



westonandsampson.com

55 Walkers Brook Drive, Suite 100  
Reading, MA 01867  
tel: 978.532.1900

## Notice of Intent

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August 2022

### **REVERE ACRES DRAINAGE REPLACEMENT AND REHABILITATION**

**PREPARED FOR:**  
TOWN OF HOLBROOK

**SUBMITTED TO:**  
HOLBROOK CONSERVATION COMMISSION



August 11, 2022

Holbrook Conservation Commission  
50 N Franklin Street  
Holbrook, MA 02343

**Re:     *NOI Filing  
          Drain Replacement and Rehabilitation  
          Revere Acres at Revere Street and Leatherchip Road  
          Holbrook, Massachusetts***

Dear Commission Members:

On behalf of the Town of Holbrook, Weston & Sampson Engineers, Inc. is hereby enclosing three (3) copies (including original) of the Notice of Intent submittal and corresponding plans to fulfill the requirements of the Massachusetts Wetlands Protection Act, M.G.L. Chapter 131, Section 40 submittal requirements and the Town of Holbrook Wetlands Protection Bylaw (Section 11-7) submittal requirements. This submittal is a formal Notice of Intent for the replacement and rehabilitation of drainage features at Revere Acres in Holbrook, Massachusetts, specifically on Revere Street and Leatherchip Road.

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

Appendix A:    Project Description  
Appendix B:    Alternatives Analysis  
Appendix C:    Stormwater Report  
Appendix D:    Project Maps  
Appendix E:    Abutters Information  
Appendix F:    Wetlands Memorandum (Revere Street and Leatherchip Road)  
Appendix G:    Site Photographs

If you have any questions regarding this submittal, please contact me at (978) 548-6301 or via email at [kearns.megan@wseinc.com](mailto:kearns.megan@wseinc.com).

Very truly yours,

WESTON & SAMPSON



Megan Kearns, PWS  
Project Environmental Scientist



Office of the  
Conservation Commission  
781-767-9058 Tel.  
781-767-9562 fax

# Town of Holbrook

50 North Franklin Street  
Holbrook, Massachusetts 02343

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## APPLICATION CHECKLIST

### Notice of Intent (NOI)

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Please submit three (3) hard copies of the following information to the Holbrook Conservation Commission office at Town Hall, and also send an electronic copy to [djoyce@holbrookmassachusetts.us](mailto:djoyce@holbrookmassachusetts.us) AND [hlis@holbrookmassachusetts.us](mailto:hlis@holbrookmassachusetts.us).

- ☐ WPA Form 3: Notice of Intent. The form and instructions are available here: <https://www.mass.gov/how-to/wpa-form-3-wetlands-notice-of-intent>.
- ☐ Project plans and any supporting documentation (e.g., wetlands report, project narrative, site photos, stormwater report/checklist, etc.). Plans must be signed and stamped by a registered professional engineer or other appropriate professional. Hard copies of plans should be printed to scale.
- ☐ Separate checks for the town portion of the Wetlands Protection Act fee, for the Town of Holbrook Wetlands Protection Bylaw fee, and for the abutters list. See the [Fee Schedule](#) and NOI instructions for details. Note: once an application is submitted, Conservation staff will prepare and submit a public legal notice and the newspaper will invoice applicants directly.
- ☐ Proof (certified mail receipt or electronic confirmation) that a copy of the complete application with attachments was sent to the MA Department of Environmental Protection by one of the following:
  - 1) Mail by certified mail to MassDEP, Southeast Regional Office, 20 Riverside Drive, Lakeville, MA 02347.
  - 2) Alternatively (per MassDEP staff), e-mail to [SERO\\_NOI@mass.gov](mailto:SERO_NOI@mass.gov). The subject line should be "Holbrook – NOI – Project address – Applicant(s)".
  - 3) Submit via eDEP: <https://www.mass.gov/how-to/how-to-use-edep-online-environmental-filing>.
- ☐ If applicable, proof that a copy of the complete application with attachments was mailed to the MA Natural Heritage and Endangered Species Program.
- ☐ Abutter Notification. Conservation staff will request an abutters list from the Assessing Department for abutters within 100 feet of the property. Staff will notify applicants when the list is ready and will provide a copy of the legal notice. Applicants should notify abutters by certified mail, return receipt requested, or by certificate of mailing, and submit proof of mailing to the Conservation office or at the Commission meeting. Abutter notifications must be mailed at least seven (7) days before the public hearing. Applicants should also submit an Affidavit of Service attesting that abutters were notified.



**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

Holbrook

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.

**A. General Information**

1. Project Location (**Note:** electronic filers will click on button to locate project site):

Revere Street and Leatherchip Road

a. Street Address

Holbrook

b. City/Town

02343

c. Zip Code

Latitude and Longitude:

42.140629

d. Latitude

-71.006531

e. Longitude

Map 34

f. Assessors Map/Plat Number

Parcels 107 and 226

g. Parcel /Lot Number

2. Applicant:

Town of Holbrook

a. First Name

b. Last Name

c. Organization

50 N Franklin Street

d. Street Address

Holbrook

e. City/Town

MA

f. State

02343

g. Zip Code

781-767-4313

h. Phone Number

i. Fax Number

j. Email Address

3. Property owner (required if different from applicant):

☒ Check if more than one owner

David

a. First Name

McCreary

b. Last Name

c. Organization

10 Revere Street

d. Street Address

Holbrook

e. City/Town

MA

f. State

02343

g. Zip Code

h. Phone Number

i. Fax Number

j. Email address

4. Representative (if any):

Megan

a. First Name

Kearns

b. Last Name

Weston and Sampson

c. Company

55 Walkers Brook Drive, Suite 100

d. Street Address

Reading

e. City/Town

MA

f. State

01867

g. Zip Code

978-548-6301

h. Phone Number

i. Fax Number

kearns.megan@wseinc.com

j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

Fee exempt

a. Total Fee Paid

b. State Fee Paid

c. City/Town Fee Paid





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**A. General Information (continued)**

**6. General Project Description:**

The Town of Holbrook is proposing to replace and rehabilitate portions of the drainage infrastructure within the Revere Acres area in Holbrook, MA. The proposed work includes the replacement and realignment of 200 linear feet of 36-inch drain located at 10 Revere Street, open cut point repair of 25 linear feet of 12-inch drain located on Leatherchip Road, structural cured-in-place pipe lining of 376 linear feet of 12-inch drain located on Leatherchip Road, and 604 linear feet of cleaning and television inspection of drains located on Leatherchip Road and off of Marion Street.

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

- |   |   |
|---|---|
| 1. <input type="checkbox"/> Single Family Home                        | 2. <input type="checkbox"/> Residential Subdivision       |
| 3. <input type="checkbox"/> Commercial/Industrial                     | 4. <input type="checkbox"/> Dock/Pier                     |
| 5. <input checked="" type="checkbox"/> Utilities                      | 6. <input type="checkbox"/> Coastal engineering Structure |
| 7. <input type="checkbox"/> Agriculture (e.g., cranberries, forestry) | 8. <input type="checkbox"/> Transportation                |
| 9. <input type="checkbox"/> 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(3)(i) and (k) - maintenance, repair and improvement of culverts; routine maintenance and repair of road drainage structures including culverts

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:**

Norfolk County

a. County

Book 33945, Page 301; Book 28747, Page 54

c. Book

b. Certificate # (if registered land)

d. Page Number

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

- ☐ 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.
- ☒ 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.



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

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. <input checked="" type="checkbox"/> Bank	75 1. linear feet	154 2. linear feet
b. <input type="checkbox"/> Bordering Vegetated Wetland	1. square feet	2. square feet
c. <input checked="" type="checkbox"/> Land Under Waterbodies and Waterways	2,664 1. square feet	5,537 2. square feet
	3. cubic yards dredged	

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. <input type="checkbox"/> Bordering Land Subject to Flooding	1. square feet	2. square feet
	3. cubic feet of flood storage lost	4. cubic feet replaced
e. <input type="checkbox"/> Isolated Land Subject to Flooding	1. square feet	
	2. cubic feet of flood storage lost	3. cubic feet replaced
f. <input checked="" type="checkbox"/> Riverfront Area	Trout Brook 1. Name of Waterway (if available) - <b>specify coastal or inland</b>	

2. Width of Riverfront Area (check one):

☐ 25 ft. - Designated Densely Developed Areas only

☐ 100 ft. - New agricultural projects only

☒ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: 63,200 s.f.  
square feet

4. Proposed alteration of the Riverfront Area:

3,518 s.f. 1,184 s.f. 2,334 s.f.  
a. total square feet b. square feet within 100 ft. c. square feet between 100 ft. and 200 ft.

5. Has an alternatives analysis been done and is it attached to this NOI? ☒ Yes ☐ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☒ Yes ☐ No

3. ☐ Coastal Resource Areas: (See 310 CMR 10.25-10.35)

**Note:** for coastal riverfront areas, please complete **Section B.2.f.** above.



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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 document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

<u>Resource Area</u>	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
a. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. <input type="checkbox"/> Land Under the Ocean	1. square feet _____ 2. cubic yards dredged _____	
c. <input type="checkbox"/> Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. <input type="checkbox"/> Coastal Beaches	1. square feet _____	2. cubic yards beach nourishment _____
e. <input type="checkbox"/> Coastal Dunes	1. square feet _____	2. cubic yards dune nourishment _____
	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
f. <input type="checkbox"/> Coastal Banks	1. linear feet _____	
g. <input type="checkbox"/> Rocky Intertidal Shores	1. square feet _____	
h. <input type="checkbox"/> Salt Marshes	1. square feet _____	2. sq ft restoration, rehab., creation _____
i. <input type="checkbox"/> Land Under Salt Ponds	1. square feet _____	
	2. cubic yards dredged _____	
j. <input type="checkbox"/> Land Containing Shellfish	1. square feet _____	
k. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above	
	1. cubic yards dredged _____	
l. <input type="checkbox"/> Land Subject to Coastal Storm Flowage	1. square feet _____	
4. <input type="checkbox"/> Restoration/Enhancement	If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here. _____	
	a. square feet of BVW _____	b. square feet of Salt Marsh _____
5. <input type="checkbox"/> Project Involves Stream Crossings		
	a. number of new stream crossings _____	b. number of replacement 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**

1. 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](http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm).

a. ☐ Yes ☒ No

**If yes, include proof of mailing or hand delivery of NOI to:**

**Natural Heritage and Endangered Species Program  
Division of Fisheries and Wildlife  
1 Rabbit Hill Road  
Westborough, MA 01581**

August, 2021

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. ☐ Percentage/acreage of property to be altered:

(a) within wetland Resource Area

percentage/acreage

(b) outside Resource Area

percentage/acreage

2. ☐ 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 <https://www.mass.gov/ma-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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Bureau of Resource Protection - Wetlands

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

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

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, <https://www.mass.gov/service-details/exemptions-from-review-for-projectsactivities-in-priority-habitat>; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2. ☐ Separate MESA review ongoing.

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

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

South Shore - Cohasset to Rhode Island border, and the Cape & Islands:

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -  
Southeast Marine Fisheries Station  
Attn: Environmental Reviewer  
836 South Rodney French Blvd.  
New Bedford, MA 02744  
Email: [dmf.envreview-south@mass.gov](mailto:dmf.envreview-south@mass.gov)

Division of Marine Fisheries -  
North Shore Office  
Attn: Environmental Reviewer  
30 Emerson Avenue  
Gloucester, MA 01930  
Email: [dmf.envreview-north@mass.gov](mailto:dmf.envreview-north@mass.gov)

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. ☐ Is this an aquaculture project?

- d. ☐ Yes    ☐ No

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



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Bureau of Resource Protection - Wetlands

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

**Online Users:**

Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?  
a. ☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.  
b. ACEC
5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?  
a. ☐ Yes ☒ No
6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?  
a. ☐ Yes ☒ No
7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?  
a. ☒ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:  
1. ☐ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)  
2. ☒ A portion of the site constitutes redevelopment  
3. ☐ Proprietary BMPs are included in the Stormwater Management 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 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

**D. Additional Information**

- ☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

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. ☒ List the titles and dates for all plans and other materials submitted with this NOI.

Revere Acres Drainage Improvements Project - Phase I

a. Plan Title

Weston & Sampson Engineers, Inc.

Frank E. Occhipinti

b. Prepared By

c. Signed and Stamped by

8/9/2022

1"=40'

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. ☒ Attach Stormwater Report, if needed.

**E. Fees**

1. ☒ 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:

Fee exempt

2. Municipal Check Number

3. Check date

Fee exempt

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.

1. Signature of Applicant

2. Date

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any)

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.

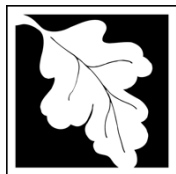
The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.



