshirt River in Hubbardston, MA. In general, long-term pollution prevention and related maintenance activities will be conducted consistent with:

- The National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer System (MS4),
- MassDOT's anticipated NPDES Transportation Separate Storm Sewer System (TS4)
 Permit, and
- Measures outlined in MassDOT's Stormwater Management Plan (SWMP).

This LTPPP satisfies the requirements related to pollution prevention under Massachusetts Stormwater Standards 4, 5, 6, and 10.

2.1 Practices for Long-Term Pollution Prevention

For the facilities covered, long-term pollution prevention includes the following measures.

2.1.1 Litter Pick-up

MassDOT will conduct litter pick-up from the stormwater management facilities in conjunction with routine road maintenance activities.

2.1.2 Inspection and Maintenance of Stormwater Assets

MassDOT will conduct inspection and maintenance of drainage infrastructure and the stormwater control measures (SCMs) in accordance with the O&M Plan, as described in Section 1.

2.1.3 Maintenance of Landscaped Areas

Routine mowing will be conducted according to standard MassDOT practices. SCM basin bottoms and embankments designed to impound water should be mowed as required to prevent establishment of woody vegetation.

Operation and Maintenance Plan | Long-Term Pollution Prevention Plan Williamsville Road over Burnshirt River, Hubbardston, MA

Except in rare circumstances, MassDOT does not use fertilizers, herbicides, and pesticides for the maintenance of facilities. Exceptions include using fertilizer to ensure the survival of new plantings and herbicides to control invasive plants. Use of fertilizers and herbicides is reviewed and approved by the MassDOT Landscape Design Section and District 3 Environmental Engineer prior to application. Local Conservation Commission review may also be required.

2.1.4 Snow and Ice Management

Snow and Ice Management will be conducted consistent with the practices outlined in the MassDOT Snow and Ice Control Program Environmental Status and Planning Report (ESPR), formerly known as the Snow and Ice Control Generic Environmental Impact Report (GEIR).

In accordance with the Snow and Ice Control ESPR, no sand is used on MassDOT properties for snow and ice control. The exception to this rule is within reduced salt areas where high sodium levels have been found in drinking water sources.

2.1.5 Street Sweeping

Routine highway cleaning, with a brush-type street sweeper, will be conducted in accordance with standard MassDOT practices. Sweeping will occur annually in the Spring.

2.1.6 Prohibition of Illicit Discharges

The MassDEP Stormwater Management Standard 10 prohibits illicit discharges to the stormwater management system. Illicit discharges are discharges that do not consist entirely of stormwater, except for certain specified non-stormwater discharges.

In accordance with the existing MS4 permit and anticipated TS4 permit requirements, examples of discharges from the following sources are not considered illicit discharges:

Firefighting activities* > Flows from riparian habitats/wetlands

> Foundation drains > Potable water sources

Water line flushing Dechlorinated swimming pool water

> Footing drains > Street wash waters

> Landscape irrigation > Wash water from residential buildings (no detergents)

> Individual residential car washing > Condensation from air conditioning units

> Uncontaminated groundwater > Run-on from private driveways caused by precipitation

> Rising groundwater > Lawn watering

Diverted stream flows > Water from crawl space pumps

*Water from firefighting activities is allowed and need only be addressed where they are identified as significant sources of pollutants to waters of the United States.

Proposal No. 609187-130387

Operation and Maintenance Plan | Long-Term Pollution Prevention Plan Williamsville Road over Burnshirt River, Hubbardston, MA

Based on plan review and confirmation in the field, there are no known or proposed illicit connections associated with the Project. Should an interconnection to the stormwater management system be identified, the MassDOT PM will coordinate with the District Permits Engineer to confirm if the connections are authorized. For unauthorized connections, the MassDOT PM and/or MassDOT Environmental Services Section will investigate the connections and if they are determined to be illicit, the connections will be managed through MassDOT's Illicit Discharge Detection and Elimination (IDDE) program and/or through other agencies.

RIPRAP SIZING	
MAX Q = 4.1 CFS	
$\mathcal{D} = 1.5^{\circ}$	
Tw=0,40	
Dra = 0.20/ Q 1/3/D)	(FROM HEC 14 Spect, 10.2)
$D_{50} = 0.20 \left(\frac{Q}{\sqrt{g}}\right)^{4/3} \left(\frac{D}{TW}\right)$	
$= 0.2(1.5) \left(\frac{4.1}{122}, \frac{4.1}{122}, \frac{4.1}{122} \right)$	3/16
$= 0.2(1.5) \left(\frac{4.1}{\sqrt{32.12}} \times 1.5^{-2.5} \right)^{4/3}$	(3465)
= 0,13' OR ~2"	
GMY DS0 = 5"	
APRON LANGAT = 4D= 4X1.	5 = 6
100 1 2 -0 -1 - 7 - 2	~ d = 13 -11 (M) (C)
APRON DEPOT = 3,5 DS0 = 3.	
APRON WIDTH = 3D+ 43L=	3(1.5') + 2/3(6') = 8.5'
MIN. RIPEMP APRON = 6'L	x 8,5 Wx 1.5D
	BRIDGE # 4-24-003
TE TETRA TECH	OB BRIDGE # 4-24-003 SHEET NOOF
	CALCULATED BY WHC DATE 9/2024 CHECKED BY DATE
	SCALE

Attachment G

USFWS Section 7 Consultation



United States Department of the Interior



FISH AND WILDLIFE SERVICE

New England Ecological Services Field Office 70 Commercial Street, Suite 300 Concord, NH 03301-5094 Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To: October 27, 2022

Project code: 2023-0006794

Project Name: 609187 - HUBBARDSTON- BRIDGE REPLACEMENT, H-24-003,

WILLIAMSVILLE ROAD OVER THE BURNSHIRT RIVER

Subject: Concurrence verification letter for the '609187 - HUBBARDSTON- BRIDGE

REPLACEMENT, H-24-003, WILLIAMSVILLE ROAD OVER THE BURNSHIRT RIVER' project under the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat

and Northern Long-eared Bat.

To whom it may concern:

The U.S. Fish and Wildlife Service (Service) has received your request dated October 27, 2022 to verify that the **609187 - HUBBARDSTON- BRIDGE REPLACEMENT, H-24-003, WILLIAMSVILLE ROAD OVER THE BURNSHIRT RIVER** (Proposed Action) may rely on the concurrence provided in the February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat (PBO) to satisfy requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C 1531 *et seq.*).

Based on the information you provided (Project Description shown below), you have determined that the Proposed Action is within the scope and adheres to the criteria of the PBO, including the adoption of applicable avoidance and minimization measures, and may affect, but is <u>not likely to adversely affect</u> (NLAA) the endangered Indiana bat (*Myotis sodalis*) and/or the threatened Northern long-eared bat (*Myotis septentrionalis*). Consultation with the 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.

The Service has 14 calendar days to notify the lead Federal action agency or designated non-federal representative if we determine that the Proposed Action does not meet the criteria for a NLAA determination under the PBO. If we do <u>not</u> notify the lead Federal action agency or designated non-federal representative within that timeframe, you may proceed with the Proposed Action under the terms of the NLAA concurrence provided in the PBO. 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.

For Proposed Actions that include bridge/culvert or structure removal, replacement, and/or maintenance activities: If your initial bridge/culvert or structure assessments failed to detect Indiana bats, but you later detect bats prior to, or during construction, please submit the Post Assessment Discovery of Bats at Bridge/Culvert or Structure Form (User Guide Appendix E) to this Service Office. In these instances, potential incidental take of Indiana bats may be exempted provided that the take is reported to the Service.

If the Proposed Action is modified, or new information reveals that it may affect the Indiana bat and/or Northern long-eared bat in a manner or to an extent not considered in the PBO, further review to conclude the requirements of ESA Section 7(a)(2) may be required. If the Proposed Action may affect any other federally-listed or proposed species, and/or any designated critical habitat, additional consultation between the lead Federal action agency and this Service Office is required. If the proposed action has the potential to take bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act may also be required. In either of these circumstances, please contact this Service Office.

The following species may occur in your project area and **are not** covered by this determination:

• Monarch Butterfly *Danaus plexippus* Candidate

Project Description

The following project name and description was collected in IPaC as part of the endangered species review process.

Name

609187 - HUBBARDSTON- BRIDGE REPLACEMENT, H-24-003, WILLIAMSVILLE ROAD OVER THE BURNSHIRT RIVER

Description

609178 - HUBBARDSTON- BRIDGE REPLACEMENT, H-24-003, WILLIAMSVILLE ROAD OVER THE BURNSHIRT RIVER

The project will consists of the functional replacement of the bridge that carries Williamsville Road over the Burnshirt River in Hubbardston.

Monarch Butterfly: Candidate Species only, no conservation measures at this time.

Determination Key Result

Based on your answers provided, this project(s) may affect, but is not likely to adversely affect the endangered Indiana bat and/or the threatened Northern long-eared 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 revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

Qualification Interview

- 1. Is the project within the range of the Indiana bat^[1]?
 - [1] See Indiana bat species profile

Automatically answered

Nο

- 2. Is the project within the range of the Northern long-eared bat^[1]?
 - [1] See Northern long-eared bat species profile

Automatically answered

Yes

- 3. Which Federal Agency is the lead for the action?
 - A) Federal Highway Administration (FHWA)
- 4. Are *all* project activities limited to non-construction^[1] activities only? (examples of non-construction activities include: bridge/abandoned structure assessments, surveys, planning and technical studies, property inspections, and property sales)
 - [1] Construction refers to activities involving ground disturbance, percussive noise, and/or lighting. No
- 5. Does the project include *any* activities that are **greater than** 300 feet from existing road/rail surfaces^[1]?
 - [1] Road surface is defined as the actively used [e.g. motorized vehicles] driving surface and shoulders [may be pavement, gravel, etc.] and rail surface is defined as the edge of the actively used rail ballast.

No

- 6. Does the project include *any* activities **within** 0.5 miles of a known Indiana bat and/or NLEB hibernaculum^[1]?
 - [1] For the purpose of this consultation, a hibernaculum is a site, most often a cave or mine, where bats hibernate during the winter (see suitable habitat), but could also include bridges and structures if bats are found to be hibernating there during the winter.

No

7. Is the project located **within** a karst area?

No

- 8. Is there *any* suitable^[1] summer habitat for Indiana Bat or NLEB **within** the project action area^[2]? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)
 - [1] See the Service's <u>summer survey guidance</u> for our current definitions of suitable habitat.
 - [2] The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR Section 402.02). Further clarification is provided by the <u>User's Guide for the Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat</u>.

Yes

- 9. Will the project remove *any* suitable summer habitat^[1] and/or remove/trim any existing trees **within** suitable summer habitat?
 - [1] See the Service's <u>summer survey guidance</u> for our current definitions of suitable habitat. *Yes*
- 10. Will the project clear more than 20 acres of suitable habitat per 5-mile section of road/rail? *No*
- 11. Have presence/probable absence (P/A) summer surveys^{[1][2]} been conducted^{[3][4]} **within** the suitable habitat located within your project action area?
 - [1] See the Service's <u>summer survey guidance</u> for our current definitions of suitable habitat.
 - [2] Presence/probable absence summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernaculum (contact local Service Field Office for appropriate distance from hibernacula) that result in a negative finding requires additional consultation with the local Service Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.
 - [3] For projects within the range of either the Indiana bat or NLEB in which suitable habitat is present, and no bat surveys have been conducted, the transportation agency will assume presence of the appropriate species. This assumption of presence should be based upon the presence of suitable habitat and the capability of bats to occupy it because of their mobility.
 - [4] Negative presence/probable absence survey results obtained using the <u>summer survey guidance</u> are valid for a minimum of two years from the completion of the survey unless new information (e.g., other nearby surveys) suggest otherwise.

Yes

SUBMITTED DOCUMENTS

609187_rpt_hubbardston_nleb_survey_20221011.pdf https://
 ipac.ecosphere.fws.gov/project/OA7HPJ72WFEP7IU3CHTNPL4L5M/
 projectDocuments/118307961

- 12. Did the presence/probable absence (P/A) summer surveys detect Indiana bats and/or NLEB^[1]?
 - [1] P/A summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernaculum (contact local Service Field Office for appropriate home range) that result in a negative finding requires additional consultation with the local Service Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.

No

- 13. Were the P/A summer surveys conducted **within** the fall swarming/spring emergence range of a documented Indiana bat hibernaculum^[1]?
 - [1] Contact the local Service Field Office for appropriate distance from hibernacula.
 - No
- 14. Does the project include activities **within documented NLEB habitat**^{[1][2]}?
 - [1] Documented roosting or foraging habitat for the purposes of this consultation, we are considering documented habitat as that where Indiana bats and/or NLEB have actually been captured and tracked using (1) radio telemetry to roosts; (2) radio telemetry biangulation/triangulation to estimate foraging areas; or (3) foraging areas with repeated use documented using acoustics. Documented roosting habitat is also considered as suitable summer habitat within 0.25 miles of documented roosts.)
 - [2] For the purposes of this key, we are considering documented corridors as that where Indiana bats and/or NLEB have actually been captured and tracked to using (1) radio telemetry; or (2) treed corridors located directly between documented roosting and foraging habitat.

No

15. Will the removal or trimming of habitat or trees occur **within** suitable but **undocumented NLEB** roosting/foraging habitat or travel corridors?

Yes

- 16. What time of year will the removal or trimming of habitat or trees **within** suitable but **undocumented NLEB** roosting/foraging habitat or travel corridors occur?
 - *C*) During both the active and inactive seasons
- 17. Will *any* tree trimming or removal occur **within** 100 feet of existing road/rail surfaces? *Yes*
- 18. Will *any* tree trimming or removal occur **between** 100-300 feet of existing road/rail surfaces?

No

19. Are *all* trees that are being removed clearly demarcated?

Yes

20. Will the removal of habitat or the removal/trimming of trees involve the use of **temporary** lighting?

Yes

21. Will the removal of habitat or the removal/trimming of trees include installing new or replacing existing **permanent** lighting?

No

22. Does the project include wetland or stream protection activities associated with compensatory wetland mitigation?

No

23. Does the project include slash pile burning?

No

- 24. Does the project include *any* bridge removal, replacement, and/or maintenance activities (e.g., any bridge repair, retrofit, maintenance, and/or rehabilitation work)? *Yes*
- 25. Is there *any* suitable habitat^[1] for Indiana bat or NLEB **within** 1,000 feet of the bridge? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)
 - [1] See the Service's current <u>summer survey guidance</u> for our current definitions of suitable habitat. *Yes*
- 26. Has a bridge assessment^[1] been conducted **within** the last 24 months^[2] to determine if the bridge is being used by bats?
 - [1] See <u>User Guide Appendix D</u> for bridge/structure assessment guidance
 - [2] Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges that meet the physical characteristics described in the Programmatic Consultation, regardless of whether assessments have been conducted in the past. Due to the transitory nature of bat use, a negative result in one year does not guarantee that bats will not use that bridge/structure in subsequent years.

Yes

SUBMITTED DOCUMENTS

- 609187_rpt_hubbardston_nleb_survey_20221011.pdf https:// ipac.ecosphere.fws.gov/project/OA7HPJ72WFEP7IU3CHTNPL4L5M/ projectDocuments/118307961
- 27. Did the bridge assessment detect *any* signs of Indiana bats and/or NLEBs roosting in/under the bridge (bats, guano, etc.)^[1]?
 - [1] If bridge assessment detects signs of *any* species of bats, coordination with the local FWS office is needed to identify potential threatened or endangered bat species. Additional studies may be undertaken to try to identify which bat species may be utilizing the bridge prior to allowing *any* work to proceed.

Note: There is a small chance bridge assessments for bat occupancy do not detect bats. Should a small number of bats be observed roosting on a bridge just prior to or during construction, such that take is likely to occur or does occur in the form of harassment, injury or death, the PBO requires the action agency to report the take. Report all unanticipated take within 2 working days of the incident to the USFWS. Construction activities may continue without delay provided the take is reported to the USFWS and is limited to 5 bats per project.

No

28. Will the bridge removal, replacement, and/or maintenance activities include installing new or replacing existing **permanent** lighting?

No

29. Does the project include the removal, replacement, and/or maintenance of *any* structure other than a bridge? (e.g., rest areas, offices, sheds, outbuildings, barns, parking garages, etc.)

No

30. Will the project involve the use of *any* **temporary** lighting in addition to the lighting already indicated for habitat removal (including the removal or trimming of trees), or bridge/structure removal, replacement or maintenance activities?

Yes

31. Is there *any* suitable habitat **within** 1,000 feet of the location(s) where **temporary** lighting (other than the lighting already indicated for habitat removal (including the removal or trimming of trees) or bridge/structure removal, replacement or maintenance activities) will be used?

Yes

32. Will the project install new or replace existing **permanent** lighting?

No

33. Does the project include percussives or other activities (**not including tree removal/ trimming or bridge/structure work**) that will increase noise levels above existing traffic/background levels?

Yes

- 34. Will the activities that use percussives (**not including tree removal/trimming or bridge/ structure work**) and/or increase noise levels above existing traffic/background levels be conducted *during* the active season^[1]?
 - [1] Coordinate with the local Service Field Office for appropriate dates.

Yes

- 35. Will *any* activities that use percussives (**not including tree removal/trimming or bridge/ structure work**) and/or increase noise levels above existing traffic/background levels be conducted *during* the inactive season^[1]?
 - $\left[1\right]$ Coordinate with the local Service Field Office for appropriate dates.

Yes

36. Are *all* project activities that are **not associated with** habitat removal, tree removal/ trimming, bridge and/or structure activities, temporary or permanent lighting, or use of percussives, limited to actions that DO NOT cause any additional stressors to the bat species?

Examples: lining roadways, unlighted signage, rail road crossing signals, signal lighting, and minor road repair such as asphalt fill of potholes, etc.

Yes

37. Will the project raise the road profile **above the tree canopy**? *No*

38. Are the project activities that use percussives (not including tree removal/trimming or bridge/structure work) consistent with a Not Likely to Adversely Affect determination in this key?

Automatically answered

Yes, because the activities are within 300 feet of the existing road/rail surface, greater than 0.5 miles from a hibernacula, and conducted during the active season within undocumented habitat.

39. Are the project activities that use percussives (not including tree removal/trimming or bridge/structure work) and/or increase noise levels above existing traffic/background levels consistent with a No Effect determination in this key?

Automatically answered

Yes, because the activities are within 300 feet of the existing road/rail surface, greater than 0.5 miles from a hibernacula, and conducted during the inactive season

40. Is the location of this project consistent with a Not Likely to Adversely Affect determination in this key?

Automatically answered

Yes, because no bats were detected during presence/probable absence surveys conducted during the summer survey season and outside of the fall swarming/spring emergence periods. Additionally, all activities were at least 0.5 miles from any hibernaculum.

41. Is the bridge removal, replacement, or maintenance activities portion of this project consistent with a No Effect determination in this key?

Automatically answered

Yes, because the bridge has been assessed using the criteria documented in the BA and no signs of bats were detected

42. General AMM 1

Will the project ensure *all* operators, employees, and contractors working in areas of known or presumed bat habitat are aware of *all* FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable Avoidance and Minimization Measures?

Yes

Project Questionnaire

1. Have you made a No Effect determination for *all* other species indicated on the FWS IPaC generated species list?

N/A

2. Have you made a May Affect determination for *any* other species on the FWS IPaC generated species list?

N/A

- 3. How many acres^[1] of trees are proposed for removal between 0-100 feet of the existing road/rail surface?
 - [1] If described as number of trees, multiply by 0.09 to convert to acreage and enter that number. 1.35
- 4. Please describe the proposed bridge work:
 - 1. The project is classified as a Footprint Bridge Project. The roadway is classified as an Rural Minor Arterial, Non-Interstate, Non-NHS (National Highway System). The proposed work consists of milling and resurfacing, minor roadway widening, drainage improvements, and related work on Williamsville Road in the Town of Hubbardston. The purpose and needs of this project are to replace the existing bridge and resurface the roadway. There are no existing sidewalks or bicycle facilities beyond the bridge on either side of the approach roadways. No sidewalks were considered due to lack of development, no existing sidewalks or connectivity needs. No bicycle facilities were considered due to the proposed 11' travel lanes and 5' shoulders. There are no transit stops on or near the project, so transit was not considered.

The proposed cross-section consists of two 11' travel lanes, and two 5' shoulders. Total width is 32 feet.

MassDOT's Highway Division is the design engineer for this project

5. Please state the timing of all proposed bridge work:

May 2024- May 2025

6. Please enter the date of the bridge assessment:

July 21, 2022

Avoidance And Minimization Measures (AMMs)

This determination key result includes the committment to implement the following Avoidance and Minimization Measures (AMMs):

GENERAL AMM 1

Ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable AMMs.

Determination Key Description: FHWA, FRA, FTA Programmatic Consultation For Transportation Projects Affecting NLEB Or Indiana Bat

This key was last updated in IPaC on October 11, 2022. Keys are subject to periodic revision.

This decision key is intended for projects/activities funded or authorized by the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and/or Federal Transit Administration (FTA), which may require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 of the Endangered Species Act (ESA) for the endangered **Indiana bat** (*Myotis sodalis*) and the threatened **Northern long-eared bat** (NLEB) (*Myotis septentrionalis*).

This decision key should <u>only</u> be used to verify project applicability with the Service's <u>February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects</u>. The programmatic biological opinion covers limited transportation activities that may affect either bat species, and addresses situations that are both likely and not likely to adversely affect either bat species. This decision key will assist in identifying the effect of a specific project/activity and applicability of the programmatic consultation. The programmatic biological opinion is <u>not</u> intended to cover all types of transportation actions. Activities outside the scope of the programmatic biological opinion, or that may affect ESA-listed species other than the Indiana bat or NLEB, or any designated critical habitat, may require additional ESA Section 7 consultation.

IPaC User Contact Information

Agency: Massachusetts Department of Transportation

Name: Trevor Burns Address: 10 Park Plaza

City: Boston State: MA Zip: 02116

Email trevor.b.burns@dot.state.ma.us

Phone: 8574885122

Lead Agency Contact Information

Lead Agency: Federal Highway Administration

Attachment H

Section 106 Consultation

From: Jergensen, Kurt E. (DOT)

Sent: Thursday, May 25, 2023 5:16 PM

To: Bettina Washington

Cc: tcrm2@wampanoagtribe-nsn.gov; Harwood, Jameson (DOT)

Subject: Hubbardston, H-24-003 bridge replacement (609187)

Attachments: 609187_25% Hwy Plans.pdf; 609187_25% Bridge Plans.pdf; H-24-003 PNF.pdf; Locus

Map.pdf

Dear Ms. Washington,

MassDOT is submitting the enclosed information regarding the above-noted project to the Wampanoag Tribe of Gay Head (Aquinnah) to meet the Section 106 consultation requirements of the US Army Corps of Engineers. Please submit any written comments or concerns regarding historic or archaeological properties that may be affected by this project to Carrie Lavallee, P.E., Chief Engineer, Massachusetts Department of Transportation, 10 Park Plaza, Boston, MA 02116-3973, Attn: Jameson Harwood.

You also may send comments, questions, or requests for more information by email to Jameson.Harwood@state.ma.us.

Thank you very much.

Kurt Jergensen Historic Bridge Specialist Environmental Services MassDOT, Highway Division Ten Park Plaza, Boston, MA 02116

From: Jergensen, Kurt E. (DOT)

Sent: Thursday, May 25, 2023 5:18 PM

To: David Weeden

Cc: 106Review@mwtribe-nsn.gov; Harwood, Jameson (DOT) **Subject:** Hubbardston, H-24-003 bridge replacement (609187)

Attachments: 609187_25% Hwy Plans.pdf; 609187_25% Bridge Plans.pdf; H-24-003 PNF.pdf; Locus

Map.pdf

Dear Mr. Weeden,

MassDOT is submitting the enclosed information regarding the above-noted project to the Mashpee Wampanoag Tribe to meet the Section 106 consultation requirements of the US Army Corps of Engineers. Please submit any written comments or concerns regarding historic or archaeological properties that may be affected by this project to Carrie Lavallee, P.E., Chief Engineer, Massachusetts Department of Transportation, 10 Park Plaza, Boston, MA 02116-3973, Attn: Jameson Harwood.

You also may send comments, questions, or requests for more information by email to Jameson.Harwood@state.ma.us.

Thank you very much.

Kurt Jergensen Historic Bridge Specialist Environmental Services MassDOT, Highway Division Ten Park Plaza, Boston, MA 02116

From: Jergensen, Kurt E. (DOT)

Sent: Thursday, May 25, 2023 5:18 PM

To: Tashtesook@aol.com
Cc: Harwood, Jameson (DOT)

Subject: FW: Hubbardston, H-24-003 bridge replacement (609187)

Attachments: 609187_25% Hwy Plans.pdf; 609187_25% Bridge Plans.pdf; H-24-003 PNF.pdf; Locus

Map.pdf

Dear Mr. Brown,

MassDOT is submitting the enclosed information regarding the above-noted project to the Narragansett Indian Tribe to meet the Section 106 consultation requirements of the US Army Corps of Engineers. Please submit any written comments or concerns regarding historic or archaeological properties that may be affected by this project to Carrie Lavallee, P.E., Chief Engineer, Massachusetts Department of Transportation, 10 Park Plaza, Boston, MA 02116-3973, Attn: Jameson Harwood.

You also may send comments, questions, or requests for more information by email to Jameson.Harwood@state.ma.us.

Thank you very much.

Kurt Jergensen Historic Bridge Specialist Environmental Services MassDOT, Highway Division Ten Park Plaza, Boston, MA 02116

From: Jergensen, Kurt E. (DOT)

Sent: Thursday, May 25, 2023 5:22 PM

To:Robinson, David S (EEA)Cc:Harwood, Jameson (DOT)

Subject: Hubbardston, H-24-003 bridge replacement (609187)

Attachments: 609187_25% Hwy Plans.pdf; 609187_25% Bridge Plans.pdf; H-24-003 PNF.pdf; Locus

Map.pdf

Dear Mr. Robinson,

MassDOT is submitting the enclosed information regarding the above-noted project to the Board of Underwater Archaeological Resources to meet the Section 106 consultation requirements of the US Army Corps of Engineers. Please submit any written comments or concerns regarding historic or archaeological properties that may be affected by this project to Carrie Lavallee, P.E., Chief Engineer, Massachusetts Department of Transportation, 10 Park Plaza, Boston, MA 02116-3973, Attn: Jameson Harwood.

You also may send comments, questions, or requests for more information by email to Jameson.Harwood@state.ma.us.

Thank you very much.

Kurt Jergensen Historic Bridge Specialist Environmental Services MassDOT, Highway Division Ten Park Plaza, Boston, MA 02116

950 CMR: OFFICE OF THE SECRETARY OF THE COMMONWEALTH

APPENDIX A MASSACHUSETTS HISTORICAL COMMISSION 220 MORRISSEY BOULEVARD BOSTON, MASS. 02125 617-727-8470, FAX: 617-727-5128

PROJECT NOTIFICATION FORM

Project Name: Replacement of Bridge H-24-003 (MassDOT 609187)

Location / Address: Williamsville Road over Burnshirt River

City/Town: Hubbardston

Project Proponent

Name: Massachusetts Department of Transportation

Address: 10 Park Plaza

City/Town/Zip/Telephone: Boston, MA 02116 / T: 207-590-4999

Agency license or funding for the project (list all licenses, permits, approvals, grants or other entitlements being sought from state and federal agencies).

Agency Name Type of License or funding (specify)

FHWA Federal Aid funding

US Army Corps of Engineers Section 404 permit

Project Description (narrative):

The Massachusetts Department of Transportation (MassDOT) proposes to replace Bridge H-24-003, which carries Williamsville Road over Burnshirt River in Hubbardston. Bridge H-24-003, constructed in 1939, consists of a single-span steel stringer superstructure supported on reinforced concrete abutments with wingwalls. The bridge has two-rail welded steel pipe railings.

The proposed work will include full replacement of the bridge on existing alignment with a structure 2' wider than existing. The proposed bridge and approach roadway cross-section will include two 11' travel lanes with 5' shoulders. The proposed new bridge will consist of a single-span precast concrete NEXT beam superstructure supported by reinforced concrete abutments on spread footings. The bridge will have painted steel S3-TL4 railings. The road will be closed for the duration of construction and traffic will be detoured to the north and east along Thompson Road and Kruse Road.

Roadway reconstruction along the bridge approaches will extend approximately 330' to the west and 540' to the east of the bridge, encompassing a total project length of 940 feet. In order to accommodate the proposed shoulders along the bridge approaches, the roadway cross-section within the project limits will be widened by approximately 6 feet, narrowing back down to the existing 26' roadway width within the project limits. Roadway realignment is also proposed along the easterly bridge approach, to improve the existing combined downhill grade and horizontal curve. This roadway widening and realignment will require tree clearing and grubbing, cutting and grading of roadside slopes, particularly to the northerly side of the roadway, and installation of new guardrail along the bridge approaches.

Work will also include full-depth pavement reconstruction along the bridge approaches; installation of guardrail to replace existing galvanized steel guardrail in the project area; installation of temporary erosion

and sedimentation controls; establishment of appropriate pavement markings and signs, and related work. Drainage improvements will also be constructed, to catch runoff flow on the steep grades approaching the bridge from either side. Currently, there are two catch basins within the project area, one to the east and one to the west of the bridge. New catch basins will be installed, with four to the west of the bridge and six to the east, discharging at the northwestern and southeastern corners of the bridge.

Does the project include demolition? If so, specify nature of demolition and describe the building(s) which are proposed for demolition.

Bridge H-24-003 will be removed and replaced. The bridge was reviewed by Kurt Jergensen, Historic Bridge Specialist, and determined to be ineligible for listing in the National Register. It is a typical mid-20th century steel stringer bridge with no architectural character and standard engineering details utilized by the Mass. Dept. of Public Works.

Does the project include rehabilitation of any existing buildings? If so, specify nature of rehabilitation and describe the building(s) which are proposed for rehabilitation N/A

Does the project include new construction? If so, describe (attach plans and elevations if necessary). Bridge H-24-003 will be removed and replaced on the same alignment with a structure minimally wider than existing. The approach roadway cross-section will be widened by up to 6 feet, including horizontal realignment and slope grading along the easterly approach.

To the best of your knowledge, are any historic or archaeological properties known to exist within the project's area of potential impact? If so, specify.

Review of the National Register of Historic Places revealed no National Register-listed historic districts or individual properties within or adjacent to the project area. Review of the Inventory of Historic and Archaeological Assets revealed the inventoried Williamsville Area (HUB.B) is located to the west along Burnshirt Road. This small village was a social and industrial center for the surrounding farms. A sawmill and chair factory was developed near Williamsville Road around 1850. In 1898, the factory was sold and converted to a facility processing beeswax for chewing gum and floor wax. The wax factory was consolidated and moved to Syracuse in 1929, and the dam was breached during the 1930s when the mill privilege was purchased by the Metropolitan District Commission to protect the Quabbin Reservoir watershed.

Review of the MHC archaeological maps in MACRIS revealed no recorded pre-Contact archaeological sites in the vicinity of the project area. The nearest pre-Contact site, Site 19-WR-393 (Rutland Brook), is located 2.8 miles to the west. Review also revealed two recorded historic period archaeological sites in the vicinity of the project area. The Black Jack Tar Factory Site (HUB.HA.22) is recorded 350 feet to the west of the bridge. The Allen House Foundation Site (HUB.HA.21) is recorded 900 feet to the west of the bridge. A review of historic maps and aerials revealed that the former Hale and Williams Chair Factory / W.H. Bowdlear Beeswax Factory is located adjacent to Burnshirt Pond immediately north of the bridge. Visible remains include concrete spillway and piers from the former dam and foundation retaining walls. The factory site is associated with the inventoried Williamsville Area (HUB.B) located along Burnshirt Road to the west of the bridge project area. The factory site does not possess sufficient significance or integrity to be considered individually eligible under Criteria D, and is located outside of Area HUB.B. MassDOT has developed a special provision to be included in the construction contract as the project work will require the cutting of trees within a portion of the factory site to accommodate the swing of the crane arm for bridge superstructure placement. The trees shall be cut flush to the ground surface and no stumping shall occur. No vehicle parking or storage of materials shall occur within the factory site area. MassDOT will document the

factory site location with a Site Form D.

It is the opinion of the MassDOT Archaeologist that the project's direct area of potential effect (APE) has low sensitivity based on the impacts of past roadway, bridge and drainage construction, as well as mill site development. The proposed bridge will be located on the same alignment and the proposed catch basin discharge will be located in roadside slopes.

What is the total a	creage of the proje	ct area?			
Woodland _		acres	Productive Resources:		
Wetland _		acres	Agriculture	<1	acres
Floodplain _		acres	Forestry		acres
Open Space _		acres	Mining/Extraction		acres
Developed	<1	acres	Total Project Acreage	<2	acres
What is the pres The proposed pro roadside slopes. Please attach a c	opy of the section o	project a blace with		marks the	project location
This Project Noti	ilcation Form has be	CII SUUIIII	nied to the MITC in comphance with	1 930 CIVIN /	1.00.
Signature of pers	on submitting this	form:	fw Apropren	Date:	5/25/2023
Name:	Kurt Jergensen				
Address:	10 Park Plaza				
City/Town/Zip:	Boston, MA 0211	6			
Telephone:	207-590-4999				
REGULATORY		.G.L. c. 9	9, §§ 26-27C as amended by St. 19	88, c. 254.	
7/1/93			·		CMR - 276

Attachment I

Wetland Delineation Data Forms

Proposal No. 609187-130387

BORDERING VEGETATED WETLAND DETERMINATION FORM

Project/Site: Williamsville Rd. over Burnshirt Ri	ver	City/Town:	Hubbards	ston	Sampling Date: 9/27/22
Applicant/Owner: MassDOT Highway			San	npling	Point or Zone: DP-EW
Investigator(s): Rhianna Sommers, PWS			Lati	tude /	Longitude: 42.475619, -72.076394
Soil Map Unit Name: 918B Ridgebury-Whitma	n association		NW	'I or DE	EP Classification: PEM1A
Are climatic/hydrologic conditions on the	site typical for	this time o	f year?	Yes	No (If no, explain in Remarks)
Are Vegetation, Soil, or I	Hydrology \Bigg	significa	ntly distu	urbed?	(If yes, explain in Remarks)
Are Vegetation, Soil, or I	Hydrology 🖳	naturall	y probler	natic?	(If yes, explain in Remarks)
SUMMARY OF FINDINGS – Attach site ma	ap and photog	raph log sh	owing sa	mpling	g locations, transects, etc.
Wetland vegetation criterion met?	Yes ✓	No	≒ ∣	•	oled Area Yes ✓ No
Hydric Soils criterion met?	Yes ✓	_No	withi	n a W	etland?
Wetlands hydrology present?	Yes <u></u> ✓	No	J		
Remarks, Photo Details, Flagging, etc.:					
HYDROLOGY					
Field Observations:				_	
Surface Water Present?	Ye	s N	lo <u> </u>] Dep	oth (inches)
Water Table Present?	Ye	s 🚺 N	lo] Dep	oth (inches) 8.00
Saturation Present (including capillary fr	inge)? Ye	s 🗸 N	lo] Dep	oth (inches) <u>0.00</u>
Wetland Hydrology Indicators					
Reliable Indicators of Wetlands	Indicators tha	at can be Re	liable wit	th	Indicators of the Influence of Water
Hydrology	Proper Interp	retation			
✓ Water-stained leaves		gical records			Direct observation of inundation
Evidence of aquatic fauna		ter in a soil t	test hole		Drainage patterns
Iron deposits	Saturate Water m				Drift lines Scoured areas
Algal mats or crusts Oxidized rhizospheres/pore	Moss tri				Sediment deposits
linings	141033 (11	in inics			scament deposits
Thin muck surfaces	Presence	e of reduced	liron		Surface soil cracks
Plants with air-filled tissue	Woody p	olants with a	adventitio	ous	Sparsely vegetated concave
(aerenchyma)	roots				surface
Plants with polymorphic leaves		th shallow r		ems	Microtopographic relief
Plants with floating leaves Hydrogen sulfide odor	lentice	olants with e	eniarged		Geographic position (depression, toe of slope, fringing lowland
Remarks (describe recorded data from s			سوا عمدا	al nhot	
nemains (describe recorded data from S	ıı caiii gauge, I	nomitoring (weii, deile	αι μποι	tos, previous inspections, il avallable).

This form is only for BVW delineations. Other wetland resource areas may be present and should be delineated according to the applicable regulatory provisions.

VEGETATION – Use both common and scientific names of plants.

Tree Stratum	Plot size 30'				
		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indictor?
Common name	Scientific name				(yes/no)
1. red maple	Acer rubrum	FACU	50.0	Yes	Yes
2. eastern hemlock	Tsuga canadensis	FAC	40.0	Yes	Yes
3. red oak	Quercus rubra	FACU	15.0	No	No
4. yellow birch	Betula alleghaniensis	FAC	10.0	No	Yes
5.					
6.					
7.					
8.					
9.					
		<u>115.0</u> = T	otal Cover		
Shrub/Sapling Stratum	Plot size 15'				
		Indicator	Absolute	Dominant?	Wetland
		Status	% Cover	(yes/no)	Indictor?
Common name	Scientific name				(yes/no)
1. eastern hemlock	Tsuga canadensis	FACU	20.0	Yes	Yes
2. American elm	Ulmus americana	FACW	10.0	Yes	Yes
3.					
4.					
5.					
6.					
7.					
8.					
9.					
	·	30.0 = T	otal Cover		
Herb Stratum	Plot size 5'				
		Indicator	Absolute	Dominant?	Wetland
		Status	% Cover	(yes/no)	Indictor?
Common name	Scientific name	Status	70 00 101	(705)	(yes/no)
Canada mayflower	Maianthemum canadense	FACU	80.0	Yes	No
2. cinnamon fern	Osmundastrum cinnamomeum	FACW	40.0	Yes	Yes
3. wood fern	Dryopteris filix-mas	UPL	8.0	No	No
4. sensitive fern	Onoclea sensibilis	FACW	8.0	No	Yes
5. wild sarsparilla	Aralia nudicaulis	FACU	8.0	No	No
6.					
7.					
8.					
9.					
10.					
			İ		
11.		l			
11. 12.					

VEGETATION – continued.

Woody Vine Stratum	Plot size 15'	_			
		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indictor?
Common name	Scientific name				(yes/no)
1.					
2.					
3.					
4.					
<u>0.0</u> = Total Cover					

Rapid Test: Do all dominant species have an indicator status of OBL or FACW? Yes No							
Dominance Test:	Number of	Number of dominant speci	es that are	Do wetland indicator plants make up			
	dominant species	wetland indicator plants		≥ 50% of dominant plant species?			
	6	5		Yes _ ✓ No			
Prevalence Index:		Total % Cover (all strata)	Multiply by:	Result			
	OBL species		X 1	= 0.00			
	FACW species		X 2	= 0.00			
	FAC species		Х3	= 0.00			
	FACU species		X 4	= 0.00			
	UPL species		X 5	= 0.00			
	Column Totals	(A) 0		(B) 0			
Prevalence Index		B/A = 0 00		Is the Prevalence Index ≤ 3.0?			
		0.00		YesNo			
Wetland vegetation	n criterion met?	Yes No					

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.62 cm) or more in diameter at breast height (DBH), regardless of height Shrub / Sapling - Woody plants less than 3 in. (7.62 cm) DBH and greater than or equal to 3.3 ft. (1 m) tall

Herb - All herbaceous (non-woody plants, regardless of size, and woody plants less than 3.3 ft. (1 m) tall

Woody vines - All woody vines greater than 3.3 ft. (1 m) in height

Cover Ranges				
Range	Midpoint			
1-5 %	3.0 %			
6-15 %	10.5 %			
15-25 %	20.5 %			
26-50 %	38.0 %			
51-75 %	63.0 %			
76-95 %	85.5 %			
96-100 %	98.0 %			

Form Revised July 2023 3

SOIL

Pro	Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)											
Depth Matrix Redox Features												
(inc	ches)	Color (moist)	%	Color	(moist)	%	Type ¹	Locatio	n ²	Texture	Remarks	
	0-10 10-18	10YR 2/1 2.5Y 3/3	93.00	10	YR 8/8	7.00	С	N /		muck LS		
	10-16	2.51 3/3	93.00	10	110/0	7.00		M		Lo		
		centration, D=Dep			iced Matri	ix, MS=N	lasked Sar	nd Grains			e Lining, M=Matrix	
Нус	1	ndicators (Check	all that	apply)					Inc	1	oblematic Hydric Soils	
Ļ	Histosol	(A1)		<u> </u>	Poly\	value Be	low Surfa	ice (S8)		_2 cm Muck	(A10)	
L	Histic Ep	oipedon (A2)			Thin	Dark Su	rface (S9))		5 cm Mucky	Peat or Peat (S3)	
✓	Black His	stic (A3)			Loam	ny Gleye	d Matrix	(F2)		Iron-Manganese Masses (F12)		
L	Hydroge	en Sulfide (A4)			Depl	eted Ma	trix (F3)		L	Mesic Spodic (A17)		
	Stratified Layers (A5) Redox Dark Surface (F6)				6)		Red Parent Material (F21)					
	Depleted Below Dark Surface (A11) Depleted Dark Surface (F7)					Very Shallow Dark Surface (F22)						
	Thick Da	ark Surface (A12)			Redo	x Depre	essions (F	8)				
<u></u>	Sandy N	lucky Mineral (S	1)									
	Sandy G	leyed Matrix (S4)									
	Sandy R	edox (S5)								•	de Explanation in	
	Stripped	l Matrix (S6)								Remarks)		
	Dark Su	rface (S7)										
Res	trictive La	ayer (if observed	I) Typ	oe:				De	pth	(inches):		
Rer	narks:											
					_							
Hyd	dric Soils	criterion met?		Yes	√	_ No						

Form Revised July 2023 4

Proposal No. 609187-130387

BORDERING VEGETATED WETLAND DETERMINATION FORM

Project/Site: Williamsville Rd. over Burnshirt Ri	iverCity/Town: Hubbardston	Sampling Date: 9/27/22
Applicant/Owner: MassDOT Highway		Point or Zone: DP-EU
Investigator(s): Rhianna Sommers, PWS Epsilo		Longitude: 42.475552, -72.076174
Soil Map Unit Name: 915E Montauk-Canton a	ssociationNWI or Di	EP Classification: N/A
Are climatic/hydrologic conditions on the	site typical for this time of year? Yes	✓ No (If no, explain in Remarks)
Are Vegetation, Soil, or	Hydrology significantly disturbed?	? (If yes, explain in Remarks)
	Hydrology naturally problematic?	
SUMMARY OF FINDINGS – Attach site ma	ap and photograph log showing sampling	g locations, transects, etc.
Wetland vegetation criterion met?	Yes No Is the Samp	oled Area Yes No 🗸
Hydric Soils criterion met?	Yes No within a W	etland?
Wetlands hydrology present?	YesNo _ ✓	
Remarks, Photo Details, Flagging, etc.:		
HYDROLOGY		
Field Observations:		
Surface Water Present?	Yes No 🗸 De	pth (inches)
Water Table Present?	Yes No V De	pth (inches)
Saturation Present (including capillary fr	ringe)? Yes No ✓ Dep	pth (inches)
Wetland Hydrology Indicators		
Reliable Indicators of Wetlands	Indicators that can be Reliable with	Indicators of the Influence of Water
Hydrology	Proper Interpretation	
Water-stained leaves	Hydrological records	Direct observation of inundation
Evidence of aquatic fauna	Free water in a soil test hole	Drainage patterns
Iron deposits	Saturated soil	Drift lines
Algal mats or crusts Oxidized rhizospheres/pore	Water marks Moss trim lines	Scoured areas Sediment deposits
linings	I Woss trill lines	Sediment deposits
Thin muck surfaces	Presence of reduced iron	Surface soil cracks
Plants with air-filled tissue	Woody plants with adventitious	Sparsely vegetated concave
(aerenchyma)	roots	surface
Plants with polymorphic leaves	Trees with shallow root systems	Microtopographic relief
Plants with floating leaves Hydrogen sulfide odor	Woody plants with enlarged lenticels	Geographic position (depression, toe of slope, fringing lowland
	tream gauge, monitoring well, aerial pho	
hemaiks (describe recorded data from S	tream gauge, monitoring wen, aeriai prio	tos, previous inspections, it available):

This form is only for BVW delineations. Other wetland resource areas may be present and should be delineated according to the applicable regulatory provisions.

VEGETATION – Use both common and scientific names of plants.

