

273 Dividend Road, Rocky Hill, CT 06067 Tel: 860.513.1473

September 21, 2020

Conservation Commission Town Offices 12 East Main Street Erving, MA 01344

Re: NOI Submittal Wheelock Street Culvert Improvements

Dear Members of the Commission:

On behalf of the Town of Erving, Weston & Sampson Engineers, Inc. is hereby enclosing two (2) copies of the Notice of Intent, including applicable Plans, to fulfill the requirements of the Massachusetts Wetlands Protection Act, M.G.L. Chapter 131, Section 40. This submittal is a formal Notice of Intent for the Wheelock Street Culvert Improvements Project. A narrative describing how construction of the proposed project will comply with the Wetlands Protection Act is included in Appendix A.

As part of the filing, we have attached the following:

- Appendix A: Project Information
- Appendix B: Permit Plans
- Appendix C: Wetlands Report
- Appendix D: Stormwater Management Report
- Appendix E: Erosion and Sedimentation Control Plan
- Appendix F: Operation and Maintenance Plan
- Appendix G: Proof of Notification and Abutters List
- Appendix H: Project Plans

If you have any questions regarding this submittal, please contact me.

Very truly yours,

WESTON & SAMPSON ENGINEERS, INC.

Chris Wester, PE

Vice President/ Regional Manager

cc: DEP-Western Region Town of Erving, Board of Selectmen File



Massachusetts Department of Environmental Protection Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

City/Town

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Note: Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

Project Location (Note: electronic filers will click on button to locate project site):				
Wheelock Street	Erving	01344		
a. Street Address	b. City/Town	c. Zip Code		
Latitude and Longitude:	42.602541	-72.437134		
	d. Latitude	e. Longitude		
N/A Town ROW	<u>N/A</u>			
f. Assessors Map/Plat Number	g. Parcel /Lot	Number		
Applicant:				
Mariah	Kurtz			
a. First Name	b. Last Na	me		
Assistant Town Planner, To	wn of Erving			
c. Organization				
12 East Main Street				
d. Street Address				
Erving	MA	01344		
e. City/Town	f. State	g. Zip Code		
413-422-2800 Ext	mariah.kurtz@e	erving-ma.gov		
1108 I.Fa	x Number J. Email Address			
Property owner (required if o a. First Name Town of Erving	different from applicant): Ch	eck if more than one owner		
Property owner (required if o a. First Name Town of Erving c. Organization 12 East Main Street	different from applicant): b. Last Nar	eck if more than one owner ^{me}		
Property owner (required if of a. First Name Town of Erving c. Organization 12 East Main Street d. Street Address Enving	different from applicant): b. Last Nar	eck if more than one owner		
Property owner (required if o a. First Name Town of Erving c. Organization 12 East Main Street d. Street Address Erving e. Citt/Town	different from applicant): b. Last Nat	eck if more than one owner me <u>01344 g. Zip Code</u>		
Property owner (required if o a. First Name <u>Town of Erving</u> c. Organization <u>12 East Main Street</u> d. Street Address <u>Erving</u> e. City/Town	different from applicant): Ch b. Last Nar	eck if more than one owner me <u>01344 g. Zip Code</u>		
Property owner (required if of a. First Name Town of Erving c. Organization 12 East Main Street d. Street Address Erving e. City/Town h. Phone Number	different from applicant): Ch b. Last Nat b. Last Nat b. Last Nat ch	eck if more than one owner me <u>01344 g. Zip Code</u>		
Property owner (required if of a. First Name Town of Erving c. Organization 12 East Main Street d. Street Address Erving e. City/Town h. Phone Number i. Fa Representative (if any):	different from applicant): Ch b. Last Nar b. Last Nar b. Last Nar MA f. State x Number j. Email address	eck if more than one owner me <u>01344 g. Zip Code</u>		
Property owner (required if of a. First Name Town of Erving c. Organization 12 East Main Street d. Street Address Erving e. City/Town h. Phone Number i. Fa Representative (if any): a. First Name	different from applicant): Ch b. Last Nar b. Last Nar MA f. State x Number j. Email address b. Last Nar	eck if more than one owner me <u>01344 g. Zip Code</u> me		
Property owner (required if of a. First Name Town of Erving c. Organization 12 East Main Street d. Street Address Erving e. City/Town h. Phone Number i. Fa Representative (if any): a. First Name Weston & Sampson Engine	different from applicant): Ch b. Last Nar b. Last Nar b. Last Nar ch	eck if more than one owner me <u>01344 g. Zip Code</u> me		
Property owner (required if of a. First Name <u>Town of Erving</u> c. Organization <u>12 East Main Street</u> d. Street Address <u>Erving</u> e. City/Town h. Phone Number i. Fa Representative (if any): a. First Name <u>Weston & Sampson Engine</u> c. Company	different from applicant):	eck if more than one owner me <u>01344 g. Zip Code</u> me		
Property owner (required if of a. First Name Town of Erving c. Organization 12 East Main Street d. Street Address Erving e. City/Town h. Phone Number i. Fa Representative (if any): a. First Name Weston & Sampson Enginer c. Company 712 Brook Street, Suite 103	different from applicant):	eck if more than one owner me <u>01344 g. Zip Code</u> me		
Property owner (required if of a. First Name Town of Erving c. Organization 12 East Main Street d. Street Address Erving e. City/Town h. Phone Number i. Fa Representative (if any): a. First Name Weston & Sampson Engineer c. Company 712 Brook Street, Suite 103 d. Street Address	different from applicant): Ch b. Last Nat b. Last Nat MA f. State x Number j. Email address b. Last Nat ers, Inc.	eck if more than one owner me <u>01344 g. Zip Code</u> me		
Property owner (required if of a. First Name Town of Erving c. Organization 12 East Main Street d. Street Address Erving e. City/Town h. Phone Number i. Fa Representative (if any): a. First Name Weston & Sampson Engine c. Company 712 Brook Street, Suite 103 d. Street Address Rocky Hill	different from applicant):	eck if more than one owner me <u>01344 g. Zip Code</u> me <u>06067 g. The Orde</u>		
Property owner (required if of a. First Name Town of Erving c. Organization 12 East Main Street d. Street Address Erving e. City/Town h. Phone Number i. Fa Representative (if any): a. First Name Weston & Sampson Enginer c. Company 712 Brook Street, Suite 103 d. Street Address Rocky Hill e. occo 540, 4475	different from applicant):	eck if more than one owner me		
Property owner (required if of a. First Name Town of Erving c. Organization 12 East Main Street d. Street Address Erving e. City/Town h. Phone Number i. Fa Representative (if any): a. First Name Weston & Sampson Engineer c. Company 712 Brook Street, Suite 103 d. Street Address Rocky Hill e. 860-513-1473	different from applicant):	eck if more than one owner me <u>01344 g. Zip Code</u> me <u>06067 g. Zip Code</u>		
Property owner (required if of a. First Name Town of Erving c. Organization 12 East Main Street d. Street Address Erving e. City/Town h. Phone Number i. Fa Representative (if any): a. First Name Weston & Sampson Engineer c. Company 712 Brook Street, Suite 103 d. Street Address Rocky Hill e. 860-513-1473 h. Phone Number	different from applicant):	eck if more than one owner me me 01344 g. Zip Code 01344 g. Zip Code 06067 g. Zip Code 06067		

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A. General Information (continued)

Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

6. General Project Description:

Replacing two culverts on Wheelock Street. See Appendix A for more details.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

Massachusetts Department of Environmental Protection

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

1.	Single Family Home	2.	Residential Subdivision
3.	Commercial/Industrial	4.	Dock/Pier
5.		6.	Coastal engineering Structure

- 7. Agriculture (e.g., cranberries, forestry)
- 9. 🛛 Other
- 7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. 🛛 Yes 🗌 No	If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)					
10.53 (i) Improving stream crossings.						
2. Limited Project Type						

8. Transportation

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

Franklin	N/A
a. County	b. Certificate # (if registered land)
N/A	N/A
c. Book	d. Page Number

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

- 1. Buffer Zone Only Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
- 2. Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.



Document Transaction Number

Provided by MassDEP:

MassDEP File Number

City/Town



Massachusetts Department of Environmental Protection Bureau of Resource Protection - Wetlands Provided by MassDEP:

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MassDEP File Number

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City/Town

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

	Resour	<u>ce Area</u>	Size of Proposed Alteration	Propos	ed Replacement (if any)	
		Develo	224.5	80.5		
For all projects	a. 🖂	Bank	1. linear feet	2. linear	feet	
affecting other	b. 🖂	Bordering Vegetated	979	1100		
Resource Areas, please attach a		Wetland	1. square feet	2. squar	e feet	
narrative explaining how the resource area was delineated.	c. 🗌	Land Under Waterbodies and Waterways	1. square feet	2. squar	e feet	
		Walerways	3. cubic yards dredged			
	<u>Resour</u>	<u>ce Area</u>	Size of Proposed Alteration	Propos	<u>ed Replacement (if any)</u>	
	d. 🗌	Bordering Land				
		Subject to Flooding	1. square feet	2. squar	re feet	
			3. cubic feet of flood storage lost	4. cubic	feet replaced	
	e. 🗌	Isolated Land				
		Subject to Flooding	1. square feet			
			2. cubic feet of flood storage lost	3. cubic feet replaced		
	f. 🗌	Riverfront Area	1 Name of Waterway (if available) - specify coastal or inland			
				ecity coasta		
	2.	Width of Riverfront Area	(check one):			
		25 ft Designated D	ensely Developed Areas only			
		100 ft New agricult	tural projects only			
		200 ft - All other pro	iects			
			J0010			
	3.	Total area of Riverfront Are	ea on the site of the proposed proje	ect:	N/A square feet	
	4.	Proposed alteration of the	Riverfront Area:			
	N/	A	N/A	N/A		
	a. 1	total square feet	b. square feet within 100 ft.	c. square f	eet between 100 ft. and 200 ft.	
	5.	Has an alternatives analys	is been done and is it attached to the	his NOI?	🗌 Yes 🗌 No	
	6.	Was the lot where the activ	vity is proposed created prior to Au	gust 1, 19	96? 🗌 Yes 🗌 No	
3	3. 🗌 Co	astal Resource Areas: (Se	e 310 CMR 10.25-10.35)			
	Note:	for coastal riverfront areas	, please complete Section B.2.f . a	bove.		



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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users: Include your		<u>Resou</u>	rce Area	Size of Propose	d Alteration	Proposed Replacement (if any)
transaction number		a. 🗌	Designated Port Areas	Indicate size ur	nder Land Under	the Ocean, below
(provided on your receipt page) with all		b. 🗌	Land Under the Ocean	1. square feet		
information you submit to the				2. cubic yards dredg	ed	
Department.		c. 🗌	Barrier Beach	Indicate size und	der Coastal Beac	ches and/or Coastal Dunes below
		d. 🗌	Coastal Beaches	1. square feet		2. cubic yards beach nourishment
		e. 🗌	Coastal Dunes	1. square feet		2. cubic yards dune nourishment
				Size of Propose	d Alteration	Proposed Replacement (if any)
		f. 🗌	Coastal Banks	1. linear feet		
		g. 🗌	Rocky Intertidal Shores	1. square feet		
		h. 🗌	Salt Marshes	1. square feet		2. sq ft restoration, rehab., creation
		i. 🗌	Land Under Salt Ponds	1. square feet		
				2. cubic yards dredg	ed	
		j. 🗌	Land Containing Shellfish	1. square feet		
		k. 🗌	Fish Runs	Indicate size und Ocean, and/or ir above	der Coastal Bank nland Land Unde	ks, inland Bank, Land Under the r Waterbodies and Waterways,
		ı. 🗖	Land Subject to	1. cubic yards dredg	ed	
	 4. Restoration/Enhand If the project is for the p square footage that has 		Coastal Storm Flowage storation/Enhancement roject is for the purpose of i footage that has been ente t here.	1. square feet restoring or enhar ered in Section B.2	ncing a wetland r 2.b or B.3.h abov	esource area in addition to the /e, please enter the additional
		a. square	e feet of BVW		b. square feet of S	alt Marsh
	5.	_ Pro	pject Involves Stream Cross	sings	·	
		a. numbe	er of new stream crossings		b. number of repla	cement stream crossings



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C. Other Applicable Standards and Requirements

This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

 Is any portion of the proposed project located in Estimated Habitat of Rare Wildlife as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the Massachusetts Natural Heritage Atlas or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

a. 🗌 Yes 🖂 N	If yes, include proof of mailing or hand delivery of NOI to:
	Natural Heritage and Endangered Species Program
	Division of Fisheries and Wildlife
09/2020	1 Rabbit Hill Road Westborough MA 01581
b. Date of map	

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

- c. Submit Supplemental Information for Endangered Species Review*
 - 1. Dercentage/acreage of property to be altered:
 - (a) within wetland Resource Area

percentage/acreage

(b) outside Resource Area

percentage/acreage

- 2. C Assessor's Map or right-of-way plan of site
- 2. Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **
 - (a) Project description (including description of impacts outside of wetland resource area & buffer zone)
 - (b) Photographs representative of the site

^{*} Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see <u>https://www.mass.gov/ma-</u> endangered-species-act-mesa-regulatory-review).

Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

^{**} MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.



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C. Other Applicable Standards and Requirements (cont'd)

(c) MESA filing fee (fee information available at <u>https://www.mass.gov/how-to/how-to-file-for-a-mesa-project-review</u>).

Make check payable to "Commonwealth of Massachusetts - NHESP" and *mail to NHESP* at above address

Projects altering 10 or more acres of land, also submit:

- (d) Vegetation cover type map of site
- (e) Project plans showing Priority & Estimated Habitat boundaries
- (f) OR Check One of the Following
- 1. Project is exempt from MESA review. Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, <u>https://www.mass.gov/service-details/exemptions-from-review-for-projectsactivities-in-priority-habitat</u>; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

° □	Separate MESA review engoing		
2.	Separate MESA review origoing.	a. NHESP Tracking #	b. Date submitted to NHESP

- 3. Separate MESA review completed. Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.
- 3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

a. 🗌 Not applicable – project is in inland resource area only	b. 🗌 Yes	🗌 No
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If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

South Shore - Cohasset to Rhode Island border, and North Shore - Hull to New Hampshire border: the Cape & Islands:

Division of Marine Fisheries -Southeast Marine Fisheries Station Attn: Environmental Reviewer 836 South Rodney French Blvd. New Bedford, MA 02744 Email: <u>dmf.envreview-south@mass.gov</u> Division of Marine Fisheries -North Shore Office Attn: Environmental Reviewer 30 Emerson Avenue Gloucester, MA 01930 Email: <u>dmf.envreview-north@mass.gov</u>

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.

c. I is this an aduaculture project	с. [│ Is	this an	aquaculture	project?	
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	Vaa	NI-
d.	res	INO

If yes, include a copy of the Division of Marine Fisheries Certification Letter (M.G.L. c. 130, § 57).

	Massachusetts Department of Environmental Protection Provided by MassDEP:						
	Bu	Include the resource Protection - Wetlands	MassDEP File Number				
	WPA Form 3 – Notice of Intent Massachusetts Wetlands Protection Act M.G.L. c. 131, §40						
	-		City/Town				
	C. Other Applicable Standards and Requirements (cont'd)						
	4.	Is any portion of the proposed project within an Area of Critical Enviror	mental Concern (ACEC)?				
Online Users: Include your document		a. Yes No If yes, provide name of ACEC (see instruction: Website for ACEC locations). Note: electronic	s to WPA Form 3 or MassDEP filers click on Website.				
transaction number		b. ACEC					
(provided on your receipt page) with all	5.	Is any portion of the proposed project within an area designated as an (ORW) as designated in the Massachusetts Surface Water Quality Sta	Outstanding Resource Water ndards, 314 CMR 4.00?				
supplementary		a. 🗌 Yes 🖾 No					
submit to the Department.	6.	Is any portion of the site subject to a Wetlands Restriction Order under Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restrict	the Inland Wetlands ion Act (M.G.L. c. 130, § 105)?				
		a. 🗌 Yes 🖾 No					
	7.	Is this project subject to provisions of the MassDEP Stormwater Manag	gement Standards?				
		 a. Yes. Attach a copy of the Stormwater Report as required by th Standards per 310 CMR 10.05(6)(k)-(q) and check if: 1. Applying for Low Impact Development (LID) site design cruster Management Handbook Vol. 2, Chapter 3) 	e Stormwater Management edits (as described in				
		2. A portion of the site constitutes redevelopment					
		3. Proprietary BMPs are included in the Stormwater Manage	ment System.				
		b. No. Check why the project is exempt:					
		1. Single-family house					
		2. Emergency road repair					
		3. Small Residential Subdivision (less than or equal to 4 sing or equal to 4 units in multi-family housing project) with no o	le-family houses or less than discharge to Critical Areas.				
	D.	Additional Information					
		This is a proposal for an Ecological Restoration Limited Project. Skip S Appendix A: Ecological Restoration Notice of Intent – Minimum Requir 10.12).	ection D and complete ed Documents (310 CMR				

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

- 1. USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)
- 2. Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.



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D. Additional Information (cont'd)

- 3. Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.
- 4. \square List the titles and dates for all plans and other materials submitted with this NOI.

Wheelock Street Culvert Improvements	
Weston & Sampson Engineers, Inc.	Chris Wester
b. Prepared By	c. Signed and Stamped by
9/21/20	1"=20'
d. Final Revision Date	e. Scale

f. Additional Plan or Document Title

g. Date

- 5. If there is more than one property owner, please attach a list of these property owners not listed on this form.
- 6. Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.
- 7. Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.
- 8. Attach NOI Wetland Fee Transmittal Form
- 9. \square Attach Stormwater Report, if needed.

E. Fees

1. X Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

2. Municipal Check Number	3. Check date	
4. State Check Number	5. Check date	
6. Payor name on check: First Name	7. Payor name on check: Last Name	



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F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

Mariah Kury	9-21-20
1. Signature of Applicant	2. Date
3. Signature of ¹⁹ roperty Owner (if different) 5. Signature of Representative (if any)	4. Date 9/22/2020 6. Date

For Conservation Commission:

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a copy of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:

If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.



Massachusetts Department of Environmental Protection Bureau of Resource Protection - Wetlands **NOI Wetland Fee Transmittal Form**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Important: When
filling out forms
on the computer,
use only the tab
key to move your
cursor - do not
use the return
kev



ining out ionns
on the computer,
use only the tab
key to move your
cursor - do not
use the return
key.



1. Location of Pi	oject:			
Wheelock Str	eet	Erving		
a. Street Address	3	b. City/Town		
N/A		N/A (Exempt)		
c. Check number		d. Fee amount		
2. Applicant Mai	ling Address:			
Mariah		Kurtz		
a. First Name		b. Last Name		
Town of Ervin	g			
c. Organization	•			
12 East Main	Street			
d. Mailing Addres	S			
Erving		MA	01344	
e. City/Town		f. State	g. Zip Code	
413-422-2800) Ext.	mariah.kurtz@erving-ma.gov		
1108	i. Fax Number	j. Email Address	-	
3. Property Own	er (if different):			
a. First Name		b. Last Name		
c. Organization				

d. Mailing Address e. City/Town h. Phone Number

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).

B. Fees

Fee should be calculated using the following process & worksheet. Please see Instructions before filling out worksheet.

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

i. Fax Number

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract \$12.50. To calculate the city/town share of the fee, divide the total fee in half and add \$12.50.

g. Zip Code

f. State

j. Email Address



Massachusetts Department of Environmental Protection Bureau of Resource Protection - Wetlands NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Fees (continued)			
Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
	Step 5/To	otal Project Fee	:
	Step 6/I	Fee Payments:	
	Total I	Project Fee:	N/A (Exempt) a. Total Fee from Step 5
	State share	of filing Fee:	N/A (Exempt) b. 1/2 Total Fee less \$ 12.50
	City/Town share	of filling Fee:	N/A (Exempt) c. 1/2 Total Fee plus \$12.50

C. Submittal Requirements

a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection Box 4062 Boston, MA 02211

b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

APPENDIX A

PROJECT INFORMATION

NOI Project Information Wheelock Street Culverts

Section A. General Information

6. General Project Description

Background

This project consists of replacing two culverts that cross Wheelock Street in Erving, MA. Culvert 160 is located west of 22 Wheelock Street. The existing culvert is a 24" Corrugated Metal Pipe (CMP). Culvert 161 is located east of 22 Wheelock Street. The existing culvert is a 12" Corrugated High Density Polyethylene Pipe (CPP). The culverts convey intermittent streams that flow from north to south of Wheelock Street. The intermittent streams originate near the Northfield Mountain Reservoir and eventually discharge into Millers River. The drainage areas of the culverts are mainly composed of woods with a small area of impervious cover from houses and the roadway of Wheelock Street.

A photo log showing pictures of both culverts is attached to this Appendix.

Scope of Work

Culvert 160 will be replaced with a 3'x4.5' precast concrete box culvert. Two feet of the culvert will be filled with native stone. Headwalls and wingwalls will be placed on the northern and southern side of the culvert.

Culvert 161 will be replaced with two 15" RCPs (Reinforced Concrete Pipe). This culvert will also have wingwalls and headwalls on either end.

The section of Wheelock Street where the culverts are being replaced will be reconstructed. A portion of the existing roadway is paved while the other portion is gravel. The roadway will be restored with bituminous concrete.

Before work begins, sediment and erosion controls will be placed at the downgradient limit of the work area to minimize sediment migration from the site into the wetlands. Sediment erosion control measures include straw wattles and siltation fence. Temporary pipes, coffer dams, and a geotextile dewatering bag will be used during dewatering.

The project limits are not within the FEMA 100-year flood plain, and outside the limits of endangered species habitat (Natural Heritage and Endangered Species Program (NHESP) habitat) (see maps in the Wetland Report in Appendix C).

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Stream Crossing Standards

For Culverts 160 and 161, the proposed culverts will improve the existing culvert conditions to maximum extent practicable (MEP). Attached to this appendix are Stream Crossing Evaluation Worksheets for both proposed culverts. In accordance with the Massachusetts River and Stream Crossing Standards, the design of the proposed culverts considered the following features:

- Structure Type
- Embedment
- Crossing Span
- Substrate
- Water Depth & Velocity
- Openness & Height
- Banks

For Culvert 160, the existing 24" CMP Culvert will be replaced with a 3'x4.5' precast concrete box culvert that will be filled with native stone. The structure has a closed bottom, but it is embedded with 2' of native stone. The average bankfull width is 27". The proposed crossing span of the culvert is 36", which is greater than 1.2 x bankfull width. The proposed substrate matches the stream substrate. The water depth and velocity closely matches the natural stream over a range of flows. The open height of the structure is 2.5', and the openness ratio is 0.28. The general standard recommends an openness ration of 0.82'; however, meeting that standard would increase the cost of the culvert exponentially. The modified banks of the stream will closely match the horizontal profile of the existing stream and banks.

For Culvert 161, the existing 12" CPP will be replaced with two 15" RCPs. The structure has a closed bottom, and is not embedded. Providing embedment would require a larger structure, which would be more costly. The average bankfull width is 16". The proposed crossing span for both pipes is 30", which is greater than 1.2 x bankfull width. The water depth and velocity closely matches the natural stream over a range of flows. The open height of the structure is 15", and the openness ratio is 0.08. The general standard recommends an openness ration of 0.82'; however, meeting that standard would increase the cost of the culvert exponentially. The modified banks of the stream will closely match the horizontal profile of the existing stream and banks

Section B. Buffer Zone & Resource Area Impacts

2. Inland Resource Areas (310 CMR 10.54 – 10.58)

Inland Resource Areas are protected under 310 CMR 10.00 the Massachusetts Wetland Protection Act (WPA). The Inland Resource Areas impacted in this project include bank and Bordering Vegetated Wetlands (BVW). These impacts are tabulated in the following tables and shown on the attached Permit Plans in Appendix B.