**List of Property Owners:**

David McCreary  
10 Revere Street  
Holbrook, MA 02343

Stephen Rankin  
14 Dresser Avenue  
Holbrook, MA 02343



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 key.



## A. Applicant Information

### 1. Location of Project:

10 Revere Street

a. Street Address

Holbrook

b. City/Town

Fee exempt

c. Check number

Fee exempt

d. Fee amount

### 2. Applicant Mailing Address:

Town of Holbrook

a. First Name

b. Last Name

c. Organization

50 N Franklin Street

d. Mailing Address

Holbrook

e. City/Town

MA

f. State

02343

g. Zip Code

781-767-4313

h. Phone Number

i. Fax Number

j. Email Address

### 3. Property Owner (if different):

David

a. First Name

McCreary

b. Last Name

c. Organization

10 Revere Street

d. Mailing Address

Holbrook

e. City/Town

MA

f. State

02434

g. Zip Code

h. Phone Number

i. Fax Number

j. Email Address

## 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.

**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.

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

**B. Fees** (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Fee exempt			

**Step 5/Total Project Fee:** \_\_\_\_\_

**Step 6/Fee Payments:**

Total Project Fee: Fee exempt  
a. Total Fee from Step 5

State share of filing Fee: b. 1/2 Total Fee **less** \$12.50

City/Town share of filing Fee: 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.)

## **FEE SCHEDULE**

### **Town of Holbrook Conservation Commission Town of Holbrook Wetlands Protection By-Law Section 11-7**

\*\*\*Please note – effective **10/06/04** filing fees have been increased as shown below\*\*\*

## **FEE EXEMPT**

#### **Instructions:**

1. Complete appropriate Wetlands Protection Act (WPA) application form and fee transmittal form if applicable (consult with Conservation staff if unsure which application to file)
2. Include check/money order payable to: Town of Holbrook Conservation Commission. Note that up to 3 separate checks may be required (Abutters list, Town portion of WPA fees, Town By-Law fee)
3. Submit complete application and fees to Conservation office

	<b><u>WPA Total</u></b>	<b><u>State Portion</u></b>	<b><u>Town Portion</u></b>	<b><u>By-Law Fees</u></b>
<b>Filing Fees:</b>				
Abutters List:		20.00 per Lot		
Request for Determination (RDA)	None			40.00
Notice of Intent (NOI):				
Category 1 (see NOI instructions)	110.00	42.50	67.50	67.50
Category 2 (see NOI instructions)	500.00	237.50	262.50	262.50
Category 3 (see NOI instructions)	1050.00	512.50	537.50	537.50
Category 4 (see NOI instructions)	1450.00	712.50	737.50	737.50
Category 5 (docks, piers, etc.)	4.00/linear foot	*	*	**
Category 6 (resource delineation)	2.00/linear foot	*	*	**
	*Varies: use fee calculation sheet			
	**Amount same as town portion			
Extension Permit	None	None		25.00/house 50.00/all others
Amended Order of Conditions	None	None		50.00
Certificate of Compliance (COC)	None	None		50.00
COC - Expired Permit	None	None		50.00
Abbreviated Notice of Resource Area Delineation (ANRAD)	2.00/linear foot	*	*	**
	*Varies: use fee calculation sheet			
	**Amount same as town portion			



## APPENDIX A

## **PROJECT DESCRIPTION**

### **Background**

The proponent (Town of Holbrook) proposes to replace and rehabilitate stormwater drains within the Revere Acres neighborhood in Holbrook, Massachusetts. Revere Acres has been subject to flooding as a result of the poor condition of the drains. In some instances, sinkholes have formed in the roadway and in private driveways. The Town has performed several emergency excavations to repair collapsed sections of pipe, as well as collapsing catch basins. During these excavations, sections of deformed, collapsing, and/or corroded pipe have been observed. The area of concern discussed in this Notice of Intent is Revere Street. Some minor work is also occurring on Leatherchip Road and through private parcels from James Street to Bradford Street.

### **Site Description**

Revere Acres is a residential neighborhood located off South Franklin Street in central Holbrook, consisting mainly of ranch and colonial style homes built between 1953 and 1955. Revere Acres is generally flat; however, there is a gradual decrease in elevation from east to west. It is bordered by forested wetlands to the east, and a perennial stream (Trout Brook) to the west (see Appendix C, Maps). The stormwater pipe from the wetlands to the east, to the outfall to the west, is considered an intermittent stream as it conveys water from a wetland. The area surrounding the work area at Leatherchip Road and between James Street and Bradford Street is similar in that it is a generally flat residential neighborhood.

The goal of this project is to replace and rehabilitate drainage features within Revere Acres that have been causing flooding issues. Specifically, the drains in the area range in diameter from 8-inch to 36-inch and consist of reinforced concrete pipe (RCP), polyvinyl chloride (PVC), corrugated metal pipe (CMP), and high-density polyethylene (HDPE). The main drainage trunk line begins at the inlet structure SW-130 at the end of Leatherchip Road. The trunk link passes through several streets and private parcels before discharging to outfall SW-110 behind 10 Revere Street. In addition to local stormwater flow from catch basins, the main source of flow in the trunk line originates from the wetlands that border the neighborhood to the east and enters the system through inlets SW-120 (behind 50 Bradford Street), SW-121 (behind 46 Bradford Street) and SW-130 (end of Leatherchip Road).

During preliminary drain inspections, defects were identified in all the drains that were inspected. Structural defects included cracked, fractured, or broken pipe, holes, deformed or collapsing pipe, defective point repairs, offset joints, surface spalling, and sags. Operation and Maintenance defects included attached deposits, debris, roots, intruding pipe seals, alignment changes, intruding services, and infiltration. The main concern with infiltration in drainpipes is silt and fine sands in surrounding soils washing into the drain through defects or joints. Depending on the severity, it could lead to undermining of the pipe and sinkholes in the roadway, as exhibited at the site.

### **Scope of Work**

#### ***Work at Revere Street***

The 36-inch CMP drain from CB-1 to SW-110 begins on Revere Street and crosses under the garage for 10 Revere Street before discharging to outfall SW-110. It is severely corroded through

and contains holes, deformed pipe, and sections where the invert of the pipe is missing. It also contains two HDPE spot repairs. Sink holes have developed in the backyard of this property. The pipe will be replaced from the catch basin to the outfall and directed out from under the garage of 10 Revere Street between houses at 10 Revere Street and 6 Revere Street towards the roadway. The existing pipe will be abandoned in place with controlled density fill and plugged.

It is anticipated that a 12-inch temporary bypass pipe (HDPE or PVC) will be used during construction at 10 Revere Street to maintain existing flows in the system and prevent surcharging. The temporary bypass pipe will be installed at a manhole or directly into the invert of the existing upstream pipe in the roadway on Revere Street. Water will be pumped from the manhole into the bypass pipe and routed overland between 10 Revere Street and 6 Revere Street, discharging into the existing daylighted intermittent stream, past the proposed work. The discharge location at the intermittent stream will be protected by riprap during discharge to dissipate the flow and prevent scouring when discharging into the stream. The temporary bypass pump will have sufficient capacity to maintain flows from a 2-year storm. Refer to Sheet C100 of the Plans for more details.

#### ***Work at Leatherchip Road***

A 12-inch RCP drain runs from Bradford Street to the wetlands at the eastern extent of Revere Acres. An approximately 25-foot open cut point repair is proposed in front of 11 Leatherchip Road in the existing roadway. The open cut will be covered and filled by the end of the working day. Following the open cut point repair, the drain will be lined with structural cured-in-place pipe.

#### ***Work from James Street to Bradford Street***

A 30-inch CMP drain currently runs from James Street (between houses 34 James Street and 38 James Street) to Bradford Street (between houses 35 Bradford Street and 39 Bradford Street). The pipe will be inspected with a camera through an existing manhole.

#### ***Mitigation Measures***

Before work begins, sedimentation and erosion control devices will be placed at the site to minimize sediment migration off-site into any nearby wetland resource areas. Erosion controls utilized during the project will include compost filter tubes between the work area and the intermittent stream at 10 Revere Street (see Sheet C100 in Project Plans). Catch basin inlet protection will be used for work occurring in the roadway. See attached permit plans for additional information.

#### **Environmental Considerations**

The project proposes work in Inland Bank (Bank), Land Under Water (LUW), the 100-foot Buffer Zone to Bank, and 200-foot Riverfront Area (RFA), associated with Trout Brook. No work is proposed in Bordering Vegetated Wetlands. Table 1 below breaks down total wetland resource area impacts in the work areas.

Table 1 – Wetland Resource Area Impacts

Wetland Resource Area	Proposed Impact
Inland Bank (Bank)	75 linear feet
100-foot Buffer Zone (BZ)	1,184 square feet
200-foot Riverfront Area (RFA)	3,518 square feet
Land Under Water (LUW)	2,700 square feet

This proposed project will include impact to the resource areas that are regulated under the Massachusetts Wetlands Protection Act (WPA) and the Holbrook Wetlands Protection By-Law (Section 11-7). The performance standards for each resource area are addressed below.

**Limited Project Status**

The proposed work will be a replacement of an existing culvert and falls under the Limited Project Status at 10.53(3)(i) and (k):

- (i) *"The maintenance, repair and improvement (but not substantial enlargement) of structures, including dams and reservoirs and appurtenant works to such dams and reservoirs...buildings, piers, towers, headwalls, bridges, and culverts which existed on the effective date of 310 CMR 10.51 through 10.60 (April 1, 1983).*
- (k) *"The routine maintenance and repair of road drainage structures including culverts and catch basins, drainage easements, ditches, watercourses and artificial water conveyances to insure flow capacities which existed on the effective date of 310 CMR 10.51 through 10.60 (April 1, 1983).*

**Riverfront Area**

Portions of the proposed project area fall within 200-foot Riverfront Area to Trout Brook, a perennial stream, regulated under the WPA per 310 CMR 10.58. Riverfront Area applies to the portion of land located between a perennial river's mean annual high-water line and a parallel line measured horizontally 200 feet out from the mean annual high-water line. This area is considered to be significant because it provides important functions and values such as flood control, nutrient filtration, groundwater recharge, and wildlife habitat. This project proposes a total of 3,518 square feet of impact within Riverfront Area for the proposed pipe realignment work at Revere Street (1,184 square feet in the inner riparian zone, 2,334 square feet in the outer riparian zone).

Each standard for work in RFA (per 310 CMR 10.58(4)(a) through (d) is provided below, followed by an explanation on how the project meets the standard.

- (a) ***Protection of Other Resource Areas. The work shall meet the performance standards for all resource areas within the riverfront area, as defined in 310 CMR 10.30 (coastal bank), 10.32 (salt marsh), 10.55 (Bordering Vegetated Wetland), and 10.57 (Land Subject to Flooding). When work in the riverfront area is also within the buffer zone to another resource area, the performance standards for the riverfront area, shall contribute to the protection of the interests of MGL c. 131, §40 in lieu of any additional requirements that might otherwise be imposed in the buffer zone within the riverfront area.***



The Project has been designed to meet the performance standards for all other resource areas located within the Riverfront Area. These resource areas include Bank and Land Under Water. Adherence to these resource area performance standards are discussed below.

***(b) Protection of Rare Species. No project may be permitted within riverfront area which will have an adverse effect on specified habitat sites of rare wetland or upland vertebrate or invertebrate species, as identified by the procedures established under 310 CMR 10.59 or 10.37 or which will have any adverse effect on vernal pool habitat certified prior to the filing of the Notice of Intent.***

No portion of the Riverfront Area is located in Estimated Habitat for rare wetland or upland vertebrate, or invertebrate species as identified by the procedures established under 310 CMR 10.59. No work is proposed in vernal pool habitat (certified or otherwise within or outside of the RFA), as specified under this performance standard.

***(c) Practicable and substantially Equivalent Economic Alternatives. There must be no practicable and substantially equivalent economic alternative to the proposed project with less adverse effects on the interests identified in M.G.L. c. 131 §40.***

There is no practicable and substantially equivalent economic alternative to the proposed Project that satisfies the Project need with less adverse effects on the interests identified in the Act. Please see the Alternatives Analysis in Appendix B for a discussion of alternatives.

***(d) No Significant Adverse Impact. The work including proposed mitigation measures must have no significant adverse impact on the riverfront area to protect the interests in M.G.L. c. 131 §40. Within 200 foot Riverfront Areas, the issuing authority may allow the alteration of up to 5,000 s.f. or 10% of the Riverfront Area within the lot, whichever is greater (in part);***

Total RFA on site is 63,200 square feet. Impacts to RFA will include 3,518 square feet associated with the drainage improvements. The RFA impact area is less than 5,000 square feet and approximately 5% of the RFA on site at Revere Acres. Sediment and erosion control measures will be implemented during the construction phase to limit impacts to nearby wetland resource areas. As a result, the Project will not have a significant adverse impact on the ability of RFA to provide other interests of the Act including protection of public and private groundwater supplies, flood control, pollution attenuation and storm damage prevention.