Tree Stratum	Plot size 30'				
		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indictor?
Common name	Scientific name	0 00.00.0	, , , , , , , , , , , , , , , , , , , ,	(7007.107	(yes/no)
1. sugar maple	Acer saccharum	FACU	60.0	Yes	No
American beech	Fagus grandifolia	FACU	25.0	Yes	No
3. American elm	Ulmus americana	FACW	15.0	No	Yes
4. eastern hemlock	Tsuga canadensis	FACU	10.0	No	Yes
5.					
6.					
7.					
8.					
9.					
		<u>110.0</u> = T	otal Cover	•	•
Shrub/Sapling Stratum	Plot size 15'				
Sin ab/ Sapining Stratain	11003120	Indicator	Absolute	Dominant?	Wetland
		Status	% Cover	(yes/no)	Indictor?
Common name	Scientific name	Status	70 COVEI	(963/110)	(yes/no)
eastern hemlock	Tsuga canadensis	FACU	30.0	Yes	Yes
American beech	Fagus grandifolia	FACU	15.0	Yes	No
sugar maple	Acer saccharum	FACU	5.0	No	No
4.	7 tool oddonalam	17100	0.0	110	110
5.					
6.					
7.					
8.					
9.					
J.	I	50.0 = T	otal Cover		
			otal cover		
<u>Herb Stratum</u>	Plot size 5'				
		Indicator	Absolute	Dominant?	Wetland
		Status	% Cover	(yes/no)	Indictor?
Common name	Scientific name	1	I	Π	(yes/no)
1. partridge berry	Mitchella repens	FACU	50.0	Yes	No
2. wood fern	Dryopteris filix-mas	UPL	15.0	No	No
3. Canada mayflower	Maianthemum canadense	FACU	10.0	No	No
4. black birch	Betula lenta	FACU	10.0	No	No
5. red oak	Quercus rubra	FACU	5.0	No	No
6.					
7.					
8.					
9.					
10.					
11.					
12.					
L		<u>90.0</u> = T	otal Cover		

VEGETATION – continued.

Woody Vine Stratum	Plot size 15'	_			
		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indictor?
Common name	Scientific name				(yes/no)
1.					
2.					
3.					
4.					
<u>0.0</u> = Total Cover					

Rapid Test: Do all dominant species have an indicator status of OBL or FACW? Yes No							
Dominance Test:	Number of	Number of dominant speci	es that are	Do wetland indicator plants make up			
	dominant species	wetland indicator plants		≥ 50% of dominant plant species?			
	5	1		YesNo✓			
Prevalence Index:		Total % Cover (all strata)	Multiply by:	Result			
	OBL species	0	X 1	= 0.00			
	FACW species	15	X 2	= 30.00			
	FAC species		Х3	= 0.00			
	FACU species	220	X 4	= 880.00			
	UPL species	15	X 5	=75.00			
	Column Totals	(A) 250		(B) 985			
	Prevalence Index	B/A = 2 Q1		Is the Prevalence Index ≤ 3.0?			
		3.94		YesNo✓			
Wetland vegetation	n criterion met?	Yes No					

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.62 cm) or more in diameter at breast height (DBH), regardless of height Shrub / Sapling - Woody plants less than 3 in. (7.62 cm) DBH and greater than or equal to 3.3 ft. (1 m) tall

Herb - All herbaceous (non-woody plants, regardless of size, and woody plants less than 3.3 ft. (1 m) tall

Woody vines - All woody vines greater than 3.3 ft. (1 m) in height

Cover Ranges								
Range	Midpoint							
1-5 %	3.0 %							
6-15 %	10.5 %							
15-25 %	20.5 %							
26-50 %	38.0 %							
51-75 %	63.0 %							
76-95 %	85.5 %							
96-100 %	98.0 %							

Form Revised July 2023 3

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)											
Depth			Redox Features		Г	2					
(inches)	Color (moist)	%	Color (m	oist)	%	% Type ¹ Location				Remarks	
0-8	10YR 2/2								sandy loam		
1- 0.0			NA D. I	100.			1.6	21			
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains ² Location: PL=Pore Lining, M=Matrix Hydric Soil Indicators (Check all that apply) Indicators for Problematic Hydric Soils											
Histoso		all tilat	арріу)	Poly	رعادید Re	low Surfa	CP (SS)		2 cm Muck (A10)		
	Histosol (A1) Polyvalue Below Surface (S8) Histic Epipedon (A2) Thin Dark Surface (S9)							5 cm Mucky Peat or Peat (S3)			
	Black Histic (A3) Loamy Gleyed Matrix (F2)							Iron-Manganese Masses (F12)			
	Hydrogen Sulfide (A4) Depleted Matrix (F3)						Mesic Spodic (A17)				
	Stratified Layers (A5) Redox Dark Surface (F6)						Red Parent Material (F21)				
Deplete	Depleted Below Dark Surface (A11) Depleted Dark Surface (F7)						Very Shallow Dark Surface (F22)				
Thick D	Thick Dark Surface (A12) Redox Depressions (F8)						-				
Sandy Mucky Mineral (S1)											
Sandy Gleyed Matrix (S4)											
Sandy F	Sandy Redox (S5)							Other (Include Explanation in			
Stripped Matrix (S6)							Remarks)				
Dark Su	ırface (S7)										
Restrictive L	ayer (if observed) Тур	oe:				De	pth	(inches):		
Remarks:											
Hydric Soils	criterion met?		Yes		_ No	√					

Form Revised July 2023 4

Attachment J

Sediment Sampling Plan

Sediment Sampling and Analysis Plan

Bridge Replacement Project (Bridge No. H-24-003) Williamsville Road Over Burnshirt River

Hubbardston, Massachusetts MassDOT Project No. 609187

Prepared for:

MassDOT 10 Park Plaza Boston, MA 02116

Prepared by:

GEI Consultants, Inc. 400 Unicorn Park Drive Woburn, MA 01801 781.721.4000

November 1, 2024 Project No. 2407466 November 1, 2024 Project No. 2407466

VIA EMAIL: Heidi.Davis@mass.gov

Ms. Heidi Davis Massachusetts Department of Environmental Protection, Wetlands Program 100 Cambridge Street, Suite 900 Boston, MA 02114

Re: Sediment Sampling and Analysis Plan
Bridge Replacement Project (Bridge No. H-24-003)
Williamsville Road Over Burnshirt River
Hubbardston, Massachusetts
MassDOT Project No. 609187

Dear Ms. Davis:

This Sediment Sampling and Analysis Plan (SAP) describes the scope of work for the proposed sediment sampling program for the above referenced project.

1. Introduction

Bridge No. H-24-003 is an approximately 60-foot long, two-lane bridge with no sidewalks that carries Williamsville Road over the Burnshirt River in Hubbardston, Massachusetts (the Site, Fig. 1). The Massachusetts Department of Transportation (MassDOT) is preparing to dredge sediments as part of the bridge replacement project. The volume of sediment to be dredged is estimated by MassDOT to be 352 cubic yards. Because this is more than 100 cubic yards, an SAP to characterize the sediment to be dredged needs to be submitted to the Massachusetts Department of Environmental Protection (MassDEP) in accordance with the Water Quality Certificate (WQC) regulations (314 CMR 9.07(2)(b)5). GEI will collect two samples below the sediment surface within the proposed dredge area of the Burnshirt River. One sample will be collected near the upstream abutment, and one sample will be collected from the downstream abutment (Fig. 2).

This SAP includes the following:

- Project description and summary of due diligence completed for this project.
- Considerations for health and safety.
- Description of sampling equipment and procedures.
- Discussion of chemical and physical testing to be performed.
- Figure depicting sampling locations.

2. Due Diligence Desktop Review

MassDOT prepared a due diligence review memorandum in June 2024 to evaluate the potential for hazardous materials to impact the project area (Appendix A). According to the memorandum, the bridge is in a rural area of Hubbardston and spans across the Burnshirt River, which flows south from Wax Factory Pond. Immediately upstream of the bridge, a dam controls flow from the pond into the Burnshirt River.

According to MassDOT, a review of the MassDEP Waste Site & Reportable Releases Database indicated there were no disposal sites within the project limits. No information regarding the historical use of the nearby Wax Factory Pond was identified, and it appears that the area surrounding the bridge has historically been residential. MassDOT concluded that it appears unlikely that significant levels of oil or hazardous material would be identified in sediments that are proposed to be dredged. However, the current bridge steel railings are painted and there is potential that lead-based paint chips may have historically been deposited into the sediments.

We also reviewed the MassDEP Waste Site & Reportable Releases Database in October 2024 to confirm that no new disposal sites within the project limits were reported since June 2024. Additionally, we increased the search radius for disposal sites within 2,500 feet of the project limits. Based on our review, no disposal sites were reported within 2,500 feet of the project limits.

3. Sampling and Analysis Plan

3.1 Health and Safety

Prior to conducting the sediment sampling, GEI will prepare a Site-specific Health and Safety Plan (HASP) for GEI staff. The HASP establishes policies and procedures to protect GEI personnel from the potential hazards posed by working in a body of water and with handling potentially contaminated sediment. The HASP will identify measures to minimize accidents and injuries that may result from site conditions or activities. A copy of this HASP will be maintained on site for the duration of the work.

3.2 Contacts

Epsilon	GEI
Alyssa Jacobs, Project Manager: (978) 461-6271	Christopher Ragnelli, Project Manager: (781) 721-4128

If visual or olfactory signs of contamination or previously unknown conditions are observed, GEI staff will contact the GEI project manager. The GEI project manager will evaluate the condition and determine the appropriate next steps.

3.3 Sampling Equipment and Materials

The following equipment and materials will be utilized by GEI during the sampling program:

- HASP
- Sampling Plan

- Field book
- Nitrile gloves
- Knee or hip waders
- Hand tools (i.e. shovel, hand-auger)
- Glass driller's jars and aluminum foil for field screening
- Photoionization Detector (PID)
- Quart or gallon size zip-lock bags for sample compositing
- Stainless steel bowl and spoon for sample compositing
- Laboratory-provided sample glassware, labels, Chains of Custody
- Permanent markers
- Alconox, deionized water, and paper towels for equipment decontamination
- Ice and cooler for sample storage
- Tape measure
- GPS handheld unit

3.4 Sampling Procedures

The following sampling procedures are guidelines to be followed during the sampling program:

- GEI will collect two sediment samples to depths of approximately 8.6 feet (SED-1) and 7.1 feet (SED-2) below the sediment surface if possible. If reaching those depths is infeasible based on the rocky streambed conditions or other sampling conditions, we will re-attempt to collect a sample to the proposed depth at an adjacent location or collect a sample at the original location to the lowest depth possible (Fig. 2). The samples will be labeled as followed:
 - SED-1-COMP and SED-1-GRAB (upstream sampling location)
 - SED-2-COMP and SED-2-GRAB (downstream sample location)
- During the sampling, GEI will:
 - o Prepare field notes documenting the sediment sampling activities.
 - Record sediment descriptions.
 - Observe sediment conditions regarding any visual or olfactory evidence of contamination.
 - Screen sediment for volatile organic compounds (VOCs) with a PID using the MassDEP jar headspace method.
 - Take photographs and GPS coordinates at each sample location.
- At each location, GEI will:

- Collect a composite sample of not more than two grab samples, either vertically or horizontally. Soil from similar strata will be placed into zip-lock bags noting the location and depth. If no visual/olfactory evidence of contamination is observed in the grab sample, a composite sample of the material will be collected using the two grab samples.
- o Collect a grab sample at each location for VOCs. Sediment will be screened from each grab sample using the jar headspace method and the grab samples with the highest jar headspace will be selected for VOC laboratory testing.
- GEI will submit samples to ESS Laboratory of Cranston, Rhode Island (ESS), a Massachusetts Certified Laboratory, for the following analyses required by the WQC regulations (314 CMR 9.07(2)(b)6):
 - Arsenic, cadmium, chromium, copper, lead, mercury nickel, and zinc
 - Polycyclic aromatic hydrocarbons (PAHs)
 - o Polychlorinated biphenyls (PCBs) by NOAA Summation of Congeners
 - Extractable petroleum hydrocarbons (EPH) fractions only
 - Volatile organic compounds (VOCs)
 - Total organic carbon (TOC)
 - Percent water
 - Toxicity Characteristic Leaching Procedure, if necessary
 - Grain size distribution

Based on the due diligence review, there are no additional parameters that are planned for analysis.

If you have any questions, please feel free to contact Christopher Ragnelli at 781.721.4128.

Sincerely,

GEI Consultants, Inc.

Christopher Ragnelli

Senior Project Manager

Ryan S. Hoffman, P.G, LSP

Vice President

AJG/CR/RSH:bdp

B:\Working\MASSDOT\2407466 MassDOT Williamsville Rd Hubbardston Bridge\01_ADMIN\Sediment Sampling Plan\Sediment Sampling and Analysis Plan_Hubbardston Bridge_Revised 2024-11-01.docx

Enclosures

Figures

Appendix A MassDOT Due Diligence Memo

Timothy Dexter, MassDOT cc:

Melissa Lenker, MassDOT

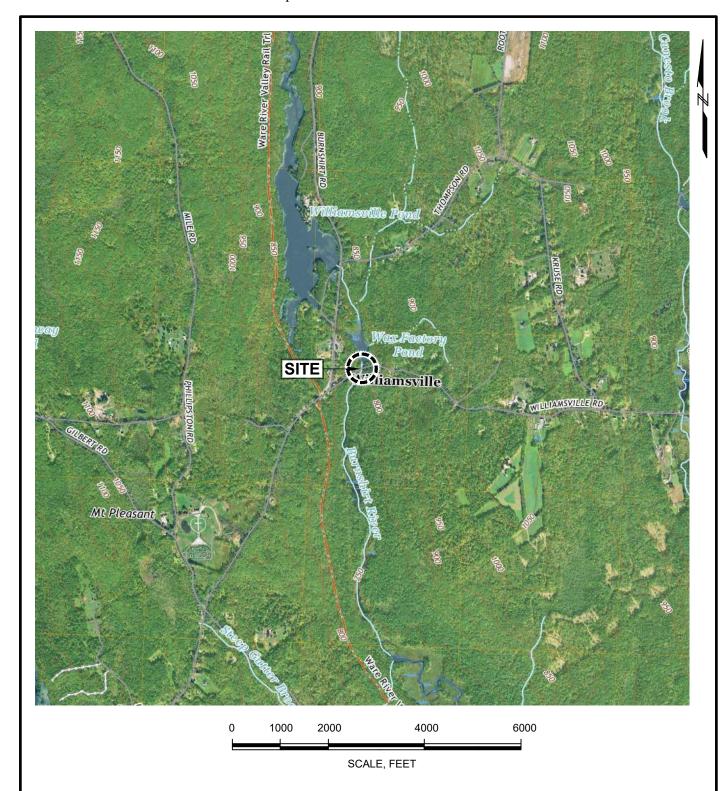
Courtney Walker, MassDOT

Tyler Lewis, MassDEP

Figures

Figure 1 – Site Location Map

Figure 2 – Sediment Sampling Plan



This Image is from U.S.G.S. Topographic 7.5 Minute Series Barre, MA Quadrangle, 2021.

Datum is North American Vertical Datum of 1988 (NAVD88).

Contour Interval is 10 Feet.



Bridge Replacement Project (Bridge No. H24-003)
Williamsville Road Over Burnshirt River
Hubbardston, Massachusetts
MassDOT Project No. 609187

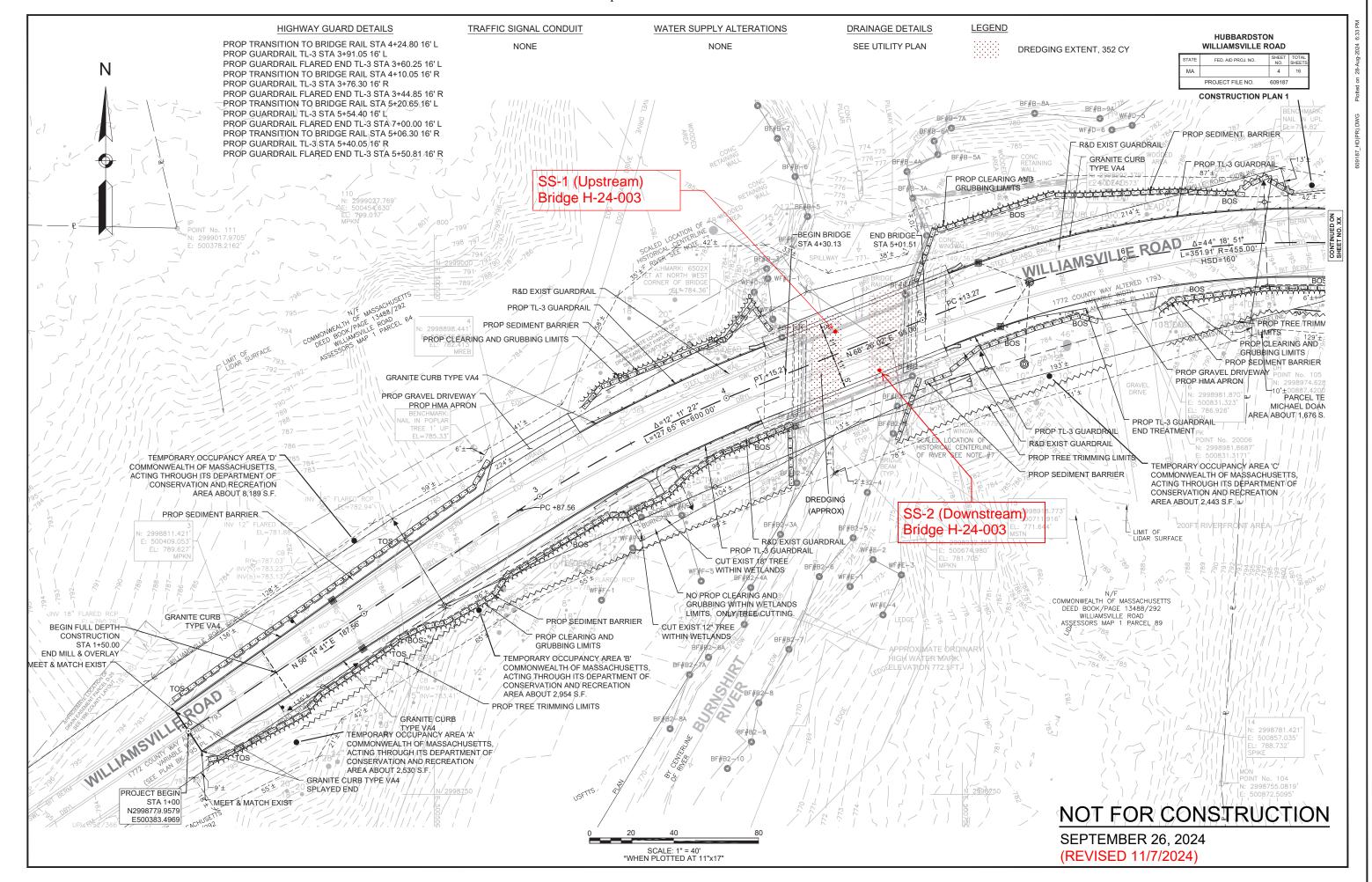
MassDOT Boston, Massachusetts GEI ** onsultants

Project 2407466

SITE LOCATION MAP

November 2024

Fig. 1



Appendix A MassDOT Due Diligence Memo

To: Kristine Chestna, Project Manager

From: James M. Smith, Supervisor, Hazardous Materials Review (

Date: June 17, 2024

Subject: HUBBARDSTON- BRIDGE REPLACEMENT, H-24-003, WILLIAMSVILLE ROAD

OVER THE BURNSHIRT RIVER DUE DILIGENCE REVIEW

PROJECT# 609187

SUMMARY

This project was reviewed to evaluate the potential for hazardous material impacts to the proposed work for purposes of due diligence pertaining to the Section 401 Water Quality Certification Application (WQC).

CONTAMINATED SITES

The bridge is located in a rural area of Hubbardston, and spans across the Burnshirt River which flows south from Wax Factory Pond, immediately upstream of the bridge an existing dam controls flow from the pond into the Burnshirt River. A review of the Massachusetts Department of Environmental Protection Reportable Release Sites Database indicates that no hazardous material release sites have been documented within the project limits. No relative historical information regarding the use of the pond was identified and it appears that the area around the bridge has historically been used as residential use. It appears unlikely that any significant levels of oil or hazardous material would be identified in sediments that are proposed to be dredged from the bridge's location. However, the current bridge steel railings are painted and the potential that lead based paint chips may have historically been deposited into the sediments is possible.

RECOMMENDATIONS

Because of the potential presence of paint chips within the dredged sediments, any WQC application sampling and testing efforts should include analysis for lead. Additional sampling parameters outside of what may be required for the WQC application do not appear to be necessary. Sampling locations should be selected in areas of proposed dredging at depths relative to construction and installation of any temporary or permanent bridge structures within the river.

Should you have questions or concerns regarding the content on this memorandum, please contact Paul Cinquegrano of the Environmental Section at paul.cinquegrano@dot.state.ma.us.

JMS/pjc

Attachment K

Environmental Specifications



Highway Division

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 on the project site and shall be coordinated with Item 102.3 Control of Invasive Plants Existing on Site. The IPMS shall be submitted to the Engineer for review and approval and the IPMS shall be implemented on site.

Invasive plant control treatment on site shall be as described under Item 102.3 Control of Invasive Plants Existing on Site 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 items.

SUBMITTALS

Task Summary: for measurement of payment, the contractor shall submit the total sum and a

breakdown of hours for the following tasks performed, which shall include at least: Site Walk/s, IPMS Written Reports, Site Monitoring if required, and Final

Report if required.

Invasive Plant Management Strategy (IPMS)

Prior to the start of any invasive plant control treatment, submit in writing an IPMS proposal and Schedule of Control for approval by the Engineer and MassDOT Landscape Architect at least thirty (30) days prior to proposed treatment. All chemicals and methods proposed shall be consistent with applicable Massachusetts Wetlands Protection Act Order of Conditions.

The IPMS shall include the following:

- 1. Description of treatment areas including identification of targeted invasive plant species, locations, approximate size of areas and digital photos with time/date stamp. Delineate treatment areas with polygons outlining their perimeter or locations of individual plants. A free-hand sketch drawn on construction plans or an aerial photo can be used to show locations.
- 2. Note coordination as required with items for clearing, clearing and grubbing, tree removal, mowing, planting, and wetland mitigation.
- 3. Proposed methods of treatment for each species or areas including manual removal, cutting, or herbicide treatment and proposed application rate.
- 4. If herbicides are proposed, submit product label including application methods and rates (entire MSDS information need not be submitted if available online).
- 5. Proposed time of treatment based on target plant species and construction schedule.
- 6. Method for disposing of invasive plant material including stems, trunks, branches, roots, associated soils, etc.
- 7. General monitoring schedule.
- 8. Preliminary re-treatment schedule. Re-treatment shall be based on assessment of initial results and time of year.



Highway Division

- 9. Proposed performance metrics, or measure of treatment success, which shall be agreed upon by MassDOT.
- 10. Expected end date of contract and last treatment.

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 approved IPMS may jeopardize this item, in which case, the contractor will be responsible for control of invasive plants found on site at no cost to the contract.

Follow-Up Treatment Schedule

Depending on treatment results after the first year, the IPMS may be amended for the following year/s to address additional concerns or adjust to conditions. A follow-up treatment schedule shall follow the same format as outlined above and submitted to the Engineer and MassDOT Landscape Architect for approval at least thirty (30) days prior to proposed treatment.

Reporting

Within two (2) weeks after each application, the Contractor shall provide to the Engineer a completed and signed MassDOT Herbicide Use Report. Where applicable, the Contractor shall provide the name/s of the associated water body/bodies affected by potential discharge, per the requirements of Sections 7.1 and 7.2 of the USEPA Pesticide General Permit for the Discharges from the Application of Pesticides.

Final Report

A final report documenting status of invasive control at the end of the project may be required for regulatory purposes or for instances where control will be continued by other means. Report shall include photo documentation, notation on a plan or aerial image of area treated, summary of treatment performed, and control achieved.

Photo Documentation

Digital photos with date and time stamp shall be provided with IPMS and follow-up reporting.

METHOD OF MEASUREMENT

Item 102.33 will be measured for payment by the Hour. The basis for measurement shall be per the completion of tasks as approved under the Task Summary submittal.

BASIS OF PAYMENT

Item 102.33 will be paid at the contract unit price per Hour, which price shall include all labor, materials, equipment, tools and all incidentals required to complete the work.

Payment shall not include travel time to and from the site.



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ITEM 102.511 TREE PROTECTION – ARMORING AND PRUNING

EACH

The work under this item shall conform to the relevant provisions of Sections 771 and shall be for furnishing and installing temporary tree trunk protection and for minor limb pruning or removal of lower tree limbs to prevent injury to the tree from construction equipment and activities.

Trunk armoring is for instances where construction activity (the use of heavy equipment) comes close enough to potentially damage the tree trunk or limbs. It is to be used where shown on the plans and as directed by the Engineer.

Trees to be trunk armored and/or limb pruned shall be those identified in the Detail Sheets, and/or as determined 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.

<u>MATERIALS</u>

Trunk armoring shall be such that it prevents damage to the trunk from construction equipment. Selected materials shall be such that installation and removal will not damage the trunk.

Acceptable materials include 2x4 wood cladding with wire or metal strapping, or, for instances when duration of construction activities is less than three months, corrugated plastic pipe mounted with duct tape. Height of cladding shall be from base of tree (including root flare) to the bottom of the first branch. Materials and methods shall be approved by the Engineer.

Other materials or methods may be acceptable if approved by MassDOT Landscape Design.

METHODS OF WORK

Prior to construction activities, the Engineer, the Contractor, and the Town Tree Warden shall review trees noted on the plans to be protected. Final decision as to trees 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 replaced and maintained such that it is effective for as long as required and shall be removed immediately upon completion of work activities adjacent to trees.

Pruning of limbs shall conform to the techniques and standards of the most recent ANSI A300 standards.

Highway Division

ITEM 102.511 (Continued)

DAMAGES & PENALTIES

In 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 obtain an Arborist. The Arborist shall be approved by MassDOT.

If, the Engineer determines that damages can be remedied by corrective measures, such as repairing trunk or limb injury, soil compaction remediation, pruning, and/or watering, the damage will be repaired as soon as possible within the appropriate season for such work and according to industry standards.

If the Engineer determines that damages are irreparable, the Contractor shall pay for the damages in the amount of \$500.00 per diameter inch at breast height (DBH) per tree.

Additionally, if the Engineer determines that the damages are such that the tree is sufficiently compromised as to pose a future safety hazard, the tree shall be removed. Tree removal will include clean up of all wood parts, 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.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Tree Protection – Armoring and Pruning will be measured and paid at the Contract unit price per each, which price shall 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.

In the event of tree damage, cost of remediation measures, and/or tree removal will be borne by the Contractor.

Payment under this item will be scheduled throughout the length of contract:

- 40% of value will be paid upon installation of trunk armoring and completion of pruning work, if required.
- 60% will be paid at the end of construction operations that would damage the tree and after
 protection materials have been removed and properly disposed of by the Contractor. In the
 event of repairable damages, payment will be made after the completion of remediation
 measures.

In the event of tree damage, cost of remediation measures, and/or tree removal shall be paid by the Contractor.

In the event of irreparable damage due to lack of proper protective measures being taken there will be no compensation in addition to the \$500.00 per diameter inch penalty.



Highway Division

ITEM 767.121

SEDIMENT CONTROL BARRIER

FOOT

The work under this item shall conform to the relevant provisions of Sections 670, 751 and 767 of the Standard Specifications and the following:

The work includes the furnishing and placement of a sediment control barrier where indicated on the plans. 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 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 are intended to be the primary sedimentation control barrier.

For small areas of disturbance with minimal slope and slope length, the Engineer may approve the following sediment control methods;

- Straw tubes/wattles which shall be trenched
- Straw bales which shall be trenched

Additional barriers (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.

Where specified or required by the Engineer, silt fence shall be used in addition to compost filter tubes or straw bales and shall be incidental to the item.

MATERIALS AND CONSTRUCTION

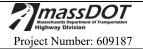
Prior to initial placement of barriers, the Contractor and the Engineer shall review locations specified on the plans to ensure that the placement will provide maximum effectiveness.

Barriers shall be stacked, trenched and/or wedged as specified herein and shall be securely in contact with existing soil such that there is no flow beneath the barrier.

Compost Filter Tube

Compost material inside the filter tube shall meet M1.06.0, except for the following: no 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 a knitted mesh with 1/8 - 3/8" openings and made of 100% biodegradable materials (i.e., cotton, hemp or jute).



Highway Division

ITEM 767.121 (Continued)

Compost filter tubes shall be a minimum of 12 inches in diameter installed. Tubes shall be placed, filled, and stacked in place as required to ensure stability against water flows. All tubes shall be tamped, but not trenched, to ensure good contact with soil.

Where reinforcement is required, additional tubes shall be installed as shown on plans.

Straw Bales

Straw bales shall conform to the requirements of section M6.04.2 of the Standard Specifications and the following:

Bales shall be a minimum size of 12 x 16 x 36 inches and shall be placed in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another.

The bales shall be trenched and backfilled. The trench shall be excavated with the width of the bale and the length of the proposed barrier to a depth of 4 inches. After the bales are stacked the excavated soil shall be backfilled against the barrier. Backfill soil shall conform to the ground level on the downhill side and shall be built up to 4 inches against the uphill side of the barrier.

Straw Wattle

Straw wattle shall be a minimum of 12 inches in diameter. Straw filling shall conform to the requirements of Section M6.04.3, shall be encased in durable netting, and shall have a density of 3 lb/foot.

Straw wattle shall be trenched in 3 inches deep and staked according to the plans. The wattles shall be sufficiently secure on the upstream side to prevent water flowing underneath the wattle.

Silt Fence

Materials and Installation shall be per Subsection 670.40 and the following:

Silt fence shall be used when required by the Engineer. 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 driven 16 inches into the ground 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.



Highway Division

ITEM 767.121 (Continued)

Stakes

Stakes for anchoring compost filter tubes, straw wattles, and straw bales shall be as shown on the plans and shall be a minimum of 1x1 inch diameter x 4 feet hardwood stakes.

When used with silt fence, stakes for compost filter tubes shall be driven 12 inches into the ground. Stakes for straw bales shall be driven 16 inches into the ground.

Stakes of other material of equivalent strength may be used if approved by the Engineer.

MAINTENANCE

Maintenance of Sediment Control Barriers shall be per Subsection 670.60 or per the NPDES Stormwater Pollution Prevention Plan (SWPPP). The contractor shall inspect the sediment barrier after each rain event and as specified in relevant permits to ensure that they are working effectively and as intended. Contractor shall be responsible for ensuring that an effective barrier is in place for all phases of the Contract.

Barriers that decompose naturally due to weatherization over time such that they no longer provide the function required shall be repaired or replaced as directed. If the resulting berm of compost within the fabric tube is sufficiently intact and continues to provide water and sediment control, barrier does not necessarily require replacement.

DISMANTLING & REMOVING

Barriers shall be dismantled and/or removed when construction work is complete and when site conditions are sufficiently stable to prevent surface erosion and after receiving permission to do so from the Engineer.

For all instances, all nonbiodegradable material, including photo-biodegradable fabric, plastic netting, nylon twine, and silt fence, shall be removed and disposed off-site by the Contractor regardless of site context.

For naturalized areas, biodegradable, natural fabric and material may be left in place to decompose on-site. Compost filter tubes may be left as they are with stakes removed. Straw bales shall be broken down and spread evenly. All nylon or nonbiodegradable twin shall be removed along with silt fence. Wooden stakes may be left on site, placed neatly and discreetly.



Highway Division

ITEM 767.121 (Continued)

On urban, residential, and other locations where aesthetics is a concern, the following shall apply:

- Filter tube fabric shall be cut and removed, and compost shall be raked to blend evenly (similar to a soil amendment or mulch). Not 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 grasses (i.e., lawn or native grass mix).
- Silt fence, stakes, and other debris shall be removed and disposed off-site. Site shall look neat and clean upon completion.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Sediment Control Barrier will be measured and paid for at the Contract unit price per foot of sediment control barrier installed, complete in place, which price shall include all labor, materials, equipment, and incidental costs required to complete work.

Silt fence, when used in conjunction with compost filter tubes or straw bales, will be incidental to this item.

Additional barrier, such as double or triple stacking of compost filter tubes, shall be paid for per foot of tube to be installed.

Barriers that have been driven over or otherwise damaged by the Contractor's operations shall be repaired or replaced as required by the Engineer at the Contractor's expense.



ITEM 991.1 CONTROL OF WATER – STRUCTURE NO. H-24-003

LUMP SUM

The work to be performed under this Item shall include all pumping, sandbagging, earth support and/or excavation, and other measures, necessary for sufficient water control (2 stages) to accomplish the demolition of the existing abutments and adjoining wingwalls and the construction of the proposed abutments and wingwalls in the dry. Also, this Item includes all water pollution prevention including sediment control and flood prevention of the excavated areas at the structure for demolition, reconstruction, and dredging necessary to complete the bridge replacement.

The Work under this Item shall conform to the relevant provisions of Subsection 140 of the Standard Specifications and these Special Provisions. The Contractor's attention is directed to the section of these Special Provisions that addresses the Contractor's obligations for Sedimentation and Erosion Control for this project. The demolition of the existing abutments and adjoining wingwalls, bridge excavation and placement of the proposed abutments and wingwalls are placed "in the dry."

CONSTRUCTION METHODS

As part of the work under this Item, it is the responsibility of the Contractor to determine the means and method to maintain the required channel opening for fish and water flow, dewatering techniques and sedimentation controls needed to control water and sediment for the required operations. Prior to commencing construction, the Contractor shall submit Plans showing the methods and materials he/she proposes to use for the Engineer's approval. The submittal shall include a hydraulic calculation showing the proposed methods do not result in flood impact to improvements on surrounding properties due to storm flows. The Plans and hydraulic calculations shall be prepared and stamped by a Professional Engineer registered in the Commonwealth of Massachusetts.

The design submittal must consider a minimum five (5) year flood elevation for the cross-section in each stage of construction. A minimum of 1-foot of freeboard shall be provided with the five (5) year flood elevation for water control purposes. The five (5) year flood elevation that is indicated on the Plans is based on the particular cross-section shown for each stage of construction. Any deviation of the location of the water control system from the Plans will require a determination of a new five (5) year flood elevation for the design.

The Contractor shall use such equipment and shall perform his/her operations in such a manner that boiling or other disturbances of the soil in the foundation area will be prevented. They shall keep the area being excavated dry by such means that water will be prevented from entering from the adjacent soils and adversely affecting the stability of the foundation material or supporting soils.

All dewatering and related earthwork shall be conducted in such a manner as to prevent siltation or contamination of the waterway.



ITEM 991.1 (Continued)

The Contractor shall provide the means of removing all sediment from water pumped from channel excavation or water entering the bridge excavation via ground water or from surface flow; this shall include the use of sedimentation basins, check dams, sedimentation fences or tanks as required in these Special Provisions under Sedimentation and Erosion Control listed below.

Measures to control the discharge of pollutants into water resource areas shall include, but not be limited to the following:

- Rigorous management of construction operations involving potentially hazardous materials, such
 as refueling and maintenance of construction equipment. Approval of the working drawings does
 not relieve the Contractor of the responsibility of providing for the safety and successful
 completion of the work.
- Formulation of contingency plans to control accidental spillage from potentially hazardous materials.
- Sighting of construction staging areas outside of the buffer zones on relatively flat ground.
- Scheduling of work within the resource areas to avoid periods of high flood (e.g., spring floods) and inclement weather.
- Installation and continuous maintenance of staked hay bales and filter fences to prevent sediment migration into adjacent downstream resource areas. Placement of erosion controls shall be as shown on the plans, as specified herein, or as directed by the Engineer, so as to accomplish maximum control of project related sediment mobilization. Additional erosion control measures shall be employed as necessary to prevent erosion and sedimentation of the streambed. These measures shall be maintained for the duration of the contract.
- All discharge resulting from dewatering activities shall be directed to temporary settling tanks/basins located as necessary to control turbidity (see below). At no time shall said discharge be directly released into adjacent resource areas.

The pumping discharge shall not be allowed to enter directly into the Burnshirt River. The water from the work areas shall be pumped to a settling tank. The tank shall be constructed to allow for the pumped water to pass through the tank with sediments settling out before discharging to an area enclosed by hay bales. The tank can be constructed of concrete, fiberglass or any other material that will meet the following:



ITEM 991.1 (Continued)

- 1. Approximately 70 percent sedimentation trapping efficiency shall be achieved with a typical tank to ensure that the tanks are adequately sized to prevent overtopping from dewatering and to provide the required filtering.
- 2. The outlet from the settling tank shall not cause erosion of the surrounding area. An approved method of controlling erosion, such as an erosion control blanket, stone, etc., shall be used at the outlet of the tank.

The settling tanks shall be maintained as follows:

- 1. Inspect at least twice daily during dewatering operations.
- 2. Repair any damage immediately.
- 3. Clean tank outlet daily. Remove any debris immediately.
- 4. Remove sediments when deposits reach 8 inches below the outlet invert.
- 5. Dispose sediments outside of wetland areas at a location approved by the Engineer.
- 6. The Contractor shall inspect hay bales that surround the outlet daily and shall immediately replace any that are damaged.

The approximate location of the settling tanks shall be shown on the Contractor's Plans as part of the submittal for the Engineer's approval.

Pumping shall be conducted in a manner which will not adversely affect the work within the excavation.

The Contractor shall provide and maintain ample pumps, pipes, and other devices to promptly and continually remove and dispose of water from the excavation areas. The size and configuration of pumps and pipes shall be selected by the Contractor.

The Contractor is advised that the effectiveness of the water control method used will vary based on the field conditions and the time at which the actual excavation work is being performed. The Engineer has the right to order the Contractor to stop all excavation operations when in his judgment the Contractor's water control operations are failing to produce adequate results or are posing a threat to the environment.

All water control shall be in compliance with the approved environmental permits included in these bid documents.



ITEM 991.1 (Continued)

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Payment for all water control work, including design for flood prevention of excavated areas, water pollution prevention and dewatering operation, all necessary tools, material, installation, and removal of all temporary measures necessary for the measures outlined above, shall be included in the Contract LUMP SUM Price for this Item.

Payment under this Item is a partial progressive payment of the Lump Sum Contract Bid Price of this Item and shall be made based upon the following percentages: 50% upon completion of the installation of the water control system to the satisfaction and approval of the Engineer, and 50% upon the removal and satisfactory disposal of the water control system from the project site at the completion of the work.



ITEM 994.1 TEMPORARY PROTECTIVE SHIELDING SQUARE FOOT

The work to be done under this Item shall provide for the protection of the Burnshirt River below the bridge and adjacent sloped areas to the bridge from falling debris during demolition of the existing bridge. This shall be accomplished by the utilization of adequate shielding placed beneath the existing superstructure prior to demolition and as directed by the Engineer.

All shielding shall meet the following requirements:

- 1. The Contractor is responsible for designing, furnishing, installing, and maintaining the shielding. When directed by the Engineer, the Contractor shall remove and dispose of the shielding to the satisfaction of the Engineer.
- The Contractor shall submit drawings and calculations, bearing the stamp of a Professional Engineer registered in the Commonwealth of Massachusetts, for the proposed shielding to the Engineer for approval prior to installation. The drawings shall include details of all connections, brackets, and fasteners.
- No portion of the bridge deck, curbing, or other portion of the superstructure or existing structure shall be removed until the Protective Shielding is completely in place and the Contractor has approval from the Engineer to proceed.
- 4. The shielding shall extend the full length of the bridge and a sufficient distance above and beyond the beams as required to protect the river and adjacent sloped areas to the bridge. All spaces along the perimeter of the shielding and at the seams shall be sealed to prevent dust and debris from escaping and falling into the river and adjacent sloped areas to the bridge.
- 5. Shielding shall be designed to safely withstand all loads that it will be subjected to during demolition operations. The allowable design stresses shall be in accordance with the AASHTO Standard Specifications for Highway Bridges, 17th Edition, 2002. The design shall include a complete description of equipment and construction methods proposed for the deck removal and the maximum size of deck area that will be excavated (i.e. 12-inch x 12-inch jack hammered sections, or 6-foot x 2-foot wet saw cut sections). Shielding shall also be designed to withstand the impact imparted by the maximum sized piece of excavated concrete should it fall during excavation or removal.
- 6. The shielding shall not decrease the minimum existing vertical bridge clearance to the roadway unless otherwise approved by the Engineer.
- 7. The shielding shall remain the property of the Contractor and shall be removed by him/her from the site when no longer needed.



ITEM 994.1 (Continued)

Where existing shielding is used in conjunction with temporary shielding, the Contractor shall supply calculations stamped by a Professional Engineer registered in the State of Massachusetts verifying that existing shielding to be used on the project is in conformance with the provisions of Item 994.1, Temporary Protective Shielding. These calculations shall be incidental to this item.

If the Contractor's operations damage any existing portions of previously installed shielding, such damage(s) shall be repaired at the Contractor's expense.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

The work under this Item will be measured and paid in the unit of SQUARE FOOT at the Contract Bid Price for Item 994.1, which price constitutes full payment for all design costs, labor, materials, equipment, tools, and incidentals required to complete the work.

In general, the payment method for Item 994.1 Temporary Protective Shielding is partial progressive payment of the Square Foot Contract Bid Price of this Item. The first payment of the Square Foot bid price will be made upon completion of the installation of the shielding system to the satisfaction and approval of the Engineer. The second payment of the Lump Sum bid price for these Items will be made upon the removal and satisfactory disposal of the shielding system from the project.

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DOCUMENT A00841

MASSACHUSETTS Department of Environmental Protection

Water Quality Certificate

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Commonwealth of Massachusetts

Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

100 Cambridge Street Suite 900 Boston, MA 02114 • 617-292-5500

Maura T. Healey Governor

Kimberley Driscoll Lieutenant Governor Rebecca L. Tepper Secretary

> Bonnie Heiple Commissioner

December 6, 2024

Massachusetts Department of Transportation Highway Division Ten Park Plaza, Room 7360 Boston, MA 02116 ATTN: Courtney Walker

RE: 401 WATER QUALITY CERTIFICATION

Administrative Completeness and Technical Deficiency Review

401 WQC Transmittal No: 24-WW26-0063-APP

AT: Bridge No. H-24-003 Replacement Project

Williamsville Road over Burnshirt River

Hubbardston, MA

Dear Ms. Walker:

The Massachusetts Department of Environmental Protection (MassDEP) Wetlands Program Highway Unit has completed its Administrative Completeness Review of the application for the above-referenced Water Quality Certification (WQC) application. The application requires proof of public notice in a newspaper of general circulation within the area to be administratively complete.

MassDEP has also completed its Technical Review of the above-referenced application and requests that you submit the following additional information:

General

 Per 314 CMR 4.06(6)(b) – Table 6, the Burnshirt River is a Class A Public Water Supply (PWS) Outstanding Resource Water (ORW) as it is tributary to a section of the Ware River that is also a Class A PWS ORW including its tributaries. It should also be noted that Bordering Vegetated Wetlands (BVWs) that border the Burnshirt River are also ORWs per 314 CMR 4.06(2). As applicable, statements of regulatory compliance in

- Section 9.0 of the application will need to be revised to demonstrate compliance with respect to the ORW status of the Burnshirt River and bordering BVWs.
- MassDEP understands sediment sampling is underway, and reserves further comment regarding potentially contaminated soil, sediment, and groundwater management pending the results of the chemical analyses. Please provide a summary of the chemical analyses relative to Massachusetts Contingency Plan RCS-1 criteria as well as the lab results.
- 3. Please provide the hydraulic study referenced in Section 2.4.1 that determined the bankfull width of the Burnshirt River.
- 4. Please note that laydown areas and dewatering areas will also need to be identified in the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan, and the Control of Water Plan that will be conditioned in the WQC. Given the space constraints at this site, MassDEP recommends identifying these areas now during the design phase.
- 5. Details for the streambed restoration need to include a specification for construction of a low-flow channel.
- 6. Please clarify how the dewatered work areas in the river will be accessed. Any temporary access from the banks will need to be identified and if so, proposed methods to restore the bank following construction are required for review.
- 7. Section 3.3 of the narrative states permanent impacts to Land Under Water (LUW) are proposed at the east and west abutments, but permanent impacts to LUW are depicted and stated as only being at the northwest corner of the western abutment. Please clarify.
- 8. Relative to Comment 7, it appears the concrete mat proposed to replace bedrock will extend beyond the abutment footing. Please clarify whether this will result in additional permanent LUW impacts and revise the plans and calculations if needed.
- 9. It does not appear the width of the sandbag cofferdams have been depicted on the plans or included in the impact calculations. In addition, the cofferdam delineation south of the bridge should be revised to extend along the edge of temporary LUW impacts. Please revise the plans and calculations as needed.
- 10. MassDEP understands the riverbed restoration will be overseen by a fluvial geomorphologist. The narrative states stockpiled material from the top of the preconstruction grade bank will be replaced to reform any sediment bars that may have existed before construction. Please clarify how the existing sediment bars are being identified.
- 11. The narrative states the temporary earth support system will be left in place and cut down to ground level when in close proximity to the proposed substructure. Please

describe the temporary earth support system and what is proposed to be left in place. Unless demonstrated to be required for structural stability, MassDEP generally requires all materials in the riverbed to be removed upon completion.