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Bank (310 CMR 10.54)

There is top of bank associated with the two unnamed intermittent streams. The top of bank extends north and south of both culverts. A total of 121 ft. of bank will be permanently impacted by the proposed headwalls, wingwalls, outfall protection, and minor grading. A length of 103.5 ft. will be temporarily impacted by the replacement of the culverts. The bank is equal to the length of the pipes multiplied by two. The installation of the new culverts will provide more bank because the pipes are longer, and Culvert 161 will contain two pipes. The proposed replacement of bank is 80.5 ft.

	Bank (FT)		
Location	Temporary	Permanent	Replacement
Culvert 160	47	72	7
Culvert 161	56.5	49	73.5
Total	103.5	121	80.5

Bordering Vegetated Wetland (BVW) (310 CMR 10.55)

There are bordering vegetated wetlands (BVW) on the northern and southern sides of the intermittent stream. This project will impact a total area of 979 S.F. of BVW. An estimated area of 885 S.F. of permanent impacts to the BVW are due to installation of headwalls and bank stabilization. An estimated area of 94 S.F. of temporary impacts to the BVW are due to temporary water handling. The graded areas will be planted with native wetland seed and restored to existing natural conditions. An area of 1100 S.F. of wetlands will be created north of Millers River to the west of Arch Street. Native wetland mix and hydrologic soil will be used. See the Wetland Restoration Plan in this Appendix for approximate location.

	Bordering Vegetated Wetland (SF)			
Location	Temporary	Permanent	Replacement	
Culvert 160	25	276	0	
Culvert 161	69	609	0	
Millers River	0	0	1100	
Total	94	885	1100	

 Table B.2 Summary of Bordering Vegetated Wetland Impacts

2.5 Alternatives Analysis

Weston & Sampson Engineers, Inc. completed an alternatives analysis for the Wheelock Culvert Replacements. Both culverts were designed in accordance to the Massachusetts River and Stream Crossing Standards.

Culvert 160

The existing Culvert 160 is a 24" CMP. This pipe does not provide sufficient capacity for a 10-year design storm. A couple of alternative culverts were analyzed including pipes with larger diameters, an open box culvert, and a closed box. The pipes with larger diameters did not work because there is not enough cover between the road and pipe. The open box culvert was not chosen because this option is expensive. The closed box culvert filled with native rock was chosen because the box has enough cover and this option is less expensive than an open box. The dimensions of the precast concrete box are 3'x4.5' with a 3' x 2.5' opening for the stream and 2' depth of native rocks.

Culvert 161

The existing Culvert 161 is 12" CPP. This pipe does not provide sufficient capacity for a 10year design storm. The following alternatives were considered: pipes with larger diameters, box culvert, and two pipes. The pipes with larger diameters did not have enough cover. Box culverts were also difficult to fit within the existing crossing footprint. Two 15" RCPs were chosen because the pipes are less expensive than a culvert and better fit below the roadway.

Section C. Other Applicable Standards and Requirements

7. MassDEP Stormwater Management Standards

The Stormwater Management Report is attached. This report describes proposed stormwater systems and water quality measures.

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Wheelock Street Culverts Photo Log – April 1, 2020

Culvert 160 (24" CMP) - View of Upstream End Looking Southwest



Culvert 160 (24" CMP) - View of Upstream Channel Looking North

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Culvert 160 (24" CMP) - View of Pipe Looking South



Culvert 160 (24" CMP) - View of Downstream End Looking Northeast

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Culvert 160 (24" CMP) - View of Downstream End Looking Northeast



Culvert 160 (24" CMP) - View of Downstream Stream Looking South

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Culvert 161 (12" CPP) - View of Upstream End Looking North



Culvert 161 (12" CPP) - View of Upstream End Looking Southwest

Weston & Sampson



Culvert 161 (12" CPP) - View of Downstream End Looking Southwest



Culvert 161 (12" CPP) - View of Downstream End Looking South

Weston & Sampson



Culvert 161 (12" CPP) - View of Downstream End Looking East

Weston & Sampson



Evaluation Criteria	Alternative 1: Replace in-kind	Alternative 2: Meet General Performance Standards for Bank and LUWW ¹	Alternative 3: Meet minimum applicable Stream Crossing Standards ²
	12" Diameter (dimensions)	2 pines with 15" Diameter (dimensions)	6'x6.5 box (with 2' stone) (dimensions)
1) potential for downstream flooding	No Change.	No Change.	No Change.
2) upstream and downstream habitat	No Change.	No Change.	No Change.
3) potential for erosion and head- cutting	No Change.	Decrease potential for erosion with splash pad.	Decrease potential for erosion with splash pad.
4) stream stability	No Change.	No Change.	No Change.
<i>5) habitat fragmentation caused by the crossing</i>	No Change.	Reduce habitat fragmentation by providing box culvert with stream bottom.	Reduce habitat fragmentation by providing minimum openness ratio.
6) amount of stream mileage made accessible	No Change.	No Change.	No Change.

Evaluation Criteria	Alternative 1: Replace in-kind	Alternative 2: Meet General Performance Standards for Bank and LUWW ¹	Alternative 3: Meet minimum applicable Stream Crossing Standards ²
	<u>24" Diameter (</u> (dimensions)	<u>6'x6.5 box (with 2' stone) (dimensions)</u>	<u>6'x6' box (with 2' stone) (</u> dimensions)
7) storm flow conveyance	No Change.	Sufficient capacity to convey 10-	Sufficient capacity to convey 10-
		year storm.	year storm.
8) engineering design constraints	Provide minimum cover over	Provide minimum cover over	Provide minimum cover over
	pipe.	pipe.	pipe.
9) hydrologic constraints	9) hydrologic constraints No Change.		No Change.
10) impacts to wetlands that would occur	No Change.	BVW wetlands impacted slightly	BVW wetlands impacted slightly
		where headwalls, wingwalls, and	where headwalls, wingwalls, and
		road elevation.	road elevation.
11) potential to affect property and infrastructure	No Change.	Downstream improvements are	Downstream improvements are
		on private property and require	on private property and require
12) cost of replacement	Least expensive	Moderately Expensive	Twice as expensive as
			Alternative 2

¹Bank Standards at 310 CMR 10.54 and LUWW Standards at 310 CMR 10.56 (LUWW = Land Under Water Bodies & Waterways)

² Per the *Massachusetts River & Stream Crossing Standards* (March 1, 2011, Revised March 8, 2012), Page 18, Item #2 - If it is not possible to meet all of the applicable standards, replacement crossings should be designed to avoid or mitigate the following problems: (1) Inlet drops; (2) Outlet drops; (3) Flow contraction that produces significant turbulence; (4) Tailwater armoring; (5) Tailwater scour pools; (6) Physical barriers to fish and wildlife passage.

Evaluation Criteria	Alternative 1: Replace in-kind	Alternative 2: Meet General Performance Standards for Bank and LUWW ¹	Alternative 3: Meet minimum applicable Stream Crossing Standards ²
	12" Diamatar (dimensions)	2 nines with 15" Diameter (dimensions)	6'x6 5 hox (with 2' stone) (dimensions)
1) potential for downstream flooding	No Change.	No Change.	No Change.
2) upstream and downstream habitat	No Change.	No Change.	No Change.
3) potential for erosion and head- cutting	No Change.	Decrease potential for erosion with splash pad.	Decrease potential for erosion with splash pad.
4) stream stability	No Change.	No Change.	No Change.
5) habitat fragmentation caused by the crossing	No Change.	No Change.	Reduce habitat fragmentation by providing minimum openness ratio.
6) amount of stream mileage made accessible	No Change.	No Change.	No Change.

Evaluation Criteria	Alternative 1: Replace in-kind	Alternative 2: Meet General Performance Standards for Bank and LUWW ¹	Alternative 3: Meet minimum applicable Stream Crossing Standards ²	
	<u>12" Diameter (</u> (dimensions)	<u>2 pipes with 15" Diameter (dimensions)</u>	6'x6.5 box (with 2' stone)(dimensions)	
7) storm flow conveyance	No Change.	Sufficient capacity to convey 10- year storm.	Sufficient capacity to convey 10- year storm.	
8) engineering design constraints	Provide minimum cover over pipe.	Provide minimum cover over pipe.	Provide minimum cover over pipe.	
9) hydrologic constraints	No Change.	No Change.	No Change.	
10) impacts to wetlands that would occur	No Change.	BVW wetlands impacted slightly where headwalls, wingwalls, and area is graded to meet proposed road elevation.	BVW wetlands impacted slightly where headwalls, wingwalls, and area is graded to meet proposed road elevation.	
11) potential to affect property and infrastructure	No Change.	Downstream improvements are on private property and require obtaining an easement.	Downstream improvements are on private property and require obtaining an easement.	
12) cost of replacement	Least expensive	Moderately Expensive	Twice as expensive as Alternative 2	

¹Bank Standards at 310 CMR 10.54 and LUWW Standards at 310 CMR 10.56 (LUWW = Land Under Water Bodies & Waterways)

² Per the *Massachusetts River & Stream Crossing Standards* (March 1, 2011, Revised March 8, 2012), Page 18, Item #2 - If it is not possible to meet all of the applicable standards, replacement crossings should be designed to avoid or mitigate the following problems: (1) Inlet drops; (2) Outlet drops; (3) Flow contraction that produces significant turbulence; (4) Tailwater armoring; (5) Tailwater scour pools; (6) Physical barriers to fish and wildlife passage.

APPENDIX B

PERMIT PLANS



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APPENDIX C

WETLANDS REPORT



RESOURCE AREA DELINEATIONS WHEELOCK STREET ERVING, MASSACHUSETTS

Survey, Engineering and Permitting by:

Weston & Sampson Engineers, Inc. 273 Dividend Road Rocky Hill, CT. 06067

Resource Area Delineations and Descriptions by:

Heather Comee Wetland Consultant 572 East River Road Huntington, MA. 01050

Job Number 20-010

September 8, 2020

572 East River Road, Huntington, MA. 01050 • (413) 623-7100 • hcomee.wci@gmail.com

TABLE OF CONTENTS

Addendum

Figures

1-Site Locus, Priority & Estimated Habitat
2-2019 Orthophoto
3-Soil Map
4-Flood Plain Map

Appendices

A- Site Photographs B- Soil Boring Logs

RESOURCE AREA DELINEATIONS

WHEELOCK STREET ERVING, MA.

INTRODUCTION:

At the request of Weston and Sampson Engineers, Inc. (W&S) Heather Comee Wetland Consultant (Comee) identified and delineated Wetland and Riverfront resource areas relative to the Massachusetts Wetland Protection Act (WPA) within 100 and 200-feet respectively of Wheelock Street in Erving, MA. The resource areas delineated on May 18, 2020 by Comee and field located by W&S are described below.

SITE DESCRIPTION:

The project site consists of the area within ± 100 -feet of two (2) culverts on either side of 22 Wheelock Street. Hillside intermittent streams begin near Northfield Mountain Reservoir, flow in a southerly direction, beneath Wheelock Street via the aforementioned culverts, and eventually discharge to the Millers River. Wheelock Street is a sparsely developed paved road with some portions containing shallow stormwater ditches alongside. See **Appendix A** for site photographs.

The two (2) culverts are abutted by residential properties to the west and undeveloped land to the north, south, and east. See **Figures 1 & 2**.

WETLAND DELINEATION CRITERIA:

Prior to conducting the resource area delineation, available soil, topographic, aerial, habitat and flood plain maps were reviewed. The delineation incorporated the fifty-percent or more of hydrophytic vegetation and indicators of hydrology criterion cited in the WPA as well as the methods cited in the manuals, *Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act*, the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral & Northeast Region* (2012 version 2), and New England Hydric Soils Technical Committee's 2019 Version 4, *Field Indicators for Identifying Hydric Soils in New England*.

BVW

Bordering Vegetated Wetlands (BVWs) are areas that contain 50% or more of hydrophytic vegetation and indicators of hydrology and are hydraulically connected to, or border on a Pond, Bank of a stream, or another BVW. BVWs are jurisdictional under the WPA, and contain a 100-foot buffer zone.