#### ***Land Under Water***

LUW is regulated by the WPA per 310 CMR 10.56. LUW (WPA 10.56.2.a) is defined as “the land beneath any creek, river, stream, pond or lake. Said composed of organic muck or peat, fine sediment, rocks or bedrock”. Per discussion with DEP, the stormwater pipe directing water from the wetlands to the Revere Street outfall is considered an intermittent stream, Furthermore, there is LUW associated with this intermittent stream.

This project proposes a total of 2,700 square feet of impact to LUW for the proposed site upgrades at 10 Revere Street. Each standard for work in LUW (per 310 CMR 10.56(1)) is provided below, followed by an explanation on how the project meets that standard.

***(a) Where the presumption set forth in 310 CMR 10.56(3) is not overcome, any proposed work within Land under Water Bodies and Waterways shall not impair the following:***

***a. The water carrying capacity within the defined channel, which is provided by said land in conjunction with the banks;***

The carrying capacity of the intermittent stream will not be impacted or impaired, as the pipe is not decreasing in size. Overall flow will be improved with upgraded pipes in this specific area to alleviate flooding in the project area.

***b. Ground and surface water quality***

Proposed impacts to LUW are from rerouting the intermittent stream underneath 10 Revere Street. No negative impacts to ground or surface water quality are anticipated during the reroute of the existing stream.

***c. The capacity of said land to provide breeding habitat, escape cover and food for fisheries; and***

Not applicable. This LUW is in a stormwater utility pipe.

***d. The capacity of said land to provide important wildlife habitat functions. A project or projects on a single lot, for which Notice(s) of intent is filed on or after November 1, 1987, that (cumulatively) alter(s) up to 10% or 5,000 square feet (whichever is less) of land in this resource area found to be significant to the protection of wildlife habitat, shall not be deemed to impair its capacity to provide important wildlife habitat functions. Additional alterations beyond the above threshold may be permitted if they will have no adverse effects on wildlife habitat, as determined by procedures established under 310 CMR 10.60.***

Not applicable. This LUW is a stormwater utility pipe.

***e. Work on a stream crossing shall be presumed to meet the performance standard set forth in 310 CMR 10.56(4)(a) provided the work is performed in compliance with the Massachusetts Stream Crossing Standards by consisting of a span or embedded culvert in which, at a minimum, the bottom of a span structure or the upper surface of an embedded culvert is above the elevation of the top of the bank, and the structure spans the channel width by a minimum of 1.2 times the bankfull width. This presumption is rebuttable and may be overcome by the submittal of credible evidence from a competent source. Notwithstanding the requirements of 310 CMR 10.56(4)(a)4., the impact on Land under Water Bodies and Waterways caused by the installation of a stream crossing is exempt from the requirement to perform a habitat evaluation in accordance with the procedures established under 310 CMR 10.60.***

The proposed project falls under the Limit Project status (10.53(3)(i) and (k)) and therefore does not need to meet the Massachusetts Stream Crossing Standards.

***(b) Notwithstanding the provisions of 310 CMR 10.56(4)(a), the issuing authority may issue an Order in accordance with M.G.L. c. 131, § 40 to maintain or improve boat channels within Land under Water Bodies and Waterways when said work is designed and carried out using the best practical measures so as to minimize adverse effects such as the suspension or transport of pollutants, increases in turbidity, the smothering of bottom organisms, the accumulation of pollutants by organisms or the destruction of fisheries habitat or nutrient source areas.***

Not applicable. This is not a boat channel.

***(c) Notwithstanding the provisions of 310 CMR 10.56(4)(a) or (b), no project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.59***

No work is occurring within roadway and will impact estimated habitat of rare wildlife or priority habitat of rare species. Proper erosion control will be used to prevent any impact.

#### ***Inland Bank***

Bank is regulated by the WPA per 310 CMR 10.55. Bank (WPA 10.54.2.a) is defined as “the portion of the land surface which normally abuts and confines a waterbody. It occurs between a water body and a vegetated bordering wetland and adjacent flood plain, or, in the absence of these, it occurs between a water body and an upland”.

This project proposes a total of 75 linear feet of impact along the bank of the intermittent stream. Each standard for work in Bank (per 310 CMR 10.54(4)) is provided below, followed by an explanation on how the project meets that standard.

***(a) Where the presumption set forth in 310 CMR 10.54(3) is not overcome, any proposed work on a Bank shall not impair the following:***

#### ***1. the physical stability of the Bank;***

The stability of both the daylighted and underground bank will not be altered as part of this project. The drainage improvements will help with intermittent stream flow underneath 10 Revere Street to prevent flooding and sinkholes in residential backyards.

#### ***2. the water carrying capacity of the existing channel within the Bank;***

The water carrying capacity of the existing channel within the Bank will improve as a result of the drainage improvements. The current infrastructure is collapsing, resulting in flooding and sinkholes on private properties.

#### ***3. ground water and surface water quality;***

The proposed drainage improvements will not impact the ground water or surface water quality.

**4. the capacity of the Bank to provide breeding habitat, escape cover and food for fisheries;**

The proposed drainage improvements will not impact the stream's ability to provide breeding habitat, escape cover, and food for fisheries since these banks are underground. The project area is not located in NHESP mapped habitat. A Certified Vernal Pool is located nearby the proposed work on Leatherchip Road. However, that work is proposed all within the existing roadway layout.

**5. the capacity of the Bank to provide important wildlife habitat functions. A project or projects on a single lot, for which Notice(s) of Intent is filed on or after November 1, 1987, that (cumulatively) alter(s) up to 10% or 50 feet (whichever is less) of the length of the bank found to be significant to the protection of wildlife habitat, shall not be deemed to impair its capacity to provide important wildlife habitat functions. In the case of a bank of a river or an intermittent stream, the impact shall be measured on each side of the stream or river. Additional alterations beyond the above threshold may be permitted if they will have no adverse effects on wildlife habitat, as determined by procedures contained in 310 CMR 10.60.**

As described above, the proposed drainage improvements will not impact the stream's ability to provide breeding habitat, escape cover, and food for fisheries since the banks are underground. The project area is not located in NHESP mapped habitat. A Certified Vernal Pool is located nearby the proposed work on Leatherchip Road. However, that work is proposed all within the existing roadway layout.

**6. Work on a stream crossing shall be presumed to meet the performance standard set forth in 310 CMR 10.54(4)(a) provided the work is performed in compliance with the Massachusetts Stream Crossing Standards by consisting of a span or embedded culvert in which, at a minimum, the bottom of a span structure or the upper surface of an embedded culvert is above the elevation of the top of the bank, and the structure spans the channel width by a minimum of 1.2 times the bankfull width. This presumption is rebuttable and may be overcome by the submittal of credible evidence from a competent source. Notwithstanding the requirement of 310 CMR 10.54(4)(a)5., the impact on bank caused by the installation of a stream crossing is exempt from the requirement to perform a habitat evaluation in accordance with the procedures contained in 310 CMR 10.60.**

The proposed work will be a replacement of an existing culvert and falls under the Limited Project Status at 10.53(3)(i) and (k) below, and therefore does not need to meet the Massachusetts Stream Crossing Standards to the maximum extent.

**(b) Notwithstanding the provisions of 310 CMR 10.54(4)(a), structures may be permitted in or on a Bank when required to prevent flood damage to facilities, buildings and roads constructed prior to the effective date of 310 CMR 10.51 through 10.60 or constructed pursuant to a Notice of Intent filed prior to the effective date of 310 CMR 10.51 through 10.60 (April 1, 1983), including the renovation or reconstruction (but not substantial enlargement) of such facilities, buildings and roads, provided that the following requirements are met:**

***1. The proposed protective structure, renovation or reconstruction is designed and constructed using best practical measures so as to minimize adverse effects on the characteristics and functions of the resource area;***

The proposed work at 10 Revere Street will fix damaged stormwater infrastructure and ultimately reduce flooding in the area at residential properties.

***2. The applicant demonstrates that there is no reasonable method of protecting, renovating or rebuilding the facility in question other than the one proposed.***

The work is designed and will be constructed using best management practices to minimize adverse effects to the nearby the wetland resource areas.

***(c) Notwithstanding the provisions of 310 CMR 10.54(4)(a) or (b), no project may be permitted which will have any adverse effect on specified habitat sites of Rare Species, as identified by procedures established under 310 CMR 10.59.***

This standard is not applicable for the proposed work, as the project area is not located in mapped NHESP habitat.

### **Conclusion**

The information contained in this NOI and supporting documentation describes the Project Area, proposed work, and compliance with applicable performance standards. The Applicant therefore respectfully requests that the Commission issue an Order of Conditions approving the Project with appropriate conditions to protect the interests of the Act (M.G.L. c. 131, §40) and Holbrook Wetlands Protection By-Law (Section 11-7).

## APPENDIX B

## **Alternatives Analysis**

### ***Basis for Alternatives Analysis***

The following is a presentation of alternatives for addressing drainage issues at Revere Acres neighborhood in Holbrook, Massachusetts. The primary objective is to replace and rehabilitate stormwater drains that are in poor condition, causing sinkholes and flooding in the neighborhood while minimizing environmental impacts. The Town has performed several emergency excavations to repair collapsed sections of pipe, as well as collapsing catch basins. During these excavations, sections of deformed, collapsing, and/or corroded pipe have been observed. The following are alternative proposals to remove the dam or bring the current structure up to compliance.

### ***Alternative Analysis***

#### ***Alternative 1- No Build Alternative***

Under a No Build Alternative, the Town would not provide necessary updates to the stormwater drainage system at Revere Acres. As a result, flooding would continue, and sinkholes would continue to form in residential backyards as the stormwater pipes continue to corrode and fail.

#### Advantages:

The advantages to the No Build Alternative would eliminate any potential impacts to wetland resource areas, as no work would occur.

#### Disadvantages:

The current stormwater drainage infrastructure would continue to fail and corrode, increasing the likelihood of flooding in the area and sinkholes on residential properties.

#### ***Alternative 2 – Proposed Project***

Under the Proposed Project, a 36-inch CMP drain on Revere Street crossing under the garage for 10 Revere Street before discharging to outfall SW-110, would be replaced and rerouted. It is severely corroded through and contains holes, deformed pipe, and sections where the invert of the pipe is missing. It also contains two HDPE spot repairs. The pipe will be replaced from the catch basin to the outfall and directed out from under the garage of 10 Revere Street between houses at 10 Revere Street and 6 Revere Street towards the roadway. The existing pipe will be abandoned in place with controlled density fill and plugged.

In addition, a 12-inch RCP runs from Bradford Street to the wetlands at the eastern extent of Revere Acres. An open cut point repair is proposed in front of 11 Leatherchip Road in the existing roadway. Following the open cut point repair, the pipe will be lined with structural cured-in-place pipe.

Lastly, a 30-inch CMP currently runs from James Street (between houses 34 James Street and 38 James Street) to Bradford Street (between houses 35 Bradford Street and 39 Bradford Street). The pipe will be inspected with a camera.

### Advantages

This alternative addresses the identified deficiencies and is considered feasible to implement. Environmental permitting will include a Notice of Intent. Temporary environmental impacts include Bank, Land Under Water, 100-foot Buffer Zone, and 200-foot Riverfront Area impacts, as discussed in the Project Description (Appendix A). No long-term environmental impacts are expected as a result of this alternative. Alternative 2 addresses the goal of updating the current stormwater drainage system to prevent future flooding and pipe failures, while minimizing environmental impacts.

### Disadvantages

Portions of the Proposed Project are located in wetland resource areas and will have unavoidable impacts.

### ***Alternative 3 – Pipe Lining***

Under the Pipe Sleeving Alternative, a liner would be inserted into the existing pipe underneath 10 Revere Street. The pipe sleeving would stabilize the pipe but would not address flooding and sinkhole issues that currently exist due to the failure of the pipe.

### Advantages

This alternative would allow the current pipe to remain in use and in place with minimal environmental impacts.

### Disadvantages

This would not be a viable alternative due to the current structural condition of the pipe and consequently, the risk of failure during liner installation. In addition, the current alignment of the pipe is under the garage of 10 Revere Street and future failures may result in damage to private property.

### **Conclusion**

Based on the alternatives analysis provided, Weston and Sampson is recommending that Alternative 2 be the option that the Town of Holbrook pursues to update the stormwater drainage system at Revere Acres to fix flooding and sinkhole issues on site. Alternative 2 meets the goal of improving conditions in the area associated with the stormwater infrastructure while minimizing environmental impacts. Alternative 1, or the No Build Alternative, would eliminate impacts to wetland resource areas, but would not provide the necessary infrastructure updates needed to remedy the problem. Alternative 3 would allow the pipe to remain in use and in place. However, it would not address any of the deficiencies identified, and the area would continue to have flooding and sinkhole problems. Alternative 2 will help remedy flooding and sinkhole issues on site by fixing the current stormwater drainage infrastructure under the Revere Acres neighborhood.