Stormwater

- 12. Similar to Comment 1 above, relevant portions of the Stormwater Management Report will need to be revised to reflect the presence of the ORWs and Zone A Surface Water Protection Area associated with the Burnshirt River and bordering BVWs, which are Critical Areas.
- 13. Unless demonstrated to be impracticable, all existing catch basins will need to be replaced with deep sump catch basins to comply with Stormwater Management Standard 4 to the maximum extent practicable.
- 14. Please evaluate installing deep sump catch basins in proposed subwatershed DA-P2 connecting to an outfall with scour protection at the location of the paved waterway. If practicable, this would assist in providing water quality treatment in accordance with Stormwater Management Standard 4 to the maximum extent practicable.
- 15. The Stormwater Management Report states the existing 18-inch outfall for proposed subwatershed DA-P3 will be cut back approximately ten feet to move it further from the Burnshirt River. However, the plans appear to show the proposed outfall in the same location as the existing outfall. Please first evaluate whether the portion of the 18-inch corrugated metal pipe leading from drain manhole DMH-5 to the proposed outfall could be daylighted and replaced with a Stormwater Control Measure (SCM) such as a sediment forebay, water quality swale, or bioretention area in that location. If an SCM is demonstrated to not be practicable, please then evaluate locating the outfall further back from the river as stated.
- 16. Significant erosion and sedimentation are present along the southeast side of Williamsville Road within the project area, which appears to flow untreated to the Burnshirt River. Methods to alleviate the erosion and sedimentation along the roadway need to be evaluated. If an infiltration or water quality SCM is not practicable, a conveyance SCM may be appropriate.
- 17. It is not clear how the pipes proposed to be replaced leading from the catch basins at approximate Station 9+00 connect to the stormwater system. Similarly, it is not clear how the existing pipes and drain manhole (DMH) associated with proposed catch basins 7 and 8, as well as the existing pipe extending from proposed DMH 5 connect to the stormwater system. Please depict this information on the plans.
- 18. Sediment controls will need to be included between the temporary utility pole and Wetland F.

Proposal No. 609187-130387

Wildlife

19. The regulations at 314 CMR 9.07(3)(d) require consultation with the Massachusetts Division of Fisheries and Wildlife (DFW) regarding potential Time of Year restrictions and/or in-water sediment management for the species listed in the regulation. Please provide the consultation letter or email from DFW.

Upon receipt of all requested supplemental information, MassDEP has 30 calendar days in which to issue or deny a certification.

Should you have any questions relative to this letter, please contact me at heidi.davis@mass.gov or Ryan Hale at ryan.hale@mass.gov.

Sincerely,

Heidi M. Davis

Highway Unit Supervisor

Ecc: DEP CERO – Judith Schmitz

HER MON

USACE – Dan Vasconcelos

USACE – Kevin Newton

MassDOT – Michael Joa

MassDOT – Kristine Chestna

Epsilon Associates – Alyssa Jacobs

Hubbardston Conservation Commission – Bryan LaRochelle, Chair

DOCUMENT A00842

WATERSHED PROTECTION ACT APPLICABILITY DECISION

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January 24, 2025

Town of Hubbardston Attn: Nathan Boudreau 7 Main Street Hubbardston, MA 01452

RE: Applicability Decision, QA2024-043

Dear Mr. Boudreau:

Enclosed please find the original Watershed Protection Act Applicability Decision issued on the above captioned date. Please be advised that should you decide to record the original version of the Determination, it may be recorded at the Worcester District Registry of Deeds twenty one days after the date of issuance which is after the appeal period has expired.

If you have any questions, please do not hesitate to contact me at <u>allan.rantala@mass.gov</u>. Thank you.

Sincerely,

Allan Rantala

Enclosure as stated

Cc: Massachusetts Department of Transportation Town of Hubbardston Conservation Commission

COMMONWEALTH OF MASSACHUSETTS · EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS

Department of Conservation and Recreation 485 Ware Road Belchertown, MA 01007 413-323-6921 413-213-7914 Fax www.mass.gov/dcr



Maura T. Healey Governor

Kimberley Driscoll Lt. Governor Rebecca L. Tepper, Secretary, Executive Office of Energy & Environmental Affairs

Brian Arrigo, Commissioner
Department of Conservation & Recreation



Massachusetts Watershed Protection Act Applicability Decision QA2024-043

Recording information for Register of Deeds

Grantor: Massachusetts Comm Conservation & Recreation

Grantee/Owner: Town of Hubbardston Marginal reference: Book N/A, Page N/A

Pursuant to the:

Massachusetts Watershed Protection Act

M.G.L. c. 92A1/2 313 CMR 11.00

Initial Intake Date: 12/2/2024

Submission Date (complete): 1/10/2025

TO:

Town of Hubbardston

Attn: Nathan Boudreau

Name of Owner

7 Main Street

Hubbadston, MA 01452

Address

FROM: Department of Conservation and Recreation, Division of Water Supply Protection,

Quabbin/Ware Section

DATE OF ISSUANCE: 1/24/2025

REGARDING:

Williamsville Road, Hubbardston, MA 01452

(Town Assessor's Sheet No. N/A; Lot No. N/A)

Property Address/Location



Description of Proposed Structure, Use and/or Activity, if applicable:

Replace bridge including new abutments and drainage improvements.

Plans/Information Filed:

Williamsville Road (Bridge No. H-24-003)	September 26, 2024
Plan Title	Date of Plan
Not signed or stamped	,
Signed and Stamped by	
Attachment 1	November 12, 2024
Plan Title	Date of Plan
Not signed or stamped	v
Signed and Stamped by	

- DETERMINATION -

The Department of Conservation and Recreation, Division of Water Supply Protection, (the Division) has reviewed the Request for Determination of Applicability referenced by the DCR file number above. Based on the information available to the Division at this time, the Division makes the following Decision.

Statement of Jurisdiction

Division staff have reviewed the jurisdictional areas of the Watershed Protection Act (WsPA), 313 CMR 11.04, relative to the parcel and have determined that *portions* of your lot are:

\boxtimes	0-200 ft from a Tributary. No alteration is allowed in this area unless eligible for an
	exemption or subject to a Variance Decision.
\boxtimes	200-400 ft from a Tributary. Certain restrictions apply to activities in this area.
\boxtimes	Bordering Vegetated Wetlands. Certain restrictions apply to activities in this area.
	Floodplain. Certain restrictions apply to activities in this area.

Each of the above referenced zones are identified on the attached map.

In addition, it appears there may exist bordering vegetated wetlands subject to the Act (313 CMR 11.04(1)(e)), the exact location of which should be approved/determined by the Hubbardston Conservation Commission. These wetlands are not shown on the enclosed map.



Loca	ation
	The Division has determined the lot identified on page one is within the area of jurisdiction as identified in Section 11.04(1) of the Watershed Protection Act. However, your proposed project is located outside all WsPA jurisdictional areas. Please be advised this Decision is based on the project's proposed location and an additional Applicability Decision should be obtained from this office if the location of the project is changed.
	The Division has determined the lot identified on page one was properly included on the List of Affected Parcels. It is within the areas regulated by the Watershed Protection Act and any activities on this site must be in conformance with the restrictions outlined in it. If you do not wish to comply with the restrictions, you may apply for a finding of exemption, a variance, or exemption of a tributary. See below for additional information.
	The Division has determined the lot identified on page one was improperly included on the List of Affected Parcels and/or the WsPA maps. The lot is not within the regulated areas and is not subject to the Watershed Protection Act.
	The Division has determined that the lot identified on page one is in the watershed, but is not an area subject to jurisdiction as identified in 313 CMR 11.04 of the Watershed Protection Act.
	The Division has determined that the lot identified on page one is not subject to jurisdiction because the lot is located outside of the watershed and the Watershed Protection Act would not apply.
Exer	<u>nption</u>
	The Division has determined that the proposed structure, use, or activity is exempt as Maintenance of Public Roadways in Existence under 313 CMR 11.05 (8) of the Watershed Protection Act.
Appl prop	ement of Reasons: On the basis of the Request for Watershed Determination of licability, supporting documents, and the following Conditions, the Division finds the osed activity Exempt. This is because the Division has found the project to be for the same ber of travel lanes, uses, and alignment, and the functional equivalent of what existed.





GENERAL CONDITIONS

- 1. This Decision and the following conditions are based on a site visit conducted on 12/3/2024, the Request for Determination Application received complete on 1/10/2025 and the accompanying plans, as noted on page two, on file with DCR-DWSP Quabbin/Ware Section, Environmental Planning Office, 485 Ware Rd., Belchertown, MA 01007 (herein referred to as "this office").
- 2. Any changes, revisions or alterations to approved plans must be submitted to this office prior to the commencement of any work on this site. The Division shall review those changes and make a finding whether an amendment to this Decision or a new filing for a Variance would be required.
- 3. The Division shall have the right to enter and inspect the property, (per 313 CMR 11.11(4)) at reasonable times, for compliance with this Decision, the Act and the Watershed Protection Regulations (313 CMR 11.00).
- 4. This Decision shall apply to any successor in interest or successor in control of the property.
- 5. In case of emergencies, problems or the need to discuss site conditions with the Division, the contact telephone number is (413) 323-6921.

BEFORE THE START OF ANY ACTIVITY:

- 6. Prior to the start of any activity, the applicant shall request a preconstruction meeting on the site involving the contractor conducting the work, the site engineer, and a representative of the Division to ensure that the requirements of this Determination are understood by all parties.
- 7. All sedimentation and erosion control measures shall be installed prior to the preconstruction meeting.

DURING CONSTRUCTION:

8. If at any time observable and measurable eroded sediment from construction enters any bordering vegetated wetland, tributary, or surface water under the jurisdiction of WsPA, the Division shall be informed of the encroachment, and all site work unrelated to remedying the condition shall cease until such time as the situation is corrected and the Division is satisfied with the remediation.



AFTER CONSTRUCTION:

9. Erosion control devices shall remain in place until all disturbed surfaces have been stabilized with final vegetative cover or the Division has authorized their removal.

This Decision applies to the structure, use, or activity only as it has been represented in the Request for Determination of Applicability. If the structure, use, or activity changes, notice shall be made to the Division so that the revised information can be reviewed.

This Decision does not relieve the Applicant of the responsibility of complying with all other applicable Federal, State or local laws and regulations including the General Rules and Regulations for the Protection of Watersheds and the Watershed System (313 CMR 11.09).

APPEALS PROCEDURE

Request for a formal hearing must be made within 21 days of the issuance of this Decision by filing a Notice of Claim for an Adjudicatory Proceeding with the Commission and the Division. A Notice of Claim for appeal must comply with 801 CMR 1.00 *et seq.* and must include the following information: DCR File number; name and address of applicant and attorney, if any; and a statement of grounds for the appeal. The Notice should be filed with both:

and

Commissioner
Department of Conservation and Recreation
State Transportation Building
10 Park Plaza
Suite 6620
Boston, MA 02116

Director
DCR Division of Water Supply Protection
State Transportation Building
10 Park Plaza
Suite 6620

Boston, MA 02116

Issued by the Division of Water Supply Protection, Department of Conservation and Recreation, on the <u>24th day of January 2025.</u>

Dan Clark Hampshire County
County



DCR-DWSP Water shed Protection Act Determination Map



Property Details

NOTE: Details based on MassGIS Level 3 Assessors parcels.

DCR File Number: QA2024-043

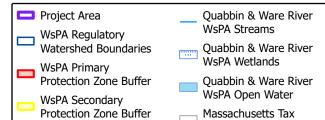
LOC ID:

Parcel Unique ID:

Parcel Map Num:

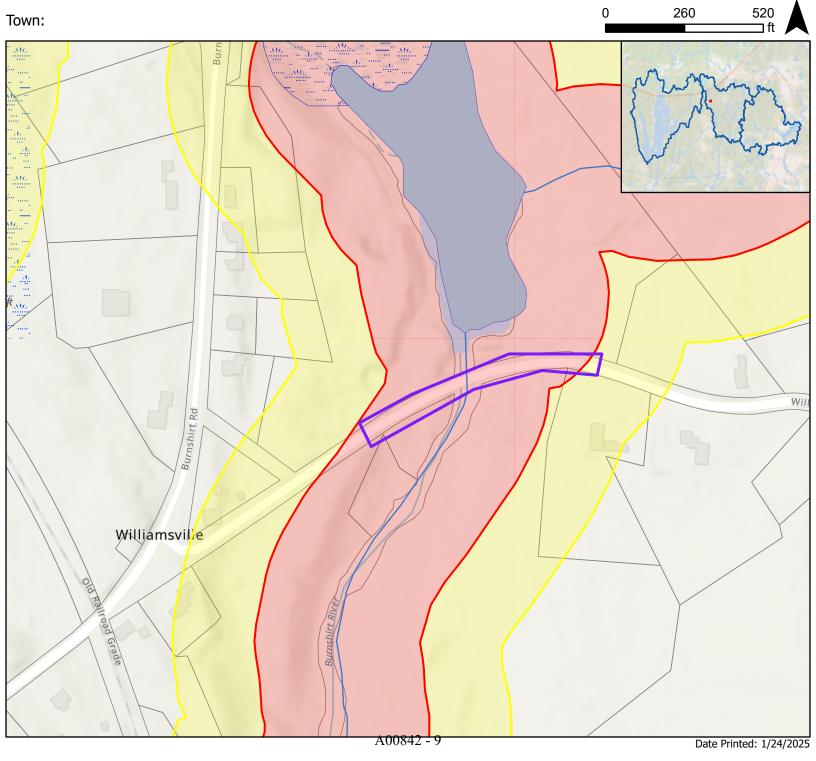
Parcel Number:

Address:



Assessor Parcels

Assessor parcel lines are not surveyed property lines. They approximate the size and shape of parcels. No certification of accuracy for these Assessor Parcels are conveyed or intended. Please be aware that if there is a discrepancy between the location of the tributary on the map and the location in the field, the field location will be used.



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DOCUMENT A00870

UNITED STATES DEPARTMENT OF THE INTERIOR FISH AND WILDLIFE SERVICE

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 03301-5094 Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To: October 27, 2022

Project code: 2023-0006794

Project Name: 609187 - HUBBARDSTON- BRIDGE REPLACEMENT, H-24-003,

WILLIAMSVILLE ROAD OVER THE BURNSHIRT RIVER

Subject: Concurrence verification letter for the '609187 - HUBBARDSTON- BRIDGE

REPLACEMENT, H-24-003, WILLIAMSVILLE ROAD OVER THE BURNSHIRT RIVER' project under the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat

and Northern Long-eared Bat.

To whom it may concern:

The U.S. Fish and Wildlife Service (Service) has received your request dated October 27, 2022 to verify that the **609187 - HUBBARDSTON- BRIDGE REPLACEMENT, H-24-003, WILLIAMSVILLE ROAD OVER THE BURNSHIRT RIVER** (Proposed Action) may rely on the concurrence provided in the February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat (PBO) to satisfy requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C 1531 *et seq.*).

Based on the information you provided (Project Description shown below), you have determined that the Proposed Action is within the scope and adheres to the criteria of the PBO, including the adoption of applicable avoidance and minimization measures, and may affect, but is <u>not likely to adversely affect</u> (NLAA) the endangered Indiana bat (*Myotis sodalis*) and/or the threatened Northern long-eared bat (*Myotis septentrionalis*). Consultation with the 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.

The Service has 14 calendar days to notify the lead Federal action agency or designated non-federal representative if we determine that the Proposed Action does not meet the criteria for a NLAA determination under the PBO. If we do <u>not</u> notify the lead Federal action agency or designated non-federal representative within that timeframe, you may proceed with the Proposed Action under the terms of the NLAA concurrence provided in the PBO. 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.

For Proposed Actions that include bridge/culvert or structure removal, replacement, and/or maintenance activities: If your initial bridge/culvert or structure assessments failed to detect Indiana bats, but you later detect bats prior to, or during construction, please submit the Post Assessment Discovery of Bats at Bridge/Culvert or Structure Form (User Guide Appendix E) to this Service Office. In these instances, potential incidental take of Indiana bats may be exempted provided that the take is reported to the Service.

If the Proposed Action is modified, or new information reveals that it may affect the Indiana bat and/or Northern long-eared bat in a manner or to an extent not considered in the PBO, further review to conclude the requirements of ESA Section 7(a)(2) may be required. If the Proposed Action may affect any other federally-listed or proposed species, and/or any designated critical habitat, additional consultation between the lead Federal action agency and this Service Office is required. If the proposed action has the potential to take bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act may also be required. In either of these circumstances, please contact this Service Office.

The following species may occur in your project area and **are not** covered by this determination:

• Monarch Butterfly *Danaus plexippus* Candidate

Project Description

The following project name and description was collected in IPaC as part of the endangered species review process.

Name

609187 - HUBBARDSTON- BRIDGE REPLACEMENT, H-24-003, WILLIAMSVILLE ROAD OVER THE BURNSHIRT RIVER

Description

609178 - HUBBARDSTON- BRIDGE REPLACEMENT, H-24-003, WILLIAMSVILLE ROAD OVER THE BURNSHIRT RIVER

The project will consists of the functional replacement of the bridge that carries Williamsville Road over the Burnshirt River in Hubbardston.

Monarch Butterfly: Candidate Species only, no conservation measures at this time.

Determination Key Result

Based on your answers provided, this project(s) may affect, but is not likely to adversely affect the endangered Indiana bat and/or the threatened Northern long-eared 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 revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

Qualification Interview

- 1. Is the project within the range of the Indiana bat^[1]?
 - [1] See Indiana bat species profile

Automatically answered

Nο

- 2. Is the project within the range of the Northern long-eared bat^[1]?
 - [1] See Northern long-eared bat species profile

Automatically answered

Yes

- 3. Which Federal Agency is the lead for the action?
 - A) Federal Highway Administration (FHWA)
- 4. Are *all* project activities limited to non-construction^[1] activities only? (examples of non-construction activities include: bridge/abandoned structure assessments, surveys, planning and technical studies, property inspections, and property sales)
 - [1] Construction refers to activities involving ground disturbance, percussive noise, and/or lighting. No
- 5. Does the project include *any* activities that are **greater than** 300 feet from existing road/rail surfaces^[1]?
 - [1] Road surface is defined as the actively used [e.g. motorized vehicles] driving surface and shoulders [may be pavement, gravel, etc.] and rail surface is defined as the edge of the actively used rail ballast.

No

- 6. Does the project include *any* activities **within** 0.5 miles of a known Indiana bat and/or NLEB hibernaculum^[1]?
 - [1] For the purpose of this consultation, a hibernaculum is a site, most often a cave or mine, where bats hibernate during the winter (see suitable habitat), but could also include bridges and structures if bats are found to be hibernating there during the winter.

No

7. Is the project located **within** a karst area?

No

- 8. Is there *any* suitable^[1] summer habitat for Indiana Bat or NLEB **within** the project action area^[2]? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)
 - [1] See the Service's <u>summer survey guidance</u> for our current definitions of suitable habitat.
 - [2] The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR Section 402.02). Further clarification is provided by the <u>User's Guide for the Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat</u>.

Yes

- 9. Will the project remove *any* suitable summer habitat^[1] and/or remove/trim any existing trees **within** suitable summer habitat?
 - [1] See the Service's <u>summer survey guidance</u> for our current definitions of suitable habitat. *Yes*
- 10. Will the project clear more than 20 acres of suitable habitat per 5-mile section of road/rail? *No*
- 11. Have presence/probable absence (P/A) summer surveys^{[1][2]} been conducted^{[3][4]} **within** the suitable habitat located within your project action area?
 - [1] See the Service's <u>summer survey guidance</u> for our current definitions of suitable habitat.
 - [2] Presence/probable absence summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernaculum (contact local Service Field Office for appropriate distance from hibernacula) that result in a negative finding requires additional consultation with the local Service Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.
 - [3] For projects within the range of either the Indiana bat or NLEB in which suitable habitat is present, and no bat surveys have been conducted, the transportation agency will assume presence of the appropriate species. This assumption of presence should be based upon the presence of suitable habitat and the capability of bats to occupy it because of their mobility.
 - [4] Negative presence/probable absence survey results obtained using the <u>summer survey guidance</u> are valid for a minimum of two years from the completion of the survey unless new information (e.g., other nearby surveys) suggest otherwise.

Yes

SUBMITTED DOCUMENTS

609187_rpt_hubbardston_nleb_survey_20221011.pdf https://
 ipac.ecosphere.fws.gov/project/OA7HPJ72WFEP7IU3CHTNPL4L5M/
 projectDocuments/118307961

- 12. Did the presence/probable absence (P/A) summer surveys detect Indiana bats and/or NLEB^[1]?
 - [1] P/A summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernaculum (contact local Service Field Office for appropriate home range) that result in a negative finding requires additional consultation with the local Service Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.

No

- 13. Were the P/A summer surveys conducted **within** the fall swarming/spring emergence range of a documented Indiana bat hibernaculum^[1]?
 - $\label{thm:contact} \mbox{[1] Contact the local Service Field Office for appropriate distance from hibernacula.}$

No

- 14. Does the project include activities **within documented NLEB habitat**^{[1][2]}?
 - [1] Documented roosting or foraging habitat for the purposes of this consultation, we are considering documented habitat as that where Indiana bats and/or NLEB have actually been captured and tracked using (1) radio telemetry to roosts; (2) radio telemetry biangulation/triangulation to estimate foraging areas; or (3) foraging areas with repeated use documented using acoustics. Documented roosting habitat is also considered as suitable summer habitat within 0.25 miles of documented roosts.)
 - [2] For the purposes of this key, we are considering documented corridors as that where Indiana bats and/or NLEB have actually been captured and tracked to using (1) radio telemetry; or (2) treed corridors located directly between documented roosting and foraging habitat.

No

15. Will the removal or trimming of habitat or trees occur **within** suitable but **undocumented NLEB** roosting/foraging habitat or travel corridors?

Yes

- 16. What time of year will the removal or trimming of habitat or trees **within** suitable but **undocumented NLEB** roosting/foraging habitat or travel corridors occur?
 - *C*) During both the active and inactive seasons
- 17. Will *any* tree trimming or removal occur **within** 100 feet of existing road/rail surfaces? *Yes*
- 18. Will *any* tree trimming or removal occur **between** 100-300 feet of existing road/rail surfaces?

No

19. Are *all* trees that are being removed clearly demarcated?

Yes

20. Will the removal of habitat or the removal/trimming of trees involve the use of **temporary** lighting?

Yes

21. Will the removal of habitat or the removal/trimming of trees include installing new or replacing existing **permanent** lighting?

No

22. Does the project include wetland or stream protection activities associated with compensatory wetland mitigation?

No

23. Does the project include slash pile burning?

No

- 24. Does the project include *any* bridge removal, replacement, and/or maintenance activities (e.g., any bridge repair, retrofit, maintenance, and/or rehabilitation work)? *Yes*
- 25. Is there *any* suitable habitat^[1] for Indiana bat or NLEB **within** 1,000 feet of the bridge? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)
 - [1] See the Service's current <u>summer survey guidance</u> for our current definitions of suitable habitat. *Yes*
- 26. Has a bridge assessment^[1] been conducted **within** the last 24 months^[2] to determine if the bridge is being used by bats?
 - [1] See <u>User Guide Appendix D</u> for bridge/structure assessment guidance
 - [2] Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges that meet the physical characteristics described in the Programmatic Consultation, regardless of whether assessments have been conducted in the past. Due to the transitory nature of bat use, a negative result in one year does not guarantee that bats will not use that bridge/structure in subsequent years.

Yes

SUBMITTED DOCUMENTS

- 609187_rpt_hubbardston_nleb_survey_20221011.pdf https:// ipac.ecosphere.fws.gov/project/OA7HPJ72WFEP7IU3CHTNPL4L5M/ projectDocuments/118307961
- 27. Did the bridge assessment detect *any* signs of Indiana bats and/or NLEBs roosting in/under the bridge (bats, guano, etc.)^[1]?
 - [1] If bridge assessment detects signs of *any* species of bats, coordination with the local FWS office is needed to identify potential threatened or endangered bat species. Additional studies may be undertaken to try to identify which bat species may be utilizing the bridge prior to allowing *any* work to proceed.

Note: There is a small chance bridge assessments for bat occupancy do not detect bats. Should a small number of bats be observed roosting on a bridge just prior to or during construction, such that take is likely to occur or does occur in the form of harassment, injury or death, the PBO requires the action agency to report the take. Report all unanticipated take within 2 working days of the incident to the USFWS. Construction activities may continue without delay provided the take is reported to the USFWS and is limited to 5 bats per project.

No

28. Will the bridge removal, replacement, and/or maintenance activities include installing new or replacing existing **permanent** lighting?

No

29. Does the project include the removal, replacement, and/or maintenance of *any* structure other than a bridge? (e.g., rest areas, offices, sheds, outbuildings, barns, parking garages, etc.)

No

30. Will the project involve the use of *any* **temporary** lighting in addition to the lighting already indicated for habitat removal (including the removal or trimming of trees), or bridge/structure removal, replacement or maintenance activities?

Yes

31. Is there *any* suitable habitat **within** 1,000 feet of the location(s) where **temporary** lighting (other than the lighting already indicated for habitat removal (including the removal or trimming of trees) or bridge/structure removal, replacement or maintenance activities) will be used?

Yes

32. Will the project install new or replace existing **permanent** lighting?

No

33. Does the project include percussives or other activities (**not including tree removal**/ **trimming or bridge**/**structure work**) that will increase noise levels above existing traffic/ background levels?

Yes

- 34. Will the activities that use percussives (**not including tree removal/trimming or bridge/ structure work**) and/or increase noise levels above existing traffic/background levels be conducted *during* the active season^[1]?
 - [1] Coordinate with the local Service Field Office for appropriate dates.

Yes

- 35. Will *any* activities that use percussives (**not including tree removal/trimming or bridge/ structure work**) and/or increase noise levels above existing traffic/background levels be conducted *during* the inactive season^[1]?
 - $\left[1\right]$ Coordinate with the local Service Field Office for appropriate dates.

Yes

36. Are *all* project activities that are **not associated with** habitat removal, tree removal/ trimming, bridge and/or structure activities, temporary or permanent lighting, or use of percussives, limited to actions that DO NOT cause any additional stressors to the bat species?

Examples: lining roadways, unlighted signage, rail road crossing signals, signal lighting, and minor road repair such as asphalt fill of potholes, etc.

Yes

37. Will the project raise the road profile **above the tree canopy**? *No*

38. Are the project activities that use percussives (not including tree removal/trimming or bridge/structure work) consistent with a Not Likely to Adversely Affect determination in this key?

Automatically answered

Yes, because the activities are within 300 feet of the existing road/rail surface, greater than 0.5 miles from a hibernacula, and conducted during the active season within undocumented habitat.

39. Are the project activities that use percussives (not including tree removal/trimming or bridge/structure work) and/or increase noise levels above existing traffic/background levels consistent with a No Effect determination in this key?

Automatically answered

Yes, because the activities are within 300 feet of the existing road/rail surface, greater than 0.5 miles from a hibernacula, and conducted during the inactive season

40. Is the location of this project consistent with a Not Likely to Adversely Affect determination in this key?

Automatically answered

Yes, because no bats were detected during presence/probable absence surveys conducted during the summer survey season and outside of the fall swarming/spring emergence periods. Additionally, all activities were at least 0.5 miles from any hibernaculum.

41. Is the bridge removal, replacement, or maintenance activities portion of this project consistent with a No Effect determination in this key?

Automatically answered

Yes, because the bridge has been assessed using the criteria documented in the BA and no signs of bats were detected

42. General AMM 1

Will the project ensure *all* operators, employees, and contractors working in areas of known or presumed bat habitat are aware of *all* FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable Avoidance and Minimization Measures?

Yes

Project Questionnaire

1. Have you made a No Effect determination for *all* other species indicated on the FWS IPaC generated species list?

N/A

2. Have you made a May Affect determination for *any* other species on the FWS IPaC generated species list?

N/A

3. How many acres^[1] of trees are proposed for removal between 0-100 feet of the existing road/rail surface?

[1] If described as number of trees, multiply by 0.09 to convert to acreage and enter that number. 1.35

4. Please describe the proposed bridge work:

1. The project is classified as a Footprint Bridge Project. The roadway is classified as an Rural Minor Arterial, Non-Interstate, Non-NHS (National Highway System). The proposed work consists of milling and resurfacing, minor roadway widening, drainage improvements, and related work on Williamsville Road in the Town of Hubbardston. The purpose and needs of this project are to replace the existing bridge and resurface the roadway. There are no existing sidewalks or bicycle facilities beyond the bridge on either side of the approach roadways. No sidewalks were considered due to lack of development, no existing sidewalks or connectivity needs. No bicycle facilities were considered due to the proposed 11' travel lanes and 5' shoulders. There are no transit stops on or near the project, so transit was not considered.

The proposed cross-section consists of two 11' travel lanes, and two 5' shoulders. Total width is 32 feet.

MassDOT's Highway Division is the design engineer for this project

5. Please state the timing of all proposed bridge work:

May 2024- May 2025

6. Please enter the date of the bridge assessment:

July 21, 2022

Avoidance And Minimization Measures (AMMs)

This determination key result includes the committment to implement the following Avoidance and Minimization Measures (AMMs):

GENERAL AMM 1

Ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable AMMs.

Determination Key Description: FHWA, FRA, FTA Programmatic Consultation For Transportation Projects Affecting NLEB Or Indiana Bat

This key was last updated in IPaC on October 11, 2022. Keys are subject to periodic revision.

This decision key is intended for projects/activities funded or authorized by the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and/or Federal Transit Administration (FTA), which may require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 of the Endangered Species Act (ESA) for the endangered **Indiana bat** (*Myotis sodalis*) and the threatened **Northern long-eared bat** (NLEB) (*Myotis septentrionalis*).

This decision key should <u>only</u> be used to verify project applicability with the Service's <u>February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects</u>. The programmatic biological opinion covers limited transportation activities that may affect either bat species, and addresses situations that are both likely and not likely to adversely affect either bat species. This decision key will assist in identifying the effect of a specific project/activity and applicability of the programmatic consultation. The programmatic biological opinion is <u>not</u> intended to cover all types of transportation actions. Activities outside the scope of the programmatic biological opinion, or that may affect ESA-listed species other than the Indiana bat or NLEB, or any designated critical habitat, may require additional ESA Section 7 consultation.

IPaC User Contact Information

Agency: Massachusetts Department of Transportation

Name: Trevor Burns Address: 10 Park Plaza

City: Boston State: MA Zip: 02116

Email trevor.b.burns@dot.state.ma.us

Phone: 8574885122

Lead Agency Contact Information

Lead Agency: Federal Highway Administration

DOCUMENT A00871

UNITED STATES DEPARTMENT OF THE INTERIOR FISH AND WILDLIFE SERVICE

LIST OF THREATENED AND ENDANGERED SPECIES

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United States Department of the Interior



FISH AND WILDLIFE SERVICE

New England Ecological Services Field Office 70 Commercial Street, Suite 300 Concord, NH 03301-5094 Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To: 04/28/2025 13:04:43 UTC

Project Code: 2025-0015499

Project Name: 609187 - HUBBARDSTON- BRIDGE REPLACEMENT, H-24-003,

WILLIAMSVILLE ROAD OVER THE BURNSHIRT RIVER

Subject: List of threatened and endangered species that may occur in your proposed project

location or may be affected by your proposed project

To Whom It May Concern:

Updated 4/12/2023 - *Please review this letter each time you request an Official Species List, we will continue to update it with additional information and links to websites may change.*

About Official Species Lists

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Federal and non-Federal project proponents have responsibilities under the Act to consider effects on listed species.

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested by returning to an existing project's page in IPaC.

Endangered Species Act Project Review

Please visit the "New England Field Office Endangered Species Project Review and

Consultation" website for step-by-step instructions on how to consider effects on listed species and prepare and submit a project review package if necessary:

https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review

NOTE Please <u>do not</u> use the **Consultation Package Builder** tool in IPaC except in specific situations following coordination with our office. Please follow the project review guidance on our website instead and reference your **Project Code** in all correspondence.

Northern Long-eared Bat - (**Updated 4/12/2023**) The Service published a final rule to reclassify the northern long-eared bat (NLEB) as endangered on November 30, 2022. The final rule went into effect on March 31, 2023. You may utilize the **Northern Long-eared Bat Rangewide Determination Key** available in IPaC. More information about this Determination Key and the Interim Consultation Framework are available on the northern long-eared bat species page:

https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis

For projects that previously utilized the 4(d) Determination Key, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective. If your project was not completed by March 31, 2023, and may result in incidental take of NLEB, please reach out to our office at newengland@fws.gov to see if reinitiation is necessary.

Additional Info About Section 7 of the Act

Under section 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether projects may affect threatened and endangered species and/or designated critical habitat. If a Federal agency, or its non-Federal representative, determines that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Federal agency also may need to consider proposed species and proposed critical habitat in the consultation. 50 CFR 402.14(c)(1) specifies the information required for consultation under the Act regardless of the format of the evaluation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/service/section-7-consultations

In addition to consultation requirements under Section 7(a)(2) of the ESA, please note that under sections 7(a)(1) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Please contact NEFO if you would like more information.

Candidate species that appear on the enclosed species list have no current protections under the

ESA. The species' occurrence on an official species list does not convey a requirement to consider impacts to this species as you would a proposed, threatened, or endangered species. The ESA does not provide for interagency consultations on candidate species under section 7, however, the Service recommends that all project proponents incorporate measures into projects to benefit candidate species and their habitats wherever possible.

Migratory Birds

In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see:

https://www.fws.gov/program/migratory-bird-permit

https://www.fws.gov/library/collections/bald-and-golden-eagle-management

Please feel free to contact us at **newengland@fws.gov** with your **Project Code** in the subject line if you need more information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat.

Attachment(s): Official Species List

Attachment(s):

Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office 70 Commercial Street, Suite 300 Concord, NH 03301-5094 (603) 223-2541

PROJECT SUMMARY

Project Code: 2025-0015499

Project Name: 609187 - HUBBARDSTON- BRIDGE REPLACEMENT, H-24-003,

WILLIAMSVILLE ROAD OVER THE BURNSHIRT RIVER

Project Type: Bridge - Replacement

Project Description: 609187 - HUBBARDSTON- BRIDGE REPLACEMENT, H-24-003,

WILLIAMSVILLE ROAD OVER THE BURNSHIRT RIVER

The work under this Contract consists of complete demolition and total reconstruction of Bridge H-24-003 Williamsville Road over the Burnshirt River, including the approaches, in the Town of Hubbardston. The work

involves the demolition and removal of the existing abutments, wingwalls, and superstructure, construction of two (2) new bridge

abutments with wingwalls, and a new superstructure.

Monarch Butterfly: Proposed Threatened Species only. The project action will not have an intentional take on the species and therefore will not

jeopardize the continued existence of the proposed species.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.47583525,-72.07629002499999,14z



Counties: Worcester County, Massachusetts

ENDANGERED SPECIES ACT SPECIES

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

INSECTS

NAME

Monarch Butterfly Danaus plexippus

There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat.

STATUS

Proposed

Threatened

Species profile: https://ecos.fws.gov/ecp/species/9743

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Massachusetts Department of Transportation

Name: Emily Puglisi Address: 10 Park Plaza

City: Boston State: MA Zip: 02116

Email emily.a.puglisi@dot.state.ma.us

Phone: 6178964424

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Highway Administration

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DOCUMENT A00872

BAT HABITAT INSPECTION

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October 8, 2024

Hubbardston (DOT Project #609187) BRIDGE REPLACEMENT ON WILLIAMSVILLE ROAD OVER THE BURNSHIRT RIVER Bat Habitat Inspection

The MassDOT Wildlife and Endangered Species Unit (WESU) conducted a visual inspection for roosting bats and bat habitat at Bridge H-24-003 associated with MassDOT project #609187 HUBBARDSTON-BRIDGE REPLACEMENT, H-24-003, WILLIAMSVILLE ROAD OVER THE BURNSHIRT RIVER. The proposed work will include full replacement of the bridge on existing alignment with a structure 2-feet wider than existing. The proposed bridge and approach roadway cross-section will include two 11-foot travel lanes with 5-foot shoulders. The proposed new bridge will consist of a single-span precast concrete NEXT beam superstructure supported by reinforced concrete abutments on spread footings. The bridge will have painted steel S3-TL4 railings. The road will be closed for the duration of construction and traffic will be detoured to the north and east along Thompson Road and Kruse Road. During the inspection, WESU biologists used flashlights, binoculars, and a borescope to search gaps, crevices, and other locations on bridge structures that could potentially hold roosting bats. **No bats, guano, or staining were observed at the bridge during the inspection.**

Bridge H-24-003 is a steel I-Beam structure with steel and concrete decking over the Burnshirt River (Figure 1). Inspection of gaps, concrete surfaces, and any small cracks/crevices of the bridge provided no indication of bat roosting (Figures 4-8). While suitable roosting habitat may exist for various bat species within gaps between the concrete end walls and decking, these exposed gaps are unlikely to provide thermal protection due to their shallow depths and/or large widths. Similarly, visual inspection of the bridge's metal guardrails indicated they are unlikely to provide suitable roosting habitat due to the lack of crevices. Bird and insect activity was observed, demonstrating that other species are utilizing the bridge (Figures 4-5).

In conclusion, while the MassDOT Wildlife and Endangered Species Unit did observe limited areas of potential roosting bat habitat within gaps and between the concrete decking, no roosting bats or evidence of roosting bats were observed during the inspection of Bridge H-24-003. A completed bridge assessment form is included as Appendix A.

Sincerely,

David Paulson

David Kaulon

Wildlife and Endangered Species Unit Supervisor, MassDOT, Environmental Services



Figure 1. Bridge H-24-003 over Burnshirt River



Figure 2. Guardrails and abutment of bridge H-24-003 over Burnshirt River.



Figure 3. Underside of Bridge H-24-003 over Burnshirt River



Figure 4. Gap above abutment on Bridge H-24-003 over Burnshirt River



Figure 5. Current condition of concrete abutment of Bridge H-24-003 over Burnshirt River



Figure 6. View of abutment from underside of Bridge H-24-003 over Burnshirt River



Figure 7. Space between abutment and bridge deck on Bridge H-24-003 over Burnshirt River



Figure 8. Current condition of steel I-beam on Bridge H-24-003 over Burnshirt River

APPENDIX A. Bridge Assessment Form

APPENDIX D: Bridge/Structure Bat Assessment Form

Bridge/Structure Bat Assessment Form Instructions

- This form will be completed to document bat occupancy or bat use of bridges, culverts, and other structures. This form shall be submitted to the appropriate personnel within the DOT and USFWS for recordkeeping (or uploaded into the Information, Planning, and Consultation (IPaC) Determination Key for use of the Programmatic Biological Opinion for Transportation Projects in the Range of the Indiana Bat and Northern Long-Eared Bat) prior to conducting: any activities below the deck surface either from the underside or from above the deck surface that bore down to the underside; any activities that could impact expansion joints; any activities involving deck removal on bridges; or any activities involving structure demolition for bridges, culverts, and/or other structures.
- Assessments must be completed within two (2) years of conducting any work (see the above bullet),
 regardless of whether assessments have been conducted in the past. Assessments must be
 completed in appropriate weather conditions, suitable for the assessor to observe common signs of
 bat use.
- Evidence of bat use may include visual observation (live and/or dead), presence of guano, presence
 of staining, audible observation, and/or odor observation. Presence of one or more indicators is
 sufficient evidence that bats may be using the bridge, culvert, and/or other structure.
- If bat use of a bridge, culvert, and/or other structure is noted, additional studies may be undertaken
 during bat active season to identify the specific bat species utilizing the structure, or protected bat
 species presence can be assumed, in order to comply with threatened and endangered species
 regulations. Bat active season dates, typically between April and November, vary regionally and by
 species, so assessors should consult with their local USFWS Field Office for more specific active
 season dates.
- For use of the Programmatic Biological Opinion for Transportation Projects in the Range of the Indiana Bat and Northern Long-Eared Bat If the bridge/structure is 1,000 feet or more from suitable bat habitat¹ (e.g., an urban or agricultural area without suitable foraging habitat or corridors linking the bridge to suitable foraging habitat), check the appropriate box and fill out the table below. No further assessment is required.

Date & Time of Assessment	DOT Project #	Route/Facility Carried	County
Federal Structure ID	Structure Coordinates (latitude and longitude)	□ This bridge/structure is 1,000 feet or more from suitable bat habitat ²	
		Name:	Burns

 Any questions pertaining to assessments or this form should be directed to the local USFWS Field Office.

¹ Refer to the USFWS's summer survey guidance for the definition of suitable habitat (http://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html).

² This condition is only for use of the Programmatic Biological Opinion for Transportation Projects in the Range of the Indiana Bat and Northern Long-Eared Bat

Date & Time of Assessment	DOT Project Number	Route/Facility Carried	County
<u>Federal</u> <u>Structure ID</u>	Structure Coordinates (latitude and longitude)	Structure Height (approximate)	Structure Length
Structure Type (check one)		Structure Material (check a	I that apply)
Bridge Construction Style		_ ` ` ` `	End/Back Wall Material
	1	Metal None	Concrete
Cast-in-place	Pre-stressed Girder	Concrete Concrete	Timber
		Timber Steel	Stone/Masonry
Flat Slab/Box	Steel I-beam	Open grid Timber	Other:
Truss Side View	Covered	Other: Other:	Creosote Evidence
Parallel Box Beam	Other:	Culvert Material	Yes No Unknown
Culvert Type	Other Structure	Metal Concrete	Notes:
Вох		Plastic	
Pipe/Round	7	Stone/Masonry	
Other:	1	Other:	
Crossings Traversed (check all th	nat annly)	Surrounding Habitat (check	(all that annly)
,	Open vegetation	Agricultural	Grassland
Bare ground	Closed vegetation	Commercial	Ranching
Rip-rap	- ÿ		Riparian/wetland
Flowing water	Railroad	Residential-urban Residential-rural	<u> </u>
Standing water	Road/trail - Type:		Mixed use
Seasonal water	Other:	Woodland/forested	Other:
Areas Assessed (check all that ap	oply)		
Check all areas that apply. If an area is not	t present in the structure, check the "not pre	esent" box.	
Document all bat indicators observed during	g the assessment. Include the species pre	esent, if known, and provide photo docu	mentation as indicated.
Area (check if assessed)	Assessment Notes	Evidence of Bats (include p	
		Evidence of Bats (include p	
All crevices and cracks:	Not present	⊣ 	Audible Species
Bridges/culverts: rough surfaces or		Visual - live # dead #	Odor
imperfections in concrete		Guano	Photos
Other structures: soffits, rafters, attic		Staining	
areas			
	Not present		Audible Species
Concrete surfaces (open roosting on		Visual - live # dead #	Odor
└──concrete)		Guano	Photos
•		Staining	
	Not present		Audible Species
Spaces between concrete end walls		Visual - live # dead #	Odor
and the bridge deck		Guano	Photos
		Staining	
Crack between concrete railings on top	Not present		Audible Species
of the bridge deck Gap		Visual - live # dead #	Odor
		Guano	Photos
Railing——		Staining	
	Not present		Audible Species
☐ Vertical surfaces on concrete I-beams		Visual - live # dead #	Odor
vertical surfaces off concrete i-beams		Guano	Photos
		Staining	
	Not present		Audible Species
Change between wells, spiling injets	•	Visual - live # dead #	Odor
Spaces between walls, ceiling joists		Guano	Photos
		Staining	
	Not present		Audible Species
₩eep holes, scupper drains, and		Visual - live # dead #	Odor
inlets/pipes		Guano	Photos
		Staining	
	Not present		Audible Species
All and demails	'	Visual - live # dead #	Odor
All guiderails		Guano	Photos
		Staining	
	Not present	i l	Audible Species
.	<u> </u>	Visual - live # dead #	Odor
All expansion joints		Guano	Photos
		Staining	1
	•		
Name:		Signature: Trevor Bu	rns

DOCUMENT A00873

NORTHERN LONG-EARED BAT ACOUSTIC SURVEY REPORT

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Stantec Consulting Services Inc.

5 Dartmouth Drive Suite 200, Auburn NH 03032-3984

October 11, 2022

Attention: Tim Dexter

Fish & Wildlife Program Coordinator
Massachusetts Department of Transportation – Highway Division
Ten Park Plaza, Room 4260
Boston, MA 02116-3973

Dear Tim,

Project	Northern Long-eared Bat (NLEB) Presence/Absence Survey
MassDOT Project #	609187
Town	Hubbardston, Massachusetts
Surveyor Name/Firm	Stantec Consulting Services Inc.
Detector Operation Dates	July 21–25, 2022
Survey Results	NLEB DETECTED BUT NOT CONFIRMED

The attached report contains the results of the Massachusetts Department of Transportation northern long-eared bat (*Myotis septentrionalis*; NLEB) summer presence/absence survey performed for the proposed bridge replacement work on Williamsville Road over Burnshirt River (MassDOT # 609187) in Hubbardston, Massachusetts. The acoustic detector deployed by Stantec Consulting Services Inc. recorded one or more files identified as NLEB. Automated U.S. Fish and Wildlife Service-approved software (Kaleidoscope Pro version 5.4.7 [KPro]) identified 22 NLEB passes but did not indicate presence based on nightly maximum likelihood estimate scores. Presence of NLEB was not confirmed based on our qualitative assessment. One hundred seventy-one individual bat passes were autoclassified by KPro as the state-endangered little brown bat (*Myotis lucifugus*), and presence was confirmed during visual vetting. Three passes were autoclassified as the state-endangered eastern small-footed bat (*Myotis leibii*), though presence was not confirmed during visual vetting. No passes were autoclassified as the state-endangered tricolored bat (*Perimyotis subflavus*). The required USFWS Region 5 Bat Reporting Form and 2022 MassDOT Batsurvey Stantec shapefile will be provided to you under separate cover.