BANK DELINEATION CRITERIA:

Per 310 CMR Section 10.54 (2), "a Bank is the portion of the land surface, which normally abuts and confines a water body." Banks are jurisdictional under the WPA and contain a 100-foot buffer zone. Under the WPA, "the upper boundary of a Bank is the first observable break in slope or the mean annual flood level, which ever is lower. The lower boundary of a Bank is the mean annual low flow level."

Per 310 CMR Section 10.04 Definitions. A "Stream means a body of running water, including brooks and creeks, which moves in a definite channel in the ground due to a hydraulic gradient, and which flows within, into or out of an Area Subject to Protection." "A portion of a stream may flow through a culvert or beneath a bridge. Such a body of running water which does not flow throughout the year (i.e., which is intermittent) is a stream except for that portion upgradient of all bogs, swamps, wet meadows and marshes."

The area between the Banks is considered Land Under Waterbodies and Waterways (LUWW).

Wetland and/or Bank Descriptions:

Resource areas abutting the culvert to the east of 22 Wheelock Street

Bank Flags S1 – S12 and SA1 – SA18. The S and SA-Series flags delineate the westerly and easterly banks of the intermittent stream, respectively. They begin north of Wheelock Street flow through a 12-inch corrugated plastic pipe culvert beneath the street and continue south and then west before becoming part of a braided intermittent stream system down gradient of the B-Series flags. The stream is bordered by a narrow band of wet meadow and flows through a small man made excavated pond. The well defined stream is $\pm 1-2$ feet wide and $\pm 1-3$ feet deep with steep dirt banks.

Wetland flags WA1 – WA16 and W1 – W10. The WA and W series wetland flags delineate the wetland boundaries to the north and south of Wheelock Street, respectively. Both series begin along the easterly wetland boundary, continue along the road, and then end along the westerly side of the wetland areas. Vegetation found within the areas consisted primarily of golden rod- *Solidago sp.*, cinnamon fern - *Osmundo cinamomea*, highbush blueberry– *Vaccinium corymbosum*, *Spirea sp.*, tussock sedge – *Carex stricta*, red maple – *Acer rubrum*, soft rush – *Juncus effisus*, dewberry - Rubus sp., Canada may – *Maianthemum canadense*, unknown grasses, and low bush blueberry – *Vaccinium angustifolium*. The wetland soil was a deep black sandy loam that exhibited redoximorphic features and water at 11-inches, while the upland soil also had signs of redox it didn't have a depleted matrix or other signs of hydrology thus indicating that water was not within the soil for extended periods of time.
Resource areas abutting the culvert to the west of 22 Wheelock Street

Bank Flags B1 – B12 and BA1 – BA12. The B and BA-Series flags delineate the westerly and easterly banks of the intermittent stream, respectively. They begin north of Wheelock Street flow through a 30-inch corrugated metal pipe beneath the street and continue south where it converges with the S -Series stream. The stream is bordered by a narrow band of BVW and is abutted by a white pine and scrub shrub area to the west and lawn area to the east. The stream appeared to begin as a ground water seep and was $\pm 1-2$ feet wide and ± 6 inches deep.

Wetland flags XA1 – XA10 and X1 – X10. The XA and X series wetland flags delineate the wetland boundaries to the north and south of Wheelock Street, respectively. Vegetation found within the area consisted primarily of red maple – *Acer rubrum*, silky dogwood – *Cornus amomum*, jewel weed – *Impatiens capensis*, multiflora rose – *Rosa multiflora*, mountain laurel – *Kalmia latifolia*, and high bush blueberry – *Vaccinium corymbosum*. This wetland boundary had a clear change in vegetation between the upland and wetland. The wetland is hydrolically connected to the intermittent streams and receives hydrology from groundwater seeps, surficial runoff, the intermittent streams and precipitation.

Two (2) hand dug soil borings were conducted along the wetland line to substantiate the delineation. The soil samples and their profiles were analyzed for redoximorphic features and other indicators of hydrology utilizing the Munsell Soil Color Chart and the methods cited in the manual *Field Indicators for Identifying Hydric soils of New England Version 4, April 2019.* Pink flags labeled SB1 & SB2 were placed in the field and depicted on the plan to indicate where the Soil Borings were conducted. See **Appendix B** for data sheets.

RIVERFRONT RESOURCE AREA DELINEATION CRITERIA:

Pursuant to the criteria for identifying perennial streams under the Rivers Protection Act, there were none depicted on the U.S. Geological Survey (USGS) Maps within 200-feet of the project site culverts. See **Figure 1**.

The Riverfront Resource Area, as defined under 310 CMR Section 10.58, extends out perpendicularly 200-feet from the edge of the MAHWL of a perennial stream and consists of the inner and outer riparian zones.

The closest perennial stream to the culverts is Briggs Brook which is ± 400 -feet west and south of the site and therefore the 200-foot Riverfront Area does not extend onto the site.

ENDANGERED SPECIES:

According to the Massachusetts Natural Heritage and Endangered Species Program (NHESP), the site does not fall within Priority Habitats of Rare Species or Estimated

Habitats of Rare Wildlife. **Figure 1** shows the Priority and Estimated Habitat area overlain the USGS map.

FLOOD PLAIN:

As depicted on FEMA's Flood Insurance Rate Map (FIRM) the site does not fall within the 100-year flood plain, which is also known as Bordering Land Subject to Flooding (BLSF). BLSF falls under the jurisdiction of the WPA. See **Figure 4**.

REGULATORY REVIEW:

Should work be proposed within Bordering Vegetated Wetland or buffer, Bank Resource or buffer, or Land Under Water a permit from the Erving Conservation Commission, and MA Department of Environmental Protection must be obtained prior to the start of any work.

FIGURES









APPENDIX A

SITE PHOTOGRAPHS

Site Photos – Wheelock Street, Erving, MA



Northerly view of S and SA-Series Intermittent Stream



Southwesterly view of westerly culvert

5-16-20



SB1 –Within the wetland



SB2 – within the upland

APPENDIX B

SOIL BORINGS

Section II. Indicators of Hydrology

Wheelock Street, Erving, MA.

16 May 2020

Hydric Soil Interpretation

on SB1 below WA8 ¹/₂

1.	Soil	Survey	

Is there a published soil surve	y for this site? Yes X No	
Title/date:	MA GIS	
Map number:		
Soil type mapped:	Gloucester sandy loam 3-8%	
	slopes	
Hydric soil inclusions:	Yes	
-		

Are field observations consistent with soil survey? Yes Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Texture	Redox
А	0 - 26"	10yr 2/1	sl	2% 10yr 3/3

sl sandy loam

Remarks:

Vegetation within the area primarily consisted of spirea, tussock sedge, sphagnum moss, cinnamon fern, red maple, soft rush, dewberry, Canada may, and unk sedge.

This soil boring did not meet any criteria of the NEHSTC's 2019 Field Indicators for Identifying Hydric Soils in New England.

Other

Conclusion: Is soil hydric?

Yes No X

No

Other Indicators of Hydrology: (check all that apply and describe)

	Site inundated:
X	Depth to free water in observation hole: 11"
	Depth to soil saturation in observation hole:
	Water marks:
	Drift lines:
	Sediment deposits:
	Drainage patterns in BVW:
	Oxidized rhizospheres:
	Water-stained leaves:
	Recorded data (stream, lake, or tidal gauge; aerial photo; other):

Other:



Submit this form with the Request for Determination of Applicability or Notice of Intent.

Section II. Indicators of Hydrology Wheelock Street, Erving, MA.

16 May 2020

Hydric Soil Interpretation

on SB2 above WA8 1/2

3. Soil Survey

Is there a p	oublished soil	survey	for this site	e? Y	es	X N	Vo
Title	/date:	-	MA GIS		_		· · · · ·
Map	number:						-
Soil	type mapped:		Glouceste	er sandy loa	am 3-8%	<u>í</u>	-
			slopes				
Hyd	ric soil inclus	ions:	Yes				
Are field o Remarks:	observations c	onsister	nt with soil	survey?	Yes		No
4. Soil De	escription						
Horizon	Depth	Mat	rix Color	Texture	Redo	x	
А	0 - 3"	10yı	r 2/1	sl	No re	dox	
В	3 –23"	10yı	r 4/3	sl	5% 10	0yr 3/6	3-12"
					1% 10	0yr 3/6	12–23"

sl sandy loam

Remarks:

Vegetation within the area primarily consisted of red maple, spirea, anemone, dewberry, cinnamon fern, white pine, low bush blue berry, and bracken fern.

This soil boring did not meet any criteria of the NEHSTC's 2019 Field Indicators for Identifying Hydric Soils in New England.

Other

Conclusion: Is soil hydric?



Other Indicators of Hydrology: (check all that apply and describe)

Site inundated:
Depth to free water in observation hole:
Depth to soil saturation in observation hole:
Water marks:
Drift lines:
Sediment deposits:
Drainage patterns in BVW:
Oxidized rhizospheres:
Water-stained leaves:
Recorded data (stream, lake, or tidal gauge; aerial photo; other):
Other:

Vegetation and Hydrology Conclusion				
C C L	Yes	No		
Number of wetland indicator plants \geq number of non-wetland indicator plants	X			
Wetland hydrology present: hydric soil present		X		
other indicators of hydrology present		X		
Sample location is in a BVW		X		

Submit this form with the Request for Determination of Applicability or Notice of Intent.

APPENDIX D

STORMWATER MANAGEMENT REPORT

Stormwater Management Report Wheelock Street Culverts

<u>General</u>:

This project consists of replacing two culverts that cross Wheelock Street in Erving, MA. The project also includes reconstruction of approximately 500 FT of Wheelock Street, which classifies it as a redevelopment project.

Culvert 160 is a 24" Corrugated Metal Pipe (CMP), which will be replaced with a precast concrete box culvert (3'x4.5' filled with 2' of native stone). Culvert 161 is a 12" Corrugated High Density Polyethylene Pipe (CPP), which will be replaced with two 15" RCPs. The culverts convey intermittent streams that flow from the north to the south of Wheelock Street. The drainage areas of the culverts are mainly composed of forest cover with a small area of impervious cover from houses and the roadway of Wheelock Street.

<u>Design</u>

The existing culverts on Wheelock Street will be replaced with culverts designed to convey a 10year storm. The Rational Method was used to determine the peak surface runoff rate of each culverts' watershed. The Rational Method involves three factors: the drainage area, the runoff coefficients based on surface features, and rainfall intensity based on the time of concentration of the drainage area.

- The watersheds were delineated based off of survey, as-built plans, and contours from Mass Oliver GIS.
- The surface runoff coefficients were determined based off of the area of woods and impervious cover shown in the survey and on aerial images.
- Precipitation data is based on the most current information taken from NOAA Atlas 14, Volume 10, Version 2, Precipitation Frequency Data Server for Erving, MA.
- Times of concentration are calculated based on the TR-55 Method.

Hydraflow Hydrographs for AutoCAD Civil 3D 2019 was used to determine the peak flow for a 2, 10, and 25-year design storm. The capacity of each culvert was analyzed and compared to the flow in cubic feet per second (cfs). The culverts were designed to convey a 10-year design storm.

The existing and proposed culverts were analyzed and designed using HY-8 Culvert Hydraulic Analysis Program version 7.50. HY-8 is a computerized implementation of Federal Highway Administration (FHWA) culvert hydraulic design. The program calculates the capacity of the culvert with headwater and tail water influences. The program also calculates energy dissipation.

The replacement culverts were chosen based on dimensions that maintained an allowable minimum cover over the pipes. Culvert 160 is a 24" CMP, which will be replaced with a 3'x4.5' precast concrete box filled with 2' of native stone. Culvert 161 is 12" CPP, which will be replaced with two 15" RCPs.

During installation of the proposed culverts, a temporary bypass pipe sized to convey the 2-year design storm will be installed. The cofferdam and bypass pipe will maintain the flow of the intermittent streams during construction.

Below is an explanation concerning Standards 1-10 as they apply to the Town of Erving – Wheelock Street Culvert Replacements Project

Standard 1: No New Untreated Discharges

The proposed project will create no new untreated discharges. The redevelopment project includes paving a section of Wheelock Road. A portion of the existing road is gravel, which will be replaced with pavement. An area of 4,307 S.F. will become slightly less impervious.