## APPENDIX C



# 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.<sup>1</sup> 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 8<sup>2</sup>
- 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.

<sup>1</sup> 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.

<sup>2</sup> For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



# Checklist for Stormwater Report

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## 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.

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### Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



  
Signature and Date

8/10/2022

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## Checklist

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

- ☐ New development
- ☒ Redevelopment
- ☐ Mix of New Development and Redevelopment



# Checklist for Stormwater Report

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## 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)
- ☐ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
  - ☐ Credit 1
  - ☐ Credit 2
  - ☐ Credit 3
- ☐ Use of “country drainage” versus curb and gutter conveyance and pipe
- ☐ Bioretention Cells (includes Rain Gardens)
- ☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☐ Treebox Filter
- ☐ Water Quality Swale
- ☐ Grass Channel
- ☐ Green Roof
- ☐ Other (describe): \_\_\_\_\_

## Standard 1: No New Untreated Discharges

- ☒ No new untreated discharges
- ☐ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☐ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



# Checklist for Stormwater Report

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## 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 pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

### 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
  - ☐ Simple Dynamic
  - ☐ Dynamic Field<sup>1</sup>
- ☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.
- ☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- ☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- ☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
  - ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
  - ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
  - ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
  - ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- ☐ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- ☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

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<sup>1</sup> 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



# Checklist for Stormwater Report

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## Checklist (continued)

### Standard 3: Recharge (continued)

- ☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- ☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

### 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 for Stormwater Report

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## 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 **not** cover the land use.
- ☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- ☐ All exposure has been eliminated.
- ☐ All exposure has **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 for Stormwater Report

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## 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 for Stormwater Report

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## 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.

**Stormwater Report**  
To Be Submitted with the Notice of Intent

Applicant/Project Name: Town of Holbrook – Public Works Department

Project Address: Revere Acres, Holbrook MA

Application Prepared by:

Firm: Weston & Sampson, Inc.  
Registered PE James Pearson, P.E.

Below is an explanation concerning Standards 1-10 as they apply to the Town of Holbrook's Drainage Improvement Project:

**General:**

The Town of Holbrook is proposing to replace and rehabilitate portions of the drainage infrastructure within the Revere Acres area in Holbrook, MA. The proposed work includes the replacement and realignment of 200 linear feet of 36-inch drain located at 10 Revere Street, open cut point repair of 25 linear feet of 12-inch drain located on Leatherchip Road, structural cured-in-place pipe lining of 376 linear feet of 12-inch drain located on Leatherchip Road, and 604 linear feet of cleaning and television inspection of drains located on Leatherchip Road and off of Marion Street. Revere Acres has been subject to flooding as a result of the poor condition of the drains. In some instances, sinkholes have formed in the roadway and in private driveways. The Town has performed several emergency excavations to repair collapsed sections of pipe, as well as collapsing catch basins. During these excavations, sections of deformed, collapsing, and/or corroded pipe have been observed.

The goal of this project is to replace and rehabilitate drainage features within Revere Acres that have been causing flooding issues. Specifically, the drains in the area range in diameter from 8-inch to 36-inch and consist of reinforced concrete pipe (RCP), polyvinyl chloride (PVC), corrugated metal pipe (CMP), and high-density polyethylene (HPDE). The main drainage trunk line begins at the inlet structure SW-130 at the end of Leatherchip Road. The trunk link passes through several streets and private parcels before discharging to outfall SW-110 behind 10 Revere Street.

In addition to local stormwater flow from catch basins, the main source of flow in the trunk line originates from the wetlands that border the neighborhood to the east and enters the system through inlets SW-120 (behind 50 Bradford Street), SW-121 (behind 46 Bradford Street) and SW-130 (end of Leatherchip Road).

**Standard 1: No New Untreated Discharges**

The proposed project will create no new untreated discharges. No new impervious area will be created during this project.

## **Standard 2: Peak Rate Attenuation**

Since there will be no increase in impervious area, post-development (post-improvement) peak discharge rates will not exceed pre-development (pre-improvement) peak discharge rates.

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 compost filter tubes in between the work areas and wetland resource areas.

## **Standard 3: Recharge**

As noted in the **Standard 2** explanation, the impervious area in the work area will not be increased at the completion of the project. Therefore, recharge rates will not change in the work area at the end of the project.

## **Standard 4: Water Quality**

The proposed work will not change water quality at the site. There will be no increase in stormwater flow, and the design for dam improvements will not increase soil erosion. During the project, 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 and limited project which will minimize disturbance to existing trees and shrubs.

## **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. 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 compost filter tubes.

## **Standard 9: Operation and Maintenance Plan**

An operations and maintenance plan is not needed since there will not be any new stormwater management systems put in place in the project work area. The Town will be responsible for maintaining the drainage system.

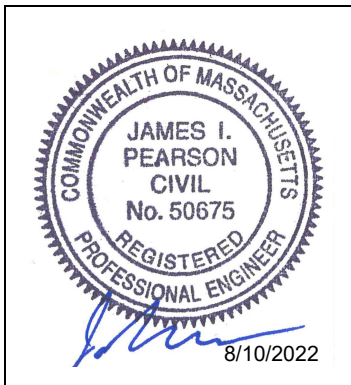
**Standard 10: Prohibition of Illicit Discharges**

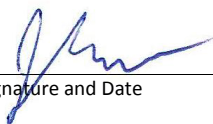
By the nature of the proposed work, there will be no illicit discharges. There will be no opportunity for illicit discharges into the system.

**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



 8/10/2022

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Signature and Date

## **Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan**

### **SECTION 1: Introduction**

The Town of Holbrook is proposing to replace and rehabilitate portions of the drainage infrastructure within the Revere Acres area in Holbrook, MA. The proposed work includes the replacement and realignment of 200 linear feet of 36-inch drain located at 10 Revere Street, open cut point repair of 25 linear feet of 12-inch drain located on Leatherchip Road, structural cured-in-place pipe lining of 376 linear feet of 12-inch drain located on Leatherchip Road, and 604 linear feet of cleaning and television inspection of drains located on Leatherchip Road and off of Marion Street. Revere Acres has been subject to flooding as a result of the poor condition of the drains. In some instances, sinkholes have formed in the roadway and in private driveways. The Town has performed several emergency excavations to repair collapsed sections of pipe, as well as collapsing catch basins. During these excavations, sections of deformed, collapsing, and/or corroded pipe have been observed.

As part of this project, this "Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan" has been created to ensure that no further disturbance to the wetland resource is created during the project.

### **SECTION 2: Construction Period Pollution Prevention Measures**

Best Management Practices (BMPs) will be utilized as Construction Period Pollution Prevention Measures to reduce potential pollutants and prevent any off-site discharge. The objectives of the BMPs for construction activity are to minimize the disturbed areas, stabilize any disturbed areas, control the site perimeter and retain sediment. Both erosion and sedimentation controls and non-stormwater best management measures will be used to minimize site disturbance and ensure compliance with the performance standards of the WPA and Stormwater Standards. Measures will be taken to minimize the area disturbed by construction activities to reduce the potential for soil erosion and stormwater pollution problems. In addition, good housekeeping measures will be followed for the day-to-day operation of the construction site under the control of the contractor to minimize the impact of construction. This section describes the control practices that will be in place during construction activities. Recommended control practices will comply with the standards set in the MA DEP Stormwater Policy Handbook.

#### **2.1 Minimize Disturbed Area and Protect Natural Features and Soil**

In order to minimize disturbed areas, work will be completed within well-defined work limits. These work limits are shown on the construction plans. The Contractor shall not disturb native vegetation in the undisturbed wetland area without prior approval from the Engineer. The Contractor will be responsible to make sure that all of their workers and any subcontractors know the proper work limits and do not extend their work into the undisturbed areas. The protective measures are described in more detail in the following sections.

#### **2.2 Control Stormwater Flowing onto and through the project**

Construction areas adjacent to wetland resources will be lined with appropriate sediment and erosion control measures. Straw wattles or bales will be utilized in between the work zone and wetland resource

areas. Erosion control measures will be inspected daily for sediment build-up and accumulated silt will be removed as needed.

### **2.3 Stabilize Soils**

The Contractor shall limit the area of land which is exposed and free from vegetation during construction. In areas where the period of exposure will be greater than two (2) months, mulching, the use of erosion control mats, or other protective measures shall be provided as specified.

The Contractor shall take account of the conditions of the soil where erosion control seeding will take place to ensure that materials used for re-vegetation are adaptive to the sediment control.

### **2.4 Proper Storage and Cover of Any Stockpiles**

The location of the Contractor's storage areas for equipment and/or materials shall require written approval of the Engineer.

Adequate measures for erosion and sediment control such as the placement of compost filter tubes around the downstream perimeter of stockpiles shall be employed to protect any downstream areas from siltation.

There shall be no storage of equipment or materials in areas designated as wetlands.

The Engineer may designate a particular area or areas where the Contractor may store materials used in his operations.

### **2.5 Perimeter Controls and Sediment Barriers**

Erosion control lines as described in Section 5 will be utilized to ensure that sedimentation does not occur outside the perimeter of the work area.

### **2.6 Storm Drain Inlet Protection**

Storm drain inlets will be protected with filter fabric, silt sacks, or equivalent erosion control measure.

### **2.7 Retain Sediment On-Site**

The Contractor will be responsible to monitor erosion control measures. Whenever necessary the Contractor will clear sediment from the erosion controls that have been silted up during construction. Daily monitoring should be conducted using the attached Monitoring Form.

### **2.8 Material Handling and Waste Management**

Materials stored on-site will be stored in a neat, orderly manner in appropriate containers. Materials will be kept in their original containers with the original manufacturer's label. Substances will not be mixed with one another unless recommended by the manufacturer.

Waste materials will be collected and stored in a securely lidded metal container from a licensed management company. The waste and any construction debris from the site will be hauled off-site daily and disposed of properly. The contractor will be responsible for waste removal. Manufacturer's recommendations for proper use and disposal will be followed for materials. Sanitary waste will be collected from the portable units a minimum of once a week, by a licensed sanitary waste management contractor.

## **2.9 Designated Washout Areas**

The Contractor shall use washout facilities at their own facilities, unless otherwise directed by the Engineer.

## **2.10 Proper Equipment/Vehicle Fueling and Maintenance Practices**

On-site vehicles will be monitored for leaks and receive regular preventative maintenance to reduce the risk of leakage. To ensure that leaks on stored equipment do not contaminate the site, oil-absorbing mats will be placed under oil-containing equipment during storage. Regular fueling and service of the equipment may be performed using approved methods and with care taken to minimize chance of spills. Repair of equipment or machinery within the 100' water resources area shall not be allowed without the prior approval of the Engineer. Any petroleum products will be stored in tightly sealed containers that are clearly labeled with spill control pads/socks placed under/around their perimeters.

## **2.11 Equipment/Vehicle Washing**

The Contractor will be responsible to ensure that no equipment is washed on-site.

## **SECTION 3: Spill Prevention and Control Plan**

The Contractor will be responsible for preventing spills in accordance with the project specifications and applicable federal, state and local regulations. The Contractor will identify a properly trained site employee, involved with the day-to-day site operations to be the spill prevention and cleanup coordinator. The name(s) of the responsible spill personnel will be posted on-site. Each employee will be instructed that all spills are to be reported to the spill prevention and cleanup coordinator.

## **3.1 Spill Control Equipment**

Spill control/containment equipment will be kept in the Work Area. Materials and equipment necessary for spill cleanup will be kept either in the Work Area or in an otherwise accessible on-site location. Equipment and materials will include, but not be limited to, absorbent booms/mats, brooms, dust pans, mops, rags, gloves, goggles, sand, plastic and metal containers specifically for this purpose. It is the responsibility of the Contractor to ensure the inventory will be readily accessible and maintained.

## **3.2 Notification**

Workers will be directed to inform the on-site supervisor of a spill event. The supervisor will assess the incident and initiate proper containment and response procedures immediately upon notification. Workers should avoid direct contact with spilled materials during the containment procedures. Primary notification of a spill should be made to the local Fire Department and Police Departments. Secondary Notification will be to the certified cleanup contractor if deemed necessary by Fire and/or Police

personnel. The third level of notification (within 1 hour) is to the DEP or municipality's Licensed Site Professional (LSP). The specific cleanup contractor to be used will be identified by the Contractor prior to commencement of construction activities.

### **3.3 Spill Containment and Clean-Up Measures**

Spills will be contained with granular sorbent material, sand, sorbent pads, booms or all of the above to prevent spreading. Certified cleanup contractors should complete spill cleanup. The material manufacturer's recommended methods for spill cleanup will be clearly posted and on-site personnel will be made aware of the procedures and the location of the information and cleanup supplies.