Regards,

Stantec Consulting Services Inc.

Alex Pries

Project Manager Phone: (603) 260-7434 Fax: (207) 729-2715 Alex.Pries@stantec.com

Attachment: NLEB Survey Report for Hubbardston, 609187

Design with community in mind



Memo

To: Tim Dexter, Fish and Wildlife Program Coordinator From: Alex Pries

Massachusetts Department of Transportation Auburn, New Hampshire Office

File: 179410726 Date: October 11, 2022

Reference: Bridge Replacement on Williamsville Road over Burnshirt River, Hubbardston, Massachusetts – Northern Long-eared Bat Acoustic Survey Report

INTRODUCTION

The Massachusetts Department of Transportation (MassDOT) retained Stantec Consulting Services Inc. (Stantec) to conduct an acoustic survey for the presence or probable absence of populations of the federally threatened and state-listed endangered northern long-eared bat (*Myotis septentrionalis*; NLEB) on Williamsville Road over Burnshirt River for proposed bridge replacement work in Hubbardston, Massachusetts (Project). The Project includes potential tree clearing along 0.195 kilometers (km) of forested habitat (Figure 1). The purpose of the survey was to determine if this species was using these forested areas at the Project during the 2022 summer maternity season. The survey was conducted according to methods outlined in the U.S. Fish and Wildlife Service's (USFWS) March 2022 *Range-wide Indiana Bat and Northern Long-eared Bat Summer Survey Guidelines* (USFWS Guidelines).¹ Stantec provided a Study Plan (Appendix A) for this acoustic survey to MassDOT on June 22, 2022, and USFWS on June 27, 2022, based on USFWS Guidelines. After USFWS indicated on July 11, 2022, that review of the Study Plan would be delayed, MassDOT approved commencement of field surveys on July 12, 2022, and Stantec conducted surveys on July 21–25. The USFWS Guidelines identified a survey window of May 15 to August 15 for acoustic surveys. This memorandum summarizes methods and results of the acoustic bat survey for the Project. The memorandum for the associated bridge inspection is located in Appendix E.

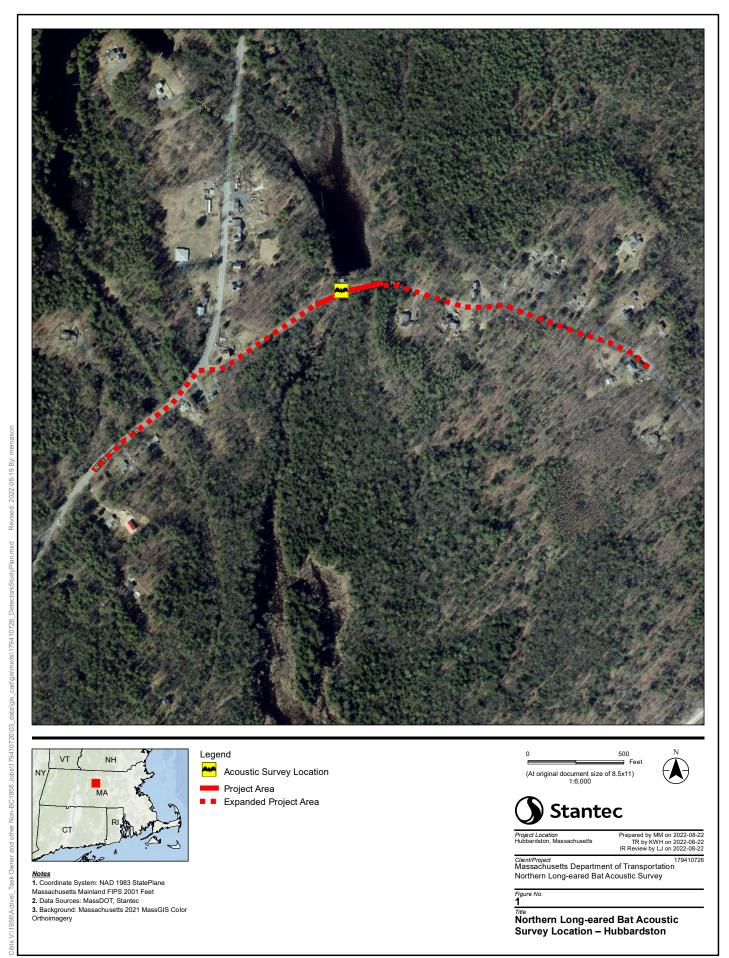
METHODS

FIELD SURVEY

Surveys were conducted according to the methods outlined in the Study Plan (Appendix A). The USFWS Guidelines specify survey effort for acoustic surveys based either on an area method or a linear method and indicate that projects less than 1 km in length should be considered non-linear and require 14 detectornights and at least two survey sites no less than 200 meters (m) apart. Based on correspondence between MassDOT and the USFWS, Stantec included portions of the linear road corridors on either side of the bridge to be assessed (up to 1 km survey) to categorize the Project as linear and to allow for greater flexibility in acoustic detector placement. Per survey efforts outlined in the USFWS Guidelines: Phase 2 Acoustic Surveys for linear projects, at least four detector-nights per km of suitable summer habitat were required for the Project. For the purposes of this survey, we have conservatively assumed that all forested areas immediately adjacent to the Project provide potential roost habitat for NLEB (e.g., suitable summer habitat) and may potentially be cleared during project construction. Accordingly, Stantec conducted four detector-nights (one detector deployed for four nights) of acoustic surveys as outlined in the Study Plan.

Stantec identified the survey location based on review of aerial imagery during desktop analysis, taking into consideration land permission access to the MassDOT right-of-way associated with the Project. Stantec biologists determined detector placement in the field according to USFWS Guidelines, positioning the detector in a location that could be suitable as potential NLEB foraging habitat and appropriate for recording search-phase bat echolocations appropriate for identification.

¹ https://www.fws.gov/library/collections/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines



Tim Dexter, Fish and Wildlife Program Coordinator Page 3 of 6

Reference: Bridge Replacement on Williamsville Road over Burnshirt River, Hubbardston, Massachusetts – Northern Long-eared

Bat Acoustic Survey Report

The detector location was positioned along a forested edge next to the river (Figure 1). We recorded the location of the survey site and habitat information using the Survey123 mobile app on an iPhone, and photographed the site (Appendix B).

Stantec used a full-spectrum acoustic bat detector (Wildlife Acoustics® Song Meter Mini Bat) for the survey, inspecting the detector and ensuring its built-in omnidirectional microphone met manufacturer calibration standards before deployment. The microphone was tested again in the field with the use of ultrasonic noise and inspection of proper microphone response. The detector was deployed in an area with minimal vegetation within 10 m and at least 3 m away from obstructions in any direction. The detector was mounted approximately 3 m above ground level and oriented horizontally to the ground to sample an optimal volume of air space in accordance with the USFWS Guidelines. The audio and data storage settings on the detector were set according to defaults recommended by the manufacturer (e.g., detectors will operate in "triggered.wav" mode using default trigger threshold settings). The detector was set to record from 30 minutes before sunset until 30 minutes after sunrise and was powered with alkaline batteries.

DATA ANALYSIS

Although acoustic surveys focused on detecting NLEB, bat detectors are designed to detect all bats vocalizing in the vicinity of the detectors. Therefore, additional listed bat species can be detected, including eastern small-footed bat (*Myotis leibii*; state-listed endangered), little brown bat (*Myotis lucifugus*; state-listed endangered), and tricolored bat (*Perimyotis subflavus*; state-listed endangered). Though the federally endangered Indiana bat (*Myotis sodalis*) is listed as endangered in Massachusetts, the state occurs outside the known range of this species and Stantec does not believe that this species occurs at the Project. Therefore, Indiana bat was not included in acoustic analysis.

Stantec performed an initial coarse visual analysis of data to confirm that high frequency bats were recorded. Data were then analyzed using Kaleidoscope Pro Software version 5.4.7 (KPro; classifier version 5.4.0), using a "-1" sensitivity setting and selecting the appropriate species list for the Massachusetts region (excluding Indiana bat). This analysis method has been approved by the USFWS as suitable for analyzing full-spectrum bat data collected by Song Meter units.

KPro analyzes each acoustic file and assigns it a bat species identification if the program determines it contains a bat call (pass) opposed to acoustic static. KPro also assigns a maximum likelihood estimate (MLE) to each species identified, at each detector site, for each night surveyed. According to the USFWS Guidelines, presence or probable absence of NLEB is based on the species' MLE generated by KPro for each detector site for each night surveyed. An MLE of less than 0.05 indicates probable presence and an MLE greater than 0.05 indicates probable absence of that species at that detector site for that night.

Stantec visually vetted all files recorded on nights with probable NLEB presence (MLE of less than 0.05) to evaluate the plausibility of NLEB presence on those nights. We also reviewed all high frequency files identified as any state-listed bat species by the program to evaluate the plausibility of additional bat species of interest.

RESULTS

HABITAT SURVEY

The Project area includes a road traversing riparian forested habitat interspersed with residential areas (Figure 1). The forested habitat consists of deciduous forest dominated by red maple (*Acer rubrum*), yellow

Tim Dexter, Fish and Wildlife Program Coordinator Page 4 of 6

Reference: Bridge Replacement on Williamsville Road over Burnshirt River, Hubbardston, Massachusetts – Northern Long-eared

Bat Acoustic Survey Report

birch (*Betula alleghaniensis*), and ash (*Fraxinus* spp.) with a moderate canopy closure. Many potential bat flight and foraging corridors and potential roost habitat exist within the site and the surrounding area.

FIELD SURVEY

Stantec deployed the acoustic detector on July 21, 2022, and surveys took place during the nights of July 21–25. Stantec monitored weather conditions at weather station KMABARRE11 (Weather Underground, located approximately 5 miles southwest of the Project) after each night and confirmed that weather met the following parameters outlined in the USFWS Guidelines during the first 5 hours surveyed after sunset:

- Temperatures exceeded 50°F
- No precipitation or fog for 30 minutes or more
- Sustained wind speeds did not exceed 9 miles/hour for 30 minutes or more

The night of July 21 did not meet the required weather parameters, but the detector operated successfully within the required weather parameters on the nights of July 22–25. The detector was inspected in the field on July 26, 2022, to confirm proper operation during four nights of deployment. The detector operated successfully during all nights of survey and was retrieved.

ACOUSTIC ANALYSIS

Coarse visual analysis confirmed presence of high-frequency bat passes at the site. We included only the first four nights of survey that met weather condition requirements in the acoustic analysis, meeting the minimal level of survey effort according to USFWS Guidelines. Analysis with KPro software identified 22 passes as NLEB but did not indicate presence of NLEB based on nightly MLE scores. Visual QA/QC, performed by Laura Berube and Caroline Byrne (see resumes in Appendix C), indicated no presence of NLEB; instead, these passes were determined to be state-endangered little brown bat passes, or other *Myotis* species or high-frequency bats that could not be identified to species (Table 1).

KPro identified 171 other passes as state-endangered little brown bat and indicated presence for the species based on nightly MLE scores. Visual QA/QC determined presence of this species at the Project (Table 1). KPro also identified three passes as state-endangered eastern small-footed bat but did not indicate presence for the species based on nightly MLE scores. Visual QA/QC did not determine presence for this species at the Project. KPro did not identify any passes as state-endangered tricolored bat or indicate presence for the species based on nightly MLE scores (Table 1).

Additional species recorded at the Project included big brown bat (*Eptesicus fuscus*), silver-haired bat (*Lasionycteris noctivagans*), hoary bat (*Lasiurus cinereus*), and eastern red bat (*Lasiurus borealis*). Overall, big brown bats accounted for most recorded bat activity, followed by silver-haired bats and then hoary bats.

See Appendix D for examples of bat passes documented at the Project. Original full-spectrum and converted zero-crossing data files have been archived electronically and can be made available upon request. We have populated the USFWS Region 5 Bat Reporting Form and the 2022_MassDOT_Batsurvey_Stantec shapefile as electronic attachments.

Tim Dexter, Fish and Wildlife Program Coordinator

Page 5 of 6

Reference: Bridge Replacement on Williamsville Road over Burnshirt River, Hubbardston, Massachusetts – Northern Long-eared

Bat Acoustic Survey Report

Table 1. Acoustic analysis results for state- and/or federally listed bat species based on KPro software and visual QAQC for acoustic surveys for Bridge Replacement on Williamsville Road over Burnshirt River, Hubbardston, Massachusetts.

	Night	KPro Analysis	
Species		# Passes (Nightly MLE Score)	Visual QA/QC Notes
northern long- eared bat	22-Jul	5 (0.77)	Presence not confirmed. Passes determined to be little brown bat, <i>Myotis</i> that could not be identified to species, and high-frequency bat passes based on visual QA/QC
	23-Jul	6 (0.67)	Presence not confirmed. Poor quality recordings assumed to be <i>Myotis</i> that could not be identified to species based on visual QA/QC
	24-Jul	4 (0.95)	Presence not confirmed. Passes determined to be little brown bat passes and <i>Myotis</i> that could not be identified to species based on visual QA/QC
	25-Jul	7 (0.33)	Presence not confirmed. Passes determined to be little brown bat passes and <i>Myotis</i> that could not be identified to species or high-frequency bat passes based on visual QA/QC
eastern small- footed bat	22-Jul	2 (0.26)	Presence not confirmed. Passes determined to be little brown bat based on visual QA/QC
	23-Jul	1 (0.86)	Presence not confirmed. Pass determined to be little brown bat based on visual QA/QC
	24-Jul	0 (1.00)	No passes/No presence
	25-Jul	0 (1.00)	No passes/No presence
little brown bat	22-Jul	41 (0.00)	Presence confirmed based on visual QA/QC
	23-Jul	48 (0.00)	Presence confirmed based on visual QA/QC
	24-Jul	39 (0.00)	Presence confirmed based on visual QA/QC
	25-Jul	43 (0.00)	Presence confirmed based on visual QA/QC
tricolored bat	22-Jul	0 (1.00)	No passes/No presence
	23-Jul	0 (1.00)	No passes/No presence
	24-Jul	0 (1.00)	No passes/No presence
	25-Jul	0 (1.00)	No passes/No presence

Tim Dexter, Fish and Wildlife Program Coordinator Page 6 of 6

Reference: Bridge Replacement on Williamsville Road over Burnshirt River, Hubbardston, Massachusetts - Northern Long-eared

Bat Acoustic Survey Report

CONCLUSIONS

Acoustic surveys for the Project were conducted according to requirements outlined by the USFWS Guidelines and the approved Study Plan submitted to the USFWS and MassDOT prior to fieldwork. One or more files detected during the survey were identified via automated analysis as NLEB but not confirmed during visual vetting, indicating probable absence of maternity colonies of the species at the Project during the 2022 field season. Little brown bat presence was documented at the Project based on autoclassification, nightly MLE scores, and visual analysis. Eastern small-footed bat was identified based on autoclassification but was not confirmed during visual vetting, and tricolored bat was not identified at the Project. Bat activity consisted primarily of little brown bats and big brown bats.

Stantec Consulting Services Inc.

Alex Pries

Project Manager Phone: (603) 260-7434 Fax: (207) 729-2715 Alex.Pries@Stantec.com

Attachments: APPENDIX A Study Plan

APPENDIX B Acoustic Detector Photographs

APPENDIX C Resumes of Laura Berube and Caroline Byrne

APPENDIX D Screenshots of Bat Passes APPENDIX E Bridge Inspection Memo

Tim Dexter, Fish and Wildlife Program Coordinator Attachments

Reference: Bridge Replacement on Williamsville Road over Burnshirt River, Hubbardston, Massachusetts - Northern Long-eared

Bat Acoustic Survey Report

APPENDIX A Study Plan



2022 MassDOT Northern Long-Eared Bat Acoustic Surveys Study Plan

June 21, 2022

Prepared for:

Massachusetts Department of Transportation 10 Park Plaza, Room 4260 Boston, MA 02116

Prepared by:

Stantec Consulting Services Inc. 30 Park Drive Topsham, ME 04086

Table of Contents

1.0	INTROD	UCTION	1
2.0 2.1 2.2	DESKTO	,	3 3
3.0	ANALYS	is	6
4.0	REPORT	ING	7
LIST	OF APPEN	IDICES	
APPE	ENDIX A	PROPOSED SURVEY LOCATION MAPS	A.1
APPE	ENDIX B	STANTEC NLEB BAT PRESENCE/ABSENCE ACOUSTIC SURVEY DATASHEET AND USFWS PHASE 1 SUMMER HABITAT ASSESSMENTS DATASHEET	D 4
APPE	ENDIX C	BRIDGE/STRUCTURE BAT ASSESSMENT FORM	C.1
APPE	ENDIX D	RESUME OF BIOLOGIST TO PERFORM MANUAL VETTING OF RARE SPECIES CALLS	D.1

1.0 INTRODUCTION

The Massachusetts Department of Transportation (MassDOT) has retained Stantec Consulting Services Inc. (Stantec) to conduct acoustic surveys for the presence of northern long-eared bats (*Myotis septentrionalis;* NLEB) along the following 20 linear transportation improvement projects requiring tree clearing:

- Orange, MA: Reconstruction of North Main Street, from School Street to Lincoln Avenue, includes relocation of Fall Hill Brook culvert (MassDot Project #603371)
- West Brookfield, MA: Resurfacing and related work on Route 9, from Ware T.L. to 850 feet west of Welcome Road (MassDot Project #606517)
- Wales, MA (1): Reconstruction and improvements on Monson Road, from the Monson T.L. to Reed Hill Road (MassDot Project #608163)
- Wales, MA (2): Bridge replacement, W-02-002, Holland Road over Wales Brook (MassDot Project #608847)
- Hampden, MA: Bridge replacement, H-04-004, Rockadundee Bridge over Scantic River (MassDot Project #610779)
- Monson, MA: Bridge replacement, M-27-015, Old Wales Road over Conant Brook (MassDot Project #608846)
- Leverett, MA: Bridge replacement, L-09-003, Millers Road over Roaring Brook (MassDot Project #608849)
- Ludlow, MA: Bridge replacement, L-16-026, Piney Lane over Broad Brook (MassDot Project #609120)
- Hubbardston, MA: Bridge replacement, H-24-003, Williamsville Road over the Burnshirt River (MassDot Project #609187)
- Longmeadow, MA: Blueberry Hill Elementary School improvements (SRTS) (MassDot Project #609517)
- Andover, MA: Bridge rehabilitation A-09-036, I-495 over 28 (SB); A-09-037, I-495 over B&M and MBTA; A-09-041, I-495 over 28 (NB) (MassDot Project #606522)
- Hamilton-Ipswich, MA: Superstructure replacement, H-03-002, I-01-006, Winthrop Street over Ipswich River (MassDot Project #609467)
- Wellfleet, MA: Intersection improvements and related work at Route 6 and Main Street (MassDot Project #607397)
- Cohasset, MA: Corridor improvements and related work on Justice Cushing Highway (Route 3a) from Beechwood Street to Henry Turner Bailey Road (MassDot Project #608007)

- North Andover, MA: Corridor improvements on Route 114 between Waverly Road & Willow/Mill Street (MassDot Project #608095)
- Beverly, MA: Reconstruction of Bridge Street (MassDot Project #608348)
- Middleton, MA: Bridge replacement, M-20-003, Route 62 (Maple Street) over Ipswich River (MassDot Project #608522)
- Provincetown, MA: Corridor improvements and related work on Shank Painter Road, from Route 6 to Bradford Street (MassDot Project #608744)
- Lawrence, MA: Lawrence Manchester Rail Corridor (LMRC) rail trail (MassDot Project #608930)
- Peabody, MA: Independence Greenway extension (MassDot Project #609211)

This study plan describes the proposed methods and level of effort for the acoustic survey to be conducted at each of the 20 project areas to determine the presence or probable absence of breeding populations of NLEB at each area using the methods described in the U.S. Fish and Wildlife Service's (USFWS) *March 2022 Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines* (USFWS Guidelines). Although acoustic surveys will focus on detecting NLEB, bat detectors are designed to detect all bats vocalizing in the vicinity of the detectors. Therefore, additional listed bat species may be detected during surveys, including eastern small-footed bat (*Myotis leibii*; state-listed endangered), little brown bat (*M. lucifugus*; state-listed endangered), and tricolored bat (*Perimyotis subflavus*; state-listed endangered). Though the federally endangered Indiana bat (*Myotis sodalis*) is also listed as state-endangered in Massachusetts, the state occurs outside the known range of this species. Therefore, Stantec does not believe that this species occurs within the project areas and Indiana bat will not be included in acoustic analysis at these projects. The goal of the study is to assess if NLEB are utilizing potential habitat along each project location during the 2022 summer maternity season.

In addition to acoustic surveys, MassDOT has requested Stantec conduct bridge assessments for all projects involving bridge work, including bridge replacement, rehabilitation, and preservation. For bridge projects that do not require tree clearing (i.e., preservation projects), Stantec will conduct bridge assessments only, and no acoustic surveys. Bridge projects that meet this criteria include the following:

- Oxford, MA: Structural steel cleaning, painting, and various repairs of overhead bridges on I-395: O-06-033, O-06-034, O-06-035, and O-06-040
- Tewksbury, MA: Bridge preservation of T-03-014, I-495 over Route 133, and T-03-015, I-495 over route 38

¹ United States Fish and Wildlife Service (USFWS). 2022. Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines. March 2020.

2.0 SURVEY METHODS

2.1 DESKTOP ANALYSIS

Stantec conducted a desktop review of each project area to estimate the need and level of effort for acoustic surveys and/or bridge assessments. As outlined in the USFWS Guidelines, bridges and other human-made structures can provide artificial roosting habitat for NLEB, although acoustic detectors are to be placed at least 15 meters (m) from bridges when conducting acoustic presence/absence surveys. The USFWS Guidelines also indicate that projects less than 1 kilometer (km) in length should be considered non-linear, which would require 14 detector-nights and at least 2 survey sites no less than 200 m apart. Based on recent correspondence between MassDOT and the USFWS,² Stantec will include portions of the linear road corridors on either side of the bridges to be assessed (up to 1 km survey envelope total) in our survey to categorize the projects as linear and to allow for greater flexibility in acoustic detector placement. Stantec will consider all projects as linear projects and will allocate 4 detector-nights of survey per km per USFWS Guidelines. Figures for these project locations and proposed detector placements are included in Appendix A.

2.2 FIELD SURVEYS

2.2.1 Acoustic Surveys

Stantec will conduct the acoustic surveys at each study area within the USFWS approved survey dates (15 May–15 August) in 2022. Per the minimum survey efforts outlined in the USFWS Guidelines: Phase 2 Acoustic Surveys for linear projects, 4 detector-nights per km of suitable summer habitat that may be impacted are required for each study area. Finally, for the purposes of this study plan, Stantec has conservatively assumed that non-excluded forested areas immediately adjacent to each linear area provide potential roost habitat for NLEB (suitable summer habitat) and may potentially be cleared during project construction. Therefore, Stantec has determined the following level of effort for each project based on the amount of linear tree clearing.

Central Massachusetts Sites (Group 1):

- Orange, MA: (0.795 km of potential tree clearing), 4 detector-nights (1 detector deployed for 4 nights)
- West Brookfield, MA: (2.89 km [round up to 3.0 km] of potential tree clearing), 12 detector-nights (3 detectors deployed for 4 nights each)
- Oxford, MA: (no potential tree clearing, work at four bridges), bridge assessments only
- Wales, MA (1): (1.89 km [round up to 2.0 km] of potential tree clearing), 8 detector-nights (2 detectors deployed for 4 nights each)

² MassDOT Technical Memorandum to Susi Van Oettingen, USFWS. Re: NLEB Survey Protocol for Small Projects and Bridges. June 6, 2022. 2pp.

- Wales, MA (2): (0.212 km of potential tree clearing, expanded project to 1 km survey envelope), 4 detector-nights (1 detector deployed for 4 nights)
- Hampden, MA: (0.122 km of potential tree clearing, expanded project to 1 km survey envelope), 4 detector-nights (1 detector deployed for 4 nights)
- Monson, MA: (0.143 km of potential tree clearing, expanded project to 1 km survey envelope), 4 detector-nights (1 detector deployed for 4 nights)
- Leverett, MA: (0.05 km of potential tree clearing, expanded project to 1 km survey envelope), 4 detector-nights (1 detector deployed for 4 nights)
- Ludlow, MA: (0.137 km of potential tree clearing, expanded project to 1 km survey envelope), 4 detector-nights (1 detector deployed for 4 nights)
- Hubbardston, MA: (0.195 km of potential tree clearing, expanded project to 1 km survey envelope), 4 detector-nights (1 detector deployed for 4 nights)
- Longmeadow, MA: (0.673 km of potential tree clearing), 4 detector-nights (1 detector deployed for 4 nights)

Eastern Massachusetts Sites (Group 2):

- Tewksbury, MA: (no potential tree clearing, work at two bridges), bridge assessments only
- Andover, MA: (0.792 km of potential tree clearing), 4 detector-nights (1 detector deployed for 4 nights)
- Hamilton-Ipswich, MA: (0.145 km of potential tree clearing, expanded project to 1 km survey envelope), 4 detector-nights (1 detector deployed for 4 nights)
- Wellfleet, MA: (1.02 km of potential tree-clearing), 4 detector-nights (1 detector deployed for 4 nights)
- Cohasset, MA: (1.54 km [round up to 2.0 km] of potential tree-clearing), 8 detector-nights (2 detectors deployed for 4 nights each)
- North Andover, MA: (3.64 km [round up to 4.0 km] of potential tree-clearing), 16 detector-nights (4 detectors deployed for 4 nights each)
- Beverly, MA: (2.05 km [round down to 0.13 km] of potential tree clearing), 4 detector-nights (1 detector deployed for 4 nights)
- Middleton, MA: (0.102 km of potential tree clearing, expanded project to 1 km survey envelope), 4 detector-nights (1 detector deployed for 4 nights)
- Provincetown, MA: (2.32 km [round down to 2.0 km] of potential tree clearing), 8 detector-nights (2 detectors deployed for 4 nights each)
- Lawrence, MA: (2.59 km [round down to 2.0 km] of potential tree clearing), 8 detector-nights (2 detectors deployed for 4 nights each)
- Peabody, MA: (1.83 km [round up to 2.0 km] of potential tree clearing), 8 detector-nights (2 detectors deployed for 4 nights each)

Based on this proposed level of effort, Stantec will deploy a total of 13 detectors (52 detector-nights) at Central Massachusetts sites and 17 detectors (68 detector-nights) at Eastern Massachusetts sites. Biologists will complete initial deployment in 2 days per site group (Days 1 and 2). Biologists will then retrieve all detectors over the course of 2 days per site group (Days 5 and 6) upon meeting the USFWS-required number of detector-nights under suitable weather conditions. This strategy of detector mobilization and demobilization assumes that nightly weather conditions remain appropriate during each night of survey according to USFWS Guidelines. If weather conditions do not meet USFWS Guidelines (e.g., 30 or more minutes of rain, excessive wind, and/or cold temperatures), additional day(s) will be required.

Stantec will use full-spectrum (e.g., Wildlife Acoustics® SM4BAT-FS) acoustic bat detectors for the surveys. Each detector will be fitted with an SMM-U1 or SMM-U2 ultrasonic omnidirectional microphone. Stantec will deploy detectors according to the criteria in the USFWS Guidelines, positioning detectors in potential flight corridors that could provide suitable NLEB foraging habitat. As USFWS Guidelines recommend, microphones will be deployed in areas without vegetation or with minimal vegetation within 10 m of the microphone, obstructions will be located at least 3 m away from microphones in any direction, and detectors will be placed at least 200 m apart.

Based on review of aerial imagery during the initial desktop analysis and assuming access to the right-of-way (ROW) associated with each area, Stantec has identified proposed detector locations for each project (Appendix A; Figures 1–22). The proposed locations along the edge of the ROW and adjacent to tree clearing areas are spread out across each area to target either large segments of forest or forested areas near a wetland, field, or bridge. Final detector deployment will be determined by the biologist in the field and is also subject to landowner permission and access. In areas without landowner permission or suitable access, final detector placement will be in the closest appropriate location within a town, municipal, or state ROW depending on the project. Final detector locations will also be based on a field assessment, following criteria in the USFWS Guidelines. Stantec will record coordinates of the final detector locations using a GPS unit, document the approximate accuracy of the location, and photograph each detector to show scale (e.g., include a vehicle or person in the photo) and the surrounding habitat and the "detector-view." For each detector site, Stantec will document relevant deployment and habitat information on a Stantec field datasheet and on the USFWS Guidelines Appendix A Phase 1 Summer Habitat Assessments datasheet (Appendix B).

Stantec will mount each detector so that the microphone is approximately 3 m above ground level and oriented horizontally to the ground to sample an optimal volume of air space in accordance with the USFWS Guidelines. Stantec will set the audio and data storage settings on each detector according to defaults recommended by the manufacturer (e.g., detectors will operate in "triggered .wav" mode using default trigger threshold settings recommended by the manufacturer). Stantec will program each detector to record from 30 minutes before sunset until 30 minutes after sunrise and will power each detector with alkaline batteries.

Stantec will leave detectors in place at each survey site until at least 4 calendar nights have been successfully surveyed during weather conditions that meet the parameters outlined in the USFWS Guidelines:

- Temperatures remain above 50° F during the first 5 hours of each survey night;
- Precipitation/fog persists for no more than 30 minutes during the first 5 hours of each survey night;
 and
- Sustained wind speeds do not exceed 9 miles/hour for 30 minutes or more during the first 5 hours of each survey night.

Stantec will verify weather conditions by reviewing hourly data recorded at the nearest weather station to each detector site, accessed online via Weather Underground (www.wunderground.com). Stantec will record the weather station ID for each station used on the corresponding field datasheet. Following the first four weather-appropriate nights of data collection, Stantec will inspect each detector as soon as practicable in the field to confirm that each operated for 4 nights (i.e., check battery voltage, verify presence of recorded files, and view system status log files). Once confirmed, Stantec will remove the detectors from the field. Stantec will analyze only those data from the first 4 nights that meet the weather criteria.

2.2.2 Bridge Assessments

To determine if bat species are using bridges, bridge assessments will be conducted at each bridge following the guidance available in the User's Guide for the *Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat*, version 5.0. Biologists will document favorable characteristics of bridges that support bats, including cracks in concrete, expansion joints, dark cave-like environments, and presence of waterbodies. Surveys will also include visual assessments to determine the presence of flying or roosting bats, guano, and staining on concrete, and auditory assessments for high-pitched squeaking or chirping. Biologists will use a flashlight or headlamp and may use binoculars when viewing higher areas. If a bridge assessment is not feasible due to safety or access issues (e.g., due to bridge height, traffic volume, fencing, or other safety considerations), the viability of following the non-linear project survey effort for these projects (e.g., 2 detectors deployed for a combined 14 detector-nights) will be discussed with MassDOT. For each bridge location, biologists will complete the USFWS Bridge/Structure Bat Assessment Form (Appendix C).

3.0 ANALYSIS

Stantec bat biologists will perform a coarse visual analysis of the data to confirm that high frequency bat calls were recorded; if so, Stantec will then analyze data using Kaleidoscope Pro Software version 5.4.1 or newer (Kaleidoscope),³ with classifier version 5.4.0 using a "0" sensitivity setting and by selecting for the Massachusetts region. This analysis method has been approved by the USFWS as suitable for analyzing full-spectrum bat data collected by SM4 units once the data have been converted to zero-

³ https://www.wildlifeacoustics.com/release-notes/kaleidoscope-pro

crossing format. Stantec will base presence or probable absence of NLEB on the maximum likelihood estimate (MLE) generated by Kaleidoscope for each night. An MLE of less than 0.05 indicates probable presence and an MLE greater than 0.05 indicates probable absence. Original full-spectrum and converted zero-crossing data files will be archived electronically and made available upon request.

Stantec will manually inspect each file recorded for each detector site/night that Kaleidoscope calculates probable presence (an MLE of less than 0.05) for NLEB. Stantec will also visually inspect each high frequency call sequence recorded by detectors, thereby manually vetting all high frequency call identification determinations (or lack of identification) made by Kaleidoscope. Though acoustic surveys will primarily focus on detecting NLEB and other high frequency species, calls from all bat species will be analyzed by the software and manually inspected. Stantec biologists with relevant experience and training in acoustic bat identification will conduct the manual vetting. Credentials and experience of biologists performing the manual vetting will be indicated in the survey report and are included in Appendix D.

4.0 REPORTING

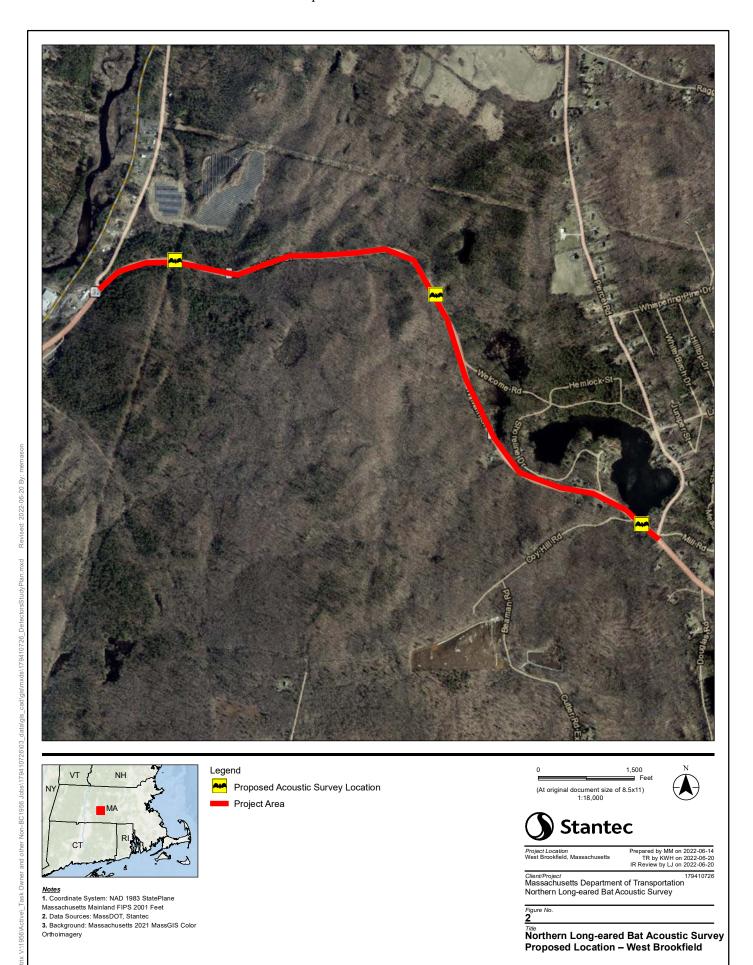
As requested by MassDOT, Stantec will prepare a single report for each project area describing the methods and results of the acoustic surveys as soon as possible after field work to ensure MassDOT meets their targeted transmittal to USFWS in late fall 2022. Each report will include completed Stantec and USFWS datasheets for the detector sites, maps showing the locations of each detector site, photos of the detector setups, screenshots of representative listed bat species' calls identified during analysis, tables summarizing the output from Kaleidoscope for all species identified, results of manual vetting, the resume of the biologist who conducted the manual vetting, the USFWS R5 Bat Reporting Form, and other information required by the USFWS Guidelines. Associated Geographic Information System (GIS) data, original acoustic data, status or log files, and software output will be retained and made available upon request. Stantec will also provide MassDOT with the results of the survey in excel format based on the 2022 MassDOT Bat Survey Consultant format. Additionally, Stantec will format acoustic data into a template suitable for inclusion into the North American Bat Monitoring Program database.

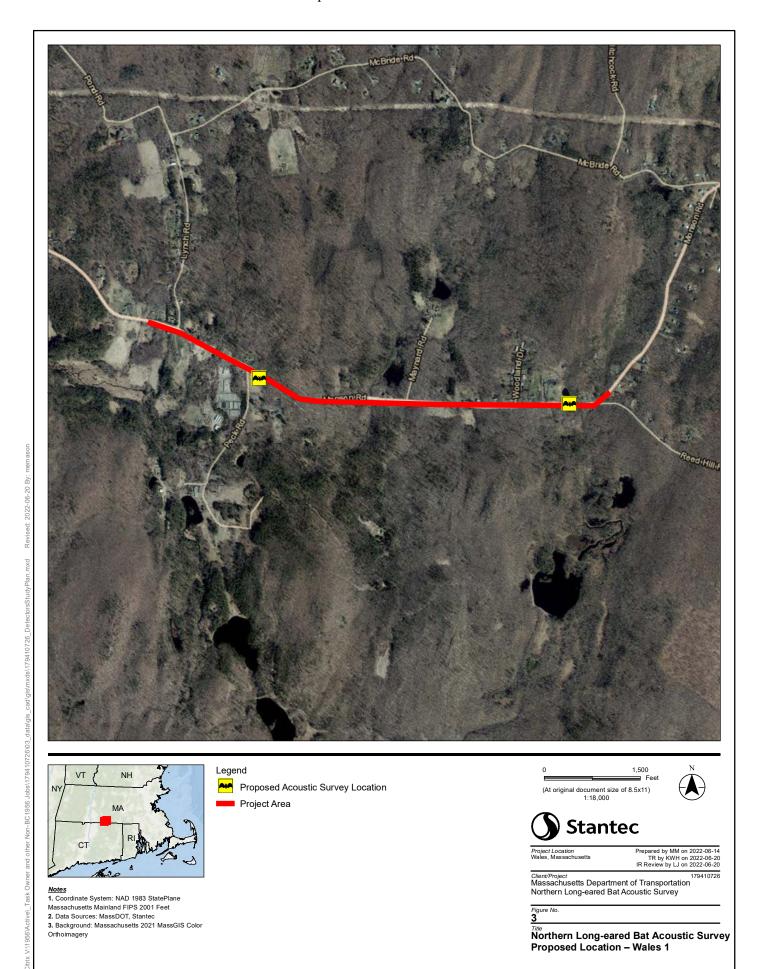
In addition, and as requested by MassDOT, Stantec will prepare a separate memo for each bridge site describing the methods and results of the bridge assessments as soon as possible after field work. Each memo will include maps showing the locations of the bridge sites, photos of the bridge characteristics and the completed USFWS Bridge/Structure Bat Assessment Form. As requested by MassDOT, memos will be submitted at least 15 days prior to the advertising date per project to allow for the minimal clearance time of 14 days. The memo for the Oxford project will be treated as higher priority because this project's advertising date has been moved up to July 9, 2022.