Standard 2: Peak Rate Attenuation

Since there is a minor increase in impervious area, post-development peak discharge rates will slightly exceed pre-development (pre-improvement) peak discharge rates. The drainage areas to the culverts are otherwise unchanged. The Rational Method was used to calculate discharge rate of the roadway drainage. Rainfall values from NOAA Atlas 14 are used for the calculations.

Design Storm (year)	Pre-Development (cfs)	Post- Development (cfs)
2	0.608	0.693
10	0.874	0.996
25	1.043	1.189

Table 1 - Summary of Pre and Post-Development Peak Flows

For a 2-year storm, Culvert 160 will experience a peak flow of 15.9 cfs while Culvert 161 will experience a peak flow of 10.6 cfs. The total flow for a 2-year storm is 26.5 cfs; therefore, an increase of 0.085 cfs for the roadway drainage is a 0.3% increase in the overall flow. This increase in flow is negligible and will have no significant impacts.

To ensure that the work incorporates the performance standards recommended in the DEP's Stormwater Management Policy, necessary erosion and sedimentation control measures will be utilized during construction. These measures will include straw wattles.

Standard 3: Recharge

There is a negligible increase in the impervious area that drains directly to the intermittent streams. Due to proximity to the streams, the small increase in impervious area will not result in a loss of recharge that otherwise require mitigation. Additionally, due to the limitations of right-of-way, there is insufficient space for the installation of recharge BMPs.

Standard 4: Water Quality

The existing roadway contains grass drainage swales. Riprap splash pads are being installed to reduce erosion. Space limitations at the site preclude the installation of additional BMPs. During construction, appropriate BMPs will be used to minimize sedimentation and soil erosion.

Standard 5: Land Uses with Higher Potential Pollutant Loads (LUHPPLs)

Not Applicable. There are no LUHPPLs in the work area.

Standard 6: Critical Areas

There will be no new discharge to critical areas.

Standard 7: Redevelopments and Other Projects Subject to the Standards Only to the Maximum Extent Practicable

This is a re-development project, which will minimize disturbance to existing trees and shrubs. Certain standards have been met to the maximum extent practicable, as described above.

Standard 8: Construction Period Pollution Prevention and Erosion and Sediment Control

A detailed Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan is included as Appendix E of the NOI. To ensure that the work incorporates the performance standards recommended in the DEP's Stormwater Management Policy, necessary erosion and sedimentation control measures will be utilized during construction. These measures will include straw wattles. Temporary cofferdams will also be used to isolate work areas, allowing water to be temporarily diverted around the work so as to reduce the transport of sediment due to water flowing through the work area.

Standard 9: Operation and Maintenance Plan

Wheelock Street is a Town Road. The culverts will be maintained according to the Operations and Maintenance Plan attached as Appendix F to the NOI.

Standard 10: Prohibition of Illicit Discharges

By the nature of the proposed work, there will be no illicit discharges. There will be no opportunity for illicit discharges into the system.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including any relevant soil evaluations, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan, the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement 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



Bhut

Signature and Date



Massachusetts Department of Environmental Protection Bureau of Resource Protection - Wetlands Program 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.¹ 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.



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



R. M. Int Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

New development



Mix of New Development and Redevelopment



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:

	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
\boxtimes	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):
0 1-	redend 4. No. New Unfreeded Discharges

Standard 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 (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.

Static Static	Simple Dynamic
---------------	----------------

Dynamic Field¹

Runoff from all impervious areas	at the site discharging	to the infiltration BMP.
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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:

Site is comprised sole	ly of C and D soils and/or bedrock at the land surface
------------------------	--

M.G.L. c. 21E sites pursuant to 310 CMR 40.000	0
--	---

- 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 (continued)

Standard 3: Recharge (continued)

The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10year 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.

Standard 4: Water Quality

The 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.
- Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist (continued)			
Standard 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.		
Standard 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 prior 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.		
ן [] ז ז	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 not 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.

Standard 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.
- Critical areas and BMPs are identified in the Stormwater Report.



Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - Limited Project
 - 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.
- 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.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following 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 (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- ☐ 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 *not* been included in the Stormwater Report but will be submitted *before* land disturbance begins.
- The project is *not* 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.

Standard 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 *not* 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.

Standard 10: Prohibition of Illicit Discharges

- The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- An Illicit Discharge Compliance Statement is attached;
- NO Illicit Discharge Compliance Statement is attached but will be submitted *prior to* the discharge of any stormwater to post-construction BMPs.

APPENDIX E

EROSION AND SEDIMENTATION CONTROL PLAN

Erosion and Sedimentation Control Plan and Pollution Prevention Plan

For Construction Activities At:

Wheelock Street Erving, MA

Prepared For:

Town of Erving 12 East Main Road Erving, MA (413) 422-2800– Contact Person To Be Determined

Prepared By:

Weston & Sampson Engineers, Inc. 712 Brook Street, Suite 103 Rocky Hill, CT 06067 (860) 513-1473

Site Contractor:

To Be Determined

1. <u>Narrative</u>

The purpose of this plan is to provide general guidelines and operation and maintenance procedures to the contractor during construction specifically with regards to erosion and sediment control.

The proposed project includes construction activities in the Bank, Bordering Vegetated Wetlands and Land under Water. Activities include excavation within existing pavement limits for the installation of culverts and the reconstruction of the existing paved roadway. Soil within the project area per the NRCS Web Soil Survey is predominately 440B – Gloucester sandy loam, 3 to 8 percent slopes – Hydrologic Soil Group C.

Imported fill material will likely be limited to new road base and pipe bedding material unless excessive unsuitable materials are encountered within the paving limit.

2. <u>Operation and Maintenance</u>

- A. The work covered by this plan consists of furnishing all labor, materials, tools and equipment and performing all work required for the prevention of environmental pollution during and as a result of construction operations under this contract.
- B. The requirements set forth in this plan apply to all land disturbing activities required for this project
- C. All work under this Contract shall be in accordance with the Conservation Commissions' Orders of Conditions as well as all other stated requirements.
- D. The proposed erosion and sediment control measures that are to be installed are located on the plans titled "Wheelock Street Culverts Improvements Project". This plan is intended to supplement the erosion and control measures indicated on the construction drawings.
- E. A rain gauge shall be placed at the project in a workable location and monitored during rainfall periods until all disturbed areas are stabilized. In the event, there is a rainfall greater than 1/2" in a 12 hour period, all erosion control measures shall be checked and repaired as required. If no rain gauge is used, all erosion control measures shall be checked after all rainfall events. A checklist (sample provided at the end of this plan) will be filled out by the contractor each week. The contractor shall designate a party to be responsible for the maintenance of all erosion and sediment control measures for the duration of the project. Inspections shall be completed weekly or within 24 hours of a rain event as described above. When maintenance is required it shall be completed within 24 hours of being identified.

Designated Party: _

- F. All soil erosion and sediment control measures shall be installed, maintained, and implemented as shown on the construction drawings. It is the intent of this plan that soil erosion control measures are the first to be installed and the last to be removed. Surface waters on and adjacent to the site and abutting properties are to be protected from degradation and sedimentation. If other watercourses, streams, drainage-ways or abutting properties are jeopardized by construction, it shall be the contractor's responsibility to protect those waters and properties.
- G. Make all necessary repairs to erosion control facilities as soon as possible. Straw wattles, temporary sediment traps, and inlet protection which accumulate sediment and debris shall be cleaned and re-set as needed.

3. <u>Notification</u>

The Engineer will notify the Contractor in writing of any non-compliance with the foregoing provisions. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails to act promptly, the Engineer may order stoppage of all or part of the work until satisfactory corrective action has been taken. No claim for an extension of time or for excess costs or damage incurred by the Contractor as a result of time lost due to any stop work orders shall be made unless it was later determined that the Contractor was in compliance.

4. Implementation

- A. Prior to commencement of work, the Contractor shall meet with representatives of the Engineer and the Conservation Commission to develop mutual understandings relative to compliance of the environmental protection program.
- B. The Contractor shall submit for approval six sets of details and literature fully describing environmental protection methods to be employed in carrying out construction activities within 100 feet of wetlands and 200 feet of watercourses.
- C. Once a construction schedule has been established a person shall be named and will be responsible for implementation of sediment and erosion control measures. This responsibility includes the acquisition of materials, installation, and maintenance of erosion and sediment structures, the communication and detailed explanation to all people involved in the site work of the requirements and objective of the erosion and sediment control measures.

D. The Engineer shall be notified of any proposed alteration to the erosion and sediment control plan, prior to altering, in order to ensure the feasibility of the addition, subtraction, or change in the plan.

5. Area of Construction Activity

Insofar as possible, the Contractor shall confine his construction activities to those areas defined by the plans and specifications. All land resources within the project boundaries and outside the limits of permanent work performed under this contract shall be preserved in their present condition or be restored to a condition after completion of construction at least equal to that which existed prior to work under this contract.

6. Protection of Water Resources

- A. The Contractor shall not pollute streams, lakes or reservoirs with fuels, oils, bitumens, calcium chloride, acids or other harmful materials. It is the Contractor's responsibility to comply with all applicable Federal, State, County and Municipal laws regarding pollution of rivers and streams.
- B. Special measures should be taken to insure against spillage of any pollutants into public waters.

7. Location of Storage Areas

- A. The location of the Contractor's storage areas for equipment and/or materials shall be as negotiated with the Owner. Plans showing storage facilities for equipment and materials shall be submitted for approval of the Engineer.
- B. No excavated materials or materials used in backfill operations shall be deposited within a minimum distance of one hundred (100) feet of any watercourse or any drainage facility. Adequate measures for erosion and sediment control such as the placement of baled hay or straw around the downstream perimeter of stockpiles shall be employed to protect any downstream areas from siltation.
- C. There shall be no storage of equipment or materials in areas designated as wetlands.
- D. The Engineer may designate a particular area or areas where the Contractor may store materials used in his operations.
- E. Storage areas in cross-country locations shall be restored to pre-construction conditions with the planting of native species of trees and shrubs.

8. Spill Prevention Measures

- A. Vehicle Maintenance: Vehicles and equipment maintenance shall occur at the off-site staging area over a spill containment pallet or sufficiently impervious surface. Only minor maintenance shall be conducted. All equipment fluids generated from maintenance activities will be disposed of into designated drums stored on spill pallets inside a materials storage container. Fluids shall be removed from the site and disposed of in accordance with applicable regulations as soon as feasible. All vehicles and equipment including subcontractor vehicles shall be checked for leaking oil and fluids. Vehicles leaking fluid shall not be allowed onsite.
- B. Spill Kits: Spill kits will be stored within the designated fueling area and concrete washout areas. Spill kits shall be readily available during all fueling operations. Spill kits must contain absorbent pads or other sorbent materials. Spill kits shall be inspected weekly to insure that adequate cleanup materials are on site at all times.
- C. Spills: All spills will be cleaned up immediately upon discovery. Spent absorbent materials and rags will be hauled offsite immediately after the spill is cleaned up for disposal at an approved location. Spills large enough to discharge to surface water will be reported to the National Response Center at 1-800-424-8802.
- D. Material safety data sheets: A material inventory and emergency contact information shall be maintained onsite.

9. <u>Vehicle Fueling Operations</u>

- A. Several types of vehicles and equipment will be used on-site throughout the project, including graders, excavators, loaders, concrete equipment, rollers, trucks and trailers, backhoes, and forklifts. Equipment/vehicle fueling will be performed onsite. Fueling activities are to be situated so that drainage facilities or watercourses located in the area are not at risk from potential infiltration. Fueling shall take place on an impervious surface and shall be conducted at least 100 feet from a drainage structure, wetland or watercourse. Absorbent, spill-cleanup materials and spill kits will be available at the designated fueling areas. Fuel will be delivered to the site on an as needed basis by a fuel delivery service.
- B. Maintenance and Inspection: Inspect equipment/vehicle storage areas and fueling area weekly. Vehicles and equipment will be inspected on each day of use. Leaks will be repaired immediately or the problem vehicle(s) or equipment will be removed from the project site. Keep ample supply of spillcleanup materials onsite and immediately clean up spills and dispose of materials properly.