### **3.4 Hazardous Materials Spill Report**

The Contractor will report and record any spill. The spill report will present a description of the release, including the quantity and type of material, date of the spill, circumstances leading to the release, location of spill, response actions and personnel, documentation of notifications and corrective measures implemented to prevent reoccurrence.

This document does not relieve the Contractor of the Federal reporting requirements of 40 CFR Part 110, 40 CFR Part 117, 40 CFR Part 302 and the State requirements specified under the Massachusetts Contingency Plan (M.C.P) relating to spills or other releases of oils or hazardous substances. Where a release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117 or 40 CFR Part 302, occurs during a twenty-four (24) hour period, the Contractor is required to comply with the response requirements of the above mentioned regulations. Spills of oil or hazardous material in excess of the reportable quantity will be reported to the National Response Center (NRC).

## **SECTION 4: Contact Information/Responsible Parties**

### **Owner/Operator:**

Town of Holbrook  
Keith Nastasia, Superintendent of Public Works  
Holbrook Department of Public Works  
50 North Franklin Street  
Holbrook, MA 02343  
781-767-1800

### **Engineer:**

James Pearson, PE  
Weston & Sampson Engineers, Inc.  
55 Walkers Brook Dr, Suite 100  
Reading, MA 01867  
978-532-1900 ex. 2346

### **Site Inspector:**

TBD

### **Contractor:**



TBD

#### SECTION 5: Erosion and Sedimentation Control

Erosion and Sedimentation Control Drawings can be found in the attached project plans. In addition, a technical specification (***Section 01570 Environmental Protection***) has been included as part of Appendix D, which details all Erosion and Sedimentation controls.

#### SECTION 6: Site Development Plan

The Site Development Plan is included in the attached plans.

#### SECTION 7: Operation and Maintenance of Erosion Control

The erosion control measures will be installed as detailed in the technical specification set forth in the Project Plans. If there is a failure to the controls the Contractor, under the supervision of the Engineer, will be required to stop work until the failure is repaired.

Periodically throughout the work, whenever the Engineer deems it necessary, the sediment that has been deposited against the controls will be removed to ensure that the controls are working properly.

#### SECTION 8: Inspection Schedule

During construction, the erosion and sedimentation controls will be inspected daily. Once the Contractor is selected, an onsite inspector will be selected to work closely with the Engineer to ensure that erosion and sedimentation controls are in place and working properly. An Inspection Form is included.

## Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan

Revere Acres Drainage Improvement Project

### Inspection Form

Inspected By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

YES	NO	DOES NOT APPLY	ITEM
			Do any erosion/siltation control measures require repair or clean out to maintain adequate function?
			Is there any evidence that sediment is leaving the site and entering the wetlands?
			Are any temporary soil stockpiles or construction materials located in non-approved areas?
			Are on-site construction traffic routes, parking, and storage of equipment and supplies located in areas not specifically designed for them?

Specific location, current weather conditions, and action to be taken:

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Other Comments:

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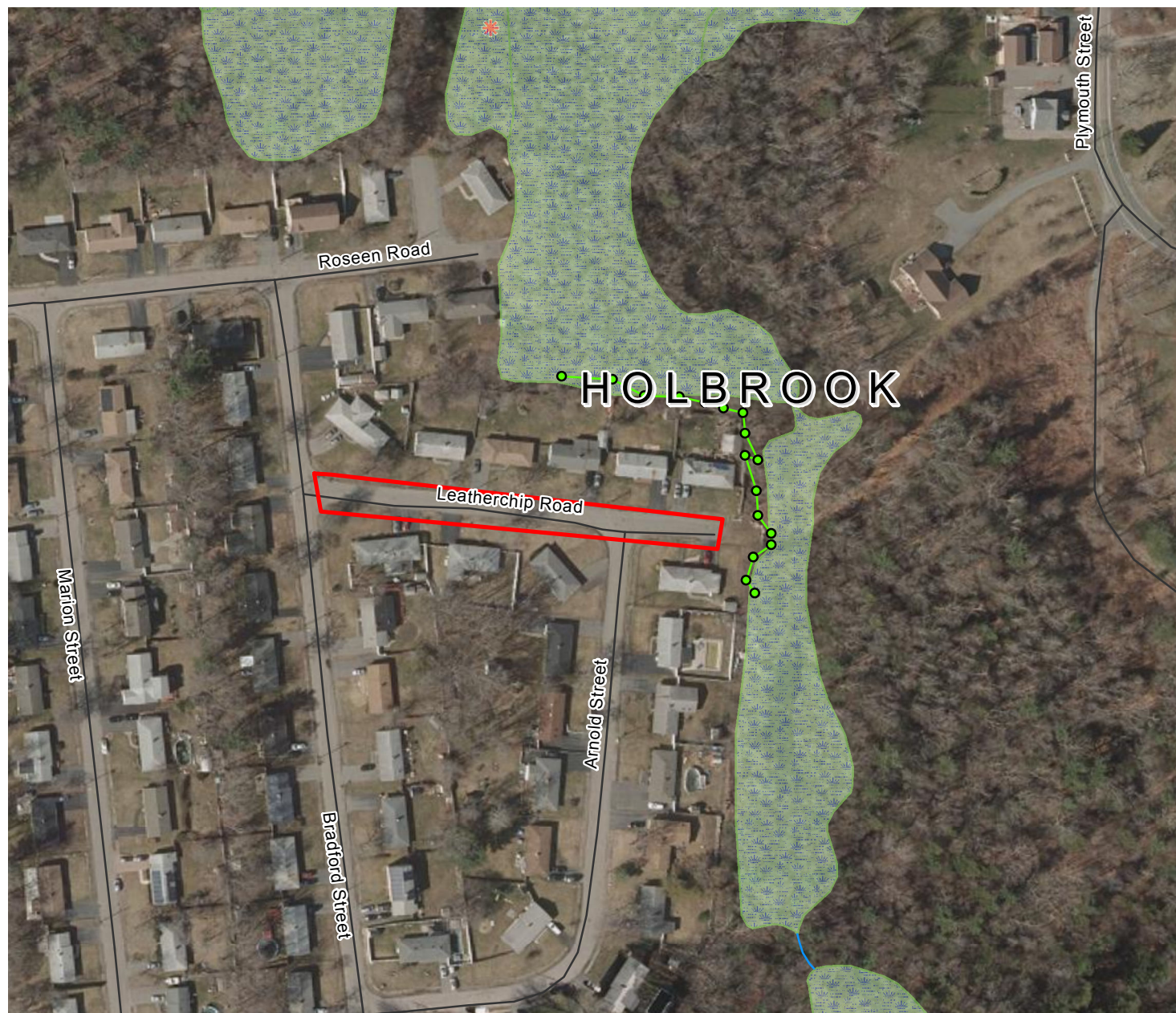
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Pending the actions noted above I certify that the site is in compliance with the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

***Weston & Sampson***

## APPENDIX D



## Legend

- Wetland Flag
- Wetland Boundary
- Bank\_Intermittent Stream
- Bank\_Perennial Stream
- Work Area
- Hydrologic Connection
- Perennial Stream
- Intermittent Stream
- Marsh/Bog
- Wooded marsh
- Cranberry Bog
- Salt Marsh
- Open Water
- Reservoir (with PWSID)
- Tidal Flats
- Beach/Dune
- MA Towns
- ACECs**
- ACECs
- NHESP Habitats**
- NHESP Estimated Habitats of Rare Wildlife
- NHESP Priority Habitats of Rare Species
- ✱ NHESP Certified Vernal Pools
- ✱ NHESP Potential Vernal Pools
- Outstanding Resource Waters**
- Public Water Supply Contributor
- ORW for ACEC
- ORW for both Water Supply and Other

## FIGURE 1A

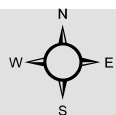
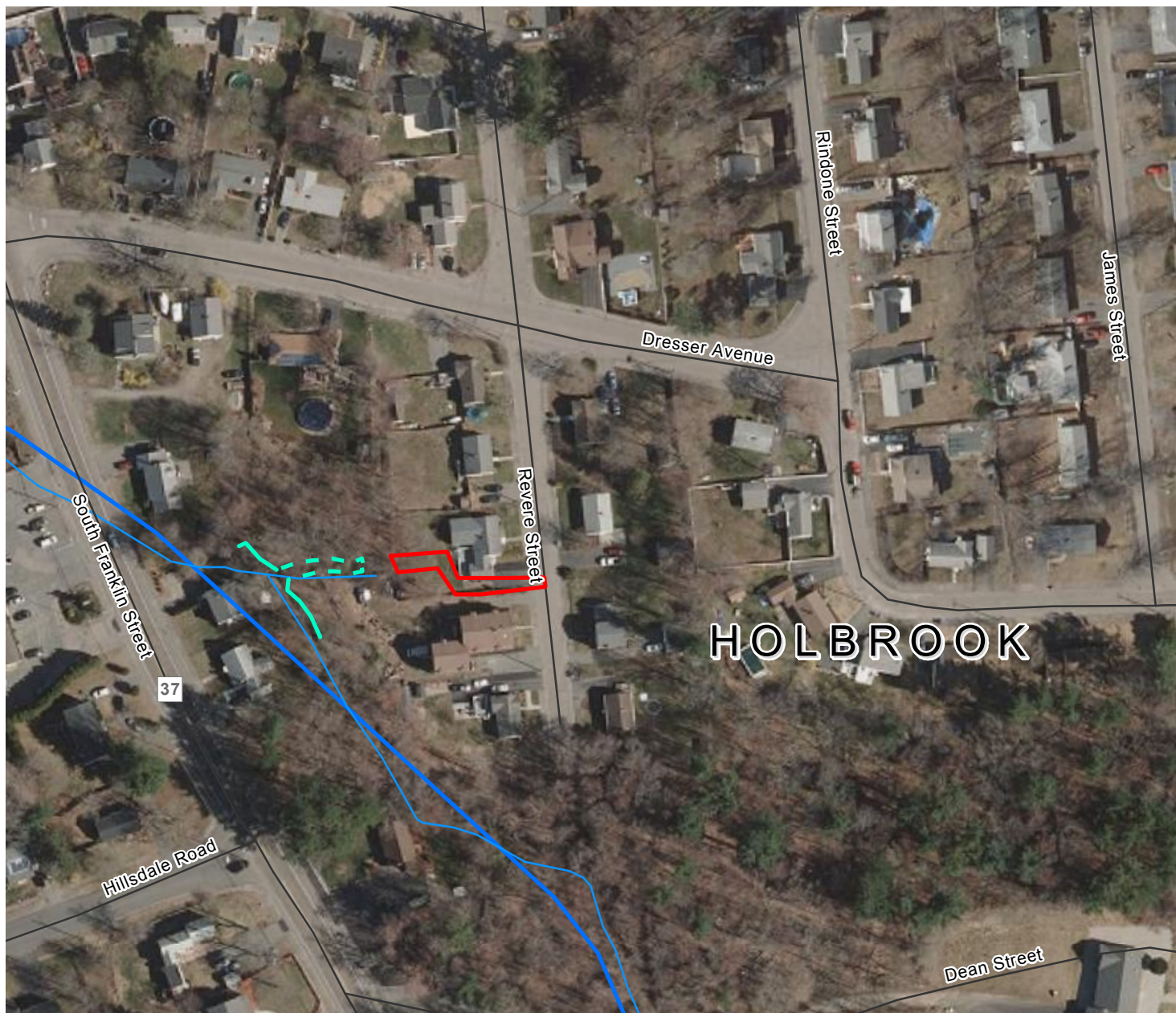
Revere Acres  
Drainage Improvement Project  
Holbrook, MA

Delineation Map

Data Source: Office of Geographic and Environmental Information (MassGIS),  
Commonwealth of Massachusetts Executive Office of Environmental Affairs

Weston & Sampson<sup>SM</sup>





0 37.5 75 150  
Feet

Data Source: Office of Geographic and Environmental Information (MassGIS),  
Commonwealth of Massachusetts Executive Office of Environmental Affairs

## Legend

- Wetland Flag
- Wetland Boundary
- Bank\_Intermittent Stream
- Bank\_Perennial Stream
- Work Area
- Hydrologic Connection
- Perennial Stream
- Intermittent Stream
- Marsh/Bog
- Wooded marsh
- Cranberry Bog
- Salt Marsh
- Open Water
- Reservoir (with PWSID)
- Tidal Flats
- Beach/Dune
- MA Towns
- ACECs**
- ACECs
- NHESP Habitats**
- NHESP Estimated Habitats of Rare Wildlife
- NHESP Priority Habitats of Rare Species
- \* NHESP Certified Vernal Pools
- \* NHESP Potential Vernal Pools
- Outstanding Resource Waters**
- Public Water Supply Contributor
- ORW for ACEC
- ORW for both Water Supply and Other