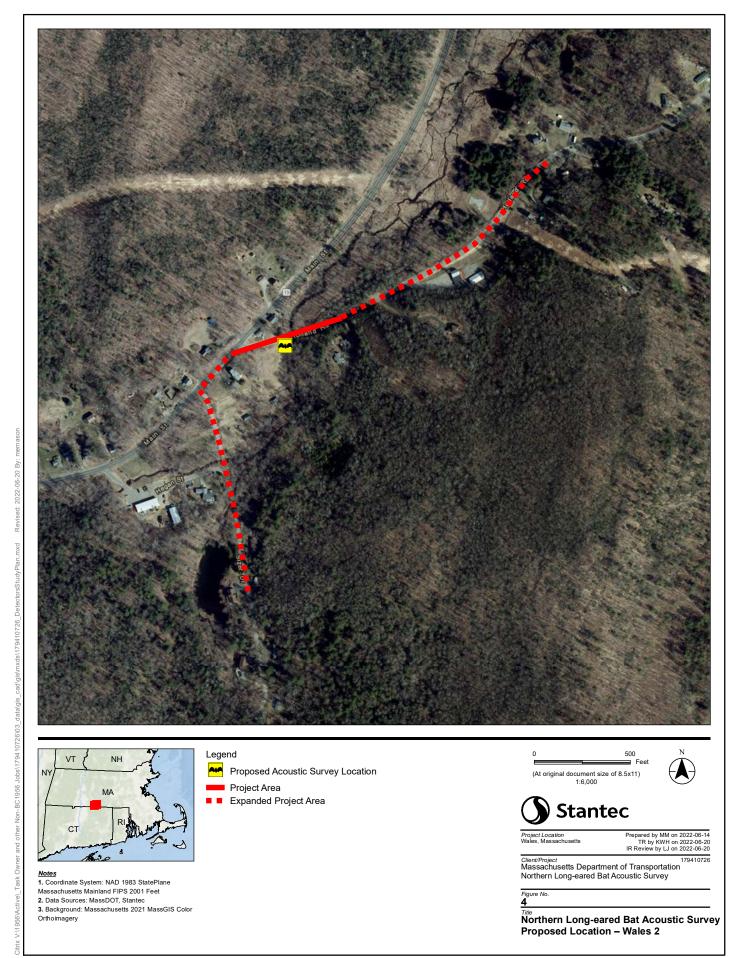
APPENDICES

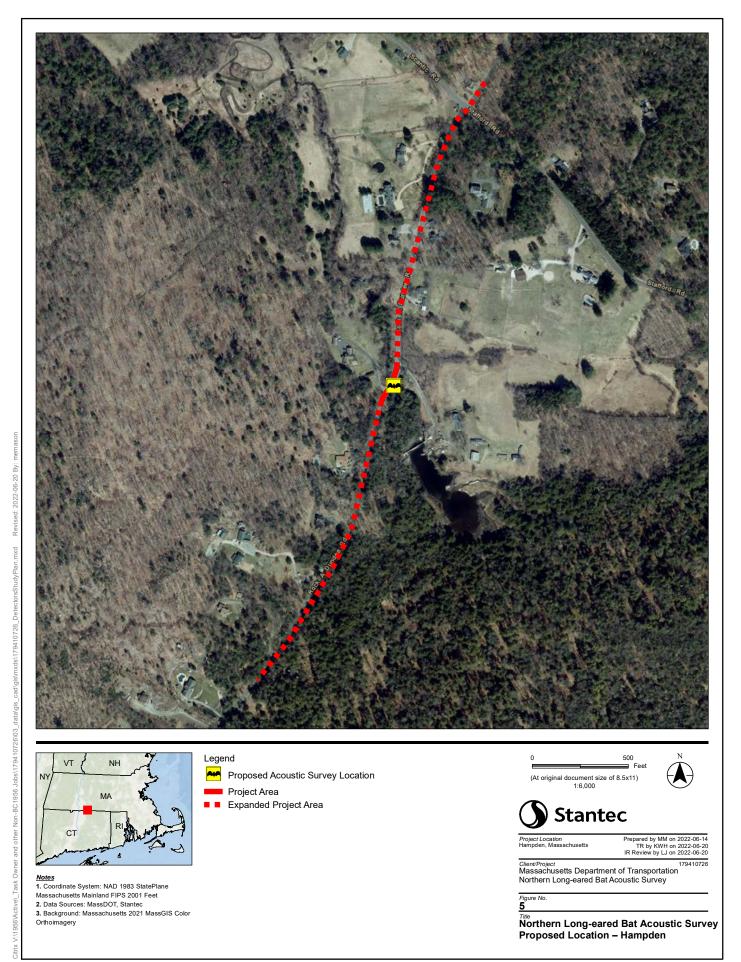
APPENDIX A PROPOSED SURVEY LOCATION MAPS

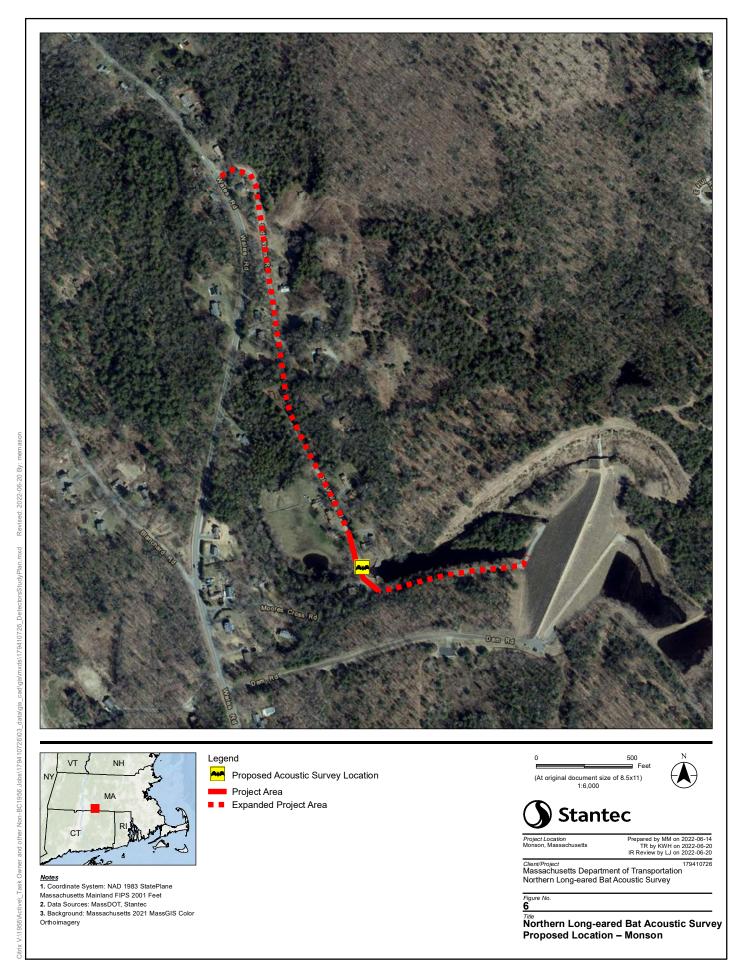
Northern Long-eared Bat Acoustic Survey Proposed Location – Orange

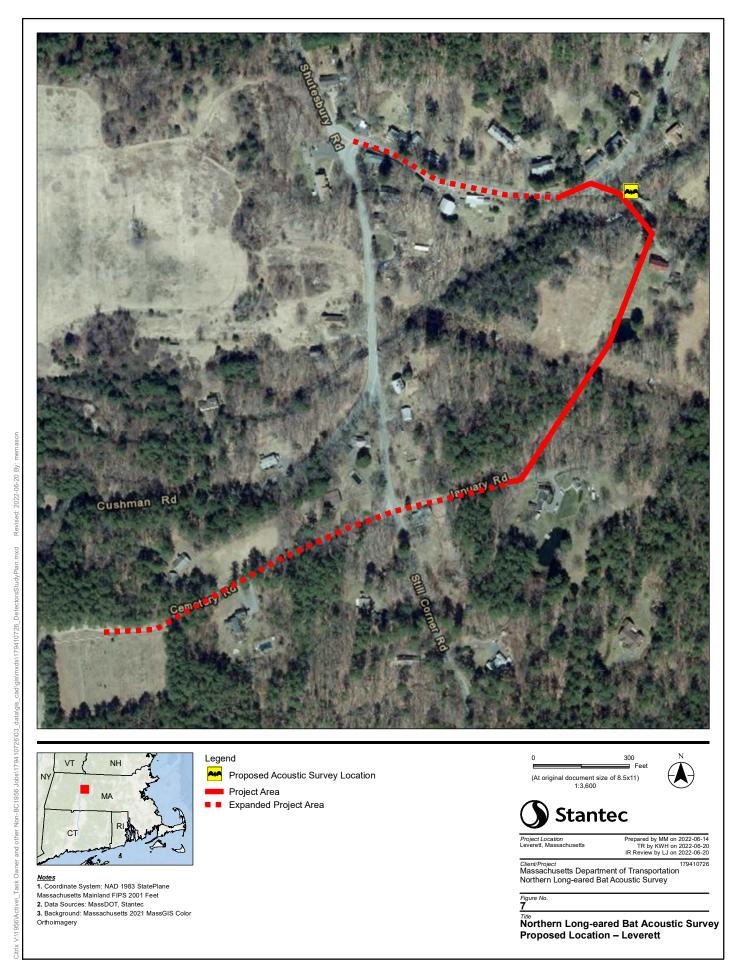


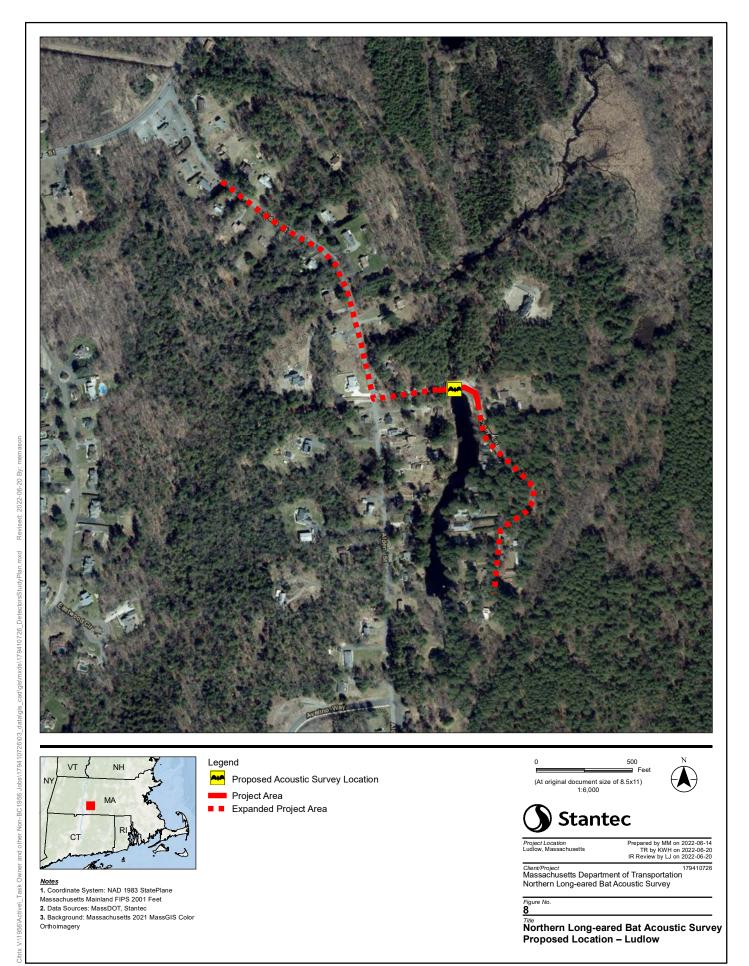


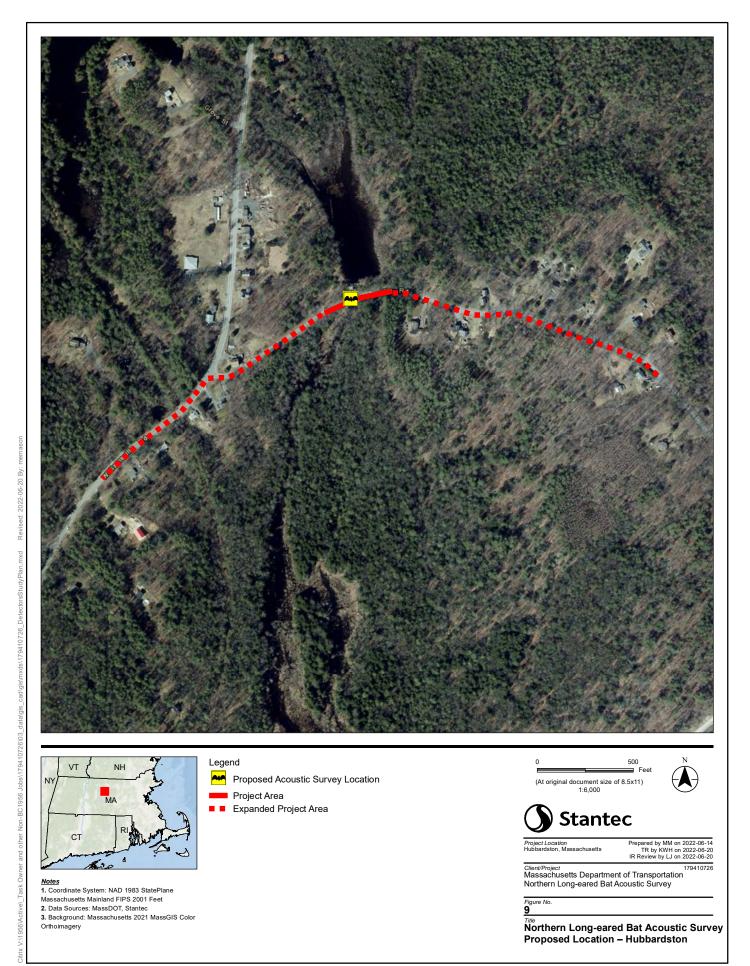














Proposed Acoustic Survey Location

Project Area

(At original document size of 8.5x11) 1:3,600





Prepared by MM on 2022-06-14 TR by KWH on 2022-06-20 IR Review by LJ on 2022-06-20

Client/Project 179410726 Massachusetts Department of Transportation Northern Long-eared Bat Acoustic Survey

Figure No.

Northern Long-eared Bat Acoustic Survey Proposed Location - Longmeadow

Coordinate System: NAD 1983 StatePlane
 Massachusetts Mainland FIPS 2001 Feet

2. Data Sources: MassDOT, Stantec
3. Background: Massachusetts 2021 MassGIS Color Orthoimagery





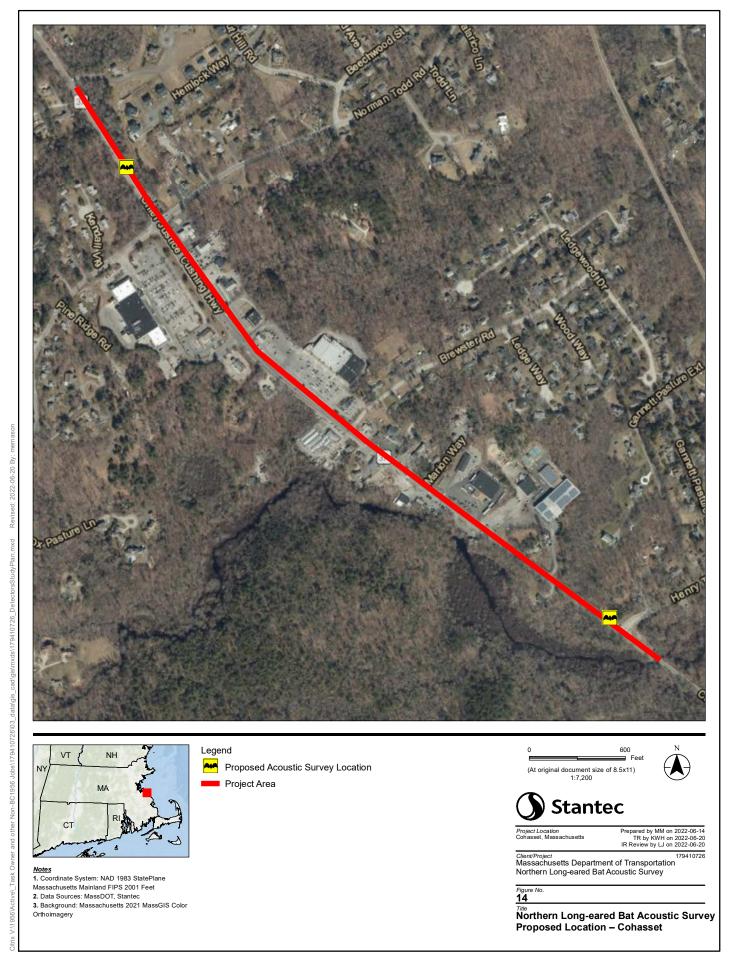
Prepared by MM on 2022-06-14 TR by KWH on 2022-06-20 IR Review by LJ on 2022-06-20

Client/Project 179410726 Massachusetts Department of Transportation Northern Long-eared Bat Acoustic Survey

Northern Long-eared Bat Acoustic Survey Proposed Location – Andover



- Coordinate System: NAD 1983 StatePlane
 Massachusetts Mainland FIPS 2001 Feet
- 2. Data Sources: MassDOT, Stantec
 3. Background: Massachusetts 2021 MassGIS Color Orthoimagery





Legend

Proposed Acoustic Survey Location

Project Area

1,200 (At original document size of 8.5x11) 1:14,400





Prepared by MM on 2022-06-14 TR by KWH on 2022-06-20 IR Review by LJ on 2022-06-20

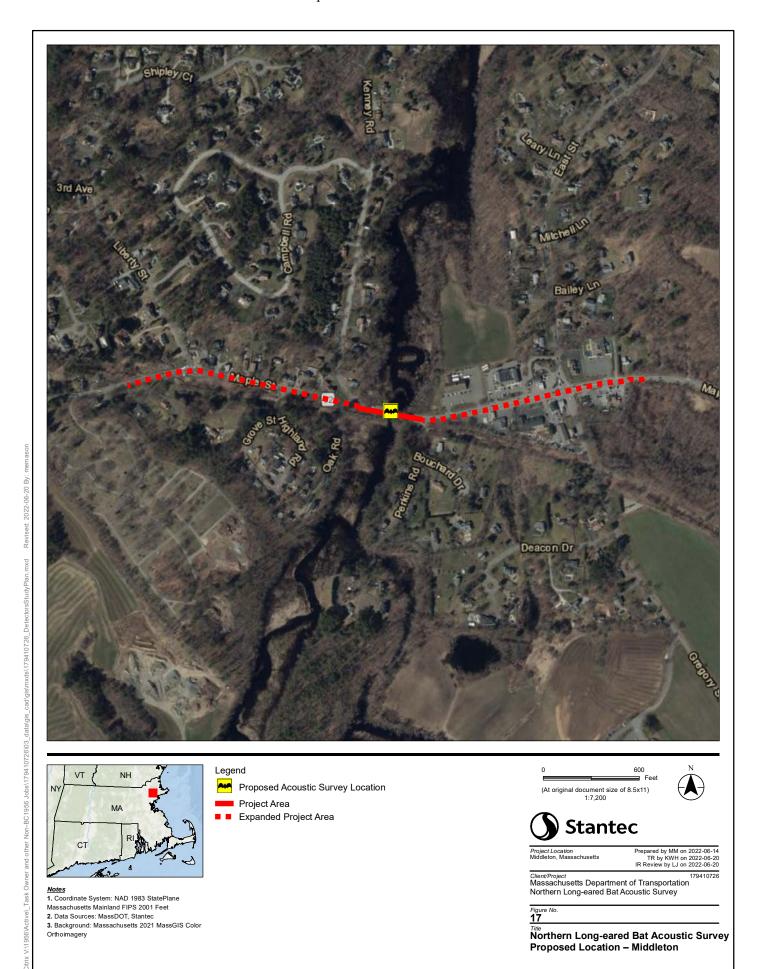
Client/Project 179410726 Massachusetts Department of Transportation Northern Long-eared Bat Acoustic Survey

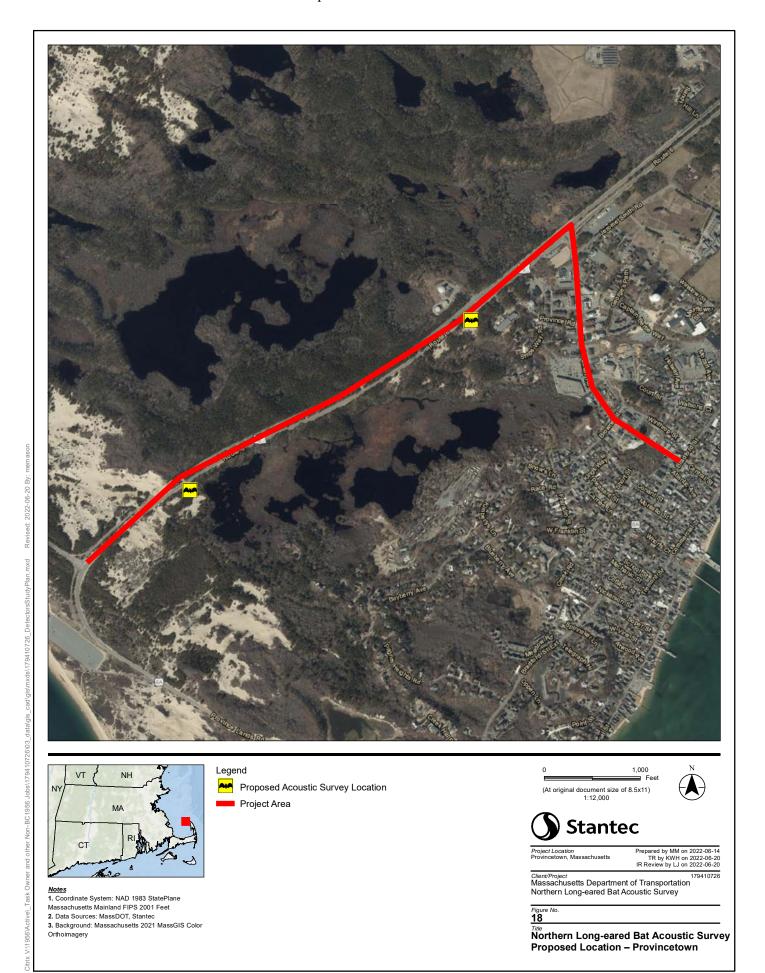
Figure No.

Northern Long-eared Bat Acoustic Survey Proposed Location – Beverly

Coordinate System: NAD 1983 StatePlane
 Massachusetts Mainland FIPS 2001 Feet

2. Data Sources: MassDOT, Stantec
3. Background: Massachusetts 2021 MassGIS Color Orthoimagery





- Coordinate System: NAD 1983 StatePlane
 Massachusetts Mainland FIPS 2001 Feet

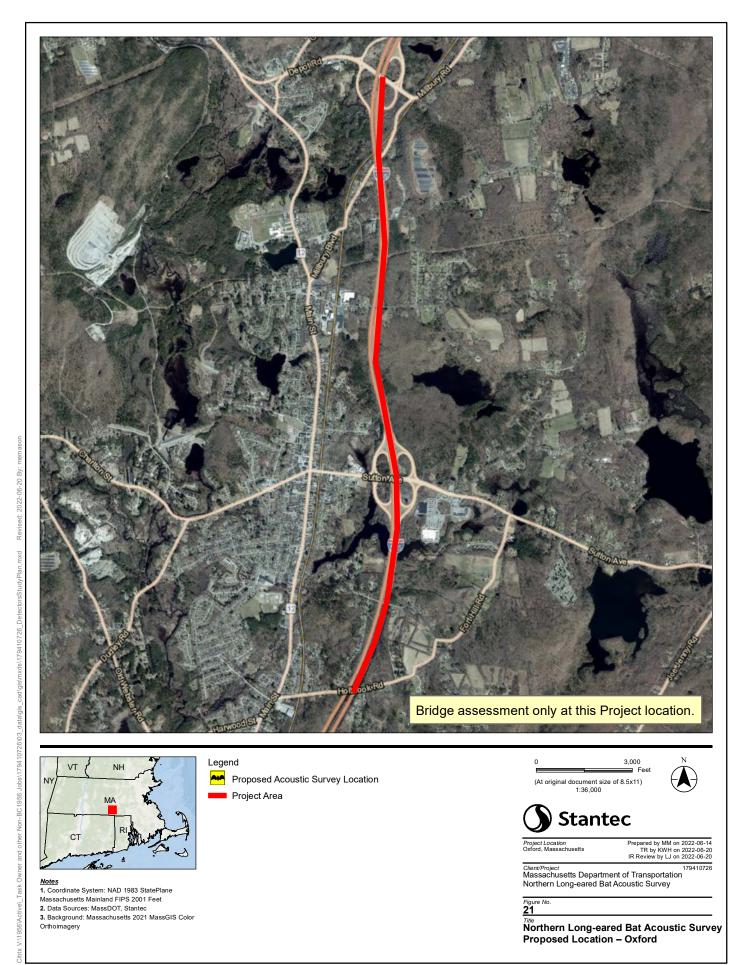
2. Data Sources: MassDOT, Stantec
3. Background: Massachusetts 2021 MassGIS Color Orthoimagery

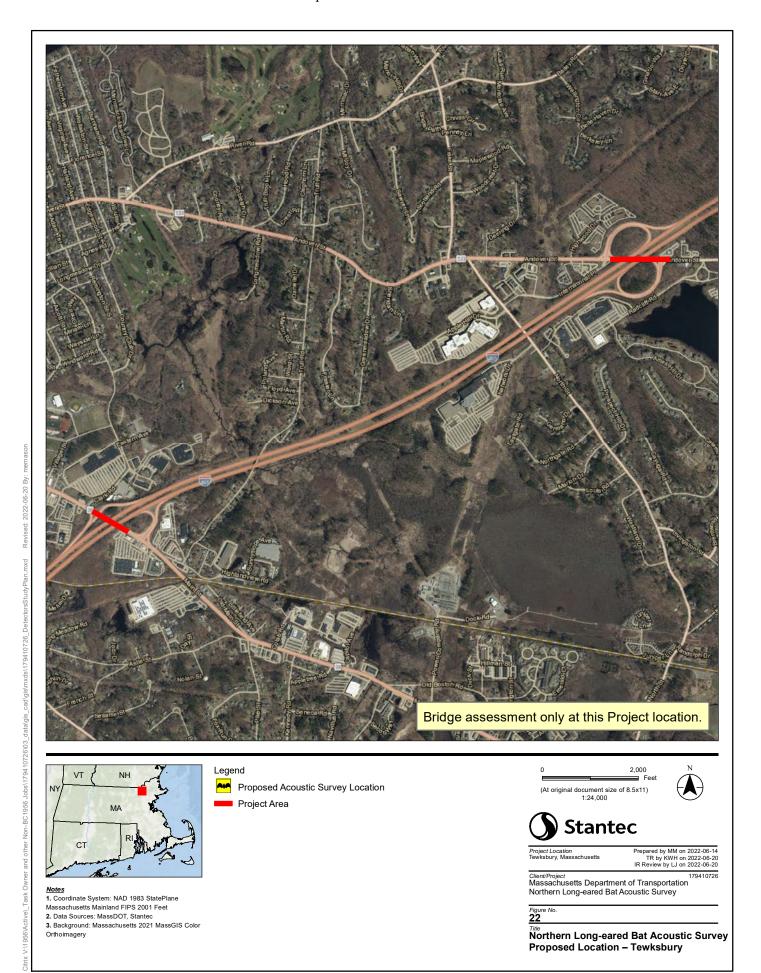
Client/Project 179410726 Massachusetts Department of Transportation Northern Long-eared Bat Acoustic Survey

Figure No.

Northern Long-eared Bat Acoustic Survey Proposed Location - Lawrence







APPENDIX B STANTEC NLEB BAT PRESENCE/ABSENCE ACOUSTIC SURVEY DATASHEET AND USFWS PHASE 1 SUMMER HABITAT ASSESSMENTS DATASHEET

Project Number: State: County: Acoustic Survey Type	Stantec Gro	und-Basec	Acoustic L	Bat [Dete	cto	r Data	shee	t				
Site Selector: Lat: Long: Summer \(\subset \) Detector Setup Detector Make: Microphone Model: Microphone Model: Mic Direction (deg): In-Field Calibration: HABITAT DESCRIPTION VEGETATION CHARACTERISTICS Habitat Type: Canopy Closure (%): Habitat Description: Habitat Description: Detector Startup: Card in A: Card in A: Card in B: Memory A:													
Detector #: Detector Make: Detector Model: Directionality: Mic Height (AGL; m): Weatherproofing: Mic Angle: Call Data Type: Habitat Type: Canopy Closure (%): Habitat Description: Detector Startup Notes: Detector Setup Directionality: Mic Height (AGL; m): Weatherproofing: Mic Angle: Call Data Type: HABITAT DESCRIPTION VEGETATION CHARACTERISTICS Est. Distance to Water Source (m): Type of Water: Detector Startup Notes: Detector Startup Notes: Detector Startup: Card In A: Card In A: Card In B: Habitat Use: Memory A:			County:	Name:		Acoustic Survey Type							
Detector #: Detector Setup Detector Make: Detector Model: Dist to Obstruct (m): Microphone Model: Mic Angle: Call Data Type: Mic Direction (deg): In-Field Calibration: Notes: HABITAT DESCRIPTION VEGETATION CHARACTERISTICS Habitat Type: Est. Distance to Water Source (m): Type of Water: Detector Startup Notes: Detector Startup Notes: Detector Startup: Card In A: Card In B: Habitat Use: Memory A:	Site Selector:	Lat:	Long:			Summe	er Acoustic						
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Card In B: Habitat Use: Memory A:					Detecto	or Start	up:						
Habitat Use: Memory A:					Card In A	A :							
Habitat Matan					Card In E	3:							
Habitat Notes: Memory B:	Habitat Use:				Memory	A:							
	Habitat Notes:				Memory	B:							
Battery:					Battery:								
Temperature:					Tempera	ture:							
Mic 0:					Mic 0:								
Cal Ch 0:					Cal Ch 0):							
Going to Sleep Until:					Going to	Sleep U	Intil:						
Additional Site Notes:	Additional Site Notes:												

USFWS accepted answers:

Mic Angle: 0 = parallel to ground, 45 = angled up, 90 = straight up, 315 = angled down, 270 = pointed down

Habitat Type: creek/riparian, pond, mine portal, field edge, bottomland forest, cave entrance, bridge, open field, upland forest, structure, other

If collecting data on paper, please add site diagram to back.

BAT HABITAT ASSESSMENT DATASHEET

Project Name:				Date:				
Township/Range/Se	ection:							
Lat Long/UTM/ Zor	ne:			Surveyor:				
n i en i i n								
Brief Project Desc	ription	<u> </u>						
Project Area	Total Acres	Fara	t A	On an Anna	7			
	Total Acres	r ores	st Acres	Open Acres	-1			
Project	1	1			1			
					J			
	Completely	Partially cleared	Preserve acres- no					
Proposed Tree Removal (ac)	cleared	(will leave trees)	clearing					
Kemovai (ac)								
				i				
Vegetation Cover	Types	1						
Pre-Project	-71	•	Post-Project					
			l					
			l					
			l					
Landscape within	5 mile radius	1						
Flight corridors to	other forested are	as?						
Describe Adjacent	Properties (e.g. fo	rested, grassland, c	ommercial or reside	ncial development, water sour	rces)			
,				•	,			
Proximity to Publi	e I and	1						
		roject area to fores	ted public lands (e.g.	., national or state forests, nat	ional or state			
		anagement areas)?	, , , , , , , , , , , , , , , , , , , ,	,,				

Use additional sheets to assess discrete habitat types at multiple sites in a project area Include a map depicting locations of sample sites if assessing discrete habituts at multiple sites in a project area A single sheet can be used for multiple sample sites if hubdat is the same Sample Site Description Sample Site No.(a): Water Resources at Sample Site Stream Type Ephemeral Intermittent Perenmal Describe existing condition of water (# and length) sources: Pools/Ponds Open and accessable to bats: (# and size) Wetlands Permanent Sensonal (approx. ac.) Forest Resources at Sample Site 1-1-10%, 2-11-20%, 3-21-40%, 4-41-60% Midstory (20-50) Understory (<0) Closure/Density 5-61-80%, 5-81-100% Dominant Species of Mature Trees % Trees w/ **Exfoliating Bark** Small (3-8 in) Mod (9-15 m) Large (>15 in) Size Composition of Live Trees (%) No. of Suitable Snags Standing dead trees with exfoliating back, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable IS THE HABITAT SUITABLE FOR INDIANA BATS? IS THE HABITAT SUITABLE FOR NORTHERN LONG-EARED BATS? Additional Comments:

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: hubitat shots at edge and interior from multiple locations: understory/midstory/europy, examples of potential suitable snags and live trees, water sources

APPENDIX C BRIDGE/STRUCTURE BAT ASSESSMENT FORM

APPENDIX D: Bridge/Structure Bat Assessment Form

Bridge/Structure Bat Assessment Form Instructions

- This form will be completed to document bat occupancy or bat use of bridges, culverts, and other structures. This form shall be submitted to the appropriate personnel within the DOT and USFWS for recordkeeping (or uploaded into the Information, Planning, and Consultation (IPaC) Determination Key for use of the Programmatic Biological Opinion for Transportation Projects in the Range of the Indiana Bat and Northern Long-Eared Bat) prior to conducting: any activities below the deck surface either from the underside or from above the deck surface that bore down to the underside; any activities that could impact expansion joints; any activities involving deck removal on bridges; or any activities involving structure demolition for bridges, culverts, and/or other structures.
- Assessments must be completed within two (2) years of conducting any work (see the above bullet),
 regardless of whether assessments have been conducted in the past. Assessments must be
 completed in appropriate weather conditions, suitable for the assessor to observe common signs of
 bat use.
- Evidence of bat use may include visual observation (live and/or dead), presence of guano, presence of staining, audible observation, and/or odor observation. Presence of one or more indicators is sufficient evidence that bats may be using the bridge, culvert, and/or other structure.
- If bat use of a bridge, culvert, and/or other structure is noted, additional studies may be undertaken
 during bat active season to identify the specific bat species utilizing the structure, or protected bat
 species presence can be assumed, in order to comply with threatened and endangered species
 regulations. Bat active season dates, typically between April and November, vary regionally and by
 species, so assessors should consult with their local USFWS Field Office for more specific active
 season dates.
- For use of the Programmatic Biological Opinion for Transportation Projects in the Range of the Indiana Bat and Northern Long-Eared Bat If the bridge/structure is 1,000 feet or more from suitable bat habitat¹ (e.g., an urban or agricultural area without suitable foraging habitat or corridors linking the bridge to suitable foraging habitat), check the appropriate box and fill out the table below. No further assessment is required.

Date & Time of Assessment	DOT Project #	Route/Facility Carried	County				
Federal Structure ID	Structure Coordinates (latitude and longitude)	☐ This bridge/structure from suitable bat hab					
		Name:					
		Signature:					

 Any questions pertaining to assessments or this form should be directed to the local USFWS Field Office.

¹ Refer to the USFWS's summer survey guidance for the definition of suitable habitat (http://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html).

² This condition is only for use of the Programmatic Biological Opinion for Transportation Projects in the Range of the Indiana Bat and Northern Long-Eared Bat

<u>Date & Time</u> <u>of Assessment</u>		<u>DT Project</u> <u>umber</u>				<u>Route/Facility</u> <u>Carried</u>			County			
<u>Federal</u> <u>Structure ID</u>		ructure Coordinates titude and longitude)		tructure Height pproximate)			Structure Length					
Structure Type (check one)			St	tructure Mat	teri	i al (check all	th	at apply)				
Bridge Construction Style			De	eck Material	Вє	eam Material	Er	nd/Back Wa	II Ma	terial		
Cast-in-place		Pre-stressed Girder		Metal		None		Concrete				
	8			Concrete		Concrete		Timber				
Flat Slab/Box	1	Steel I-beam	-	Timber Open grid		Steel Timber		Stone/Masonry Other:	У			
Truss		Covered		Other:		Other:	C	reosote Evia	lence	۵		
Side View	-	Ш	_				0,	Yes	10/100	No		
Parallel Box Beam		Other:	Ci	ulvert Material			ΝI	Unknown		I.		
Culvert Type	0	ther Structure		Metal <u>I</u> Concrete			IVC	otes:				
Box			Plastic									
Pipe/Round Other:	-			Stone/Masonry Other:								
Crossings Traversed (check all t	nat	apply)	S	urrounding	На	bitat (check	all	that apply)			
Bare ground		Open vegetation		Agricultural				Grassland				
Rip-rap		Closed vegetation		Commercial				Ranching				
Flowing water		Railroad		Residential-urba	n			Riparian/wetla	nd			
Standing water		Road/trail - Type:		Residential-rural				Mixed use				
Seasonal water		Other:		Woodland/forest	ed			Other:				
Areas Assessed (check all that ag	rlac	/)										
Check all areas that apply. If an area is not			sent	" box.								
Document all bat indicators observed during					rovi	ide photo docui	ner	ntation as indi	cated	d.		
Area (check if assessed)	_	ssessment Notes	_	vidence of E								
All crevices and cracks:	_		<u> </u> -	Tidelice of L	Jai	s (include pi	IOU		11)	loi		
	_	Not present	-	Visual - live #		dead #	_	Audible	_	Species		
Bridges/culverts: rough surfaces or			\vdash	Guano		ueau #		Odor	_			
imperfections in concrete				Staining				Photos				
Other structures: soffits, rafters, attic				Otaliling			J					
areas	-	In .	╄				_	I		lo ·		
Concrete curfeece (onen reacting on	_	Not present	-	\		-1144	_	Audible		Species		
Concrete surfaces (open roosting on				Visual - live # Guano		dead #		Odor				
concrete)				Staining				Photos				
	┢	Not present	╆	Otaliling				Audible		Species		
Spaces between concrete end walls	\vdash	Not present	1	Visual - live #		dead #		Odor		Opecies		
and the bridge deck				Guano		4044 //		Photos				
and the shage dook			\vdash	Staining				1 110100				
Crack between concrete railings on top	t	Not present		J				Audible		Species		
of the bridge deck Gap		1	1	Visual - live #		dead #		Odor]		
				Guano				Photos				
Railing				Staining								
		Not present						Audible		Species		
☐ Vertical surfaces on concrete I-beams	Г		1	Visual - live #		dead #		Odor		_		
Vertical surfaces of concrete i-beams				Guano				Photos				
	L			Staining								
	Г	Not present	П				L	Audible		Species		
Spaces between walls, ceiling joists				Visual - live #		dead #		Odor				
The state of the s			\vdash	Guano				Photos				
	4	T		Staining				T		1-		
Woon holos assumes during and	\vdash	Not present	-	Vigual III #		dood #	-	Audible	+	Species		
Weep holes, scupper drains, and				Visual - live #		dead #		Odor				
inlets/pipes			\vdash	Guano Staining				Photos				
	╆	Not present	╆	Stairing				Audible		Species		
	\vdash	Not present	1	Visual - live #		dead #		Odor	+	Species		
All guiderails			\vdash	Guano		поич п		Photos	\dashv			
			\vdash	Staining				110108				
 	+	Not present	+	Juning				Audible	+	Species		
	\vdash	Inor proposit	1	Visual - live #		dead #	H	Odor	+	Toheoles		
All expansion joints			\vdash	Guano			-	Photos	\dashv			
			Staining Staining									
<u>'</u>	-		t									
Name:			Signature:									
<u> </u>			_									

APPENDIX D RESUME OF BIOLOGIST TO PERFORM MANUAL VETTING OF RARE SPECIES CALLS

Dr. Peterson is a senior wildlife biologist and project manager specializing in renewable energy projects, bird and bat migration, and rare species assessments. He focuses on solutions to quantify and manage turbine-related wildlife impacts at terrestrial and offshore commercial wind projects. Since joining the company in 2003, Trevor's project experience has included a wide range of wide range of wildlife surveys at proposed and existing wind projects, rare bat surveys, breeding bird surveys, raptor surveys, nocturnal radar surveys, vernal pool water quality and ecological monitoring, rare turtle telemetry and demographic studies, natural community characterization, and vegetation monitoring. He earned his PhD in Ecology and Environmental Sciences from the University of Maine for his research on the use of long-term acoustic bat data to study bat migration and predict and manage potential impacts from land-based and offshore wind projects. Before working at Stantec, Trevor worked seasonally for the National Park Service at Acadia National Park and Isle Royale National Park and as an island caretaker for the Maine Island Trail Association, Dr. Peterson serves as Stantec's technical lead for acoustic bat surveys, responsible for updating equipment, survey methods, and data analysis/reporting methods.

EDUCATION

PhD Ecology and Environmental Sciences , University of Maine, Orono, ME, 2020

McMillan Offshore Survival Training, Castine, Maine, 2016

AB, Biology/Environmental Studies, Summa cum Laude, Phi Beta Kappa, Bowdoin College, Brunswick, Maine, 2002

Semester Program in Costa Rica, Tropical Field Biology, Environmental Studies, and Spanish, Duke University, Durham, North Carolina, 2000

CERTIFICATIONS & TRAINING

CPR, AED, and Basic First Aid, Americian Safety & Health Institute, Topsham, ME, 2019

Habitat Conservation Plan Training, US Fish and Wildlife Service National Conservation Training Center, Shepherdstown, WV, 2010

MEMBERSHIPS

Member, Northeast Regional Migration Monitoring Network

Member, Northeast Bat Working Group

Member, The Wildlife Society, Maine, May 2011-present

PROJECT EXPERIENCE

RENEWABLE ENERGY, OFFSHORE

Block Island Offshore Wind Farm | Block Island, Rhode Island | 2018-Present | Senior Scientist

Regional Offshore Acoustic Bat Monitoring | Gulf of Maine, mid-Atlantic, Great lakes

Tracking Bats using Nanotag Telemetry in the Gulf of Maine

RENEWABLE ENERGY

Activity-based Informed Curtailment: Using Acoustics to Design and Validate Smart Curtailment at Wind Farms | 2019 - 2022 | Prinicipal Investigator

Avian and Bat Surveys at New Creek Wind Energy Project | Grant County, West Virginia

Avian and Bat Surveys at Laurel Mountain Wind Energy Project | Randolph and Barbour Counties, West Virginia

NATURAL RESOURCE SERVICES

Natural Community Surveys and Resource Inventory | Moosehead Lake Region, Maine

Spotted Turtle and Vernal Pool Monitoring on Greenbush Railroad | Southeastern Massachusetts

Indiana Bat and Rare Bird Surveys at Proposed Wind Energy Project | Jefferson and Oswego Counties, New York

Acoustic Bat Surveys: Proposed Road Corridors | Tennessee

PUBLICATIONS

Peterson, T.. Predicting and managing risk to bats at commercial wind farms using acoustics. A dissertation submitted in partial fulfillment of the requirements for the degree of doctor of philosophy, University of Maine., 2020.

Pelletier, S.K., K.S. Omland, K.S. Watrous and T.S. Peterson, Information synthesis on the potential for bat interactions with offshore wind facilities - final report. *US Department of the Interior, Bureau of Ocean Energy Management, Headquarters. Herndon, Virginia. OCS Study BOEM 2013-01163. 119 pp, 2013.*

Hildt, S. and T. Peterson. Surveying the damage: tools and techniques. *Invited Presentation at the NRDA Short Course, University of Massachusetts*, 2014.

Peterson, T.S., S.K. Pelletier, S.A. Boyden, and K.S. Watrous. Offshore acoustic monitoring of bats in the Gulf of Maine. *Northeastern Naturalist* 21(1): 86-107, 2014.

Johnson, J.S., L.E. Dodd, J.D. Kiser, T.S. Peterson, and K.S. Watrous. Food Habits of Myotis leibii along a Forested Ridgetop in West Virginia. *Northeastern Naturalist* 19(4): 665-672, 2012.

Johnson, J.S., K.S. Watrous, G.J. Giumarro, T.S. Peterson, S.A. Boyden, and M.J. Lacki. Seasonal and geographic trends in acoustic detection of tree-roosting bats. *Acta Chiropterologica*, *13(1)*: *157-168*, 2011.

Peterson, T.S., A. Uesugi, and J. Lichter. Tree recruitment limitation by introduced snowshoe hares, Lepus americanus, on Kent Island, New Brunswick. *Canadian Field Naturalist* 119 (4). 569-572, 2005.

Tim Dexter, Fish and Wildlife Program Coordinator Attachments

Reference: Bridge Replacement on Williamsville Road over Burnshirt River, Hubbardston, Massachusetts - Northern Long-eared

Bat Acoustic Survey Report

APPENDIX B Acoustic Detector Photographs

Tim Dexter, Fish and Wildlife Program Coordinator Attachments

Bridge Replacement on Williamsville Road over Burnshirt River, Hubbardston, Massachusetts – Northern Long-eared Bat Acoustic Survey Report Reference:



Site HU-1: View of detector set up facing south (left) and east (right).

Tim Dexter, Fish and Wildlife Program Coordinator Attachments

Reference: Bridge Replacement on Williamsville Road over Burnshirt River, Hubbardston, Massachusetts – Northern Long-eared Bat Acoustic Survey Report





Site HU-1: View of detector set up facing north (left) and west (right).

Tim Dexter, Fish and Wildlife Program Coordinator Attachments

Reference: Bridge Replacement on Williamsville Road over Burnshirt River, Hubbardston, Massachusetts – Northern Long-eared

Bat Acoustic Survey Report

APPENDIX C Resumes of Laura Berube and Caroline Byrne



Laura Berube

Project Scientist

Laura is a Project Scientist for projects involving avian studies for pre- and post-construction projects in the Northeastern United States. Laura is a wildlife biologist with strong bird identification skills and the ability to identify bird species by both sight and sound. She has recently performed diverse avian studies for a number of renewable energy projects in the Northeastern United States, with field work including visual raptor surveys, eagle point count surveys, nocturnal migrant radar surveys, breeding bird surveys, and acoustic bat surveys. Laura is proficient in data management, analysis, summary, and vigorous QAQC for a variety of avian wildlife surveys. Laura is also proficient in acoustic bat analysis including the use of automated analysis programs: Kaleidoscope, BCID, EchoClass, and Sonobat.

Laura is also responsible for conducting vernal pool surveys and natural resource assessments and supporting wetland delineations to assist with the preparation of local, state, and federal permit applications. She has worked on a variety of natural community and rare plant surveys and projects ranging from general reconnaissance observations to quantitative community- and species-specific surveys. These projects have involved natural community mapping and analysis for transportation projects, utility corridors, and development sites.

PROFESSIONAL EXPERIENCE

- Stantec Consulting. 2010-present. Project Scientist.
- University of Maine. 2009. Wildlife Department Field Assistant.

EDUCATION

Bat Conservation and Management - Acoustic Data Management Workshop, Bat Survey Solutions, LLC -Janet Tyburec and John Chenger, Fairfield, Maine, 2015

Bachelor of Science, Wildlife Ecology, University of Maine, Orono, Maine, 2010

Wilderness First Aid Certified, SOLO, Topsham, Maine, 2014

40-Hour HAZWOPER Certification, Topsham, Maine, 2014

OSHA 10-Hour Construction Certification, ClickSafety, Topsham, Maine, 2012

MEMBERSHIPS

Secretary/Treasurer, 2014-2019, The Wildlife Society, Maine

PROJECT EXPERIENCE

NATURAL RESOURCE SERVICES

Record Hill Wind Farm Raptor Surveys, Roxbury, Maine

Conducted raptor surveys to determine species, locations, and behavior in relation to proposed wind turbines. Analyzed data for reporting purposes related to impact assessment and permitting efforts.

Rollins Wind Farm Post-Construction Mortality Monitoring and Raptor Surveys, Maine

Conducted bird and bat mortality ground searches (a requirement of utility-scale wind power developments in Maine). Evaluated as having high searcher efficiency scores for the on-the-ground trials. Responsible for scavenger surveys, which involved the placement and monitoring of carcasses and use of game cameras. Also conducted raptor surveys to determine species, locations, and behavior in relation to proposed wind turbines. Analyzed data for reporting purposes related to impact assessment and permitting efforts.

Eastern Box Turtle Protection Plan and Construction, Brewster, Massachusetts

Conducted regular fence inspection in accordance with and NHESP-approved Eastern Box Turtle Protection Plan designed to protect box turtles in compliance with MESA during construction of a pump station development project. Responsible for documenting the presence of any box turtles in the vicinity of the fencing and reporting deficiencies in the fencing to appropriate personnel.

Stetson I and II Wind Farms Post-Construction Monitoring, Maine

Conducted bird and bat mortality ground searches (a requirement of utility-scale wind power developments in Maine). Evaluated as having high searcher efficiency scores for the on-the-ground trials. Responsible for scavenger surveys, which involved the placement and monitoring of carcasses and use of game cameras.

Oakfield Wind Project Avian Studies | Maine

Conducted raptor surveys to determine species, locations, and behavior in relation to proposed wind turbines. Analyzed data for reporting purposes related to impact assessment and permitting efforts.

Ecological Characterizations | Coos County, New Hampshire

Conducted surveys for rare, threatened, and endangered species of plants and wildlife, assessments of existing

wildlife habitat values, and mapping of wetland and stream resources in a remote area of New Hampshire.

Hand Analysis of Bat Data | Topsham, Maine

Conducted analysis of bat detector data to determine species of bats for multiple project sites. Analysis results were then provided to clients to assist with their project planning and permit applications in compliance with applicable local, state, and federal natural resource regulations.

Wind Project | Eastern Maine

Project scientist responsible for organization, progress, and safety of field staff through the field work phase (wetland delineations, vernal pool surveys, and other natural resource mapping) of large-scale wind power development. Responsible for data management and associated reporting of findings to accompany state and federal permit applications.

Natural Resource Advisory Role in Oil Spill Response | Large Interstate Oil Spill in Gulf of Mexico | Natural Resource Advisor

Natural Resource Advisor (NRA) conducting environmental oversight of oil spill cleanup activities in compliance with an emergency consultation under Section 7 of the Endangered Species Act. NRAs worked directly with operational cleanup crews to implement Best Management Practices (BMPs). These BMPs served as the formal technical guidance issued under the emergency consultation. The objective of this work was to minimize secondary impacts of the cleanup activities on protected resources, including sea turtles, migratory and nesting shorebirds, beach mice, mangrove wetlands, estuaries, coastal wetlands, and dune systems. Implemented BMPs and conducted surveys for piping plover and sea turtles within designated critical habitats. Conducted training and oversight of cleanup crews and prepared daily reports documenting NRA activities. Worked closely with cleanup operations to provide education on BMPs and documenting daily compliance for use in USFWS consultation process and evaluation of secondary impacts to protected resources as part of the Natural Resources Damage Assessment (NRDA).

Proposed Wind Project Bird and Bat Surveys, Coye Hill, Connecticut

Conducted pre-construction wind project development surveys and impact assessments for a proposed wind project in Connecticut. These assessments included raptor surveys, acoustic bat surveys, and breeding bird surveys.