10. Washing of Equipment and Vehicles

Washing of equipment and vehicles is prohibited. Vehicle and equipment washing shall occur off-site at a permitted facility.

11. Materials Storage and Staging Area

- A. Construction equipment and maintenance materials will be stored at a designated staging area and materials storage areas. A watertight shipping container will be used to store hand tools, small parts, and other construction materials. All hazardous waste materials such as oil filters, petroleum products, paint, and equipment maintenance fluids will be stored in structurally sound and sealed containers under cover within the storage container, until such time they can be properly disposed of. Very large items, such as piping, valves, and structures, will be stored in the open in the materials storage area. Such materials will be elevated on wood blocks to minimize contact with runoff.
- B. The storage areas will be inspected weekly. The storage areas will be kept clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers and liners will be repaired or replaced as needed to maintain proper function.
- C. It is not anticipated that pesticides, herbicides, insecticides, fertilizers and landscape materials will be stored on site. These materials will be delivered as needed during the installation of the limited landscaping features. If it is determined that these materials are required to be stored on site they shall be stored in the watertight shipping container, in a spill containment pallet, with a spill cleanup kit.
- D. It is not anticipated that diesel fuel, oil, hydraulic fluids, other petroleum products, and other chemicals will be stored on site. These materials will be delivered as needed over the course of construction. If it is determined that these materials are required to be stored on site they shall be stored in the watertight shipping container, in a spill containment pallet, with a spill cleanup kit.
- E. All hazardous waste materials including oil filters, petroleum products, paint, and equipment maintenance fluids will be stored in structurally sound and sealed shipping containers, within a hazardous materials storage area in a designated staging area. Hazardous waste materials will be stored in appropriate and clearly marked containers and segregated from other nonwaste materials. Secondary containment will be provided for all waste materials in the hazardous materials storage area and will consist of commercially available spill pallets. Additionally, all hazardous waste materials will be disposed of in accordance with federal, state, and local

regulations. Hazardous waste materials will not be disposed of into the on-site dumpsters. The hazardous waste materials area will be inspected weekly and after storm events. The storage area will be kept clean, well-organized and equipped with ample cleanup supplies as appropriate for the materials being stored. Material safety datasheets, material inventory, and emergency contact numbers will be maintained on site.

F. All waste materials will be collected and disposed of into a dumpster in the designated staging area. Dumpsters will have a secure tight lid, be placed away from stormwater drains and structures, and will meet all federal, state, and local regulations. Only trash and construction debris will be placed in the dumpsters. Construction materials will not be buried on site. The dumpsters will be inspected weekly and immediately after storm events. The dumpsters will be emptied weekly or more frequently if needed, and taken to the appropriate disposal facility.

12. Sanitary Waste

Portable toilets, located in the staging area, will be provided at the site throughout all the phases. The toilets will be located away from concentrated drainage flow paths. Sanitary waste will be collected a minimum of once a week and shall be inspected weekly for evidence of leaking holding tanks.

13. <u>Recycling Practices</u>

Wood pallets, cardboard boxes, and other recyclable construction scraps will be disposed of in a separate designated dumpster for recycling. The dumpster will have a secure watertight lid, be placed away from stormwater conveyances and drains and meet all local and state solid waste management regulations. Only solid recyclable construction scraps from the site will be deposited in the dumpster. The recycling dumpster will be inspected weekly. The recycling dumpster will be emptied when full and taken to an approved recycling center by the contractor. If recyclable construction wastes are exceeding the dumpster's capacity, the dumpsters will be emptied more frequently.

14. Construction in Areas Designated as Wetland Resources on the Drawings

- A. Insofar as possible, the Contractor shall make every effort to minimize disturbance within areas designated as wetland resources. Total construction widths shall be limited to the widths shown.
- B. The Contractor shall perform his work in such a way that these areas are left in the condition existing prior to construction.
- C. The elevations of areas designated as wetland resources shall not be unduly disturbed by the Contractor's operations. If such disturbance does occur, the

Contractor shall take all measures necessary to return these areas to the elevations which existed prior to construction.

15. Protecting and Minimizing Exposed Areas

- A. The Contractor shall limit the area of land which is exposed and erodible during construction. In areas where the period of exposure will be greater than two (2) months, temporary stabilization or other protective measures shall be provided as specified.
- B. The Contractor shall take account of the conditions of the soil where temporary cover crop will be used to insure that materials used for temporary vegetation are adaptive to the sediment control. Materials to be used for temporary vegetation shall be approved by the Engineer.

16. <u>Protection of Landscape</u>

- A. The Contractor shall not deface, injure, or destroy trees or shrubs nor remove or cut them without written authority from the Owner. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorages unless specifically authorized by the Engineer. Excavating machinery and cranes shall be of suitable type and be operated with care to prevent injury to trees which are not to be removed, particularly overhanging branches and limbs. The Contractor shall, in any event, be responsible for any damage resulting from such use.
- B. Branches, limbs, and roots shall not be cut except by permission of the Engineer. All cutting shall be smoothly and neatly done without splitting or crushing. When there is unavoidable injury to branches, limbs and trunks of trees, the injured portions shall be neatly trimmed and covered with an application of grafting wax or tree healing paint as required.
- C. Where, in the opinion of the Engineer, trees may possibly be defaced, bruised, injured, or otherwise damaged by the Contractor's equipment or by his blasting or other operations, the Engineer may require the Contractor to adequately protect such trees by placing boards, planks, poles or fencing around them. Any trees or landscape feature scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition at the expense of the Contractor. The Engineer will decide what method of restoration shall be used, and whether damaged trees shall be treated and healed or removed and disposed of.
- D. Cultivated hedges, shrubs, and plants which could be injured by the Contractor's operations shall be protected by suitable means or shall be dug up, balled and temporarily replanted and maintained. After construction operations have been substantially completed, they shall be replanted in their

original positions and cared for until growth is re-established. If cultivated hedges, shrubs, and plants are injured to such a degree as to affect their growth or diminish their beauty or usefulness, they shall be replaced by items of a kind and quality at least equal to that existing at the start of the work.

17. Clearing and Grubbing

- A. The Contractor shall clear and grub only the area required for construction operations, as approved by the Engineer. Removal of mature trees (4 inches or greater DBH) will not be allowed on temporary easements.
- B. The Contractor shall not remove trees without permission of the Engineer.

18. Discharge of Dewatering Operations

- A. Any water that is pumped and discharged as part of the Contractor's water handling shall be filtered by an approved method prior to its discharge into a receiving water or drainage system.
- B. Under no circumstances shall the Contractor discharge water to the areas designated as wetlands. When constructing in a wetlands area, the Contractor shall discharge water from dewatering operations directly to an approved filtration method before discharging to the nearest drainage system, stream, or waterway.
- C. The pumped water shall be filtered through baled hay, a vegetative filter strip or a vegetated channel to trap sediment occurring as a result of the construction operations. The vegetated channel shall be constructed such that the discharge flow rate shall not exceed a velocity of more than 1 foot per second. Accumulated sediment shall be cleared from the channel periodically.

19. Dust Control

- A. During the progress of the work, the Contractor shall conduct his operations and maintain the area of his activities, including sweeping and sprinkling of streets as necessary, to minimize creation and dispersion of dust. If the Engineer decides it is necessary to use calcium chloride for more effective dust control, the Contractor shall furnish and spread the material, as required.
- B. Calcium Chloride shall not be used for dust control within a drainage basin or in the vicinity of any source of potable water.

20. Separation and Replacement of Topsoil

Topsoil shall be carefully removed from cross-country areas where excavations are to be made, and separately stored to be used again as required. The topsoil shall be stored in an area acceptable to the Engineer and adequate measures shall be employed to prevent erosion of said material.

21. Straw Wattles

To trap sediment and to prevent sediment from discharging downhill, straw wattles shall be used where shown on the drawings. The wattles should be securely staked to prevent overturning, flotation, or displacement. All deposited sediment shall be removed periodically.

22. Sediment Fence

- A. Where indicated on the drawings or where required by the Engineer, the Contractor shall erect and maintain a temporary silt fence. In areas designated as wetlands, the Contractor shall line the limits of the construction easement with a silt fence. The silt fence shall be used specifically to contain sediment from runoff water and to minimize environmental damage caused by construction.
- B. The silt fence shall consist of a 3-foot wide continuous length sediment control fabric, stitched to a 22-foot wide, continuous length support netting, and stapled to preweathered oak posts installed as shown on the drawings. The oak posts shall be 1½-inches by 1½-inches (Minimum Dimension) by 48 inches and shall be tapered. The support netting shall be industrial strength polypropylene. The bottom edge of the sediment control fabric shall be buried as shown on the drawings. The sediment control fabric shall conform to the following properties:

Property	Value	Test Method
1. Grab Strength (lbs.)	124	ASTM D-4632
2. Elongation (%)	15%	ASTM D-4632
3. Puncture Strength (lbs.)	65	ASTM D-4833
4. Burst Strength (psi)	300	ASTM D-3786
5. Trapezoid Tear (lbs.)	60	ASTM D-4533
6. Equivalent Opening Size (U.S. Sieve)	No. 30	ASTM D-4571
7. Permittivity (sec ⁻¹)	0.10	ASTM D-4491
8. Water Flow Rate (gal/min/sf.)	10	ASTM D-4491
9. UV Resistance (%)	70	ASTM D-4355

C. The silt fence shall be Mirafi Envirofence manufactured by Mirafi, Inc. or approved equal.
EROSION CONTROL MEASURES INSPECTION AND MAINTENANCE CHECKLIST

DATE/TIME:_____

INSPECTOR:_____

MEASURE	SATISFACTORY (YES OR NO)	COMMENTS	ACTION	DATE COMPLETED
Sediment Barriers				
Inlet Protection				
Discharge Points				

POLLUTION PREVENTION MEASURES INSPECTION AND MAINTENANCE CHECKLIST

DATE/TIME:_____

INSPECTOR:_____

MEASURE	SATISFACTORY (YES OR NO)	COMMENTS	ACTION	DATE COMPLETED
Trash Dumpster with				
Recycling Dumpster with Cover				
Staging Area				
Bulk Material Storage Area				
Material Storage Containers				
Fueling Area				
Equipment Storage Area				
Sanitary Facilities				
Concrete Washout Area				
Spill Kits				

APPENDIX F

OPERATION AND MAINTENANCE PLAN

LONG-TERM POLLUTION PREVENTION PLAN/ OPERATION AND MAINTENANCE PLAN Town of Erving

I. Purpose and Scope

The purpose of this plan is to provide the maintenance staff of the Town of Erving guidelines and procedures for the operation and maintenance of the culverts on Wheelock Street. Checklists will be utilized during the inspection and cleaning process and kept on file in the maintenance office.

The proposed site plan includes the following stormwater structures:

- Discharge Points
- II. Ownership

The Town of Erving Highway Department operates and maintains Town-wide roadways and drainage systems.

III. Responsible Party

The following individual is the primary contact for the implementation of this plan.

Name: Glenn McCrory, Foreman

Phone #: (413) 423-3500

- IV. Schedule for Inspection and Maintenance Activities
 - A. Inspection
 - i. Structures and outfalls will be inspected annually for excess accumulation of sediment and debris, erosion or other problems.
 - B. Routine and Non-Routine Maintenance
 - i. Structures and outfalls shall be cleaned at least once a year, at a minimum, after the snow and ice removal season and before spring rainfall events or as required due to conditions noted during inspections.

- ii. Street sweeping: The roadways shall be swept once a year after the snow and ice removal season has ended and prior to spring rains.
- iii. Erosion repairs will be completed on an as-needed basis.
- V. Access to System

The drainage system is located within the Town right-of-way.

VI. Funding

The Highway Department maintains a budget as required to complete all highway related services. Inspection and maintenance of the systems is part of this yearly budget process.

VII. Illicit Discharges

No illicit discharges to watercourses or drainage structures are permitted in the Town of Warren.

VIII. Operation and Maintenance Log Forms

See attached sheets.