## FIGURE 1B

Revere Acres  
Drainage Improvement Project  
Holbrook, MA

Delineation Map

Weston & Sampson<sup>SM</sup>





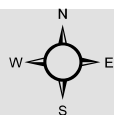
## Legend

- Wetland Flag
- Wetland Boundary
- Bank\_Intermittent Stream
- Bank\_Perennial Stream
- Work Area
- Hydrologic Connection
- Perennial Stream
- Intermittent Stream
- Marsh/Bog
- Wooded marsh
- Cranberry Bog
- Salt Marsh
- Open Water
- Reservoir (with PWSID)
- Tidal Flats
- Beach/Dune
- ACECs**
- ACECs
- NHESP Habitats**
- NHESP Estimated Habitats of Rare Wildlife
- NHESP Priority Habitats of Rare Species
- ✱ NHESP Certified Vernal Pools
- ✱ NHESP Potential Vernal Pools
- Outstanding Resource Waters**
- Public Water Supply Contributor
- ORW for ACEC
- ORW for both Water Supply and Other

## FIGURE 1C

Revere Acres  
Drainage Improvement Project  
Holbrook, MA

Delineation Map

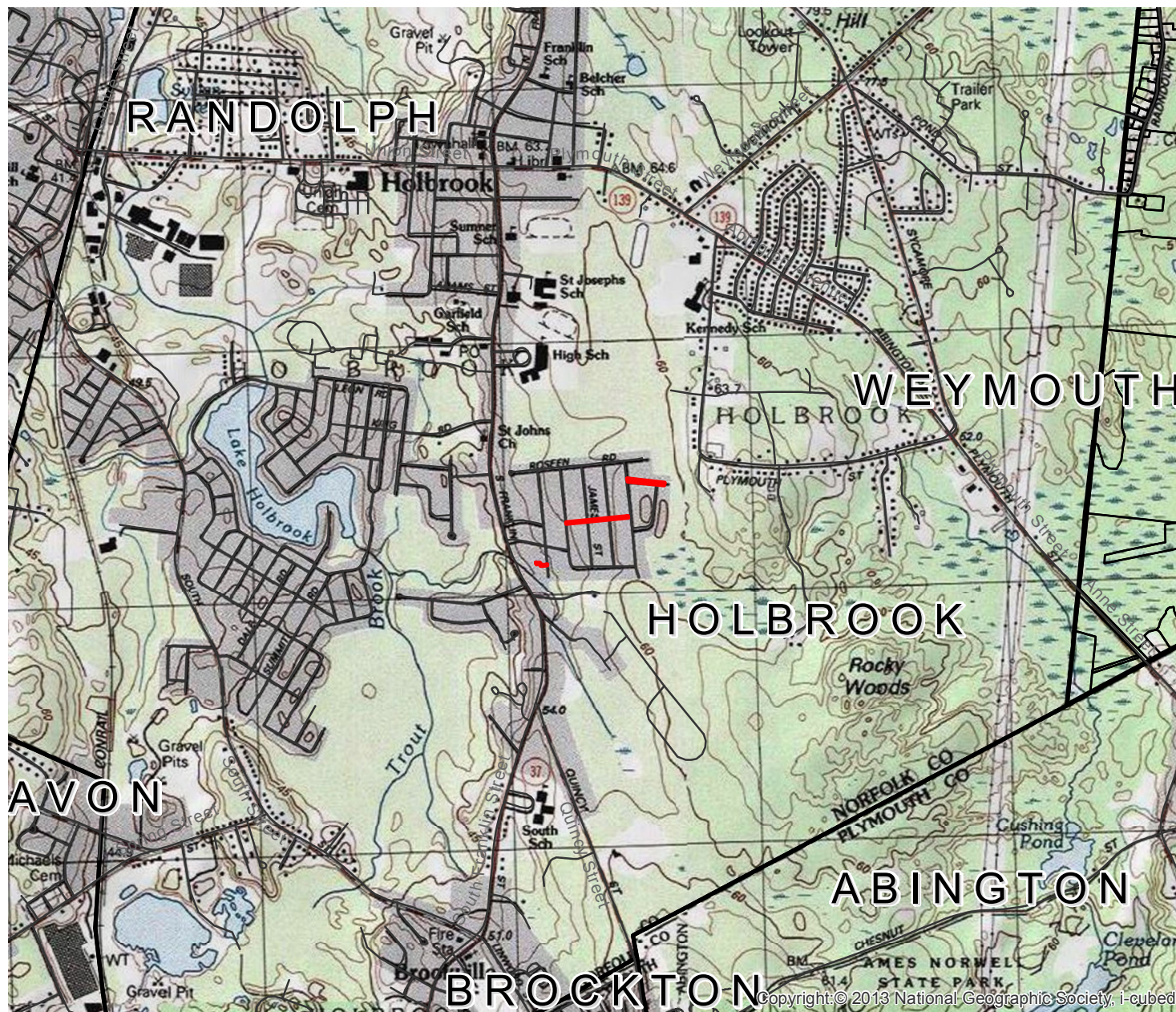


0 40 80 160  
Feet

Data Source: Office of Geographic and Environmental Information (MassGIS),  
Commonwealth of Massachusetts Executive Office of Environmental Affairs

Weston & Sampson<sup>SM</sup>





# Legend

- Work Area
- MA Towns
- Parcel

## FIGURE 2

Revere Acres  
Drainage Improvement Project  
Holbrook, MA

USGS Map

Data Source: Office of Geographic and Environmental Information (MassGIS),  
Commonwealth of Massachusetts Executive Office of Environmental Affairs

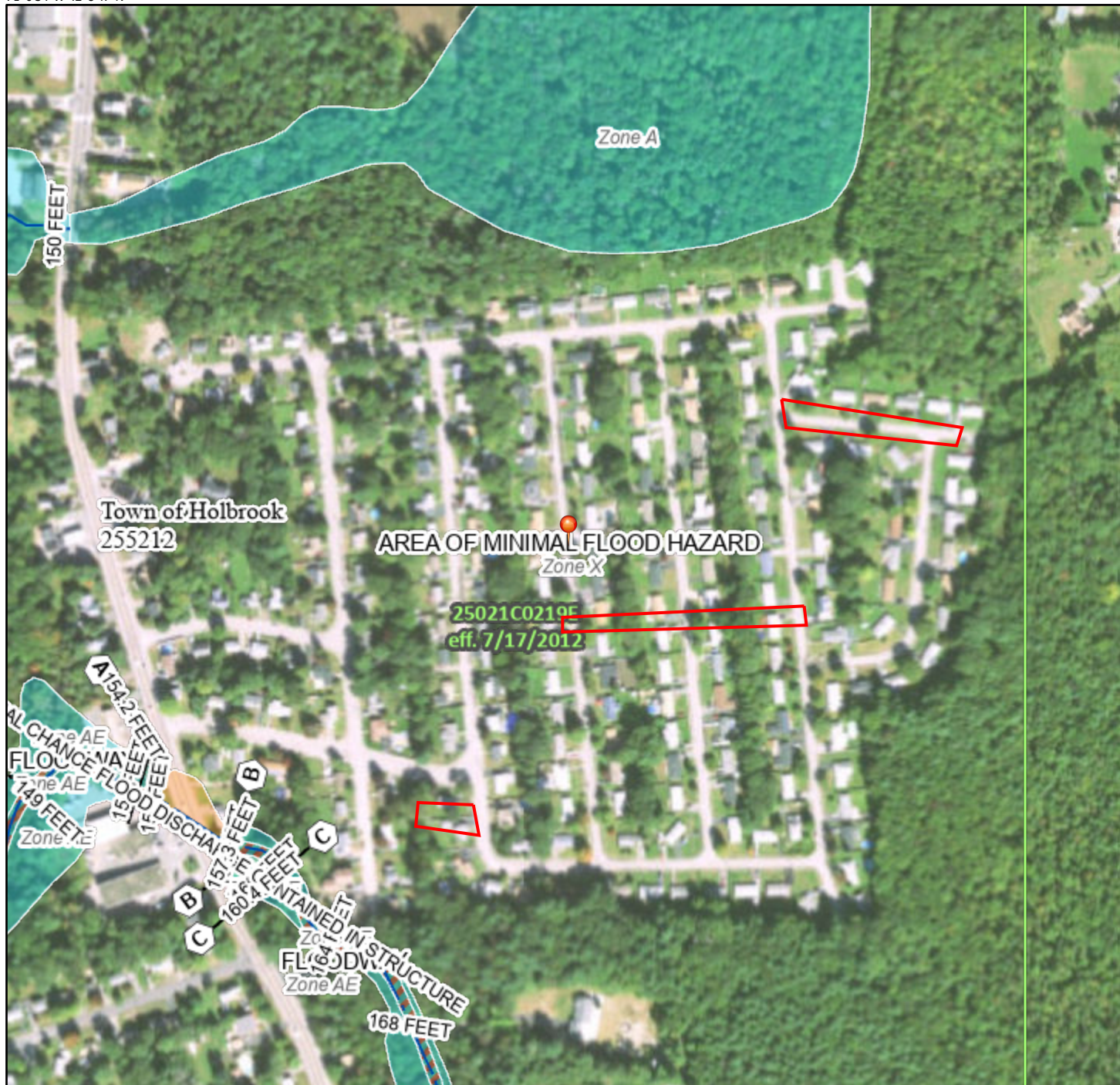
Weston & Sampson<sup>SM</sup>



# National Flood Hazard Layer FIRMMette



71°0'34"W 42°8'47"N



## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/5/2022 at 10:42 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

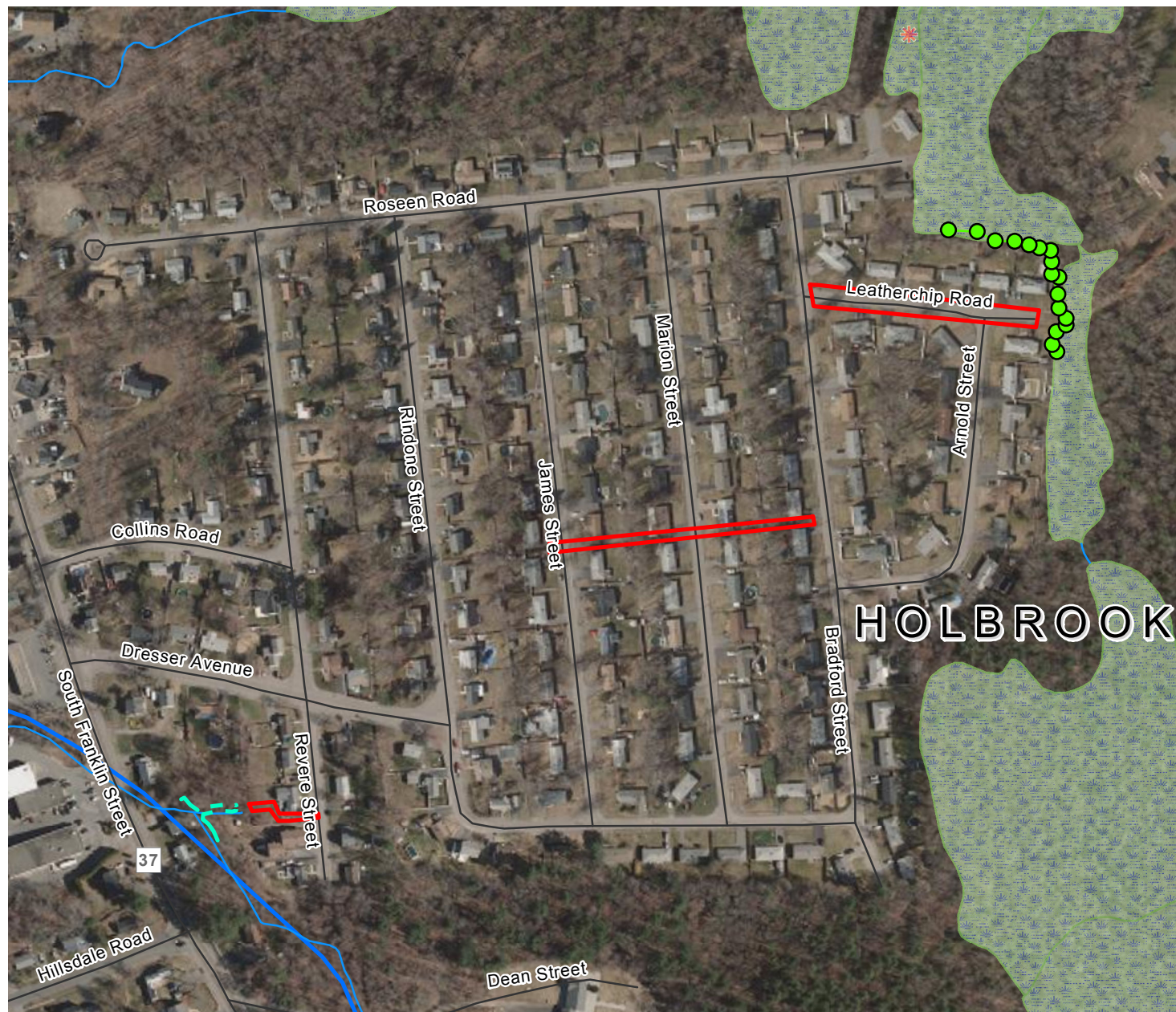
This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