Beech Hill Wind Project | Aroostook County, Maine

Assisted in wetland delineations, vernal pool surveys, and Global Positioning System surveys for a proposed 34-turbine wind project and associated 67-mile transmission line. Identified streams and Wetlands of Special Significance based on the criteria in the Maine Department of Environmental Protection's Natural Resource Protection Act. Characterized wetland and waterbody resources based the U.S. Fish and Wildlife Service Classification of Wetlands and Deep Water Habitats of the United States (Cowardin et. al 1979).

Documented the biological and physical characteristics of potential vernal pool habitat based on the criteria of the Maine Department of Inland Fisheries and Wildlife.

Proposed Wind Project | Central Maine

Conducted wetland delineations, vernal pool surveys, and Global Positioning System surveys over an area totaling approximately 6,800 acres for a proposed 55-turbine wind project in Central Maine. Determined wetland boundaries using the technical criteria described in the U.S. Army Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987). Identified streams and Wetlands of Special Significance based on the criteria in the Maine Department of Environmental Protection's Natural Resource Protection Act. Characterized wetland and waterbody resources based the U.S. Fish and Wildlife Service Classification of Wetlands and Deep Water Habitats of the United States (Cowardin et. al 1979). Documented the biological and physical characteristics of potential vernal pool habitat based on the criteria of the Maine Department of Inland Fisheries and Wildlife.

Orangeville, Marsh Hill, and Sheldon Wind Projects, Post-Construction Monitoring | Western New York | Technician Supervisor

Supervised four post-construction monitoring technicians. Responsible for timecard and expense approval, tracking completion of safety trainings, and communicating with staff about needs while in the field.

Proposed Solar and Infrastructure Update Projects | Vermont | Project Manager

Wrote the proposals and was Project Manager for proposed projects requiring northern long-eared bat (Myotis septentrionalis) surveys. Responsible for client and agency communication, managing of field staff and field survey completion, and the completion of final reports and delivery to client to assist with their project planning and permit applications in compliance with applicable state and federal natural resource regulations.

Proposed Wind Project | Maine | Project Manager

Project Manager for proposed wind project requiring preconstruction avian and wildlife surveys. Responsible for client and agency communication, managing of field staff and field survey completion, and the completion of final reports and delivery to client to assist with their project planning and permit applications in compliance with applicable state and federal natural resource regulations.

Proposed Wind Project, Down East Maine

Conducted pre-construction wind project development surveys and impact assessments for a proposed wind project in Maine. These assessments included raptor surveys, eagle point count surveys, acoustic bat surveys, nocturnal radar surveys, and breeding bird surveys. Analyzed and reported on data for reporting purposes related to impact assessment and permitting efforts.

Post-construction Avian Fatality Monitoring at a Developed Wind Project | New Hampshire | Project Manager

Project Manager of the post-construction monitoring survey conducted at a developed wind project in New

Hampshire. Responsible for client and agency communication, managing of field staff and field survey completion, and the completion of final reports and delivery to client and applicable state and federal natural resource agencies to assist with the compliance of the permit.

Automated Program Analysis of Bat Data | Topsham, Maine

Conducted analysis of bat detector data using Kaleidoscope, BCID, and Sonabat software to determine species of bats for multiple project sites. Analysis results were provided to clients to assist with their project planning and permit applications in compliance with applicable state and federal natural resource regulations.

Agency Meeting and Site Visit for Proposed Wind Project, Down East Maine

Attended a pre-application agency consultation meeting for a proposed wind project in Down East Maine. Attended a site visit at proposed project area with client and agency representatives. Provided information on preconstruction wildlife field surveys conducted by Stantec at proposed wind project.

Data Manager | Topsham, Maine

Responsible for managing data related to bird and bat studies conducted by the office. Responsible for the retrieval, and placement of data to assist in effective report writing and limiting of possible liability.

Rollins Wind Project Invasive Species Monitoring | Lincoln, Maine

Conducted invasive species surveys along a recently constructed transmission line right-of-way according to the standards and methods developed in the Invasive Species Management Plan.

Ichthyoplankton Sampling | Field Technician

Assisted in ichtyoplankton field sampling to characterize the marine egg and larvae community present and potentially susceptible to impingement and entrainment at the cooling water intake structure of a facility withdrawing cooling water from Penobscot Bay, in support of the Clean Water Act 316(b) for a confidential client. The results of the sampling will be included in 316b report and would be used to inform the design of the impingement control system to be eventually installed.

Schedule Coordinator | Topsham, Maine

Proposed Wind Project, Western New York

Conducted eagle point count surveys to determine eagle locations and behavior in relation to proposed wind turbines. Assisted in survey design, mapping, and implementation. Preformed quality assurance and control on data to inform potential collision risk of eagles as a result of the project.

Proposed Linear Project | New Brunswick, Canada

Conducted surveys for rare, threatened, and endangered species of plants and wildlife, assessments of existing

wildlife habitat values, and mapping of wetland and stream resources.

Groton Wind Farm, Raptor Surveys, Breeding Bird Surveys, Nocturnal Migrant Radar Surveys | Grafton County, New Hampshire | Task Manager

Responsible for the staffing and scheduling of field surveys. Also responsible for task managing the completion of sections of the final report to be delivered to the client. Conducted raptor, breeding bird, and nocturnal migrant radar surveys.. Analyzed data for reporting purposes related to impact assessment and permitting efforts.

Bull Hill Wind Farm Post-Construction Monitoring, Maine

Conducted bird and bat mortality ground searches (a requirement of utility-scale wind power developments in Maine). Responsible for scavenger surveys, which involved the placement and monitoring of carcasses and use of game cameras. Responsible for searcher efficiency trials, which involved the placement and monitoring of carcass retrieval by other surveyors.

Proposed Wind Projects | Maine | Task Manager

Responsible for the staffing and scheduling of field surveys including visual raptor surveys, eagle point count surveys, breeding bird surveys, and acoustic bat surveys. Also responsible for task managing the completion of sections of the final reports to be delivered to clients to assist with their project planning and permit applications in compliance with applicable state and federal natural resource regulations.

Proposed Wind Project | Northern California

Analyzed crepuscular radar data targeting federally threatened and state endangered marbled murrelets (Brachyramphus marmoratus) and reviewed and managed acoustic bat survey data for reporting purposes related to impact assessment and permitting efforts.

Block Island Wind Farm, Offshore | Rhode Island

Conducted analysis of bat detector data using Kaleidoscope software and provided quality review of bat call determinations by the software to determine species of bats. Analysis results were provided to the client to assist with the project's compliance of applicable state and federal natural resource regulations.

Proposed Wind Project, Offshore | Northeast and Mid-Atlantic US

Conducted analysis of bat detector data using Kaleidoscope software and provided quality review of bat call determinations by the software to determine species of bats. Analysis results were provided to the client to assist with planning and permit applications in compliance with applicable state and federal natural resource regulations.



Caroline Byrne

Wildlife Biologist

Caroline Byrne is a project scientist and bat biologist, specializing in rare species assessments and bioacoustics. She has a wide range of experience with wildlife assessments for birds, bats, turtles, cave fauna, and vegetation. She has conducted extensive mist netting, acoustic, and telemetry surveys and is a federally permitted bat biologist. Caroline has project experience in various sectors including commercial (renewable energy and development), Federal (Department of Defense, Environmental Protection Agency US Fish and Wildlife) and state agencies. Caroline will be working with the emerging EchoPitch program and related research projects funded by the US Department of Energy, National Renewable Energy Laboratory, Renewable Energy and Wildlife Institute, and private clients. Caroline has a BS from Binghamton University and a MS from Indiana State, where she researched Indiana bat social calls and behavior. She has conducted extensive mist netting, acoustic, and telemetry surveys and is a federally permitted bat biologist. Most recently, she has worked as a wildlife research biologist for Biodiversity Research Institute in Portland, Maine.

EDUCATION

Master of Science, Biology, Indiana State University, Terre Haute, Indiana , 2015

Bachelors of Science, Environmental Science: Ecosystems, Binghamton University, Vestal, New York, 2010

CERTIFICATIONS & TRAINING

30-hour Construction Safety and Health , Occupational Safety and Health Administration, San Diego, California, 2022

Wilderness First Aid, Wilderness Medical Associates International, Portland, Maine, 2021

Soundscape Analysis: From Data to Graphs, Wildlife Acoustics, Inc., Maynard, Massachusetts, 2021

Bat Acoustics Training and Analysis Course, Wildlife Acoustics, Maynard, Massachusetts, 2016

Raven Sound Analysis Workshop, Cornell Lab of Ornithology, Ithaca, New York, 2013

Acoustic Techniques Workshop, Bat Conservation Managment, Newburyport, Massachusetts, 2011

Bat Automatic Identification Software Workshop , Western EcoSystems Technology, Inc., Pikeville,

Tennessee, 2013

Properties of Sound: How Bat Detectors Work, Wildlife Acoustics, Inc., Maynard, Massachusetts, 2020

MEMBERSHIPS

President-elect, Northeast Bat Working Group, 2009-Present

Past President, The Wildlife Society, Maine, 2015-Present

PROJECT EXPERIENCE

MILITARY

Rare, Threatened, and Endangered Bat Surveys at US Naval Installations | Field Coordinator, Federally Permitted Biologist at Biodiversity Research Institute

While at Biodiversity Research Institute, Caroline performed rare, threatened, and endangered bat surveys throughout the eastern United States, including acoustics: deployment, automated analysis and qualitative review, mist-netting, homing telemetry, foraging telemetry, and hibernacula surveys.

BAT BIOLOGY

Threatened and Endangered Bat Surveys at Ely Mine | Vershire, Vermont | Federally Permitted Biologist, Biodiversity Research Institute

Performed mist-netting surveys, acoustics (deployment, automated analysis, and qualitative analysis), day roost telemetry, automated foraging, and home range telemetry. Compiled results into reports to client and permitting agencies.

Indianapolis International Airport Indiana Bat Project | Indianapolis, Indiana | Graduate Researcher-Indiana State University

Lead a long-term Indiana bat monitoring project. Longterm monitoring of local bat populations included mist netting long-term netting sites with a minimum of 12 per month, radio telemetry and transmitter attachment in order to track foraging bats and locate day roosts, spotlight checks, and emergence count to monitor roost use.

- Vegetation surveys
- Report preparation: Prepared biweekly and annual reports of study results
- Thesis research: Describing the social behavior of Indiana bats (Myotis sodalis) at day roost sites.
- Deployed Pettersson D500X and night vision video to record social behavior at maternity roosts
- Developed ethogram detailing visual and acoustic behaviors
- Coded video for behaviors and analyzed acoustic behaviors in Raven Pro

EMPLOYMENT HISTORY

Biodiversity Research Institute

Mammal Program Field Coordinator

2015 - 2022 · 7 years

Project Management:

• Staffing: Supervise and manage all field staff including other field leads

Permitting: Application, management, and reporting for permits on both the state and federal level

Development: study plans, scopes of work, and standard operating procedures, worked directly with numerous clients including DOD (Navy, Air Force, Army, and Marines), EPA, State Agencies, USFWS, USNPS, Army National Guard, Army Core of Engineers, Air National Guard, and renewable energy companies (i.e., solar and offshore wind)

Logistics: arranged vehicles, lodging, equipment, and staffing schedules

Field Program Work:

- Overseeing all aspects of the capture and radio tracking of Eastern bat species.
- As of 2020, I have identified 13 bat species in North America totaling >1,700 individual bats in hand. In North America, from Maine to South Carolina to Illinois.
- Supervise and participate in the live capture of bats, and monitor and take samples according to the scope of work and approved protocols.
- Daytime radio telemetry to locate roosting sites, nighttime telemetry with up to five teams for simultaneous foraging telemetry for home range analysis.
- Development, siting, production, and execution of nano-telemetry towers for MOTUS network monitoring, captured and tagged bats with MOTUS transmitters during migration
- Hibernacula and anthropogenic structure surveys
- Surveys for Canada lynx with the use of camera traps and scent stations
- Assisted in drafting bat portions of Construction and Operations Plans (COP) for offshore wind development

Acoustics (birds and bats):

- Develop standard operating procedures for acoustic monitoring with various detectors, software, and deployment types
- Deployment and analysis of acoustic monitoring methods for bats
- Deployed Pettersson D500X, 240X, and M500, Anabat SD2, Binary Acoustics AR125, Wildlife Acoustics SM2, SM3, and SM4 to record bat activity
- Post- processing analysis with SonoBat, Kaleidoscope Pro., EchoClass, Sonobat, Raven, and Audacity
- Manual vetting: extensive experience in manual vetting of recordings of eastern bat species
- Offshore wind energy acoustic deployments and acoustic processing and vetting

Indiana State University Graduate Student

2013 - 2015 · 3 years

Long term monitoring of local bat populations: Mist netting long term netting sites, radio telemetry and transmitter attachment in order to track foraging bats and locate day roosts, spotlight checks and emergence count to monitor roost use. Vegetation surveys. Report preparation. Deployed acoustic monitors and night vision video to record acoustic and visual behavior at maternity roosts, analyzed hundreds of hours of acoustic and video data. Developed ethogram detailing visual, through behavioral coding of video and acoustic behaviors through qualitative and statistically analysis of acoustic behaviors.

Tim Dexter, Fish and Wildlife Program Coordinator Attachments

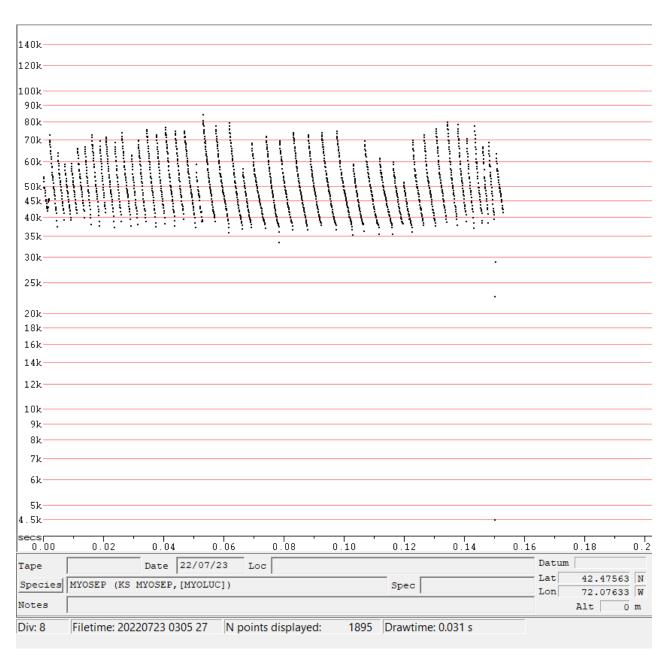
Reference: Bridge Replacement on Williamsville Road over Burnshirt River, Hubbardston, Massachusetts - Northern Long-eared

Bat Acoustic Survey Report

APPENDIX D Screenshots of Bat Passes

Tim Dexter, Fish and Wildlife Program Coordinator Attachments

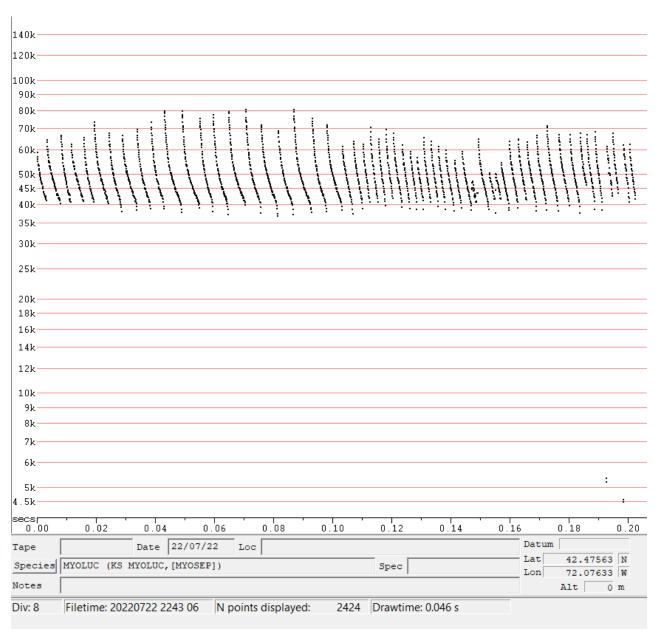
Reference: Bridge Replacement on Williamsville Road over Burnshirt River, Hubbardston, Massachusetts – Northern Long-eared Bat Acoustic Survey Report



Appendix D. Figure 1. Screenshot of a little brown bat pass recorded on the night of July 22, 2022, and autoclassifed as a northern long-eared bat by KPro for the Bridge Replacement on Williamsville Road over Burnshirt River, Hubbardston, Massachusetts.

Tim Dexter, Fish and Wildlife Program Coordinator Attachments

Reference: Bridge Replacement on Williamsville Road over Burnshirt River, Hubbardston, Massachusetts – Northern Long-eared Bat Acoustic Survey Report



Appendix D. Figure 2. Screenshot of a little brown bat pass recorded on the night of July 22, 2022, for the Bridge Replacement on Williamsville Road over Burnshirt River, Hubbardston, Massachusetts.

Tim Dexter, Fish and Wildlife Program Coordinator Attachments

Reference: Bridge Replacement on Williamsville Road over Burnshirt River, Hubbardston, Massachusetts - Northern Long-eared

Bat Acoustic Survey Report

APPENDIX E Bridge Inspection Memo

To: Sara Kreisel & Tim Dexter

From: Alexander Pries

Mass DOT

Auburn, NH Office

File: Hubbard

Hubbardston, MA (DOT Project

Date: September 14, 2022

#609187) Williamsville Road Bridge Bat

Habitat Inspection

Reference: Hubbardston, MA (DOT Project #609187) Williamsville Road Bridge Bat Habitat Inspection

Sara and Tim,

Stantec biologists conducted a visual inspection for roosting bats and bat habitat at Bridge H-24-003 associated with MassDOT Project #609187 [HUBBARDSTON- BRIDGE REPLACEMENT, H-24-003, WILLIAMSVILLE ROAD OVER THE BURNSHIRT RIVER] on July 21, 2022. During the inspection, Stantec biologists used flashlights and binoculars to search gaps, crevices, and other locations on bridge structures that could potentially hold roosting bats. No bats, guano, or staining were observed at the bridge during the inspection.

The bridge is a steel I-beam structure with a concrete deck over Burnshirt River (Figure 1). There was no indication of bat roosting along open areas of the steel I-beams or concrete on the underside of the bridge. Bridge abutments are concrete with several small weep holes located near the base (Figures 2 and 3). Visual inspection of the weep holes, open concrete, and crevices where the abutments meet steel I-beams did not provide any indication of active bat use. Similarly, visual inspection of the bridge's guardrails (Figure 4) indicated they were solid metal and unlikely to provide suitable roosting habitat. Inspection of the approach quardrail structures also did not provide any indication of active bat use.

In conclusion, Stantec biologists did not observe any roosting bats, or evidence of roosting bats, during the inspection of Bridge H-24-003. A completed bridge assessment form is included as Appendix A.

Sincerely,

Stantec Consulting Services Inc.

Alex Pries

Project Manager Phone: 603-260-7434

Email: Alex.Pries@stantec.com

Attachment: Figures

Appendix A – Bridge Inspection Form



Figure 1. Bridge H-24-003 (Williamsville Road over Burnshirt River) looking north.



Figure 2. Steel I-beams, concrete abutment, and weep holes along underside of Bridge H-24-003 (Williamsville Road over Burnshirt River).



Figure 3. Example photograph of top of bridge abutment and connection with steel I-beams on Bridge H-24-003 (Williamsville Road over Burnshirt River).



Figure 4. Solid metal guardrails and bridge approach guardrail structure (in foreground) on Bridge H-24-003 (Williamsville Road over Burnshirt River).

	Bridge/Structure Bat Assessment Form				
Date & Time 07 21/28 of Assessment	DOT Project # 609187	Route/Facility	Illumo Jille		rcester
Federal Structure ID H- 24-003	Structure Coordinates 12, 47592 (latitude and longitude) 11.07410	Structure Hei (approximate	咖~一个	Structure Length	50'
Structure Type (check one)		Structure	Material (check al	that apply)	828.50
Bridge Construction Style		Deck Mater		Engl/Back Wall	Matenal
		Metal	None	Y Concrete	
O Cast-m-place	Pre-stressed Girder	Concrete	Concrete	Timber Stone/Mesonry	
O Flat Slat/Bor	Sterol Hoesen I I I	Open grid	✓ Steel Timber	Other	
O Trians AMA	O Covered	Olner	Other	Creosote Evide	
O Parallel Box Bearn	October	Culvert Mat	enal N/A	O Yes Unknows	No
Culvert Type N K	Other Structure N/A	Metal Concrete		Notes.	
OBox		Plastic			
O Pipe Round	1 01	Stone/Maso Other	onry		
Olome: Crossings Traversed (check all the	nat apply)		ng Habitat (check	all that apply)	2.300
Bare ground	Open vegetation	Agricultural		Grassland	
Ва-пр	Cinsed vegetation	Commercia Residential-		Ranching Ripanan/wellan	1
Flowing water	Railroad	✓ Residential		M xad use	
Standing water Seasonal water	Ruadhrail - Type Other	Woodland/f		Other	
Areas Assessed (check all that ap	والمستران والمست				01-010 20 10 100 100
Chang all prope that annive if an area is not	present in the structure, chack the "not pres	ent" bax		8 8 9 9 9	2 26
Document all bat indicators observed dunn	g the assessment include the species prese	ent, if known, a	ind provide photo docur	nentalion as indic	ated.
Area (check if assessed)	Assessment Notes	Evidence	of Bats (include ph		
All crevices and cracks	Not present	H	# dead #	Audible Odor	Species
Bridges/culverts: rough surfaces or	No signs of	Visual - live Guano	# Geao #	Photos	1
Other structures: soffits rafters, attic	active use	Staining			
Wess	active use				
/	Not present	H	88. Each	Audible	Species
Concrete surfaces (open recetting on	11 //	Visual - liva	# dead #	Odor Photos	4
concrete)		Guano Steining		(Fridios	1
	Not present	H		Audible	Species
Spaces between concrete end wells	" //	Visual - live	# dead#	Odor	1
and the bindge deck	<u> </u>	Guano Staining		Photos	1
Crack between concrete railings on top	Not present			Audible	Species
of the bidge deck Gap		Visual live	# dinad #	Odor	
Raling -		Guano	W. W	Photos	-
	Not present	Staining		Audible	Species
The second specimen on comments between	11 //	Vasual - Inve	# deed#	Odor	
Vertical surfaces on concrete l-beams	1 2 "	Guarro		Photos	4
	V Not present	Staming		Audible	Speciale
	T St. seed for address .	Viskial live	# dead #	Odor	
Spaces between wells, ceiling joints		Guano		Photos	1
	Not present	Staining		Audible	Species
Weep holes, scupper drains, and	Not present	Visual - live	# deed #	Odor	Species
miets/pipes	, ,	Guano		Photos	1
		Staming		1.25	la.
LV	Not present	Dysual live	# dead #	Audible Odor	Species
All guiderate	" "	Gueno	100	Photos	1
		Stairung			
00 NO 04 NOCESSE NO 17	Not present	Visual - Inve	# dead #	Audible Odor	Species
All expansion joints		Guano		Photos	//
		Statning	00		
4/ /	Λ'		/11/		/
Name: Alexander	Pries	Signature:	les	fol	<u>~</u>
tast revised April 2020				A	ssessment For

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DOCUMENT A00875

POLICY DIRECTIVE P-22-001 AND POLICY DIRECTIVE P-22-002

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Number: P-22-001 Date: 9/23/22

POLICY DIRECTIVE

Jonathan Gulliver (signature on original) HIGHWAY ADMINISTRATOR

Off-Site Stockpiling of Soil from MassDOT Construction Projects

Purpose

The purpose of this Policy Directive is to formally establish a policy and procedures for managing and stockpiling soil generated and transported from MassDOT construction projects. This Policy Directive does not supersede any Federal, State, or Local regulations.

Date of Effect

This Policy Directive is effective immediately for all projects, including active construction projects.

For active construction projects and for other projects advertised prior to October 15, 2022, changes to the contract documents needed to implement the requirements of this Policy Directive will be considered on a case-by-case basis and shall be approved by the District Highway Director, as necessary.

For projects advertised on or after October 15, 2022, MassDOT will include the requirements and implementation procedures of this Policy Directive in the construction contract documents.

Policy Requirements

This policy is intended to prevent the off-site relocation of excavated soil generated from MassDOT projects to areas near residential receptors and to control potential fugitive dusts and/or contaminants. To that end, excavated soil may not be moved from the project site without knowledge of the content of the material. Knowledge may include visual field observations for presence of staining, odor, and/or debris, screening with a photoionization detector (PID), laboratory analysis, and/or site history. Pavement millings and other non-soil materials are not subject to the requirements of this Policy Directive.

Moving soil from a MassDOT project site to a temporary off-site storage location must be approved in writing by the District Highway Director.

The Contractor must select a storage location that is at least 500 feet away from residential receptors, as defined herein to include, but not be limited to, residential dwellings, residentially zoned property, schools, daycare facilities, playgrounds, parks, recreational areas, hospitals, elderly housing and convalescent facilities.

Temporary off-site storage of excavated soil from a MassDOT project is only permissible at a location approved and permitted by MassDOT. The temporary storage location should be located within the same municipality where the soil was excavated, where possible. Stockpiled soil must be securely covered, and appropriate measures must be taken to minimize fugitive dust and erosion.

Signs indicating the source of the soil, the date the soil was generated, and contact information must be erected and maintained until the stockpiled soils are transported to a disposal facility or reused on the project site.

Implementation Procedures

To ensure that off-site storage of excavated soils is managed properly on MassDOT projects, this policy requires the following:

1. Off-Site Stockpile Storage Locations

- a. The Contractor shall provide proposed off-site storage locations to the Engineer for approval at least 30 days prior to transporting soil off site. Off-site storage locations should be in the same municipality as the work site.
- b. The Contractor shall keep excavated soil on site until adequately characterized to the satisfaction of the Engineer.
- c. The Contractor shall provide notification of the approved off-site storage location to the local Board of Health and the Town Manager's/Mayor's Office at least 7-days prior to transporting soil off site.
- d. The Contractor shall provide the Engineer with at least 3-days' notice prior to transporting soil off site.
- e. For off-site storage locations on MassDOT property, the Contractor is required to obtain an Access Permit through the District Permits Office prior to storage of soil or other materials. MassDOT will issue these permits at no cost to the Contractor. Information to be submitted by the Contractor as part of the permit application shall include:
 - i. A description of material to be stored off-site, including available analytical data;
 - ii. A figure of the location with distances to residences and residential receptors; and
 - iii. Anticipated duration of temporary storage.
- f. Stockpile locations should not be within 500 feet of residential receptors (e.g., residential dwellings, residentially zoned property, schools, daycare facilities, playgrounds, parks, recreational areas, hospitals, elderly housing and convalescent facilities).
 - i. If the stockpile location must be within 500 feet of residential receptors, then soil must be less than RCS-1 (per 310 CMR 40.1600) and free of potentially hazardous or regulated items.

- g. For off-site storage locations on non-MassDOT property, the Contractor must notify the property owner(s) at least 7 days prior to transporting material.
- h. Exceptions to these rules will be reviewed by MassDOT and may be approved by the District Highway Director on a case-by-case basis.

2. Off-Site Stockpile Management

- a. The Contractor shall keep soil stockpiles on impermeable surfaces (e.g., asphalt or concrete) or on 10-mil polyethylene sheeting.
- b. The Contractor shall cover soil stockpiles with 10-mil polyethylene sheeting and surround with a berm made of hay bales, straw wattles, or similar.
 - i. Piles that are actively being worked on must be covered and re-secured at the end of the work shift.
- c. The Contractor shall label stockpiles with signs, including:
 - i. Location of origin (including any Release Tracking Numbers)
 - ii. Stockpile ID number (including MassDOT District office-assigned tracking ID, if different)
 - iii. Date of initial accumulation
 - iv. Applicable telephone numbers for the Contractor and MassDOT.
- d. The Contractor shall mitigate fugitive dust at storage locations under the direction of an appropriately trained/certified environmental professional.
- e. The Contractor shall remedy noncompliance with this policy within 48 hours.
- f. The Contractor shall remedy noncompliance with this policy on the SAME DAY for potentially hazardous material, as determined by the Engineer.
- g. The Contractor shall handle excavated soil according to federal, state, and local regulations.
- h. The Contractor shall use appropriate shipping documents for all movements of excavated soil on public roadways (e.g., Bill of Lading, Material Shipping Record, Manifest, Asbestos Waste Shipment Record, etc.).

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Number: P-22-002
Date: 9/23/22

POLICY DIRECTIVE

Jonathan Gulliver (signature on original)
HIGHWAY ADMINISTRATOR

<u>Use of MassDOT Property for Staging and other</u> <u>Construction-Related Operations</u>

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, <u>Approval of Access to MassDOT Highways and Other Property</u>. 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 A00881

MASSDEP CHECKLIST FOR STORMWATER REPORT

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Appendix A: MassDEP Checklist for Stormwater Report



Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.





A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the Massachusetts Stormwater Handbook. The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals. This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

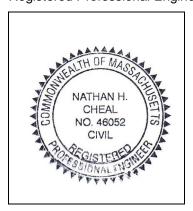
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



Signature and Date

April 23, 2024

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new ar	ıd
redevelopment?	
☐ New development	

- □ Redevelopment



Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

\boxtimes	No disturbance to any Wetland Resource Areas
	Site Design Practices (e.g. clustered development, reduced frontage setbacks)
	Reduced Impervious Area (Redevelopment Only)
\boxtimes	Minimizing disturbance to existing trees and shrubs
	LID Site Design Credit Requested:
	☐ Credit 1
	☐ Credit 2
	☐ Credit 3
	Use of "country drainage" versus curb and gutter conveyance and pipe
	Bioretention Cells (includes Rain Gardens)
	Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
	Treebox Filter
	Water Quality Swale
	Grass Channel
	Green Roof
	Other (describe):
Sta	ndard 1: No New Untreated Discharges
\boxtimes	No new untreated discharges
	Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
	Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



Checklist for Stormwater Report

Checklist (continued) Standard 2: Peak Rate Attenuation Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding. Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm. Calculations provided to show that post-development peak discharge rates do not exceed predevelopment rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24hour storm. Standard 3: Recharge Soil Analysis provided. Required Recharge Volume calculation provided. Required Recharge volume reduced through use of the LID site Design Credits. Sizing the infiltration, BMPs is based on the following method: Check the method used. ☐ Simple Dynamic | Static Dynamic Field¹ Runoff from all impervious areas at the site discharging to the infiltration BMP. Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume. Recharge BMPs have been sized to infiltrate the Required Recharge Volume. Recharge BMPs have been sized to infiltrate the Required Recharge Volume only to the maximum extent practicable for the following reason: ☐ Solid Waste Landfill pursuant to 310 CMR 19.000 Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable. Calculations showing that the infiltration BMPs will drain in 72 hours are provided. Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



Checklist for Stormwater Report

Cł	necklist (continued)
Sta	ndard 3: Recharge (continued)
	The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
	Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.
Sta	ndard 4: Water Quality
The	E Long-Term Pollution Prevention Plan typically includes the following: Good housekeeping practices; Provisions for storing materials and waste products inside or under cover; Vehicle washing controls; Requirements for routine inspections and maintenance of stormwater BMPs; Spill prevention and response plans; Provisions for maintenance of lawns, gardens, and other landscaped areas; Requirements for storage and use of fertilizers, herbicides, and pesticides; Pet waste management provisions; Provisions for operation and management of septic systems; Provisions for solid waste management; Snow disposal and plowing plans relative to Wetland Resource Areas; Winter Road Salt and/or Sand Use and Storage restrictions; Street sweeping schedules; Provisions for prevention of illicit discharges to the stormwater management system; Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL; Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan; List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
	A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent. Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
	is within the Zone II or Interim Wellhead Protection Area
	is near or to other critical areas
	is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
	involves runoff from land uses with higher potential pollutant loads.
	The Required Water Quality Volume is reduced through use of the LID site Design Credits.

applicable, the 44% TSS removal pretreatment requirement, are provided.

☐ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if



Checklist for Stormwater Report

Gr	lecklist (continued)
Sta	ndard 4: Water Quality (continued)
	The BMP is sized (and calculations provided) based on:
	☐ The ½" or 1" Water Quality Volume or
	☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
	The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
	A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.
Sta	ndard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)
	The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report. The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted <i>prior</i> to the discharge of stormwater to the post-construction stormwater BMPs.
	The NPDES Multi-Sector General Permit does <i>not</i> cover the land use.
	LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
	All exposure has been eliminated.
	All exposure has <i>not</i> been eliminated and all BMPs selected are on MassDEP LUHPPL list.
	The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.
Sta	ndard 6: Critical Areas
	The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
\boxtimes	Critical areas and BMPs are identified in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

\boxtimes	The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
	 Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area. Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
	☐ Bike Path and/or Foot Path
	Redevelopment Project
	Redevelopment portion of mix of new and redevelopment.
\boxtimes	Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report. The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.
Sta	andard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control
	Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the owing information:
	 Narrative; Construction Period Operation and Maintenance Plan; Names of Persons or Entity Responsible for Plan Compliance; Construction Period Pollution Prevention Measures; Erosion and Sedimentation Control Plan Drawings; Detail drawings and specifications for erosion control BMPs, including sizing calculations; Vegetation Planning; Site Development Plan; Construction Sequencing Plan; Sequencing of Erosion and Sedimentation Controls; Operation and Maintenance of Erosion and Sedimentation Controls; Inspection Schedule; Maintenance Schedule; Inspection and Maintenance Log Form.
1	A Construction Period Pollution Prevention and Frosion and Sedimentation Control Plan containing

the information set forth above has been included in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

	Indard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control ntinued)					
	The project is highly complex and information is included in the Stormwater Report that explains whit is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has <i>not</i> been included in the Stormwater Report but will be submitted <i>before</i> land disturbance begins.					
\boxtimes	The project is <i>not</i> covered by a NPDES Construction General Permit.					
	The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.					
	The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.					
Sta	ndard 9: Operation and Maintenance Plan					
	The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:					
	Name of the stormwater management system owners;					
	□ Party responsible for operation and maintenance;					
	Schedule for implementation of routine and non-routine maintenance tasks;					
	☑ Plan showing the location of all stormwater BMPs maintenance access areas;					
	☐ Description and delineation of public safety features;					
	Operation and Maintenance Log Form.					
	The responsible party is <i>not</i> the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:					
	A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;					
	A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.					
Sta	ndard 10: Prohibition of Illicit Discharges					
\boxtimes	The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;					
\boxtimes	An Illicit Discharge Compliance Statement is attached;					
	NO Illicit Discharge Compliance Statement is attached but will be submitted <i>prior to</i> the discharge of any stormwater to post-construction BMPs.					

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Template Version: November 2023



To: MassDOT Date: April 23, 2024

Project #: 609187

From: Tetra Tech, Inc.

Re: Williamsville Road over Burnshirt River, Bridge Number H-

24-003

This Stormwater Management Memorandum has been prepared to show compliance with the Massachusetts Stormwater Management Standards in accordance with the Massachusetts Water Quality Certification Regulations (314 CMR 9.00) to support the Project's Section 401 Water Quality Certificate Application. Appendix A includes a completed Massachusetts Department of Environmental Protection (MassDEP) Checklist for Stormwater Report, stamped by a Massachusetts registered professional engineer.

The Project follows the guidance presented in the MassDOT Stormwater Design Guide (SDG), and stormwater management systems are designed in accordance with the Standards.

Project Description

The Applicant, MassDOT, is proposing Project 609187 to construct a bridge replacement (the Project) located in Hubbardston, MA. As proposed, the Project consists of the functional replacement of the bridge that carries Williamsville Road over the Burnshirt River in Hubbardston. The project also involves full depth reconstruction of Williamsville Road approximately 335 feet southwestwardly away from the bridge and approximately 545 feet eastwardly away from the bridge. The work also includes clearing and grubbing, removal and protection of existing trees as required, upgrading existing guardrail, drainage improvements, including installing new deep sump catch basins where inlets do not currently exist, installation of granite curbing, pavement markings, utility protection and relocation, and placement of temporary traffic control and detour. Additionally, a temporary utility crossing will be constructed for the temporary relocation of the existing utilities.

See Figure 1 for the Project Locus Map.

Existing and Proposed Drainage Conditions

The project is currently an existing roadway consisting of one travel lane in each direction with partial shoulders. Portions of the roadway has bituminous curbing with a closed drainage system. There are some segments that currently do not have curbing. Those lengths amount to approximately 42% of the total project length on the north side of the road and approximately 40% of the total project length on the south side of the road.

Drainage Area E1 includes an existing closed drainage system with catch basins, drain manholes and pipes. Runoff from Drainage Area E1 is piped to an existing depression on the north side of Williamsville Road. The outfall from the depression flows beneath Williamsville Road and discharges via an 18" corrugated metal pipe (CMP). From the pipe discharge, stormwater flows in a southeasterly direction overland to the Burnshirt River.

Runoff from Drainage Area E2 discharges along the south side of Williamsville Road via a paved drainage swale. Stormwater then flows overland in a southeasterly direction to the Burnshirt River.

Drainage Area E3 includes an existing closed drainage system with catch basins, drain manholes and pipes. Runoff from Drainage Area E3 is flows in a southwesterly direction and discharged via an 18" CMP. From the 18" CMP stormwater flows overland to the Burnshirt River.

Drainage Area E4 discharges via sheet and overland flow in a northwesterly direction to the Burnshirt River.

The Burnshirt River, designated as Design Point 1, is located in the center of the project area. The Burnshirt River flows southeast to its confluence with the Ware River. According to USGS StreamStats, the drainage area of the Burnshirt River upgradient of the project is approximately 12.5 square miles.

Table 1 presents the existing drainage areas and their characteristics by design point.

Table 1 Existing Drainage Areas

Drainage Area	Design Point	Area (acres)	Curve Number
DA-E1 DP-#1		0.35	61
DA-E2 DP-#1		0.93	65
DA-E3 DP-#1		0.31	89
DA-E4	DP-#1	0.11	77

Key features in and around the project area include bank buffer and riverfront area as shown on Figures 2 and 3.

Portions of the project area on within Zone A (i.e. 1% annual chance or 100-year) Flood Zone associated with the Burnshirt River as shown on FEMA FIRM panel 250311 0015 B, with effective date June 1, 1984.

Review of the NRCS Soil Survey map of the project area identified Hinkley loamy sand (HSG A), Montauk-Canton association (HSG C) and Ridgebury-Whitman association (HSG D).

The Project will include construction of a new bridge structure, including new roadway pavement and markings, and adding new drainage structures where needed to meet MassDOT roadway design requirements. Work includes excavation and embankment, roadway side slopes clearing and hazardous tree removal, pavement standard milling and resurfacing, full-depth roadway construction, granite curbing, drainage system improvement, guardrails and end treatments, traffic signage and pavement markings, and erosion and sedimentation control.

Drainage Area P1 will utilize the existing closed drainage system with new offset grates and granite curb inlets installed on two catch basins. The existing drain manholes and pipes will be maintained. Runoff from Drainage Area P1 is piped to an existing depression on the north side of Williamsville Road. The outfall from the depression flows beneath Williamsville Road and discharges via an 18" CMP. From the pipe discharge, stormwater flows in a southeasterly direction overland to the Burnshirt River.

Runoff from Drainage Area P2 discharges along the south side of Williamsville Road via a paved drainage swale with a new riprap apron. Stormwater then flows overland in a southeasterly direction to the Burnshirt River.

Drainage Area P3 will utilize the existing closed drainage system. 4 new deep sump catch basins with granite curb inlets will be installed and connect to existing drain manholes and pipes. Runoff from Drainage Area P3 is flows in a southwesterly direction and discharged via an 18" CMP with a new riprap apron. From the 18" CMP stormwater flows overland to the Burnshirt River.

Table 2 provides a breakdown of the impervious area for the Project.

Table 2 Impervious Area

Condition	Impervious Area (sq. ft)
Existing	29,793
Proposed	34,417
Net	4,624

There is an 15.5% increase in impervious area. The increase also includes minor widening to accommodate 5-foot bicycle lanes on both sides of Williamsville Road. The additional impervious area is dispersed throughout the project and not concentrated upstream of any one outfall.

Table 3 presents the proposed drainage areas and their characteristics under proposed conditions.

Table 3 Proposed Drainage Areas

Drainage Area	Design Point	Area (acres)	Curve Numbers	
P-1	2-1 DP-1		61	
P-2	DP-1	0.82	62	
P-3	DP-1	0.53	91	

See Figure 3 for proposed drainage areas by design point.

The proposed SCMs include deep sump catch basins (where new inlets are proposed) and rip rap aprons for outlet protection at two outfalls. Once construction is complete, the project will implement a Stormwater Management System Operation and Maintenance Plan and Long Term Pollution Prevention Plan.

Massachusetts Department of Environmental Protection (MassDEP) – Stormwater Management Standards

As demonstrated below, the proposed Project complies with the MassDEP Stormwater Management Standards (the Standards). Under the Stormwater Management Standards, the Project is considered a redevelopment project because it involves maintenance and improvement of an existing a bridge structure, including the functional replacement of the bridge that carries Williamsville Road over the Burnshirt River along with new roadway pavement and markings (with dedicated bike lanes), and adding new drainage structures where needed to meet MassDOT roadway design requirements. The project results in a deminimis increase in impervious area due to the addition of bike lanes on each side of the roadway. The Project has been designed to meet the Stormwater Management Standards to the maximum extent practicable and to improve upon existing conditions.

Standard 1: No New Untreated Discharges

No new stormwater conveyance (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

The Project has been designed to comply with Standard 1.

No new stormwater outfalls are proposed for the Project. The outlet pipe from the existing depression (DA-P1) conveys minimal discharge (0.1 cfs for the 100-year event). Existing outfalls for DA-P2 and DA-P3 were retrofitted with rip-rap aprons to improve scour protection.

Standard 2: Peak Rate Attenuation

Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.

The Project has been designed to comply with Standard 2 to the maximum extent practicable. Table 2 includes a summary of impervious cover impacts.

There are slight increases to post-development peak runoff rates for the 2-year, 10-year, and 100-year 24-hour design storm events based on NOAA Atlas 14 precipitation data as shown in Table 4.

The increases are de-minimis/negligible, considering these outfalls contribute to the Burnshirt River, which has a contributing area of over 12.5 square miles at the project location and peak discharges of 249 cfs for the 2-year storm, 778 cfs for the 10-year storm and 1,560 cfs for the 100-year storm as determined by the USGS StreamStats program.

Furthermore, the Burnshirt River is tributary to the Ware River which has a contributing area of over 199 square miles at the Gibbs Crossing gauging station and peak discharges of 4,310 cfs for the 10-year storm and 12,720 cfs for the 100-year storm as shown in Table 1 in the Flood Insurance Study for the Town of Ware, Massachusetts dated February 17, 1981.

See Standard 7 for discussion on project constraints.

Table 4 Rainfall Depths (in)

Design Storm Event	Rainfall Depth (in)		
2-year	3.04		
10-year	4.64		
100-year	7.17		

Table 5 provides a summary of peak rates for each design point under existing and proposed conditions. Appendix D provides computations and supporting information regarding the hydraulic and hydrologic modeling, including the USGS StreamStats output for the Burnshirt River at the project location.

Table 5 Peak Discharge Rates (cfs)

Design	Existing			Proposed		
Point	2-year	10-year	100-year	2-year	10-year	100-year
DP-1	1.04	2.53	5.32	1.54	3.04	5.74

Standard 3: Stormwater Recharge

Loss of annual recharge to groundwater shall be eliminated or minimized through the use of environmentally sensitive site design, low impact development techniques, stormwater management practices and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil types. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

The Project has been designed to comply with Standard 3 to the maximum extent practicable. The Project does not include infiltration SCMs, however, the increase in impervious surface and resulting runoff is deminimis.

See Standard 7 for discussion on project constraints.

.....

Standard 4: Water Quality

Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This Standard is met when:

- a) Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan, and thereafter are implemented and maintained;
- b) Structural stormwater best management practices are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and
- c) Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.

The Project has been designed to comply with Standard 4 to the maximum extent practicable.

The Project has been designed to comply with Standard 4 to the maximum extent practicable. The Project:

> Treats impervious area to the MEP with the addition of deep sump catch basins and rip rap outlet protection.

See Standard 7 for discussion on project constraints.

Appendix C includes the MassDEP TSS Removal Calculation Worksheets as well as the required WQV calculations.

For MassDOT facilities, Long-Term Pollution Prevention Plans (LTPPPs) are implemented at a programmatic level through MassDOT's highway operation and maintenance program by district. Appendix E includes the LTPPP for this project.

Standard 5: Land Uses with Higher Potential Pollutant Loads (LUHPPLs)

For Land Uses with Higher Potential Pollutant Loads (LUHPPLs), source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention all LUHPPLs cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from LUHPPLs shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

Standard 5 does not apply to the Project. There are no Land Uses with Higher Potential Pollutant Loads within the project area.

Standard 6: Critical Areas

Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or to any other critical area require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A "stormwater discharge" as defined in 314 CMR 3.04(2)(a)1 or (b), to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of a public water supply.