STORMWATER MANAGEMENT SYSTEM INSPECTION CHECKLIST

DATE/TIME:_____

INSPECTOR:_____

STRUCTURE	SATISFACTORY (YES OR NO)	COMMENTS	ACTION	DATE COMPLETED
OUTFALLS			·	

APPENDIX G

PROOF OF NOTIFICATION AND ABUTTERS LIST

AFFIDAVIT OF SERVICE

Under the Massachusetts Wetlands Protection Act

I, <u>Lauren Coles</u>, hereby certify under the Pains and Penalties of Perjury

that on <u>September 22, 2020</u> I gave notification to abutters in compliance with the

second paragraph of Massachusetts General Laws, Chapter 131, Section 40, and the

DEP Guide to Abutter Notification dated, April 8, 1994, in connection with the following

matter:

A Notice of Intent has been filed under the Massachusetts Wetlands Protection Act by the <u>Town of Erving</u> with the Erving Conservation Commission on <u>September 22, 2020</u> for property located on Wheelock Street <u>in Erving.</u>

The completed notification and a list of the abutters to whom it was given and their

addresses, are attached to this Affidavit of Service.

Name: Lauren Coles Title: Project Engineer Organization: Weston & Sampson Engineers, Inc September 22, 2020 DATE

ABUTTERS LIST

Notice of Intent – September 2020 Wheelock Street Culvert Improvements

Map-Lot	Owner of Property	Property Affected	Legal Address of Owner
5-1-31	Cadran Craig	18 Wheelock Street	18 Wheelock Street
			Erving, MA 01344
5-1-32	Irrevocable Trust Elron	22 Wheelock Street	22 Wheelock Street
			Erving, MA 01344
5-1-33	Doleva John	0 Liam's Way	31 Pisgah Mountain Road
			Gill, MA 01354
5-1-34	Doleva John	0 Wheelock Street	31 Pisgah Mountain Road
			Gill, MA 01354
5-1-35	Doleva John	0 Liam's Way	31 Pisgah Mountain Road
			Gill, MA 01354





Notification to Abutters Under the Massachusetts Wetlands Protection Act

In accordance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, you are hereby notified of the following:

A. The name of the applicant is:

Town of Erving 12 East Main Street Erving, MA 01344

B. The name of the owner is: <u>same as above</u>

C. The applicant has filed a Notice of Intent with the <u>Erving Conservation Commission</u> seeking permission to alter an Area Subject to Protection under the Wetlands Protection Act (General Laws Chapter 131, Section 40). The Work includes the replacement of two culverts on Wheelock Street.

D. The address of the lot(s) where the activity is proposed: Wheelock Street

E. Information regarding the project, date, time and place of the public hearing may be obtained from Weston & Sampson Engineers Inc., by contacting Bill Storti at <u>1-860-513-1473 ext. 3003</u> between the hours of <u>8:00 – 5:00</u> on the following days of the week: <u>Monday – Friday</u> or the Erving Conservation Commission at <u>(413) 422-2800 ext. 1108</u> between the hours of <u>9:00 AM</u> and <u>5:00 PM</u> on <u>Monday – Friday</u>.

F

NOTE: Notice of the public hearing, including its date, time, and link to meeting, will be published at least five (5) days prior to the hearing date in the <u>Greenfield Recorder</u>.

NOTE: Notice of the meeting of the Conservation Commission, including its date, time and link to the meeting will be posted in the Town Hall not less than forty-eight (48) hours in advance of the meeting. The meeting is scheduled for <u>October 5, 2020</u> at <u>6:30 P.M.</u> and will be conducted online.

NOTE: You also may contact your local Conservation Commission or the Department of Environmental Protection Regional Office for more information about this application or the Wetlands Protection Act.

APPENDIX H

PROJECT PLANS

WHEELOCK STREET CULVERT IMPROVEMENTS PROJECT



TOWN OF ERVING, MASSACHUSETTS **BOARD OF SELECTMEN**

JACOB A. SMITH, CHAIR WILLIAM A. BEMBURY PETER SANDERS



SEPTEMBER 2020





Weston & Sampson Engineers, Inc. 712 Brook Street, Suite 103, Rocky Hill, Connecticut

FOR PERMITTING ONLY 09|21|20

)		
DESCRIPTION	EXISTING	PROPOSED	
SANITARY SEWER			
FORCE MAIN		6"FM DI	
WATER MAIN		6"W DI	
ABANDONED WATER MAIN			
STORM DRAIN		— 18"D RCP —	
GAS	·	— 4"G —	
ELECTRIC	·	—_E—_	
TELEPHONE		T	
HOUSE CONNECTION		6" HOUSE CONN (TYP)	
GRINDER PUMP	© GP	I ↔ GP	
SANITARY SEWER MANHOLE	S	SMH	
STORM DRAIN MANHOLE	D	• DMH	
ELECTRICAL MANHOLE	Ē	● ЕМН	
TELEPHONE MANHOLE	T	● TMH	
AIR RELEASE VALVE MANHOLE	A state of the	• ARMH	
FORCE MAIN CLEANOUT MANHOLE	Ē	● ГММН	
CLEANOUT	©	• CO	
CATCH BASIN		CB	
CATCH BASIN (CURB INI FT)			
HYDRANT			

ONE VALVE	₩	M	
		<i> </i>	
CURB STOP	ő	M	
BUTTERFLY VALVE	Neu		
BALL VALVE	K	F	
REDUCER	٩	•	
CAP OR PLUG	С	C	
GAS GATE VALVE	₿¥.		
UTILITY POLE	ىت س		
GUY POLE			
LIGHT POST	·		
	~~ 		
LUGE OF UNFAVED KUAD			
CURB			
SIDEWALK			
RAILROAD			
STONE WALL			
RETAINING WALL	RET WALL	RET WALL	
FENCE	X		
INDIVIDUAL DECIDUOUS TREE	\odot	\odot	
INDIVIDUAL EVERGREEN TREE	$\langle \cdot \rangle$	2.2	
TREE LINE	~~~~~	~~~~~	
SURVEY MARKER			
PROPERTY LINE	İ— —		
EASEMENT LINF	1		
LIMIT OF WORK			
	× 100 2	×101 5	
	56		
	, , , , , , , , , , , , , , , , , , ,		
HOUSE NUMBER	#35		
FLOOR ELEVATION	FL=56.7		
SILL ELEVATION	S=56.7		
WETLAND	<u> </u>		
WETLAND FLAGS	•1		
RIP RAP	<u>+\$+\$\$\$\$\$\$</u>	*****	
NATIVE STONE			
BOLLARD	ОВ	●B	
SIGN	-0-		
BENCH MARK	•		
PERCOLATION TEST		● PT-1	
TEST PIT			
BORING	€ 		
SANUBAG			
SILT FENCE			
STRAW BALES			
ROCK OUTCROP			
DRAINAGE DITCH / SWALE			

ABBREVIATIONS

AC

ACCMP	ASPHALT COATE
ASTM	AMERICAN SOCIE
BIT	BITUMINOUS CON BITUMINOUS
BLDG BM	BUILDING BENCH MARK
BO	BLOW OFF
C, CATV	CABLE TELEVISIO
CC	CATCH BASIN CONCRETE CURB
CHIM CI	CHIMNEY CAST IRON
Ê C	CENTERLINE
CMP	CORRUGATED ME
CU FT	CUBIC FEET
CY D	CUBIC YARD STORM DRAIN, D
DI DIA	DROP INLET, DU
DMH	DRAIN MANHOLE
E	EAST, ELECTRIC
EA EF	EACH EACH FACE
EL EOP	ELEVATION FDGF OF PAVEM
EW	EACH WAY
FF	FINISHED FLOOR
FL FLG	FLOW LINE FLANGE
FT G	FEET, FOOT NATURAL GAS
GALV	GALVANIZED
GR	GRANITE
HDPE	HIGH DENSITY P
HORIZ HP	HORIZONTAL HIGH PRESSURE
HYD INV	HYDRANT
ID IP	
LB	POUND
LF LS	LINEAR FEET LUMP SUM
MAX MB	MAXIMUM MAIL BOX
MECH MH	
MIN	
MISC	MISCELLANEOUS MECHANICAL JOI
N NE	NORTH NORTH EAST
NW NF	NORTH WEST
N/F	NOW OR FORMER
NU N.T.S.	NOT TO SCALE
OD PE	PLAIN END, POL
PED P	PEDESTRIAN PROPERTY LINE
PL N/C	
PVMT	
RCP ROW	RIGHT-OF-WAY
RQD S	ROCK QUALITY SEWER, SOUTH
SE SECT	SOUTH EAST
SF	SQUARE FEET
SMH	SANITARY SEWER
SPEC SQ FT	SPECIFICATIONS
SS STA	STAINLESS STEE
STL SW	STEEL SIDEWALK, SOUT
T	TELEPHONE, HYD
	TOP OF FRAME
IHK TS	TOP OF STONE
TYP TW	TYPICAL TOP OF WALL
UP VC	UTILITY POLE
VERT	VERTICAL
w WT	WAIER, WEST WATERTIGHT

NOTE: ITEMS SHOWN IN THE LEGEND MAY NOT BE PRESENT IN THESE PLANS

ASBESTOS CEMENT PIPE COATED CORRUGATED METAL PIPE VALVE AN SOCIETY FOR TESTING AND MATERIALS OUS CONCRETE

- LY VALVE ELEVISION
- TE CURB
- ATED METAL PIPE
- DRAIN, DEPTH FROM RIM TO INVERT LET, DUCTILE IRON
- ANHOLE
- PAVEMENT
- FLOOR
- NSITY POLYETHYLENE
- ESSURE
- IAMETER
- ANEOUS CAL JOINT
- FORMERLY
- DIAMETER ND, POLYETHYLENE
- IYL CHLORIDE
- CED CONCRETE PIPE
- Y SEWER MANHOLE ATIONS
- SS STEEL, SEWER SERVICE
- K, SOUTH WEST NE, HYDROSTATIC THRUST ARY BENCH MARK

CONSTRUCTION NOTES

- 1. THE CONTRACTOR SHALL CALL "DIGSAFE" AT 1-888-344-7233 AT LEAST 72 HOURS, SATURDAYS, SUNDAYS, AND HOLIDAYS EXCLUDED, PRIOR TO EXCAVATING AT ANY LOCATION. A COPY OF THE DIGSAFE PROJECT REFERENCE NUMBER(S) SHALL BE GIVEN TO THE OWNER PRIOR TO EXCAVATION.
- 2. LOCATIONS OF EXISTING PIPES, CONDUITS, UTILITIES, FOUNDATIONS AND OTHER UNDERGROUND OBJECTS ARE NOT WARRANTED TO BE CORRECT AND THE CONTRACTOR SHALL HAVE NO CLAIM ON THAT ACCOUNT SHOULD THEY BE OTHER THAN SHOWN.
- 3. ALL PAVEMENT DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED IN ACCORDANCE WITH THE SPECIFICATIONS AND AS SHOWN ON THE DRAWINGS.
- 4. ALL AREAS DISTURBED BY THE CONTRACTOR BEYOND LIMITS OF PROJECT SHALL BE RESTORED AT NO ADDITIONAL COST TO THE OWNER.
- 5. THE CONTRACTOR SHALL NOT STORE ANY APPARATUS, MATERIALS, SUPPLIES, OR EQUIPMENT ON DRAINAGE STRUCTURES OR WITHIN 100 FEET OF WETLANDS.
- 6. TRENCHES MAY BE EXCAVATED WIDER THAN THE 'LIMIT OF EXCAVATION FOR EARTH EXCAVATION' ABOVE THE 'LINE OF NARROW TRENCH LIMIT.' ANY SUCH ADDITIONAL EXCAVATION SHALL BE AT THE CONTRACTORS EXPENSE AND SHALL NOT BE MEASURED FOR PAYMENT.
- 7. BELOW THE 'LINE OF NARROW TRENCH LIMIT' THE TRENCH SHOULD NOT BE EXCAVATED BEYOND THE TRENCH WIDTH 'W'. IF MATERIAL IS LOOSENED OR REMOVED BEYOND THE ABOVE MENTIONED LIMITS. THE CONTRACTOR WILL BE REQUIRED TO PROVIDE CRUSHED STONE FOR THE FULL WIDTH OF THE TRENCH AT NO ADDITIONAL COST TO THE OWNER.
- 8. SHEETING TO BE LEFT IN PLACE SHALL BE USED WHERE SHOWN ON THE DRAWINGS OR WHERE REQUIRED BY THE ENGINEER. IT SHALL BE LEFT IN PLACE BELOW A LINE 12 INCHES ABOVE THE TOP OF THE PIPE/STRUCTURE UNLESS OTHERWISE REQUIRED BY THE ENGINEER.
- 9. TOPOGRAPHIC SURVEY, BUILDINGS, EDGE OF PAVEMENT, UTILITY POLES, TREES/TREE LINES, WETLAND FLAG LOCATIONS AND LOCATIONS OF ABOVE GROUND FEATURES FROM SURVEY PERFORMED BY WESTON & SAMPSON ENGINEERS, INC. IN MAY 2020. PROPERTY LINES BASED ON ASSESSOR'S MAPPING.
- 10. VERTICAL DATUM BASE UPON NAVD 1988.
- 11. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING AND PROPERLY DISPOSING EXCESS FILL, ROCK, TREES, PAVEMENT AND DEMOLITION DEBRIS RESULTING FROM CONSTRUCTION ACTIVITIES AT A PROPER DISPOSAL AREA.
- 12. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN EROSION AND SEDIMENT CONTROLS, AS SHOWN, AS REQUIRED IN THE ORDER OF CONDITIONS AND AS REQUIRED BY THE ENGINEER. SUCH CONTROLS SHALL REMAIN IN PLACE UNTIL ALL DISTURBED AREAS HAVE BEEN RESTORED.
- 13. THE CONTRACTOR SHALL RETAIN THE SERVICES OF A SURVEYOR LICENSED IN THE COMMONWEALTH OF MASSACHUSETTS TO COMPLETE ALL LAYOUTS, SURVEYS, BENCHMARK TRANSFERS, ETC REQUIRED FOR CONSTRUCTION OF THE PROJECT AS SHOWN AND AS SPECIFIED.