0 250 500 1,000 1,500 2,000 Feet 1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

70°59'56"W 42°8'20"N





## Legend

- Wetland Flag
- Wetland Boundary
- Bank\_Intermittent Stream
- Bank\_Perennial Stream
- Work Area
- Hydrologic Connection
- Perennial Stream
- Intermittent Stream
- Marsh/Bog
- Wooded marsh
- Cranberry Bog
- Salt Marsh
- Open Water
- Reservoir (with PWSID)
- Tidal Flats
- Beach/Dune
- MA Towns
- Parcel
- ACECs**
- ACECs
- NHESP Habitats**
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- NHESP Priority Habitats of Rare Species
- ✱ NHESP Certified Vernal Pools
- ✱ NHESP Potential Vernal Pools
- Cold Water Fisheries
- Outstanding Resource Waters**
- Public Water Supply Contributor
- ORW for ACEC
- ORW for both Water Supply and Other

## FIGURE 4

Revere Acres  
Leatherchip Road  
Holbrook, MA

Environmental  
Constraints Map

Weston & Sampson<sup>SM</sup>



0 87.5 175 350  
Feet

Data Source: Office of Geographic and Environmental Information (MassGIS),  
Commonwealth of Massachusetts Executive Office of Environmental Affairs

## APPENDIX E

**TO BE COMPLETED WHEN ABUTTERS LIST IS RECEIVED**

**AFFIDAVIT OF SERVICE**

**Under the Massachusetts Wetlands Protection Act**

I, **Megan Kearns**, hereby certify under the Pains and Penalties of Perjury that on \_\_\_\_\_ 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 **Town of Holbrook** with the **Holbrook** Conservation Commission on \_\_\_\_\_ for property located at **Revere Acres on Revere Street and Leatherchip Road in Holbrook, MA.**

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:** Megan Kearns, PWS

**Title:** Project Environmental Scientist

**Organization:** Weston & Sampson Engineers, Inc

**DATE**

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 Holbrook**  
**50 N Franklin Street**  
**Holbrook, MA 02343**
- B. The name of the owner is: **Town of Holbrook (Work in Roadway)**  
**David McCreary (10 Revere Street)**  
**Stephen Rankin (14 Dresser Avenue)**
- C. The applicant has filed a Notice of Intent with the **Holbrook Conservation Commission** 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 and rehabilitation of stormwater drains within the Revere Acres residential neighborhood, specifically on Revere Street and Leatherchip Road, and between James Street and Bradford Street.**
- D. The address of the lot(s) where the activity is proposed: **Revere Street; Leatherchip Road**
- E. Copies of the Notice of Intent may be examined at **50 N Franklin Street** between the hours of **8:00 AM** and **5:00 PM** on **Monday – Friday**. For more information call the Holbrook Conservation Commission at **(781)-767-9061**.
- F. Information regarding the project, date, time and place of the public hearing may be obtained from Weston & Sampson Engineers, by contacting **Megan Kearns** at **978-548-6301** between the hours of **8:00 AM** and **5:00 PM** on the following days of the week: **Monday – Friday** or the Holbrook Conservation Commission at **(781)-767-9061** between the hours of **8:00 AM** and **5:00 PM** on **Monday – Friday**.

NOTE: Notice of the public hearing, including its date, time, and place, will be published at least five (5) days prior to the hearing date in a newspaper of local circulation.

NOTE: Notice of the meeting of the Conservation Commission, including its date, time and place will be posted in the Town Hall not less than forty-eight (48) hours in advance of the meeting.

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 F





westonandsampson.com

55 Walkers Brook Drive, Suite 100  
Reading, MA 01867  
tel: 978.532.1900

# Wetland Delineation Report



March 2022

Revere Street  
Holbrook, MA

Wetland Delineation Conducted By:  
Devin Batchelder, CWS on 3/29/2022

Delineation Report Reviewed By:  
Mel Higgins, PWS



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2.4 Other Protected Areas .....	2-3
3.0 SUMMARY .....	3-1
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## FIGURES

Figure 1 .....	Wetlands Field Map
Figure 2 .....	USGS Topographic Map
Figure 3 .....	FEMA FIRM Map
Figure 4 .....	Environmental Resources Map

## APPENDICES

Appendix A .....	Site Photographs
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## 1.0 SITE DESCRIPTION

On March 29, 2022, the presence of wetland resources was investigated near Revere Street in Holbrook, MA. This investigation area is located within a residential area. Please see Figure 1 (Wetlands Field Map) and Figure 2 (USGS Topographic Map) of this report for the investigation area.

Wetland resource areas including, an intermittent stream and a perennial stream, were identified and flagged in the field using pink flagging by a Weston & Sampson employee who is trained in the wetland delineation process using the Massachusetts Department of Environmental Protection (MassDEP) and the US Army Corps of Engineers methodology. Further descriptions of these wetland resource areas are presented in the following sections.



## 2.0 DELINEATION OF WETLAND RESOURCES

### 2.1 Site Observations

The Weston & Sampson wetland scientist, trained in the ACOE Wetland Delineation Manual and Massachusetts Department of Environmental Protection (MassDEP) Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetland Protection Act guidance document, observed the following protected wetland resources at the site:

- Bank – Perennial Stream
- Bank – Intermittent Stream

Field data were recorded on US Army Corps of Engineers (ACOE) Wetland Determination Data Forms. See Appendix A for completed data forms and Appendix B for site photographs.

### 2.2 Wetland Delineation Methodology

A wetland delineation assessment was conducted in accordance with the Massachusetts Wetland Protection Act Regulations (310 CMR 10.55(2)(c)), Massachusetts Department of Environmental Protection (MassDEP) Delineating Bordering Vegetated Wetlands Under the Massachusetts Protection Act (March 1995), and ACOE Wetland Manual (Technical Report Y-87-1).

The bordering vegetated wetlands (BVW) delineation methodology included the characterization of vegetation, soil and hydrologic conditions in both wetland and upland areas to identify the transitional area, which was used as the wetland limit. Pink flags with distinct flag numbers are left in the field to show wetland resource area limits.

Vegetation, hydrology and soils are assessed in both wetland and upland areas to accurately place the wetland limits at each site. The percentage of vegetative species was estimated by creating sample plots. Sample plot radius for trees, saplings, shrubs, groundcover and woody vine strata was 30', 15', 15', 5' and 30', respectively. After creating the sample plot areas, the percent basal area coverage of each species within the monitoring plot was recorded. Using these field observations, the percent dominance of each species within its stratum was calculated. The 50/20 Rule was then used to determine dominance. Dominant species were considered the most abundant plant species (when

ranked in descending order of abundance and cumulatively totaled) that immediately exceeds 50% of the total dominance measure (basal area) for the stratum, plus any additional species comprising 20% or more of the total dominance measure for the stratum. Once the dominant species were determined, they were treated equally to determine the presence of hydrophytic vegetation. If the number of dominant species with a Wetland Indicator Status of FAC (excluding FAC-), FACW or OBL is greater than, or equal to, the number of remaining dominant species, the area was considered a jurisdictional wetland resource area based on vegetation.

A soil sample from each wetland sample plot is also taken. Each soil sample goes to a depth of at least 12-24 inches. The soil is characterized to determine if the soil sample is considered a hydric (wetland) soil. Soil samples, including mottles, are characterized based on color using Munsell Soil-Color charts as a color reference.

The general area is then assessed for hydrologic conditions, including, but not limited to, site inundation, depth to free water, depth of soil saturation, water marks, drift lines, sediment deposits, water stained leaves.

### **2.3 Bank**

Water bodies, including perennial streams, intermittent streams, ponds and lakes, have banks which are protected by the Massachusetts Wetland Protection Act. Bank is a wetland resource area defined by 310 CMR 10.54(2)(a) as “the portion of land surface which normally abuts and confines a water body. It occurs between a waterbody and a vegetated bordering wetland and adjacent floodplain, or, in absence of these, it occurs between a waterbody and an upland.” Vegetated banks provide valuable functions such as flood control, stormwater prevention, fisheries protection, and water quality protection. The limit of this resource area is identified by Top of Bank (TOB) which is located at the first observable break in slope or the Mean Annual Flood Level (MAFL), whichever is lower. TOB is easily identified in the field so that indicator was utilized for this wetland delineation.

#### **Perennial Stream Banks**

A single unnamed perennial stream was identified within the investigation area. The boundary of the perennial stream was identified in the field utilizing Top of Bank (TOB), identified by flag line TOB-B and a portion of flag line TOB-A. The unnamed stream is shown as perennial on the current United States

Geographical Survey (USGS) map which classifies the stream as perennial per 310 CMR 10.58 (2)(a)(1)(b-c). The boundary of the perennial stream was identified in the field by the first observable break in slope (TOB). Wetland flags left in the field included:

- TOB-A7 through TOB-A10 (Perennial Stream Bank "A" Series)
- TOB-B1 through TOB-B5 (Perennial Stream Bank "A" Series)

Perennial streams are subject to a 200-foot Riverfront Area under the Massachusetts Wetland Protection Act per 301 CMR 10.58(2)(a)(2)(c).

### **Intermittent Stream Banks**

The single intermittent stream was delineated on. The unnamed stream is not shown on the current United States Geographical Survey (USGS) map and has a watershed size less than 0.5 square miles in size according to USGS Stream Stats, which classifies the stream as intermittent per 310 CMR 10.58 (2)(a)(1)(b-c). The boundary of the intermittent stream was identified in the field by the first observable break in slope (TOB). Wetland flags left in the field included:

- TOB-A1 through TOB-A7, TOB-A11 through TOB-A17 (Intermittent Stream Bank "A" Series)

Intermittent stream banks are subject to a 100-foot buffer under the Massachusetts Wetland Protection Act per 301 CMR 10.02(2)(b).

## **2.4 Other Protected Areas**

Weston & Sampson created environmental resources maps (see Figure 4) of the site to determine the presence of other protected areas. The data source of these map layers was the Massachusetts Geographic Information System (MassGIS). These areas included:

- NHESP Priority Habitats of Rare Species
- NHESP Estimated Habitats of Rare Wildlife
- NHESP Certified and Potential Vernal Pools
- Areas of Critical Environmental Concern (ACEC)

- Outstanding Resource Waters (ORW)

Wetland resources identified in the field were also added to these maps. Based on the MassGIS information there are no protected areas other than the intermittent and perennial stream wetland resource areas previously identified above.

FEMA Flood Insurance Rate Maps (FIRM) were created online from the FEMA website to determine if there is a 100-year flood zone at the site. See Figure 3 for FIRM map. Based on the information provided by the FIRM map a portion of the investigation area is located within the 100-year flood zone and a portion of the investigation area is located within a Regulatory Floodway. FEMA defines a Regulatory Floodway as “the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.” This Regulatory Floodway is located within Zone AE, which is the 100-year flood zone. As a result, a portion of the investigation is located within the 100-year flood zone.

The Massachusetts Wetland Protection Act does not place a buffer zone on the 100-year flood zone (Bordering Land Subject to Flooding) however, the Town of Holbrook Wetlands Protection By-Law (Section 11-7) has extended protections to land within 100 feet of land subject to flooding which includes the 100-year flood zone.

## 3.0 SUMMARY

On March 29, 2022, the presence of wetland resources was investigated near Revere Street in Holbrook, MA. A single intermittent stream and a single perennial stream were identified and flagged on site.

Additional environmental mapping was conducted using MassGIS data layers and FEMA FIRM mapping. This additional mapping indicates that a portion of the investigation area is located within the 100-year flood zone.

This Wetlands Delineation Report has been reviewed and approved by a Professional Wetland Scientist PWS.

#### 4.0 REFERENCES

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Massachusetts Division of Fisheries and Wildlife, Natural Heritage and Endangered Species Program. Massachusetts Natural Heritage Atlas, 13th Edition with 2017 web updates. Accessed on 5/27/2022.

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USACOE, January 1987, Corps of Engineers Wetlands Delineation Manual, Wetlands Research Program Technical Report Y-87-1.