The Burnshirt River is within the Ware River Intake ORW, which is a Zone A public water supply watershed. There are no new stormwater outfalls proposed for the project. The outlet pipe from the existing depression (DA-P1) conveys minimal discharge (0.1 cfs for the 100-year event). The existing outfalls for DA-P2 and DA-P3 were retrofitted with rip-rap aprons to improve scour protection.

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the Maximum Extent Practicable

A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

The Project is considered a redevelopment and has been designed to comply with the Stormwater Management Standards to the maximum extent practicable.

The project area is constrained by the existing MassDOT right of way (i.e. state highway layout) and the existing topography, which slopes up from the roadway on one side and down towards the river on the other, preventing the installation of SCMs that would provide attenuation, recharge and water quality treatment to fully meet the applicable standards.

The Project will improve existing conditions with the installation of deep sump catch basins (where new inlets are proposed) to allow sediment to settle prior to discharge as well as rip rap outlet protection to reduce discharge velocity and prevent scour and erosion within the buffer zone and riverfront area.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Controls

A plan to control construction-related impacts, including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.

The implementation of erosion and sediment (E&S) controls during construction is considered a standard practice for all MassDOT projects. E&S controls will be installed before any land disturbance begins for the Project and will remain in place for the duration of the Project. The E&S controls for the Project are shown on the project plans and include a sedimentation barrier.

The Project disturbs one or more acres of land; therefore, the project contractor will request coverage under the NPDES Construction General Permit (CGP) and develop a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP follows the requirements of this standard and complies with the NPDES CGP.

Standard 9: Operation and Maintenance Plan

A Long-Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.

MassDOT O&M plans are implemented on a programmatic level by each MassDOT district. Each MassDOT district office is responsible for providing operation and maintenance for the MassDOT stormwater management systems within their respective jurisdictions. Appendix *E* includes the O&M Plan for this project.

Long-term pollution prevention for the Project includes litter pick-up, inspection and maintenance of stormwater assets, maintenance of landscaped areas, snow and ice management, street sweeping, prohibition of illicit discharges, and spill prevention and response.

Standard 10: Prohibition of Illicit Discharges

All illicit discharges to the stormwater management system are prohibited.

Illicit Discharge Statement

The project's stormwater management system, as shown on the plans submitted with this report, have been designed in full compliance with Standard 10. The project area does not have any known illicit connections. Any illicit connections to the stormwater management system found in the project limit of work during construction will be removed and/or resolved through MassDOT's Illicit Discharge Detention and Elimination (IDDE) Program.

Attachments: Appendix A - Stormwater Checklist

Appendix B - Soils and FEMA Information Appendix C - Supporting Calculations

Appendix D - Hydraulic and Hydrologic Data

Appendix E - O&M Plan and LTPPP

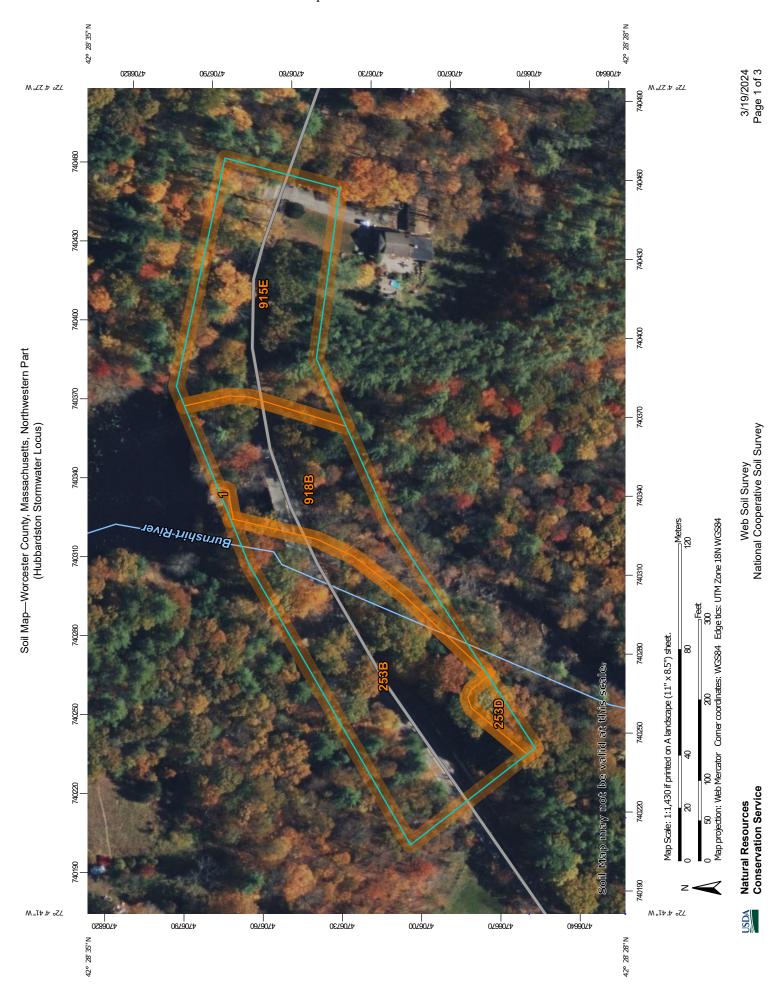
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SOILS AND FEMA INFORMATION

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Appendix B: Soils and FEMA Information

- > NRCS Soil Survey Information
- > FEMA Flood Insurance Rate Map (FIRM)



National Cooperative Soil Survey Web Soil Survey

Conservation Service Natural Resources

Soil Map—Worcester County, Massachusetts, Northwestern Part (Hubbardston Stormwater Locus)

The soil surveys that comprise your AOI were mapped at MAP INFORMATION Spoil Area W

1:25,000.

contrasting soils that could have been shown at a more detailed misunderstanding of the detail of mapping and accuracy of soil Enlargement of maps beyond the scale of mapping can cause line placement. The maps do not show the small areas of

Please rely on the bar scale on each map sheet for map measurements.

Web Soil Survey URL:

distance and area. A projection that preserves area, such as the Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required. This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Northwestern Part

1:50,000 or larger.

Date(s) aerial images were photographed: Oct 15, 2020—Oct

compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

MAP LEGEND

Special Line Features Very Stony Spot Stony Spot Wet Spot Other 8 Soil Map Unit Polygons Area of Interest (AOI) Soil Map Unit Points Soil Map Unit Lines Area of Interest (AOI)

Soils















Local Roads









Miscellaneous Water Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Sinkhole

Slide or Slip A

Sodic Spot

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp Mine or Quarry

Severely Eroded Spot

Warning: Soil Map may not be valid at this scale.

Source of Map: Natural Resources Conservation Service

Coordinate System: Web Mercator (EPSG:3857)

Worcester County, Massachusetts, Soil Survey Area:

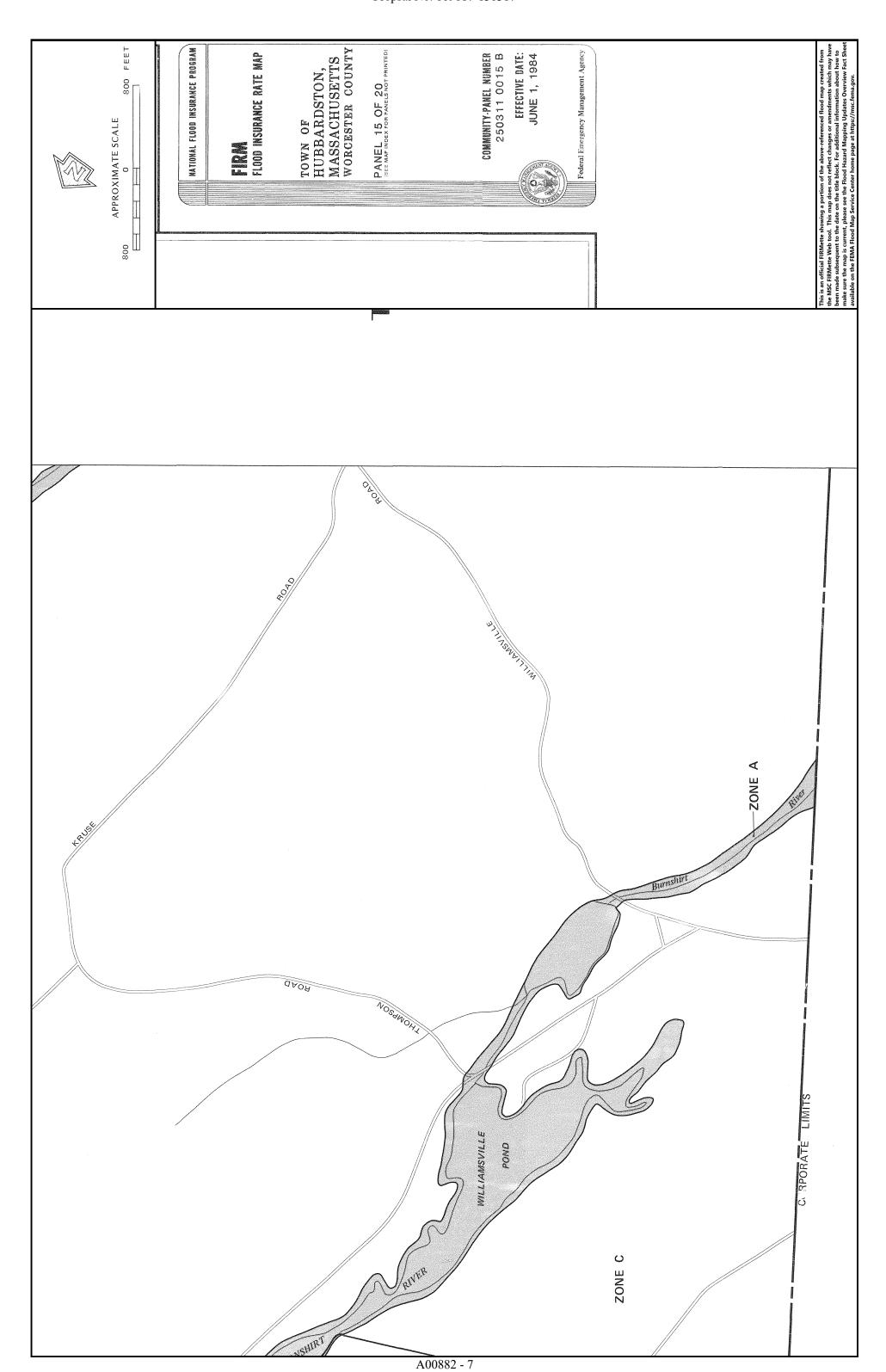
Survey Area Data: Version 17, Sep 13, 2023

Soil map units are labeled (as space allows) for map scales

The orthophoto or other base map on which the soil lines were

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI	
1	Water	0.0	0.2%	
253B	Hinckley loamy sand, 3 to 8 percent slopes	1.4	41.2%	
253D	Hinckley loamy sand, 15 to 25 percent slopes	0.1	2.0%	
915E	Montauk-Canton association, 15 to 35 percent slopes, extremely stony	1.1	31.8%	
918B	Ridgebury-Whitman association, 0 to 8 percent slopes, extremely stony	0.8	24.8%	
Totals for Area of Interest		3.4	100.0%	



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SUPPORTING CALCULATIONS

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Appendix C: Supporting Calculations

- > Groundwater recharge calculations
- > Water quality calculations
- > MassDEP TSS Removal Calculation Worksheets for SCM treatment trains

Version 1, Automated: Mar. 4, 2008

INSTRUCTIONS:

- 1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
- Select BMP from Drop Down Menu
 After BMP is selected, TSS Removal and other Columns are automatically completed.

		t C*D) Load (D-E)	0.75	0.75	0.75	0.75	0.75	Separate Form Needs to be Completed for Each Outlet or BMP Train		*Equals remaining load from previous BMP (E) which enters the BMP
	ш	Amount Removed (C*D)	0.25	0.00	0.00	0.00	0.00	25%		*Equals remaining loa which enters the BMP
	٥	Starting TSS Load*	1.00	0.75	0.75	0.75	0.75	Total TSS Removal =		
Hubbardston, MA	O	TSS Removal Rate ¹	0.25	0.00	0.00	0.00	0.00	Total T	Project: Hubbardston, MA	d By: NHC Date: 4/12/2024
Location: Hubbardston	<u>.</u>	BMP ¹	Deep Sump and Hooded Catch Basin						Project:	Prepared By: Date:
			1994		Mem W no	TSS itsilu:	OlsO			

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed 1. From MassDEP Stormwater Handbook Vol. 1

Proposal No. 609187-130387

Water Quality and Recharge Calcs

Required Recharge Volumes			
Design Point	RV for New IA	RV for Existing	Total RV (cf)
	(cf)	IA (cf)	
DP-1	1111	987	2098

Required Water Qulaity Volumes			
Design Doint	WQV for New	WQV for	
Design Point	IA (cf)	Existing IA (cf)	Total WQV (cf)
DP-1	1435	1241	2677

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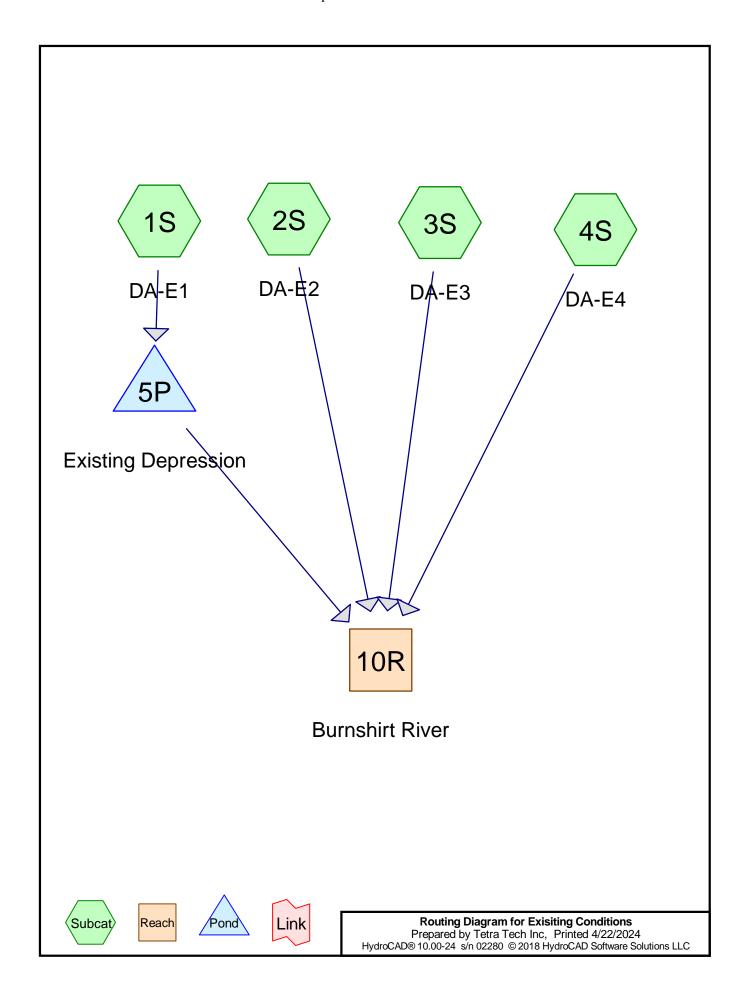
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HYDRAULIC AND HYDROLOGIC DATA

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Appendix D: Hydraulic and Hydrologic Data

- Node diagrams
- Modeling inputs
- Modeling results



Exisiting Conditions

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Page 2

Area Listing (all nodes)

Area	CN	Description
(acres)		(subcatchment-numbers)
0.250	39	>75% Grass cover, Good, HSG A (1S, 2S)
0.145	74	>75% Grass cover, Good, HSG C (3S, 4S)
0.073	80	>75% Grass cover, Good, HSG D (2S, 4S)
0.062	76	Gravel roads, HSG A (2S)
0.370	98	Paved roadways, HSG A (1S, 2S)
0.193	98	Paved roadways, HSG C (3S)
0.121	98	Paved roadways, HSG D (2S)
0.376	30	Woods, Good, HSG A (1S, 2S)
0.017	70	Woods, Good, HSG C (3S)
0.097	77	Woods, Good, HSG D (2S, 4S)

Exisiting Conditions
Prepared by Tetra Tech Inc
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Page 3

Soil Listing (all nodes)

Area	Soil	Subcatchment
(acres)	Group	Numbers
1.058	HSG A	1S, 2S
0.000	HSG B	
0.355	HSG C	3S, 4S
0.291	HSG D	2S, 4S
0.000	Other	

Type III 24-hr 2 YR Rainfall=3.04"

Prepared by Tetra Tech Inc

Printed 4/22/2024

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Page 4

Summary for Subcatchment 1S: DA-E1

Runoff = 0.09 cfs @ 12.14 hrs, Volume= 0.010 af, Depth> 0.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2 YR Rainfall=3.04"

Α	rea (sf)	CN	Description						
*	6,123	98	Paved road	lways, HSG	S A				
	6,271	39	>75% Gras	>75% Grass cover, Good, HSG A					
	2,973	30	Woods, Go	Woods, Good, HSG A					
	15,367	61	Weighted Average						
	9,244		60.15% Per	rvious Area					
	6,123		39.85% Imp	pervious Ar	ea				
Tc	Length	Slope	e Velocity	Capacity	Description				
(min)	(feet)	(ft/ft	:) (ft/sec)	(cfs)					
6.0		Direct Entry							

Summary for Subcatchment 2S: DA-E2

Runoff = 0.42 cfs @ 12.12 hrs, Volume= 0.036 af, Depth> 0.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2 YR Rainfall=3.04"

	Area (sf)	CN	Description	Description					
*	10,002	98	Paved road	lways, HSG	G A				
*	5,260	98	Paved road	lways, HSG	G D				
	2,691	76	Gravel road	ds, HSG A					
	4,606	39	>75% Gras	s cover, Go	ood, HSG A				
	1,151	80	>75% Gras	>75% Grass cover, Good, HSG D					
	13,401	30	Woods, Go	Woods, Good, HSG A					
	3,395	77	Woods, Go	Woods, Good, HSG D					
	40,506	65	Weighted A	verage					
	25,244		62.32% Pei	rvious Area	A				
	15,262		37.68% lmp	pervious Ar	rea				
	Tc Length	n Slop	e Velocity	Capacity	Description				
(mi	in) (feet)) (ft/	ft) (ft/sec)	(cfs)					
6	6.0				Direct Entry,				

Summary for Subcatchment 3S: DA-E3

Runoff = 0.79 cfs @ 12.00 hrs, Volume= 0.046 af, Depth> 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2 YR Rainfall=3.04"

Type III 24-hr 2 YR Rainfall=3.04"

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Page 5

	Area (sf)	CN	Description
*	8,408	98	Paved roadways, HSG C
	4,202	74	>75% Grass cover, Good, HSG C
	738	70	Woods, Good, HSG C
13,348 89 Weighted Av			Weighted Average
	4,940		37.01% Pervious Area
	8,408		62.99% Impervious Area

Summary for Subcatchment 4S: DA-E4

Runoff = 0.14 cfs @ 12.10 hrs, Volume= 0.010 af, Depth> 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2 YR Rainfall=3.04"

A	rea (sf)	CN	Description					
	2,100	74	>75% Gras	s cover, Go	ood, HSG C			
	2,009	80	>75% Gras	s cover, Go	ood, HSG D			
	850	77	Woods, Go	od, HSG D				
	4,959	77	Weighted Average					
	4,959		100.00% Pervious Area					
Tc	Length	Slop	e Velocity	Capacity	Description			
(min)	(feet)	(ft/f	,	(cfs)	Doddiption			
6.0		,	· · · ·	,	Direct Entry,			

Summary for Reach 10R: Burnshirt River

Inflow Area = 1.703 ac, 40.16% Impervious, Inflow Depth > 0.65" for 2 YR event

Inflow = 1.04 cfs @ 12.03 hrs, Volume= 0.092 af

Outflow = 1.04 cfs @ 12.03 hrs, Volume= 0.092 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 5P: Existing Depression

Inflow Area = 0.353 ac, 39.85% Impervious, Inflow Depth > 0.33" for 2 YR event

Inflow = 0.09 cfs @ 12.14 hrs, Volume= 0.010 af

Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 782.20' @ 20.00 hrs Surf.Area= 1,166 sf Storage= 423 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Type III 24-hr 2 YR Rainfall=3.04"

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Page 6

Volume	Inv	ert Ava	il.Storage	Storage	Description	
#1	781.	50'	8,355 cf	Custom	Stage Data (Pri	ismatic) Listed below (Recalc)
Elevation	n	Surf.Area	Inc	c.Store	Cum.Store	
(fee	et)	(sq-ft)	(cubi	c-feet)	(cubic-feet)	
781.5	50	0		0	0	
782.0	00	885		221	221	
783.0	00	2,319		1,602	1,823	
784.0	00	3,186		2,753	4,576	
785.0	00	4,373		3,780	8,355	
Device	Routing	In	vert Out	let Device	es	
#1	Primary	782	2.94' 18.0	" Round	l Culvert	
	_		L= 7	72.0' RC	P, end-section of	onforming to fill, Ke= 0.500
			Inle	t / Outlet I	Invert= 782.94' /	778.77' S= 0.0579 '/' Cc= 0.900

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=781.50' (Free Discharge)
—1=Culvert (Controls 0.00 cfs)

n= 0.013, Flow Area= 1.77 sf

Type III 24-hr 10 YR Rainfall=4.64"

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Page 7

Summary for Subcatchment 1S: DA-E1

Runoff = 0.42 cfs @ 12.11 hrs, Volume= 0.031 af, Depth> 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 10 YR Rainfall=4.64"

Α	rea (sf)	CN	Description						
*	6,123	98	Paved road	lways, HSG	i A				
	6,271	39	>75% Gras	>75% Grass cover, Good, HSG A					
	2,973	30	Woods, Go	Noods, Good, HSG A					
	15,367	61	Weighted Average						
	9,244		60.15% Per	rvious Area					
	6,123		39.85% Imp	pervious Ar	ea				
Tc	Length	Slope	e Velocity	Capacity	Description				
(min)	(feet)	(ft/ft	:) (ft/sec)	(cfs)					
6.0			Direct Entry.						

Summary for Subcatchment 2S: DA-E2

Runoff = 1.43 cfs @ 12.10 hrs, Volume= 0.100 af, Depth> 1.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 10 YR Rainfall=4.64"

	Area (sf)	CN	Description				
*	10,002	98	Paved road	lways, HSG	G A		
*	5,260	98	Paved road	lways, HSG	G D		
	2,691	76	Gravel road	ds, HSG A			
	4,606	39	>75% Gras	s cover, Go	ood, HSG A		
	1,151	80	>75% Gras	s cover, Go	ood, HSG D		
	13,401	30	Woods, Go	od, HSG A			
	3,395	77	Woods, Go	od, HSG D)		
	40,506	65	Weighted A	verage			
	25,244		62.32% Pei	rvious Area	a		
	15,262		37.68% lmp	pervious Ar	rea		
	Tc Length	Slop		Capacity	· · · · · · · · · · · · · · · · · · ·		
(m		(ft/	t) (ft/sec)	(cfs)			
6	6.0				Direct Entry,		

Summary for Subcatchment 3S: DA-E3

Runoff = 1.38 cfs @ 12.00 hrs, Volume= 0.083 af, Depth> 3.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 10 YR Rainfall=4.64"

Type III 24-hr 10 YR Rainfall=4.64"

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Page 8

	Area (sf)	CN	Description		
*	8,408	98	Paved roadways, HSG C		
	4,202	74	>75% Grass cover, Good, HSG C		
	738	70	Noods, Good, HSG C		
	13,348	89	Weighted Average		
	4,940		37.01% Pervious Area		
	8,408		62.99% Impervious Area		

Summary for Subcatchment 4S: DA-E4

Runoff 0.30 cfs @ 12.09 hrs, Volume= 0.020 af, Depth> 2.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 10 YR Rainfall=4.64"

A	rea (sf)	CN	Description						
	2,100	74	>75% Grass cover, Good, HSG C						
	2,009	80	>75% Gras	s cover, Go	od, HSG D				
	850	77	Woods, Go	od, HSG D					
	4,959 4,959	77	Weighted Average 100.00% Pervious Area						
Tc (min)	Length (feet)	Slop (ft/ft	•	Capacity (cfs)	Description				
6.0					Direct Entry,				

Direct Entry,

Summary for Reach 10R: Burnshirt River

1.703 ac, 40.16% Impervious, Inflow Depth > 1.43" for 10 YR event Inflow Area =

2.53 cfs @ 12.06 hrs, Volume= Inflow 0.203 af

2.53 cfs @ 12.06 hrs, Volume= Outflow 0.203 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 5P: Existing Depression

Inflow Area = 0.353 ac, 39.85% Impervious, Inflow Depth > 1.04" for 10 YR event

Inflow = 0.42 cfs @ 12.11 hrs, Volume= 0.031 af

5.00 hrs, Volume= 0.00 cfs @ 0.000 af, Atten= 100%, Lag= 0.0 min Outflow

0.00 cfs @ 5.00 hrs, Volume= Primary 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 782.77' @ 20.00 hrs Surf.Area= 1,995 sf Storage= 1,336 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Type III 24-hr 10 YR Rainfall=4.64"

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Page 9

Volume	ln۱	vert Ava	il.Storage	Storage D	Description		
#1	781	.50'	8,355 cf	Custom S	Stage Data (Pr	ismatic) Listed below (Recalc)	
Elevatio	• • •	Surf.Area (sq-ft)		c.Store ic-feet)	Cum.Store (cubic-feet)		
781.5	50	0		0	0		
782.0	00	885		221	221		
783.0	00	2,319		1,602	1,823		
784.0	00	3,186		2,753	4,576		
785.0	00	4,373		3,780	8,355		
Device	Routing	ı İr	nvert Out	tlet Devices			
#1	Primary	, 782	2.94' 18. 0	0" Round C	Culvert		
		L= 72.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 782.94' / 778.77' S= 0.0579 '/' Cc= 0.900					

n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=781.50' (Free Discharge) —1=Culvert (Controls 0.00 cfs)

Type III 24-hr 100 YR Rainfall=7.17"

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Page 10

Summary for Subcatchment 1S: DA-E1

Runoff = 1.12 cfs @ 12.10 hrs, Volume= 0.076 af, Depth> 2.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 100 YR Rainfall=7.17"

Д	rea (sf)	CN	Description							
*	6,123	98	Paved road	Paved roadways, HSG A						
	6,271	39	>75% Gras	s cover, Go	ood, HSG A					
	2,973	30	Woods, Go	od, HSG A						
	15,367	61	Weighted A	Weighted Average						
	9,244		60.15% Per	rvious Area						
	6,123		39.85% Imp	pervious Ar	ea					
Tc	Length	Slop	e Velocity	Capacity	Description					
_	_		,		Description					
(min)	(feet)	(ft/f	t) (ft/sec)	(cfs)						
6.0					Direct Entry.					

Summary for Subcatchment 2S: DA-E2

Runoff = 3.43 cfs @ 12.10 hrs, Volume= 0.232 af, Depth> 2.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 100 YR Rainfall=7.17"

	Area (sf)	CN	Description				
*	10,002	98	Paved road	lways, HSG	G A		
*	5,260	98	Paved road	lways, HSG	G D		
	2,691	76	Gravel road	ds, HSG A			
	4,606	39	>75% Gras	s cover, Go	ood, HSG A		
	1,151	80	>75% Gras	s cover, Go	ood, HSG D		
	13,401	30	Woods, Go	od, HSG A			
	3,395	77	Woods, Go	od, HSG D)		
	40,506	65	Weighted A	verage			
	25,244		62.32% Pei	rvious Area	a		
	15,262		37.68% lmp	pervious Ar	rea		
	Tc Length	Slop		Capacity	· · · · · · · · · · · · · · · · · · ·		
(m		(ft/	t) (ft/sec)	(cfs)			
6	6.0				Direct Entry,		

Summary for Subcatchment 3S: DA-E3

Runoff = 2.29 cfs @ 12.00 hrs, Volume= 0.142 af, Depth> 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 100 YR Rainfall=7.17"

Type III 24-hr 100 YR Rainfall=7.17"

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Page 11

	Area (sf)	CN	Description		
*	8,408	98	Paved roadways, HSG C		
	4,202	74	>75% Grass cover, Good, HSG C		
	738	70	Woods, Good, HSG C		
· ·	13,348	89	Weighted Average		
	4,940		37.01% Pervious Area		
	8,408		62.99% Impervious Area		

Summary for Subcatchment 4S: DA-E4

Runoff = 0.59 cfs @ 12.09 hrs, Volume= 0.040 af, Depth> 4.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 100 YR Rainfall=7.17"

A	rea (sf)	CN	Description				
	2,100	74	>75% Gras	s cover, Go	ood, HSG C		
	2,009	80	>75% Gras	s cover, Go	ood, HSG D		
	850	77	Woods, Go	od, HSG D			
	4,959	77	Weighted Average				
	4,959		100.00% Pe	ervious Are	a		
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description		
6.0	,	`	, ,	,	Direct Entry,		

Direct Linkly,

Summary for Reach 10R: Burnshirt River

Inflow Area = 1.703 ac, 40.16% Impervious, Inflow Depth > 3.16" for 100 YR event

Inflow = 5.32 cfs @ 12.06 hrs, Volume= 0.448 af

Outflow = 5.32 cfs @ 12.06 hrs, Volume= 0.448 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 5P: Existing Depression

Inflow Area = 0.353 ac, 39.85% Impervious, Inflow Depth > 2.60" for 100 YR event

Inflow = 1.12 cfs @ 12.10 hrs, Volume= 0.076 af

Outflow = 0.10 cfs @ 13.68 hrs, Volume= 0.034 af, Atten= 91%, Lag= 95.2 min

Primary = 0.10 cfs @ 13.68 hrs, Volume= 0.034 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 783.07' @ 13.68 hrs Surf.Area= 2,383 sf Storage= 1,997 cf

Plug-Flow detention time= 213.9 min calculated for 0.034 af (45% of inflow)

Center-of-Mass det. time= 124.6 min (933.8 - 809.1)

Type III 24-hr 100 YR Rainfall=7.17"

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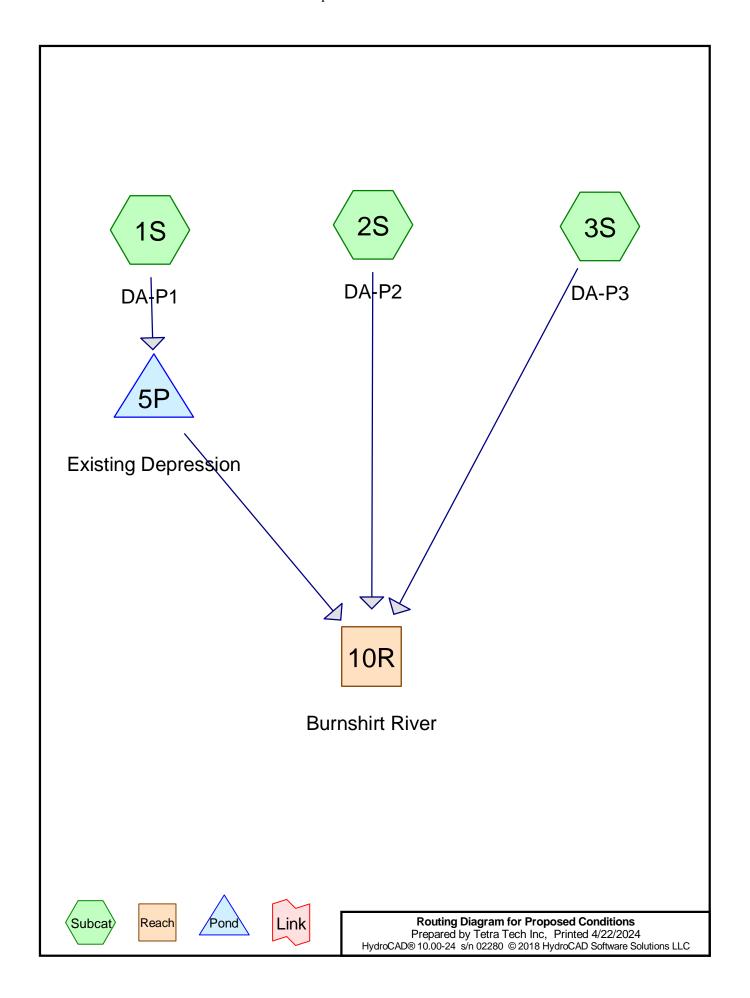
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Page 12

Volume	Inv	vert Ava	il.Storage	Storage	Description	
#1	781.	.50'	8,355 cf	Custom	Stage Data (Pri	ismatic) Listed below (Recalc)
Elevatio		Surf.Area (sq-ft)		c.Store ic-feet)	Cum.Store (cubic-feet)	
781.5		0	(00.10	0	0	
782.0	_	885		221	221	
783.0	00	2,319		1,602	1,823	
784.0	00	3,186		2,753	4,576	
785.0	00	4,373		3,780	8,355	
Device	Routing	ı Ir	vert Out	let Device	es	
#1	Primary	782	2.94' 18. 0)" Round	Culvert	
	•					conforming to fill, Ke= 0.500
			Inle	t / Outlet I	nvert= 782.94' /	778.77' S= 0.0579 '/' Cc= 0.900

n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=0.10 cfs @ 13.68 hrs HW=783.07' (Free Discharge) —1=Culvert (Inlet Controls 0.10 cfs @ 1.25 fps)



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Page 2

Area Listing (all nodes)

Area	CN	Description
(acres)		(subcatchment-numbers)
0.250	39	>75% Grass cover, Good, HSG A (1S, 2S)
0.098	74	>75% Grass cover, Good, HSG C (3S)
0.076	80	>75% Grass cover, Good, HSG D (2S, 3S)
0.054	76	Gravel roads, HSG A (2S)
0.378	98	Paved roadways, HSG A (1S, 2S)
0.253	98	Paved roadways, HSG C (2S, 3S)
0.159	98	Paved roadways, HSG D (3S)
0.376	30	Woods, Good, HSG A (1S, 2S)
0.004	70	Woods, Good, HSG C (3S)
0.055	77	Woods, Good, HSG D (2S)

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Page 3

Soil Listing (all nodes)

Area	Soil	Subcatchment
(acres)	Group	Numbers
1.058	HSG A	1S, 2S
0.000	HSG B	
0.355	HSG C	2S, 3S
0.291	HSG D	2S, 3S
0.000	Other	

Type III 24-hr 2 YR Rainfall=3.04"

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Page 4

Summary for Subcatchment 1S: DA-P1

Runoff = 0.09 cfs @ 12.14 hrs, Volume= 0.010 af, Depth> 0.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2 YR Rainfall=3.04"

	Area (sf)	CN	Description						
*	6,123	98	Paved road	ways, HSG	G A				
	6,271	39	>75% Gras	s cover, Go	Good, HSG A				
	2,973	30	Woods, Go	od, HSG A	P				
	15,367	61	Weighted A	Weighted Average					
	9,244		60.15% Per	60.15% Pervious Area					
	6,123		39.85% Imp	pervious Ar	rea				
_		01			B				
To	- 3	Slop	•	Capacity	·				
(min)	(feet)	(ft/f	t) (ft/sec)	(cfs)					
6.0)				Direct Entry,				

Summary for Subcatchment 2S: DA-P2

Runoff = 0.24 cfs @ 12.13 hrs, Volume= 0.025 af, Depth> 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2 YR Rainfall=3.04"

	Area (sf)	CN	Description			
*	10,346	98	Paved road	lways, HSG	S A	
*	1,855	98	Paved road	lways, HSG	S C	
	2,361	76	Gravel road	ds, HSG A		
	4,606	39	>75% Gras	s cover, Go	ood, HSG A	
	670	80	>75% Gras	s cover, Go	ood, HSG D	
	13,412	30	Woods, Go	od, HSG A		
	2,394	77	Woods, Go	od, HSG D		
	35,644	62	Weighted A	verage		
	23,443		65.77% Per	rvious Area	l	
	12,201 34.23% Impervious Area					
	Tc Lenath	Slor	e Velocity	Capacity	Description	
	- 3	Slop (ft/		(cfs)	Description	
(mi		(11/	i) (it/sec)	(015)		
6	5.0				Direct Entry,	

Summary for Subcatchment 3S: DA-P3

Runoff = 1.49 cfs @ 12.00 hrs, Volume= 0.088 af, Depth> 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2 YR Rainfall=3.04"

Type III 24-hr 2 YR Rainfall=3.04"

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Page 5

	Area (sf)	CN	Description		
*	9,148	98	Paved roadways, HSG C		
*	6,945	98	Paved roadways, HSG D		
	4,278	74	>75% Grass cover, Good, HSG C		
	2,651	80	>75% Grass cover, Good, HSG D		
	165	70	Woods, Good, HSG C		
23,187 91 Weighted Average		Weighted Average			
	7,094	•			
	16,093		69.41% Impervious Area		

Summary for Reach 10R: Burnshirt River

Inflow Area = 1.703 ac, 46.39% Impervious, Inflow Depth > 0.79" for 2 YR event

Inflow = 1.54 cfs @ 12.01 hrs, Volume= 0.113 af

Outflow = 1.54 cfs @ 12.01 hrs, Volume= 0.113 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 5P: Existing Depression

Inflow Area = 0.353 ac, 39.85% Impervious, Inflow Depth > 0.33" for 2 YR event

Inflow = 0.09 cfs @ 12.14 hrs, Volume= 0.010 af

Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 782.20' @ 20.00 hrs Surf.Area= 1,166 sf Storage= 423 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Inver	rt Avail.Sto	orage Storage	e Description	
#1	781.50)' 8,3	55 cf Custon	n Stage Data (Pri	ismatic) Listed below (Recalc)
Elevation (feet)		Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
781.50)	0	0	0	
782.00)	885	221	221	
783.00)	2,319	1,602	1,823	
784.00)	3,186	2,753	4,576	
785.00)	4,373	3,780	8,355	
Device	Routing	Invert	Outlet Devic	es	

#1 Primary 782.94' **18.0" Round Culvert**

L= 72.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 782.94' / 778.77' S= 0.0579 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=781.50' (Free Discharge)
—1=Culvert (Controls 0.00 cfs)

Type III 24-hr 10 YR Rainfall=4.64"

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Page 6

Summary for Subcatchment 1S: DA-P1

Runoff = 0.42 cfs @ 12.11 hrs, Volume= 0.031 af, Depth> 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 10 YR Rainfall=4.64"

	A	rea (sf)	CN	Description							
,	*	6,123	98	Paved road	Paved roadways, HSG A						
		6,271	39	>75% Gras	>75% Grass cover, Good, HSG A						
		2,973	30	Woods, Go	Woods, Good, HSG A						
		15,367	61	Weighted Average							
		9,244		60.15% Per	rvious Area						
		6,123		39.85% Impervious Area							
	То	Longth	Clan	o Volocity	Conneity	Description					
	Tc	- 3	Slop	,	Capacity	Description					
_	(min)	(feet)	(ft/f	t) (ft/sec)	(cfs)						
	6.0					Direct Entry,					

Summary for Subcatchment 2S: DA-P2

Runoff = 1.04 cfs @ 12.10 hrs, Volume= 0.075 af, Depth> 1.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 10 YR Rainfall=4.64"

	Area (sf)	CN	Description			
*	10,346	98	Paved road	lways, HSG	S A	
*	1,855	98	Paved road	lways, HSG	S C	
	2,361	76	Gravel road	ds, HSG A		
	4,606	39	>75% Gras	s cover, Go	ood, HSG A	
	670	80	>75% Gras	s cover, Go	ood, HSG D	
	13,412	30	Woods, Go	od, HSG A		
	2,394	77	Woods, Go	od, HSG D		
	35,644	62	Weighted A	verage		
	23,443		65.77% Per	rvious Area	l	
	12,201 34.23% Impervious Area					
	Tc Lenath	Slor	e Velocity	Capacity	Description	
	- 3	Slop (ft/		(cfs)	Description	
(mi		(11/	i) (it/sec)	(015)		
6	5.0				Direct Entry,	

Summary for Subcatchment 3S: DA-P3

Runoff = 2.50 cfs @ 12.00 hrs, Volume= 0.153 af, Depth> 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 10 YR Rainfall=4.64"

Type III 24-hr 10 YR Rainfall=4.64"

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Page 7

	Area (sf)	CN	Description		
*	9,148	98	Paved roadways, HSG C		
*	6,945	98	Paved roadways, HSG D		
	4,278	74	>75% Grass cover, Good, HSG C		
	2,651	80	>75% Grass cover, Good, HSG D		
	165	70	Woods, Good, HSG C		
	23,187	91	Weighted Average		
	7,094		30.59% Pervious Area		
	16,093		69.41% Impervious Area		

Summary for Reach 10R: Burnshirt River

Inflow Area = 1.703 ac, 46.39% Impervious, Inflow Depth > 1.60" for 10 YR event

Inflow = 3.04 cfs @ 12.01 hrs, Volume= 0.228 af

Outflow = 3.04 cfs @ 12.01 hrs, Volume= 0.228 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 5P: Existing Depression

Inflow Area = 0.353 ac, 39.85% Impervious, Inflow Depth > 1.04" for 10 YR event

Inflow = 0.42 cfs @ 12.11 hrs, Volume= 0.031 af

Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 782.77' @ 20.00 hrs Surf.Area= 1,995 sf Storage= 1,336 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert A	vail.Storage	e Storage	Description	
#1	781.50'	8,355 c	f Custom	Stage Data (Pri	smatic) Listed below (Recalc)
Elevation	Surf.Are	ea I	nc.Store	Cum.Store	
(feet)	(sq-		bic-feet)	(cubic-feet)	
781.50		0	0	0	
782.00	88	35	221	221	
783.00	2,31	19	1,602	1,823	
784.00	3,18	36	2,753	4,576	
785.00	4,37	73	3,780	8,355	
Device Ro	outina	Invert O	utlet Device	S	

#1 Primary 782.94' **18.0" Round Culvert**

L= 72.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 782.94' / 778.77' S= 0.0579 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=781.50' (Free Discharge) 1=Culvert (Controls 0.00 cfs)

Type III 24-hr 100 YR Rainfall=7.17"

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Page 8

Summary for Subcatchment 1S: DA-P1

Runoff = 1.12 cfs @ 12.10 hrs, Volume= 0.076 af, Depth> 2.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 100 YR Rainfall=7.17"

	Ar	ea (sf)	CN	Description	Description					
*		6,123	98	Paved roa	dways, HSG	S A				
		6,271	39	>75% Gras	ss cover, Go	ood, HSG A				
		2,973	30	Woods, Go	ood, HSG A					
		15,367	61	Weighted Average						
		9,244		60.15% Pe	60.15% Pervious Area					
		6,123		39.85% Impervious Area						
	Tc	Length	Slop	•		Description				
(m	in)	(feet)	(ft/f	t) (ft/sec)	(cfs)					
(6.0					Direct Entry,				

Summary for Subcatchment 2S: DA-P2

Runoff = 2.71 cfs @ 12.10 hrs, Volume= 0.184 af, Depth> 2.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 100 YR Rainfall=7.17"

	Area (sf)	CN	Description		
*	10,346	98	Paved road	ways, HSG	G A
*	1,855	98	Paved road	ways, HSG	G C
	2,361	76	Gravel road	ls, HSG A	
	4,606	39	>75% Grass	s cover, Go	ood, HSG A
	670	80	>75% Grass	s cover, Go	ood, HSG D
	13,412	30	Woods, Go	od, HSG A	L
	2,394	77	Woods, Go	od, HSG D	
	35,644	62	Weighted A	verage	
	23,443		65.77% Per	vious Area	A
12,201 34.23% Impervious Area					
•	Tc Length	Slop	e Velocity	Capacity	Description
(mi	in) (feet)	(ft/	ft) (ft/sec)	(cfs)	
6	6.0				Direct Entry,

Summary for Subcatchment 3S: DA-P3

Runoff = 4.08 cfs @ 12.00 hrs, Volume= 0.256 af, Depth> 5.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 100 YR Rainfall=7.17"

Type III 24-hr 100 YR Rainfall=7.17"

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Page 9

	Area (sf)	CN	Description		
*	9,148	98	Paved roadways, HSG C		
*	6,945	98	Paved roadways, HSG D		
	4,278	74	>75% Grass cover, Good, HSG C		
	2,651	80	>75% Grass cover, Good, HSG D		
	165	70	Woods, Good, HSG C		
	23,187	91	Weighted Average		
	7,094		30.59% Pervious Area		
	16,093		69.41% Impervious Area		

Summary for Reach 10R: Burnshirt River

Inflow Area = 1.703 ac, 46.39% Impervious, Inflow Depth > 3.34" for 100 YR event

Inflow = 5.74 cfs @ 12.02 hrs, Volume= 0.474 af

Outflow = 5.74 cfs @ 12.02 hrs, Volume= 0.474 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 5P: Existing Depression