GENERAL NOTES

- 1. NO ACCESS TO ADJACENT PROPERTIES IS PERMITTED WITHOUT PRIOR WRITTEN APPROVAL.
- 2. THE CONTRACTOR SHALL MAINTAIN SIDE SLOPES AND DRAINAGE SWALES DURING CONSTRUCTION TO PREVENT PONDING AND EROSION.
- 3. THE CONTRACTOR SHALL MAINTAIN EXCAVATION SLOPES DURING CONSTRUCTION IN ACCORDANCE WITH THE MINIMUM AND MAXIMUM SLOPES SPECIFIED IN THE CONTRACT OR STIPULATED BY ANY STATE OR FEDERAL AGENCY. ANY LATERAL SUPPORT SYSTEM USED IN THE FIELD SHALL BE INCIDENTAL TO THE APPROPRIATE WORK ITEM AND CONFORM TO THE SPECIFICATIONS.
- 4. ALL EARTHWORK SHALL BE PERFORMED IN THE DRY AS SPECIFIED IN THE SPECIFICATIONS.
- 5. ALL WORK ITEMS DETAILED IN THESE DRAWINGS SHALL BE COMPLETED IN ACCORDANCE WITH THE SPECIFICATIONS.
- 6. THE CONTRACTOR IS RESPONSIBLE FOR: BYPASSING ALL FLOWS THROUGH THE SITE; ALL CONSTRUCTION DEWATERING NECESSARY FOR ACHIEVING A FIRM, DRY SUBGRADE; CONTROL OF ANY STORMWATER FLOWS COMING FROM ON-SITE AND OFF-SITE LOCATIONS AND ANY OTHER MEASURES NECESSARY TO COMPLETE THE WORK INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS.
- 7. THE CONTRACTOR MAY PROPOSE ALTERNATIVE METHODS FOR BYPASSING FLOWS. THE METHOD MAY BE UTILIZED SUBJECT TO APPROVAL BY THE ENGINEER.
- 8. THE CONTRACTOR SHALL PROVIDE THE OWNER WITH AS-BUILT DRAWINGS.

DRAWING INDEX

CULLT			BOARD OF SELECTMEN
<u>NO.</u>	<u>NO.</u>		
1		COVER	PROJECT
2	C-001	LEGEND, ABBREVIATIONS, NOTES AND	
		DRAWING INDEX	
3	C-100	CULVERT 160 AND CULVERT 161 EXISTING	
		CONDITIONS	
4	C-101	CULVERT 160 PROPOSED CONDITIONS	
5	C-102	CULVERT 161 PROPOSED CONDITIONS	
6	C-103	TYPICAL WATER AND EROSION CONTROL PLAN	
7	C-104	DETAILS	
8	C-105	CONSTRUCTION ZONE SAFETY PLAN	Weston & Sampsor
			Weston & Sampson Engineers, Inc. 712 Brook Street, Suite 103 Rocky Hill, CT 06067
			978.532.1900 800.SAMPSON
			Consultants:

Revis	sions:	
No.	Date	Description
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<u> </u>		
THIS	: DOCUMENT AI	ND ALL ASSOCIATED DOCUMENTS
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TOWN OF ERVING, MASSACHUSETTS

FOR PERMITTING **ONLY 09|21|20**

LEGEND,

ABBREVIATIONS,

NOTES AND

DRAWING INDEX

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WLF #SA1 WLF #SA2 WLF #SA2 WLF #SA2 WLF #SA5	Project: TOWN OF ERVING, MASSACHUSETTS BOARD OF SELECTMEN WHEELOCK STREET CULVERT IMPROVEMENTS PROJECT
MLF #NAB ST WLF #NAB 15,0 WLF #NAB WLF #ST WLF #SAB WLF #ST WLF #SAB WLF #ST WLF #SAB WLF #ST WLF #SAB WLF #SAB WLF #SAB WLF #SAB WLF #SAB WLF #SAB WLF #SAB WLF #SAB WLF #SAB XWLF #VAB ULF #SAB XWLF #SAB ULF #SAB XWLF #SAB ULF #SAB XWLF #SAB ULF #SAB XWLF #SAB ULF #SAB XWLF #SAB	Weston & Sampson Engineers, Inc. Y12 Brook Street, Suite 103 Rocky Hill, CT 06067 Y8.532.1900 Www.westonandsampson.com
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SUGGESTED CONSTRUCTION SEQUENCE

1. OBTAIN APPROPRIATE PERMITS, NOTIFY TOWN OFFICIALS OF CONSTRUCTION COMMENCEMENT AND SUBMIT CONSTRUCTION SCHEDULE. 2. ON-SITE CONSTRUCTION SEQUENCE SHALL START WITH THE MINIMUM AMOUNT OF CLEARING REQUIRED TO INSTALL EROSION CONTROL MEASURES AS SHOWN ON PLAN OR AS REQUIRED. NO WORK SHALL TAKE PLACE UNTIL THE ENGINEER, TOWN AND CONSERVATION COMMISSION HAVE HAD THE OPPORTUNITY TO INSPECT AND APPROVE INSTALLED MEASURES. CONTRACTOR SHALL PROVIDE ONE WEEK NOTICE. AFTER EROSION CONTROL MEASURES ARE INSTALLED AND APPROVED

- THE TYPICAL CONSTRUCTION SEQUENCE SHALL BE AS FOLLOWS: A. INSTALL EROSION CONTROLS, STOCKPILE AREA AND DEWATERING BAG AND DISCHARGE PROTECTION.
- B. CONSTRUCT FLOW DIVERSION COMPONENTS AND TEMPORARY BYPASS PIPING.
- C. DEWATER AREA TO PROVIDE DRY CONSTRUCTION AREA. D. REMOVE EXISTING STONE HEADWALLS (CULVERTS 160) AND PIPING. INSTALL NEW PIPING (CULVERT 161) AND CULVERT WITH NATIVE STONE FRAGMENTS AND HEADWALLS (CULVERT 160). INSTALL
- NATIVE STONE FRAGMENT SPLASH PAD. E. ALLOW TEMPORARY FLOW INTO NEW BOX CULVERT AND VERIFY THAT WATER FLOWS VISIBLY THROUGH THE 3'W X 2.5'D NATIVE STONE FRAGMENT CHANNEL FOR THE LENGTH OF THE BOX CULVERT. ADD ADDITIONAL SMALLER FRAGMENTS AND FINE MATERIAL AS NECESSARY. ENGINEER TO APPROVE ALL WORK PRIOR TO PERMANENTLY REINSTATING FLOW INTO THE PROPOSED BOX CULVERT AND REMOVING FLOW DIVERSION COMPONENTS. TEMPORARY AND PERMANENT FLOW THROUGH THE CULVERT SHALL BE PUMPED FROM THE CULVERT DISCHARGE TO THE DEWATERING BAG UNTIL THE FLOW IS CLEAR. RESOTRE FLOW TO NEW PIPING AND BOX CULVERT.
- REMOVE FLOW DIVERSION COMPONENTS.
- H. REPAIR ALL DISTURBED AREAS AS SHOWN AND AS REQUIRED. COMPLETE ALL OTHER ASSOCIATED WORK.
- COMPLETE ROAD RECONSTRUCTION. K. REMOVE EROSION CONTROLS AFTER SLOPE STABILIZATION.

CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL CHECK THE WEATHER FORECAST PRIOR TO EACH DAY'S CONSTRUCTION AND SHALL BE RESPONSIBLE FOR SAFE HANDLING OF ANY EXISTING OR FORECAST FLOWS. 2. MEETINGS SHALL BE HELD TO DISCUSS WEATHER FORECASTS AND THEIR IMPACT ON SCHEDULED WORK.

- 3. WORK SHALL BE SCHEDULED SUCH THAT THE CULVERTS ARE
- INSTALLED DURING DRY WEATHER. 4. LARGE STORMS MAY OVERTOP THE FLOW DIVERSION COMPONENTS AND SHALL REQUIRE ADDITIONAL MEASURES TO PROTECT THE WORK AREA
- AT NO ADDITIONAL COST TO THE OWNER. 5. CONTRACTOR IS RESPONSIBLE TO HANDLE FORECAST FLOWS AND STABILIZE THE CONSTRUCTION AREA TO PREVENT THE LOSS OF MATERIAL AND EROSION FROM THE SITE AND REPAIR SEDIMENTATION AND EROSION CONTROL MEASURES AS NECESSARY. 6. ALL WORK MUST BE CONDUCTED IN THE DRY, NO WORK WILL BE
- ALLOWED IN FLOWING WATER. 7. DISTURBED AREAS SHALL BE MINIMIZED TO ALLOW FOR STABILIZATION OF THE WORK AREA AT THE CONCLUSION OF EACH WORK DAY.

SEDIMENTATION AND EROSION CONTROL PLAN

1. THIS PLAN PROPOSES EROSION CONTROL MEASURES TO ADEQUATELY CONTROL ACCELERATED EROSION AND SEDIMENTATION AND REDUCE THE DANGER FROM STORM WATER RUNOFF AT THE SITE.

- 2. THE RUNOFF SHALL BE CONTROLLED BY THE INTERCEPTION. DIVERSION. AND SAFE DISPOSAL OF PRECIPITATION.
- 3. ALL AREAS SHALL BE PROTECTED FROM SEDIMENTATION DURING AND AFTER CONSTRUCTION. 4. ALL SEDIMENTATION AND EROSION CONTROL DEVICES SHALL BE
- INSPECTED DURING CONSTRUCTION WEEKLY OR AS REQUIRED BY THE ENGINEER AS WELL AS AFTER ALL STORM EVENTS. THE CONTRACTOR SHALL MAINTAIN AND MAKE REPAIRS TO THE SEDIMENTATION AND EROSION CONTROL DEVICES AS NECESSARY.
- 5. FOLLOWING COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL REPAIR ALL ERODED AREAS AND ENSURE ALL AREAS ARE STABILIZED.



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	Weston & S 712 Bro	Sampson Engineers, Inc. ook Street, Suite 103
978.	Roc 532.1900	ky Hill, CT 06067 800.SAMPSON
	www.we	stonandsampson.com
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CULVERT IMPROVEMENTS

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