Inflow Area = 0.353 ac, 39.85% Impervious, Inflow Depth > 2.60" for 100 YR event

Inflow = 1.12 cfs @ 12.10 hrs, Volume= 0.076 af

Outflow = 0.10 cfs @ 13.68 hrs, Volume= 0.034 af, Atten= 91%, Lag= 95.2 min

Primary = 0.10 cfs @ 13.68 hrs, Volume= 0.034 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 783.07' @ 13.68 hrs Surf.Area= 2,383 sf Storage= 1,997 cf

Plug-Flow detention time= 213.9 min calculated for 0.034 af (45% of inflow)

Center-of-Mass det. time= 124.6 min (933.8 - 809.1)

Volume	Invert	Avail.Sto	rage Storag	ge Description	
#1	781.50'	8,3	55 cf Custo	m Stage Data (Pr	ismatic) Listed below (Recalc)
Elevation (feet)		.Area sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
781.50		0	0	0	
782.00		885	221	221	
783.00	2	2,319	1,602	1,823	
784.00	;	3,186	2,753	4,576	
785.00	•	4,373	3,780	8,355	
Device R	outing	Invert	Outlet Devi	ces	

#1 Primary 782.94' **18.0" Round Culvert**

L= 72.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 782.94' / 778.77' S= 0.0579 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=0.10 cfs @ 13.68 hrs HW=783.07' (Free Discharge)

1=Culvert (Inlet Controls 0.10 cfs @ 1.25 fps)

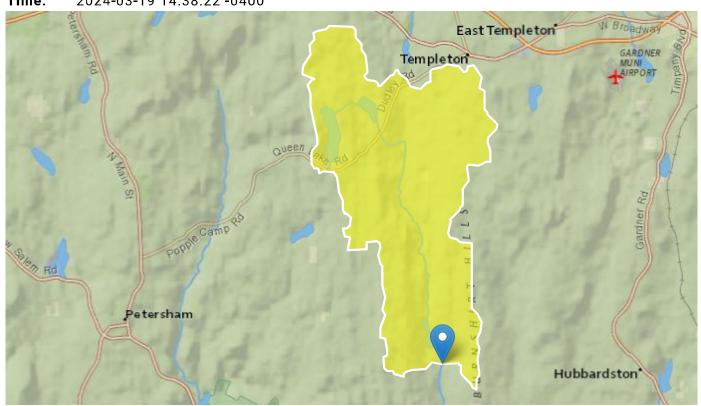
StreamStats Report

Region ID: MA

Workspace ID: MA20240319183758522000

Clicked Point (Latitude, Longitude): 42.47585, -72.07636

Time: 2024-03-19 14:38:22 -0400



Collapse All

> Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLDEM10M	Mean basin slope computed from 10 m DEM	8.294	percent
DRNAREA	Area that drains to a point on a stream	12.5	square miles
ELEV	Mean Basin Elevation	1040	feet
FOREST	Percentage of area covered by forest	77.7	percent
LC06STOR	Percentage of water bodies and wetlands determined from the NLCD 2006	13.5	percent

Parameter Code	Parameter Description	Value	Unit
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	1	dimensionless
PCTSNDGRV	Percentage of land surface underlain by sand and gravel deposits	12.41	percent

> Peak-Flow Statistics

Peak-Flow Statistics Parameters [Peak Statewide 2016 5156]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	12.5	square miles	0.16	512
ELEV	Mean Basin Elevation	1040	feet	80.6	1948
LC06STOR	Percent Storage from NLCD2006	13.5	percent	0	32.3

Peak-Flow Statistics Flow Report [Peak Statewide 2016 5156]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PIL	PIU	ASEp
50-percent AEP flood	349	ft^3/s	175	697	42.3
20-percent AEP flood	585	ft^3/s	289	1190	43.4
10-percent AEP flood	778	ft^3/s	375	1620	44.7
4-percent AEP flood	1060	ft^3/s	492	2280	47.1
2-percent AEP flood	1300	ft^3/s	584	2890	49.4
1-percent AEP flood	1560	ft^3/s	679	3590	51.8
0.5-percent AEP flood	1850	ft^3/s	780	4390	54.1
0.2-percent AEP flood	2260	ft^3/s	908	5630	57.6

Peak-Flow Statistics Citations

Zarriello, P.J.,2017, Magnitude of flood flows at selected annual exceedance probabilities for streams in Massachusetts: U.S. Geological Survey Scientific

> Bankfull Statistics

Bankfull Statistics Parameters [Bankfull Statewide SIR2013 5155]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	12.5	square miles	0.6	329
BSLDEM10M	Mean Basin Slope from 10m DEM	8.294	percent	2.2	23.9

Bankfull Statistics Parameters [Appalachian Highlands D Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	12.5	square miles	0.07722	940.1535

Bankfull Statistics Parameters [New England P Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	12.5	square miles	3.799224	138.999861

Bankfull Statistics Parameters [USA Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	12.5	square miles	0.07722	59927.7393

Bankfull Statistics Flow Report [Bankfull Statewide SIR2013 5155]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	ASEp
Bankfull Width	41.7	ft	21.3
Bankfull Depth	2.01	ft	19.8
Bankfull Area	83.3	ft^2	29
Bankfull Streamflow	280	ft^3/s	55

Bankfull Statistics Flow Report [Appalachian Highlands D Bieger 2015]

Statistic	Value	Unit
Bieger_D_channel_width	43.3	ft
Bieger_D_channel_depth	2.31	ft
Bieger_D_channel_cross_sectional_area	102	ft^2

Bankfull Statistics Flow Report [New England P Bieger 2015]

Statistic	Value	Unit
Bieger_P_channel_width	51.3	ft
Bieger_P_channel_depth	2.4	ft
Bieger_P_channel_cross_sectional_area	126	ft^2

Bankfull Statistics Flow Report [USA Bieger 2015]

Statistic	Value	Unit
Bieger_USA_channel_width	30.1	ft
Bieger_USA_channel_depth	2.06	ft
Bieger_USA_channel_cross_sectional_area	66.8	ft^2

Bankfull Statistics Flow Report [Area-Averaged]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	ASEp
Bankfull Width	41.7	ft	21.3
Bankfull Depth	2.01	ft	19.8
Bankfull Area	83.3	ft^2	29
Bankfull Streamflow	280	ft^3/s	55
Bieger_D_channel_width	43.3	ft	
Bieger_D_channel_depth	2.31	ft	
Bieger_D_channel_cross_sectional_area	102	ft^2	
Bieger_P_channel_width	51.3	ft	
Bieger_P_channel_depth	2.4	ft	
Bieger_P_channel_cross_sectional_area	126	ft^2	

Proposal 609187-130387

Statistic	Value	Unit	ASEp
Bieger_USA_channel_width	30.1	ft	
Bieger_USA_channel_depth	2.06	ft	
Bieger_USA_channel_cross_sectional_area	66.8	ft^2	

Bankfull Statistics Citations

Bent, G.C., and Waite, A.M.,2013, Equations for estimating bankfull channel geometry and discharge for streams in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2013–5155, 62 p., (http://pubs.usgs.gov/sir/2013/5155/) Bieger, Katrin; Rathjens, Hendrik; Allen, Peter M.; and Arnold, Jeffrey G.,2015, Development and Evaluation of Bankfull Hydraulic Geometry Relationships for the Physiographic Regions of the United States, Publications from USDA-ARS / UNL Faculty, 17p. (https://digitalcommons.unl.edu/usdaarsfacpub/1515? utm_source=digitalcommons.unl.edu%2Fusdaarsfacpub%2F1515&utm_medium=PDF&utm_ca

> Probability Statistics

Probability Statistics Parameters [Perennial Flow Probability]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	12.5	square miles	0.01	1.99
PCTSNDGRV	Percent Underlain By Sand And Gravel	12.41	percent	0	100
FOREST	Percent Forest	77.7	percent	0	100
MAREGION	Massachusetts Region	1	dimensionless	0	1

Probability Statistics Disclaimers [Perennial Flow Probability]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Probability Statistics Flow Report [Perennial Flow Probability]

Statistic	Value	Unit
Probability Stream Flowing Perennially	0.988	dim

Probability Statistics Citations

Bent, G.C., and Steeves, P.A.,2006, A revised logistic regression equation and an automated procedure for mapping the probability of a stream flowing perennially in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2006–5031, 107 p. (http://pubs.usgs.gov/sir/2006/5031/pdfs/SIR_2006-5031rev.pdf)

Maximum Probable Flood Statistics

Maximum Probable Flood Statistics Parameters [Crippen Bue Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	12.5	square miles	0.1	10000

Maximum Probable Flood Statistics Flow Report [Crippen Bue Region 1]

Statistic	Value	Unit
Maximum Flood Crippen Bue Regional	21900	ft^3/s

Maximum Probable Flood Statistics Citations

Crippen, J.R. and Bue, Conrad D.1977, Maximum Floodflows in the Conterminous United States, Geological Survey Water-Supply Paper 1887, 52p.

(https://pubs.usgs.gov/wsp/1887/report.pdf)

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Application Version: 4.19.4

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

DOCUMENT A00885

STORMWATER MANAGEMENT SYSTEM OPERATION AND MAINTENANCE (O&M) PLAN

AND

LONG-TERM POLLUTION PREVENTION PLAN (LTPPP)

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Appendix E: O&M Plan and LTPPP

- > Stormwater Management System Operation and Maintenance (O&M) Plan
- > Long-Term Pollution Prevention Plan (LTPPP)

Operation and Maintenance Plan | Long-Term Pollution Prevention Plan

Williamsville Road over Burnshirt River Bridge No. H-24-003

Stormwater Management System
Operation and Maintenance Plan and
Long-Term Pollution Prevention Plan
Hubbardston, MA

PREPARED FOR



10 Park Plaza Boston, MA 02116

PREPARED BY



Tetra Tech, Inc. 100 Nickerson Road Marlborough, MA 01752

04/23/2024

Table of Contents

1	Storr	nwater M	anagement System Operation and Maintenance (O&M) Plan.	1
	1.1	Respon	sible Party	1
	1.2	Inspect	ion and Maintenance Measures and Record-Keeping	1
	1.3	Erosion	and Sediment Control Measures during Maintenance Activities	3
	1.4	O&M B	Budget	3
2	Long	-Term Po	Ilution Prevention Plan	4
	2.1	Practice	es for Long-Term Pollution Prevention	4
		2.1.1	Litter Pick-up	4
		2.1.2	Inspection and Maintenance of Stormwater Assets	4
		2.1.3	Maintenance of Landscaped Areas	4
		2.1.4	Snow and Ice Management	
		2.1.5	Street Sweeping	5
		2.1.6	Prohibition of Illicit Discharges	5

1

Stormwater Management System Operation and Maintenance (O&M) Plan

This Stormwater Management System Operation and Maintenance (O&M) Plan describes the approach for inspection and maintenance of drainage infrastructure and structural stormwater control measures (SCMs) to minimize contaminant loading for Williamsville Road over Burnshirt River in Hubbardston, MA. In general, inspection and maintenance activities will be conducted consistent with the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer System (MS4) and MassDOT's anticipated NPDES Transportation Separate Storm Sewer System (TS4) Permit.

This document has been prepared per the requirements of Massachusetts Department of Environmental Protection (MassDEP) Regulations 310 CMR 10.05 (6)(k)(9) and satisfies the requirements of Massachusetts Stormwater Standard 9.

1.1 Responsible Party

In accordance with MassDOT procedures, the MassDOT District 3 office located in Worcester, MA, is responsible for the maintenance of all stormwater management systems on MassDOT roads within the project area.

Questions or concerns regarding activities associated with this O&M Plan should be addressed to MassDOT's District 3 office located at 499 Plantation Parkway, Worcester, MA 01605, phone (857) 368-3000, during regular weekday hours, or to MassDOT's Highway Operations Center located in South Boston, MA at (800) 227-0608 during all other times and days, including weekends and holidays.

1.2 Inspection and Maintenance Measures and Record-Keeping

See Figure 3 of the Stormwater Management Report for the proposed stormwater system within the project limits. The stormwater management system covered by this O&M Plan consists of the following measures:

- · Deep Sump Catch Basins
- · Rip Rap Outlet Protection

MassDOT uses a performance-based inspection and maintenance program for SCMs and catch basins. For SCMs, MassDOT's overall approach is to inspect SCMs, and based on the results of the inspections, perform maintenance to preserve functionality. For catch basins, MassDOT's overall approach is to perform maintenance at an interval that maintains the functionality of the catch basin (e.g., sump is less than 50% full of sediment). Catch basin inspections, including documentation of sediment accumulation, and maintenance will generally occur simultaneously.

MassDOT's O&M program is data driven. Inspections and maintenance are recorded by personnel using hand-held tablets in the field to document sediment accumulation, maintenance action performed, and follow-up actions needed. Data are recorded in MassDOT's asset management system which is accessible in the field (mobile) or the office (desktop).

The table below summarizes data that is generally collected for each asset type. For all assets, the inspector and inspection date are recorded. Photo documentation of structure condition is taken and attached to the inspection record.

Inspection Form	Applicable Stormwater Assets	Information Collected
Inlets	> Catch basins	> Sediment accumulation
		> Trash/Debris accumulation
		> Signs of contamination
		> Frame and grate condition
		> Overall structure condition
Storm Discharge	> Outlets to SCMs	> Presence of flow
Points		> Signs of contaminated flow
		> Sediment accumulation
		> Level of erosion
		> Pipe condition
		> Scour protection condition
		> Overall structure condition

Inspection and maintenance records can be made available using the asset management system through request with the MassDOT District 3 Environmental Engineer. Records will be kept for at least three years. Representatives of the Hubbardston Conservation Commission(s), MassDEP, and US EPA may obtain access to these records, upon request. Additionally, MassDOT will allow members and agents of MassDEP and the Conservation Commission(s) to enter and inspect the premises, upon request, to evaluate and ensure that the Operation and Maintenance Plan requirements for each SCM are being followed.

Maintenance actions will not occur at any set frequency, but rather will be based on condition and impact to functionality. Maintenance to be performed on the stormwater system includes:

Stormwater Feature	Potential Maintenance Actions	
Inlets and Outlets to SCMs	 Clear inlet and remove and properly dispose of sediment, trash, leaf litter, debris, and vegetation Repair or replace structural components Repair damaged or eroded areas 	 Provide or rehabilitate erosion control at the outlet Regrade and replace the channel materials Remove woody growth Stabilize or reconstruct eroded areas Treat invasive plants according to MassDOT Vegetation Management Plan

Based on the results of the inspection, repairs will be made in accordance with MassDOT standard practices. Maintenance will be prioritized given the urgency of the required maintenance and availability of staff, contracts, etc. Maintenance may require contracting if existing contracts are unavailable to perform the work. More intensive remedial activities may require permitting and/or an engineering solution.

1.3 Erosion and Sediment Control Measures during Maintenance Activities

For maintenance activities that could result in discharges of sediments or other contaminants into wetlands, waterways, or other resource areas regulated under 310 CMR 10.00, the responsible maintenance personnel will employ measures to prevent migration of these sediments/contaminants. Such temporary measures may include, but are not necessarily limited to, the use of siltation barriers, catch basin silt sacks/filter bags, pipe plugs, cofferdams deployed within the stormwater structure, turbidity curtains, or other practices designed to prevent such discharges.

Where maintenance occurs in areas that are confined, with no risk of discharge to adjacent water bodies, no special measures may be needed. Examples include, but are not limited to: (1) cleaning of a forebay under dry conditions when the work can be completed and exposed surfaces stabilized prior to placing it back into service; and (2) catch basin cleaning where the activity is limited to removing material from a sump below the elevation of the outlet pipe.

1.4 O&M Budget

MassDOT performs maintenance for stormwater management systems as part of their routine operation and maintenance budget for roadways and bridges. Budgets are managed at the district level and vary by fiscal year, depending on funding sources.

2

Long-Term Pollution Prevention Plan

This Long-Term Pollution Prevention Plan (LTPPP) describes the approach for pollution prevention and related maintenance activities for Williamsville Road over Burnshirt River in Hubbardston, MA. In general, long-term pollution prevention and related maintenance activities will be conducted consistent with:

- The National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer System (MS4),
- MassDOT's anticipated NPDES Transportation Separate Storm Sewer System (TS4)
 Permit, and
- Measures outlined in MassDOT's Stormwater Management Plan (SWMP).

This LTPPP satisfies the requirements related to pollution prevention under Massachusetts Stormwater Standards 4, 5, 6, and 10.

2.1 Practices for Long-Term Pollution Prevention

For the facilities covered, long-term pollution prevention includes the following measures.

2.1.1 Litter Pick-up

MassDOT will conduct litter pick-up from the stormwater management facilities in conjunction with routine road maintenance activities.

2.1.2 Inspection and Maintenance of Stormwater Assets

MassDOT will conduct inspection and maintenance of drainage infrastructure and the stormwater control measures (SCMs) in accordance with the O&M Plan, as described in Section 1.

2.1.3 Maintenance of Landscaped Areas

Routine mowing will be conducted according to standard MassDOT practices. SCM basin bottoms and embankments designed to impound water should be mowed as required to prevent establishment of woody vegetation.

Except in rare circumstances, MassDOT does not use fertilizers, herbicides, and pesticides for the maintenance of facilities. Exceptions include using fertilizer to ensure the survival of new plantings and herbicides to control invasive plants. Use of fertilizers and herbicides is reviewed and approved by the MassDOT Landscape Design Section and District 3 Environmental Engineer prior to application. Local Conservation Commission review may also be required.

2.1.4 Snow and Ice Management

Snow and Ice Management will be conducted consistent with the practices outlined in the MassDOT Snow and Ice Control Program Environmental Status and Planning Report (ESPR), formerly known as the Snow and Ice Control Generic Environmental Impact Report (GEIR).

In accordance with the Snow and Ice Control ESPR, no sand is used on MassDOT properties for snow and ice control. The exception to this rule is within reduced salt areas where high sodium levels have been found in drinking water sources.

2.1.5 Street Sweeping

Routine highway cleaning, with a brush-type street sweeper, will be conducted in accordance with standard MassDOT practices. Sweeping will occur annually in the Spring.

2.1.6 Prohibition of Illicit Discharges

The MassDEP Stormwater Management Standard 10 prohibits illicit discharges to the stormwater management system. Illicit discharges are discharges that do not consist entirely of stormwater, except for certain specified non-stormwater discharges.

In accordance with the existing MS4 permit and anticipated TS4 permit requirements, examples of discharges from the following sources are not considered illicit discharges:

> Firefighting activities*

> Flows from riparian habitats/wetlands

> Foundation drains

Potable water sources

> Water line flushing

Dechlorinated swimming pool water

> Footing drains

> Street wash waters

> Landscape irrigation

Wash water from residential buildings (no detergents)

> Individual residential car washing

> Condensation from air conditioning units

> Uncontaminated groundwater

> Run-on from private driveways caused by precipitation

> Rising groundwater

> Lawn watering

> Diverted stream flows

> Water from crawl space pumps

*Water from firefighting activities is allowed and need only be addressed where they are identified as significant sources of pollutants to waters of the United States.

Proposal No. 609187-130387

Operation and Maintenance Plan | Long-Term Pollution Prevention Plan Williamsville Road over Burnshirt River, Hubbardston, MA

Based on plan review and confirmation in the field, there are no known or proposed illicit connections associated with the Project. Should an interconnection to the stormwater management system be identified, the MassDOT PM will coordinate with the District Permits Engineer to confirm if the connections are authorized. For unauthorized connections, the MassDOT PM and/or MassDOT Environmental Services Section will investigate the connections and if they are determined to be illicit, the connections will be managed through MassDOT's Illicit Discharge Detection and Elimination (IDDE) program and/or through other agencies.

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DOCUMENT B00420

PROPOSAL

HUBBARDSTON

For: FAP No. STP(BR-OFF)-003S(822)X Bridge Replacement, H-24-003, Williamsville Road over the Burnshirt River

COMMONWEALTH OF MASSACHUSETTS

LOCATION

The work referred to herein is in the Town of HUBBARDSTON in Worcester 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:

Williamsville Road

Beginning – Station 1+00.00 +/-Ending –Station 10+43.65 +/-

The contract prices shall include the furnishing of all materials (except as otherwise herein specified), the performing of all the labor requisite or proper, the providing of all necessary machinery, tools, apparatus and other means of construction, the doing of all the abovementioned work in the manner set forth, described and shown in the specifications and on the drawings for the work, and in the form of contract, and the completion thereof within **730 CALENDAR DAYS** upon receipt of a Notice to Proceed, 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 # 609	187	Contract # 130387		
Location :	HUBBARDSTO	N		
Description :	Bridge Replac	ement, H-24-003, Williamsville Road over the Burnshirt River		
ITEM#	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
101.	0.32	CLEARING AND GRUBBING		
		AT PER ACRE		
102.	0.16	SELECTIVE CLEARING AND THINNING		
		AT PER ACRE		
102.1	535	TREE TRIMMING		
		AT PER FOOT		
102.3	12	HERBICIDE TREATMENT OF INVASIVE PLANTS		
		AT PER HOUR		
102.33	8	INVASIVE PLANT MANAGEMENT STRATEGY		
		AT PER HOUR		
102.511	15	TREE PROTECTION - ARMORING AND PRUNING		
		ATEACH		
102.521	105	TREE AND PLANT PROTECTION FENCE		
		AT PER FOOT		
103.	2	TREE REMOVED - DIAMETER UNDER 24 INCHES		
		ATEACH		
104.	2	TREE REMOVED - DIAMETER 24 INCHES AND OVER		
		ATEACH		

Project # 609	187	Contract # 130387				
Location : HUBBARDSTON						
Description :	Description: Bridge Replacement, H-24-003, Williamsville Road over the Burnshirt River					
ITEM#	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT		
104.1	1	TREE REMOVED DIAMETER 36 INCHES AND OVER				
		AT				
105.45	352	SUPPLEMENTAL BORROW FOR NATIVE MATERIAL				
		AT PER CUBIC YARD				
114.1	1	DEMOLITION OF SUPERSTRUCTURE OF BRIDGE NO. H-24-003				
		AT LUMP SUM				
120.1	2,114	UNCLASSIFIED EXCAVATION				
		AT PER CUBIC YARD				
127.	300	CONCRETE EXCAVATION				
		AT PER CUBIC YARD				
127.1	13	REINFORCED CONCRETE EXCAVATION				
		AT PER CUBIC YARD				
140.	751	BRIDGE EXCAVATION				
		AT PER CUBIC YARD				
141.	11	CLASS A TRENCH EXCAVATION				
		AT PER CUBIC YARD				
141.1	19	TEST PIT FOR EXPLORATION				
		AT PER CUBIC YARD				

Project # 609	187	Contract # 130387				
Location :	Location : HUBBARDSTON					
Description: Bridge Replacement, H-24-003, Williamsville Road over the Burnshirt River						
ITEM#	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT		
142.	258	CLASS B TRENCH EXCAVATION				
		AT PER CUBIC YARD				
143.	352	CHANNEL EXCAVATION				
		AT PER CUBIC YARD				
144.	121	CLASS B ROCK EXCAVATION				
		AT PER CUBIC YARD				
146.	3	DRAINAGE STRUCTURE REMOVED				
		AT				
150.1	405	SPECIAL BORROW				
		AT PER CUBIC YARD				
151.	143	GRAVEL BORROW				
		ATPER CUBIC YARD				
151.2	550	GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES				
		AT PER CUBIC YARD				
156.	1	CRUSHED STONE				
		ATPER TON				
156.2	55	CRUSHED STONE FOR SLOPE TREATMENT				
		AT PER TON				

Project # 609	187	Contract # 130387		
Location :	HUBBARDSTO	N		
Description :	Bridge Replac	ement, H-24-003, Williamsville Road over the Burnshirt River		
ITEM#	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
170.	2,945	FINE GRADING AND COMPACTING - SUBGRADE AREA		
		AT PER SQUARE YARD		
180.01	1	ENVIRONMENTAL HEALTH AND SAFETY PROGRAM		
		AT		
180.02	100	PERSONAL PROTECTION LEVEL C UPGRADE		
		AT PER HOUR		
180.03	100	LICENSED SITE PROFESSIONAL SERVICES		
		AT PER HOUR		
181.11	1,885	DISPOSAL OF UNREGULATED SOIL		
		ATPER TON		
181.12	1,100	DISPOSAL OF REGULATED SOIL - IN-STATE FACILITY		
		ATPER TON		
181.13	785	DISPOSAL OF REGULATED SOIL - OUT-OF-STATE FACILITY		
		AT PER TON		
181.14	32	DISPOSAL OF HAZARDOUS WASTE		
		ATPER TON		
184.1	7	DISPOSAL OF TREATED WOOD PRODUCTS		
		AT PER TON		

Project # 609187 Contract # 130387							
Location :	Location : HUBBARDSTON						
Description :	Bridge Replace	ement, H-24-003, Williamsville Road over the Burnshirt River					
ITEM#	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT			
201.	9	CATCH BASIN					
		ATEACH					
202.	2	MANHOLE					
		ATEACH					
220.	3	DRAINAGE STRUCTURE ADJUSTED					
		AT					
220.3	2	DRAINAGE STRUCTURE CHANGE IN TYPE					
		ATEACH					
222.3	16	FRAME AND GRATE (OR COVER) MUNICIPAL STANDARD					
		AT					
223.2	8	FRAME AND GRATE (OR COVER) REMOVED AND DISCARDED					
		AT					
227.3	13	REMOVAL OF DRAINAGE STRUCTURE SEDIMENT					
		AT PER CUBIC YARD					
227.31	613	REMOVAL OF DRAINAGE PIPE SEDIMENT					
		ATPER FOOT					
227.4	1	MASONRY PLUG					
		AT PER SQUARE FOOT					

Project # 609187 Contract # 130387						
Location :	HUBBARDSTO	N				
Description :	Bridge Replace	ement, H-24-003, Williamsville Road over the Burnshirt River				
ITEM#	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT		
241.12	124	12 INCH REINFORCED CONCRETE PIPE CLASS III				
		AT PER FOOT				
241.18	52	18 INCH REINFORCED CONCRETE PIPE CLASS III				
		AT PER FOOT				
242.12	1	12 INCH REINFORCED CONCRETE PIPE FLARED END				
		AT EACH				
242.18	1	18 INCH REINFORCED CONCRETE PIPE FLARED END				
		ATEACH				
258.	5	STONE FOR PIPE ENDS				
		AT PER SQUARE YARD				
402.	323	DENSE GRADED CRUSHED STONE FOR SUB-BASE				
		AT PER CUBIC YARD				
415.2	290	PAVEMENT FINE MILLING				
		AT PER SQUARE YARD				
431.	23	HIGH EARLY STRENGTH CEMENT CONCRETE BASE COURSE				
		AT PER SQUARE YARD				
440.	4,400	CALCIUM CHLORIDE FOR ROADWAY DUST CONTROL				
		AT PER POUND				

Project # 6091	Project # 609187 Contract # 130387					
Location :	HUBBARDSTO	STON				
Description :	Bridge Replace	ement, H-24-003, Williamsville Road over the Burnshirt River				
ITEM#	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT		
443.	6	WATER FOR ROADWAY DUST CONTROL				
		AT PER 1000 GALLONS				
450.31	325	SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC -12.5)				
		AT PER TON				
450.42	650	SUPERPAVE BASE COURSE - 37.5 (SBC - 37.5)				
		AT PER TON				
450.601	290	SUPERPAVE BRIDGE SURFACE COURSE - 9.5 POLYMER (SSC-B - 9.5 - P)				
		AT PER TON				
450.701	20	SUPERPAVE BRIDGE PROTECTIVE COURSE - 9.5 POLYMER (SPC-B - 9.5 - P)				
		AT PER TON				
451.	10	HMA FOR PATCHING				
		ATPER TON				
452.	585	ASPHALT EMULSION FOR TACK COAT				
		AT PER GALLON				
453.	1,285	HMA JOINT ADHESIVE				
		AT PER FOOT				
472.	6	TEMPORARY ASPHALT PATCHING				
		ATPER TON				

Project # 609187 Contract # 130387						
Location :	HUBBARDSTO	N				
Description :	Bridge Replace	ement, H-24-003, Williamsville Road over the Burnshirt Rive	er			
ITEM#	QUANTITY	UNIT PRICE	AMOUNT			
504.	1,305	GRANITE CURB TYPE VA4 - STRAIGHT				
		AT PER FOOT				
504.2	6	GRANITE CURB TYPE VA4 - SPLAYED END				
		ATEACH				
514.	8	GRANITE CURB INLET - STRAIGHT				
		AT EACH				
516.	12	GRANITE CURB CORNER TYPE A				
		AT				
620.13	328	GUARDRAIL, TL-3 (SINGLE FACED)				
		AT PER FOOT				
620.131	12	GUARDRAIL, DEEP POST (SINGLE FACED)				
		AT PER FOOT				
627.93	4	GUARDRAIL FLARED END TREATMENT, TL-3				
		AT EACH				
628.24	4	TRANSITION TO BRIDGE RAIL				
		AT EACH				
630.2	510	HIGHWAY GUARD REMOVED AND DISCARDED				
		AT PER FOOT				

Project # 609	Project # 609187 Contract # 130387					
Location :	HUBBARDSTO	ON				
Description :	Bridge Replac	ement, H-24-003, Williamsville Road over the Burnshirt River				
ITEM#	QUANTITY	JANTITY ITEM WITH UNIT BID PRICE WRITTEN IN WORDS		AMOUNT		
657.	200	TEMPORARY FENCE				
		AT PER FOOT				
697.	1,200	SEDIMENTATION FENCE				
		AT PER FOOT				
697.1	9	SILT SACK				
		ATEACH				
698.3	7	GEOTEXTILE FABRIC FOR SEPARATION				
		ATPER SQUARE YARD				
702.	25	HOT MIX ASPHALT SIDEWALK OR DRIVEWAY				
		ATPER TON				
715.	1	RURAL MAIL BOX REMOVED AND RESET				
		ATEACH				
722.3	1	SCHEDULE OF OPERATIONS (TYPE C) - FIXED PRICE \$35500	\$35,500.00	\$35,500.00		
		AT Thirty Five Thousand Five Hundred Dollars LUMP SUM				
740.	24	ENGINEER'S FIELD OFFICE AND EQUIPMENT (TYPE A)				
		AT PER MONTH				
748.	1	MOBILIZATION				
		ATLUMP SUM				

Project # 609187 Contract # 130387						
Location :	HUBBARDSTO	ON				
Description :	Bridge Replace	ement, H-24-003, Williamsville Road over the Burnshirt River				
ITEM#	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT		
751.7	40	COMPOST BLANKET				
		AT PER CUBIC YARD				
765.21	30	ANNUAL COVER CROP FOR NATIVE SEEDING				
		AT PER POUND				
765.451	5	PART SHADE ROADSIDE MIX				
		AT PER POUND				
765.635	1,585	NATIVE SEEDING AND ESTABLISHEMENT				
		AT PER SQUARE YARD				
767.121	1,610	SEDIMENT CONTROL BARRIER				
		ATPER FOOT				
767.9	146	JUTE MESH				
		AT PER SQUARE YARD				
769.	460	PAVEMENT MILLING MULCH UNDER GUARD RAIL				
		AT PER FOOT				
832.	19	WARNING-REGULATORY AND ROUTE MARKER - ALUMINUM PANEL (TYPE A)				
		AT PER SQUARE FOOT				
847.1	4	SIGN SUP (N/GUIDE)+RTE MKR W/1 BRKWAY POST ASSEMBLY - STEEL				
		AT				

Project # 609	187	Contract # 130387		
Location :	HUBBARDST	NO		
Description :	Bridge Replac	ement, H-24-003, Williamsville Road over the Burnshirt River		
ITEM#	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
851.1	15	TRAFFIC CONES FOR TRAFFIC MANAGEMENT		
		ATPER DAY		
852.	188	SAFETY SIGNING FOR TRAFFIC MANAGEMENT		
		AT PER SQUARE FOOT		
853.1	6	PORTABLE BREAKAWAY BARRICADE TYPE III		
		AT		
853.2	120	TEMPORARY BARRIER (TL-2)		
		AT PER FOOT		
856.12	1,460	PORTABLE CHANGEABLE MESSAGE SIGN		
		ATPER DAY		
859.	30	REFLECTORIZED DRUM		
		AT PER DAY		
864.04	75	PAVEMENT ARROWS AND LEGENDS REFLECTORIZED WHITE (THERMOPLASTIC)		
		AT PER SQUARE FOOT		
866.206	1,925	6 INCH REFLECTORIZED WHITE LINE (POLYUREA) (RECESSED)		
		AT PER FOOT		
867.206	1,925	6 INCH REFLECTORIZED YELLOW LINE (POLYUREA) (RECESSED)		
		AT PER FOOT		

Project # 609	187	Contract # 130387			
Location :	HUBBARDSTO	N			
Description :	Bridge Replace	ement, H-24-003, Williamsville Road over the Burnshirt River	,		
ITEM#	QUANTITY	QUANTITY ITEM WITH UNIT BID PRICE UNIT PRICE WRITTEN IN WORDS			
903.	64	3000 PSI, 1.5 INCH, 470 CEMENT CONCRETE			
		AT PER CUBIC YARD			
953.3	174	TEMPORARY EXCAVATION SUPPORT SYSTEM			
		AT PER SQUARE YARD			
983.521	352	STREAM BED BANK RESTORATION			
		AT PER CUBIC YARD			
986.	937	MODIFIED ROCKFILL			
		ATPER TON			
991.1	1	CONTROL OF WATER - STRUCTURE NO. H-24-003			
		AT			
994.1	2,000	TEMPORARY PROTECTIVE SHIELDING			
		AT PER SQUARE FOOT			
995.01	1	BRIDGE STRUCTURE, BRIDGE NO. H-24-003			
		AT			
Total Qty:	38,976.48		- '		



DOCUMENT B00853

SCHEDULE OF PARTICIPATION BY DISADVANTAGED BUSINESS ENTERPRISES (DBES)

PRIME BIDDER:				
DATE OF BID OPENING	G:	PROJECT	Γ NO.: <u>609187</u>	
FEDERAL AID PROJEC	T NO. STP(BR-OFF	F)-003S(822)X		
PROJECT LOCATION:	HUBBARDSTON			
Name, Address, and Phone Number(s) of DBE	Name of Activity	(a)† DBE Contractor Activity Amount Construction Work	(b) DBE Other Business Amount Services, Supplies, Material	(c) Total amount eligible for credit under rules in Section 6 of Document 00719 - DBE Special Provisions
Total Bid Amount	TOTALS:	\$	\$	\$
\$	DBE Percentage of Total Bid:	%	%	%
†Column (a) must be at least	t one-half of the DBE part	ticipation goal. Attach add	litional sheets as necess	sary.
Is MassDOT Document B Not Known at This Ti Will any of the contractor portion of work by a third	ime s listed above be using	a third party (i.e. manu		
CERTIFICATION: I H THE SPECIAL PRO ENTERPRISES - DO ACCOMPANYING LET AND IN ACCORDANCE	OVISIONS FOR CUMENT 00719. TER(S) OF INTENT	PARTICIPATION BOTH THIS SCHE ARE IN FULL COM	BY DISADVANT DULE AND THE PLIANCE WITH TH	FAGED BUSINESS E RELEVANT AND HE PROVISIONS OF,
SIGNATURE:		DA	TE	
NAME AND TITLE (PRII	NT):			
EMAIL ADDRESS:		TE	L NO.:	
	*** EI	ND OF DOCUMENT **	**	

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DOCUMENT B00854

DISADVANTAGED BUSINESS ENTERPRISES (DBE) PARTICIPATION LETTER OF INTENT

(To be completed by the DBE – Page 1 of 2)

TC	D:			(Prime Bid	dder)	
FR	ROM:			(DBE I	Firm)	
RE	E: PROJECT	Г NO.: <u>609187</u>	FEDERAL AID PRO	OJECT NO.: STP(BR-OFF)-003S(822)X		
PR	ROJECT LOC	CATION: HUBBARD	OSTON			
	ATE OF BID	·				
Ι, _			authorized signatory of th	the above-referenced DBE firm hereby decl	are:	
1.	My compa Supplier Assistan By Disa	any is currently certifice. Diversity Office ("SDO ce (SOMWBA), as a: (cdvantaged Business Enterprise Control of the control of the certification of the cer	ed as a Disadvantaged Bu O"), formerly known as the check all applicable, see Sec	Business Enterprise (DBE) by the Massachu he State Office of Minority and Women Bus ection 1 of the Special Provisions For Particip nent 00719 additional guidance is available at	isetts iness ation	
	() CON () MA	NTRACTOR () NUFACTURER ()	REGULAR DEALER TRUCKING OPERATION	() BROKER ONS () PROFESSIONAL SERVICES		
2.	Intent.	If you are awarded the	contract, my company int	the activity described on page 2 of this Lett ntends to enter into a contract with your fir e following sheet for the prices indicated.		
3.	certificat company	tion review ony's completion of this pr	, 20 If an roposed work, I will give p	ol or independence of my company since my any such change is planned or occurs prior to prior written notification to your firm and to Office of Civil Rights and SDO.	o my	
4.	Special	Provisions" or the draft	"Contract" which includes	may be entitled "Project Contract Documents es MassDOT Document 00719, and acknowledge requirements of 49 CFR Part 26.		
5.	=	rpose of obtaining subco	= =	assDOT, my firm will provide to you:		
	(i) a su (ii) a	resume, stating the quapervise on site-work; list of equipment owned	alifications and experience or leased by my firm for us	ee, of the superintendent or foreperson who use on this project; and my firm is currently performing, is committed.		
	pe ar	erform, or intends to maind telephone number of	ke a commitment to perform a contact person for the co	rm. I shall also include, for each project: the recontracting authority, person, or organization and my firm's work schedule for the project.	name	
		ollowing services, materi written agreement and in		r supplies, and any other documents evidencin	g the	
	(ii) in (iii) a	terms of providing such items; (ii) information concerning brokers fees and commissions for providing services or materials; and				
				Date		
DΒ	BE Company A	luthorized Signature				



DISADVANTAGED BUSINESS ENTERPRISES (DBE) PARTICIPATION LETTER OF INTENT (To be completed by the DBE – Page 2 of 2)

DATE OF	BID OPENIN	IG:					
PROJECT NUMBER: 609187							
FEDERAL AID PROJECT NUMBER: STP(BR-OFF)-003S(822)X							
PROJECT	PROJECT LOCATION: HUBBARDSTON						
PRIME BI	DDER:						
		E:					
Item number if applicable	NAICS Code	Description of Activity with notations such as Services, or Brokerage, Installation Only, Material Only, or Complete	Quantity	<u>Unit Price</u>	Amount		
			TOTAL AMO	UNT:			
		Please give full explanations, attach additional she					
		(DBE company name)			_		
PERFORM THE WORK, OR PROVIDE THE SERVICES OR MATERIALS, AS DESCRIBED ABOVE.							
DBE AUTHORIZED SIGNATURE:							
NAME AND TITLE (PRINT):							
TELEPHO	TELEPHONE NUMBER:FAX NUMBER:						
EMAIL ADDRESS:							

Rev'd 9/20/19



DOCUMENT B00855

DBE JOINT CHECK ARRANGEMENT APPROVAL FORM (to be submitted by Prime Contractor)

Contract No: 130387 Projec	t No. 609187 Federal Aid No.: STP(BR-OFF)-003S(822)X
Location: HUBBARDSTON	Bid Opening Date:
Project Description: Bridge Replacen	nent, H-24-003, Williamsville Road over the Burnshirt River
	uest for the use of a joint check arrangement from
 applied for credit with the shown that it will place all made and retains all decision provided a Joint Check Ag As the Contractor for the Projection	he material supplier/vendor; subject material supplier and has supplied the vendor's response; orders to the subject material supplier/vendor; on-making responsibilities concerning the materials; and greement that is acceptable to MassDOT; ct, we agree to issue joint checks (made payable to the Material r payment of sums due pursuant to invoices from the Supplier/Vendor
Contractor:	
Company Name	Signature Duly Authorized
	Printed Name
Date	Title
SubContractor:	
Company Name	Signature – Duly Authorized
	Printed Name
Date	Title
	*** END OF DOCUMENT ***

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DOCUMENT B00856

JOINT VENTURE AFFIDAVIT (All Firms)

- All Information Requested By This Schedule Must Be Answered. Additional Sheets May Be Attached.
- If, there is any change in the information submitted, the Joint Venture parties must inform MassDOT Pre-Qualifications Office (and, if one of the companies is a DBE, the Director of Contract Compliance, Office of Civil Rights) *prior* to such change, in writing, either directly or through the Prime Contractor if the Joint Venture is a subcontractor.
- If the Joint Venture Entity will be the bidder on a prime Contract, it must bid and submit all required documents (insurance, worker's compensation, bonds, etc.) in the name of the Joint Venture Entity.

N	Name of Joint Venture:				
Τ	Type of Entity if applicable (Corp., LLC):	Filing State			
A	Address of joint venture:				
P	Phone No(s) for JV Entity:	E-mail:			
C	Contact Person(s)				
		Vendor Code:			
I	Identify each firm or party to the Joint Venture:				
N	Name of Firm:				
A	Address:				
		E-mail:			
C	Contact person(s)				
N	Name of Firm:				
	Address:				
		E-mail:			
C	Contact Person(s)				
	Describe the role(s) of the each party to the Joint Venture:				

- IV. Attach a copy of the Joint Venture Agreement. The proposed Joint Venture Agreement should include specific details including, but not limited to: (1) the contributions of capital and equipment; (2) work items to be performed by each company's forces, (3) work items to be performed under the supervision of any DBE Venturer; (4) the commitment of management, supervisory and operative personnel employed by the DBE to be dedicated to the performance of the Project; and (5) warranty, guaranty, and indemnification clauses.
- V. Attach any applicable Corporate or LLC Votes, Authorizations, etc.

VII.



VI. Ownership of the Joint Venture:

A.	Wf	nat is the percentage(s) of each company's ownership in the Joint Venture?
		ownership percentage(s):
		ownership percentage(s):
	B.	Specify percentages for each of the following (provide narrative descriptions and other detail as applicable):
	1.	Sharing of profit and loss:
	2.	Capital contributions:
		(a) Dollar amounts of initial contribution:
		(b) Dollar amounts of anticipated on-going contributions:
		(c) Contributions of equipment (specify types, quality and quantities of equipment to be provided by each firm):
	4.	Other applicable ownership interests, including ownership options or other agreements, which restrict or limit ownership and/or control:
	5.	Provide copies of all other written agreements between firms concerning bidding and operation of this Project or projects or contracts.
	6.	Identify all current contracts and contracts completed during the past two (2) years by either of the Joint Venture partners to this Joint Venture:
i n	ndiv nana	rol of and Participation in the Joint Venture. Identify by name and firm those iduals who are, or will be, responsible for and have the authority to engage in the following agement functions and policy decisions. (Indicate any limitations to their authority such as r limits and co-signatory requirements.):
A.	Joi	nt Venture check signing:
B.	Au	thority to enter Contracts on behalf of the Joint Venture:
C	<u>a:</u>	
C.	S18	ning, co-signing and/or collateralizing loans:

D. Acquisition of lines of credit:

							_
	E. Acquisition and indemnification of payment and performance bonds:				onds:		
	F.	Negotiating and signing labor agreements:				_	
G. Management of contract performance. (Identify by name and firm only):			rm only):				
		3.	Major purchases: Estimating:				_ _ _ _
VIII.	Fin	anc	ial Controls of Jo	int Venture:			
		A.	Which firm and/o	or individual will l	be responsible for keepin	g the books of account?	_
	B. Identify the "Managing Partner," if any, and describe the means and measure of compensation:			ne means and measure of the	- eir		
	C. What authority does each firm have to commit or obligate the other to insurance an bonding companies, financing institutions, suppliers, subcontractors, and/or other participating in the performance of this Contract or the work of this Project?						
IX.	per	forn	n the Joint Ventur	e's work under th		personnel (by trade) needed ether they will be employees	
				Firm 1	Firm 2	Joint Venture	
	Tra	ade		(number)	(number)	(number)	
	Pro	ofess	sional				
	Ad	min	istrative/Clerical				
	Un	skil	led Labor				

	Will any personnel proposed for this Project	et be employees of the Joint Venture?:			
	If so, who:				
	A. Are any proposed Joint Venture emplo	byees currently employed by either firm?			
	Employed by Firm 1:	Employed by firm 2			
	B. Identify by name and firm the individ	ual who will be responsible for Joint Venture hiring:			
Х.	Additional Information. Please state any control and structure of this Joint Venture.	material facts and additional information pertinent to the			
XI.	AFFIDAVIT OF JOINT VENTURE PARTIES. The undersigned affirm that the foregoing statements and attached documents are correct and include all material information necessary to identify and explain the terms and operations of our Joint Venture and the intended participation of each firm in the undertaking. Further, the undersigned covenant and agree to provide to MassDOT current, complete and accurate information regarding actual Joint Venture work, payments, and any proposed changes to any provisions of the Joint Venture, or the nature, character of each party to the Joint Venture. We understand that any material misrepresentation will be grounds for terminating any Contract awarded and for initiating action under Federal or State laws concerning false statements.				
Firm	1	Firm 2			
Signa	ature	Signature			
Duly	Authorized	Duly Authorized			
Print	ed Name and Title	Printed Name and Title			
Date		Date			

*** END OF DOCUMENT ***