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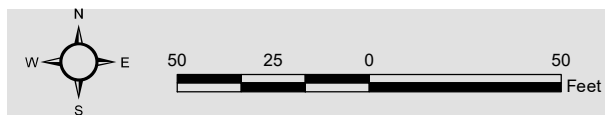
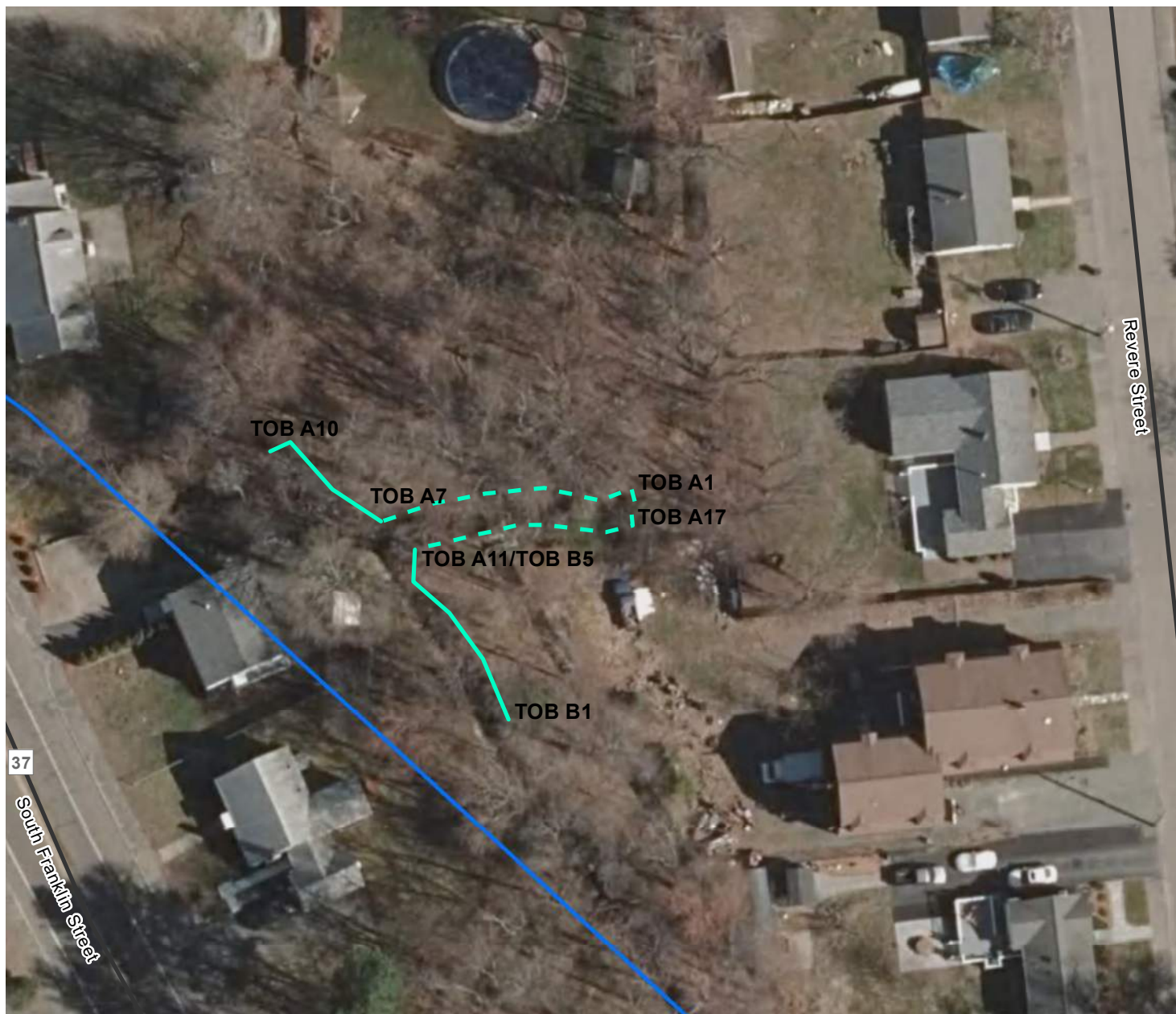
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New England Hydric Soils Technical Committee, 2019, Version 4, *Field Indicator of Identifying Hydric Soils in New England*. New England Interstate Water Pollution Control Commission, Lowell, MA.

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Data Source: Office of Geographic and Environmental Information (MassGIS),  
Commonwealth of Massachusetts Executive Office of Environmental Affairs

#### Legend

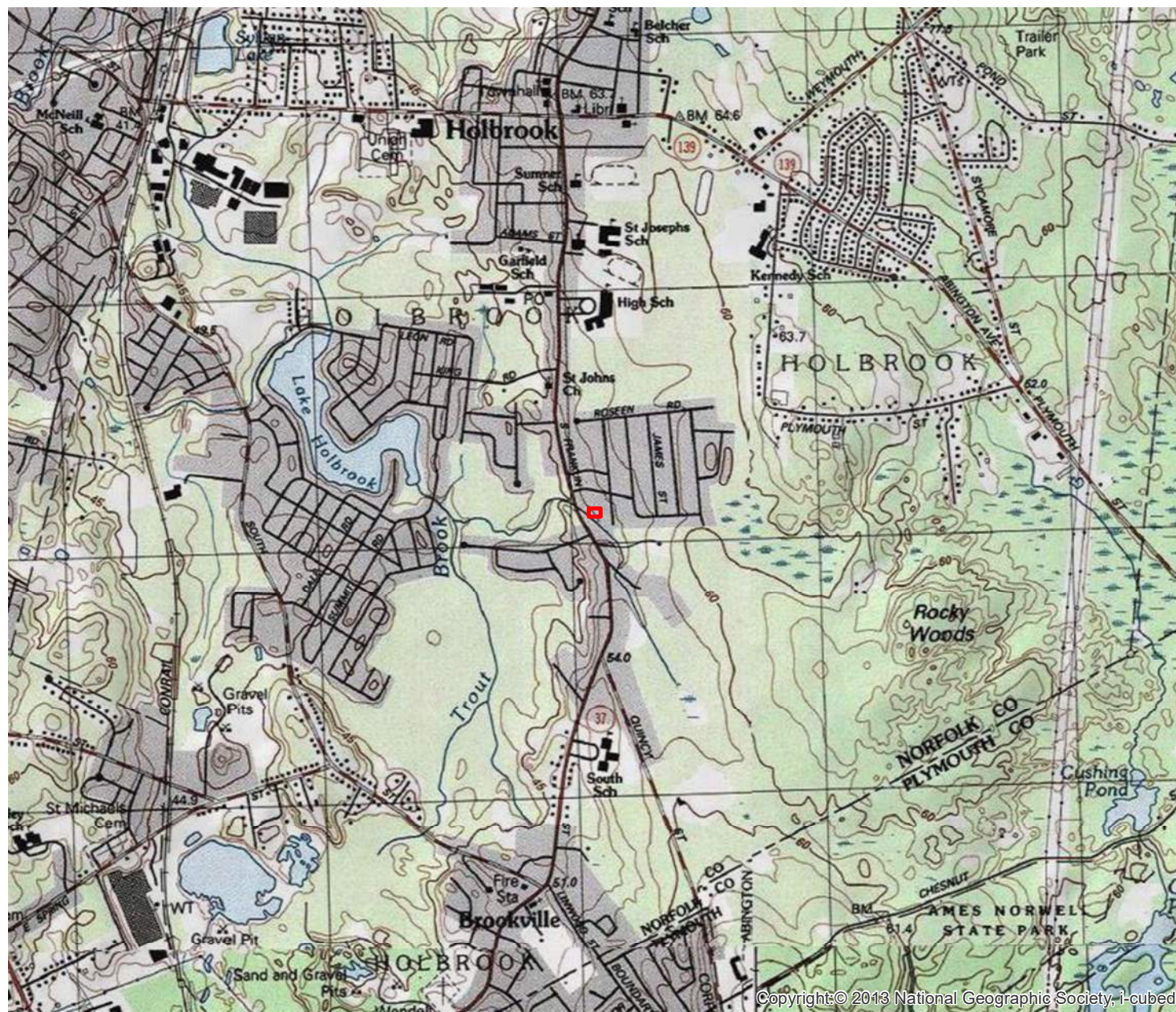
- Bank\_Intermittent Stream
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- Marsh/Bog
- Wooded marsh
- Cranberry Bog
- Salt Marsh
- Open Water
- Reservoir (with PWSID)
- Tidal Flats
- Beach/Dune
- USGS Perennial Stream
- USGS Intermittent Stream

#### FIGURE 1

REVERE STREET  
HOLBROOK MA

WETLANDS FIELD MAP





### Legend

Investigation Area

**FIGURE 2**

REVERE STREET  
HOLBROOK MA

USGS TOPOGRAPHIC MAP

Copyright:© 2013 National Geographic Society, i-cubed

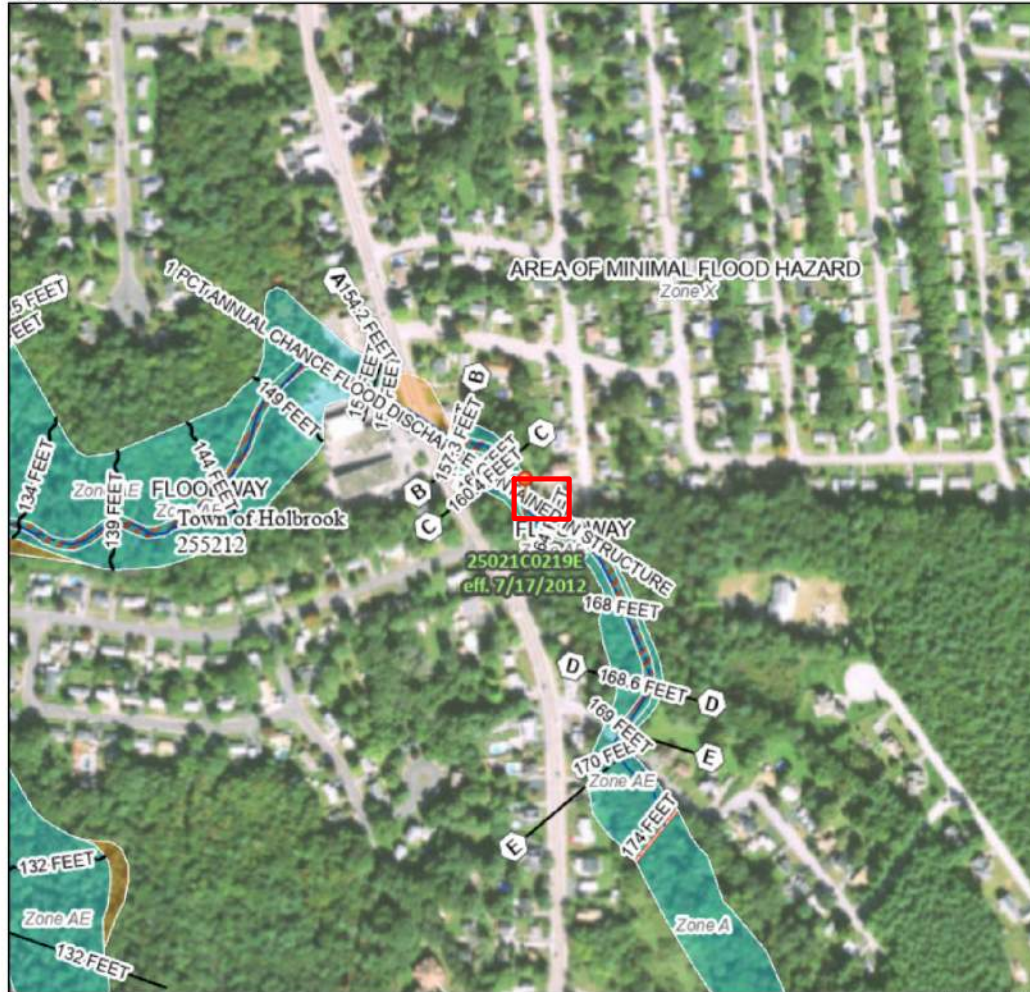
**Data Source:** Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs

Weston & Sampson<sup>SM</sup>



# National Flood Hazard Layer FIRMette

71°0'43"W 42°8'38"N



0 250 500 1,000 1,500 2,000 Feet  
Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020



## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) Zone A, V, AE, AH
	With BFE or Depth Zone AE, AO, AH, VE, AR
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
	Future Conditions 1% Annual Chance Flood Hazard Zone X
	Area with Reduced Flood Risk due to Levee, See Notes, Zone X
	Area with Flood Risk due to Levee Zone D
OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard Zone X
	Effective LOMRs
GENERAL STRUCTURES	Area of Undetermined Flood Hazard Zone D
	Channel, Culvert, or Storm Sewer Levee, Dike, or Floodwall
OTHER FEATURES	Cross Sections with 1% Annual Chance Water Surface Elevation 20.2 17.5
	Coastal Transect
	Base Flood Elevation Line (BFE)
	Limit of Study
MAP PANELS	Jurisdiction Boundary
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
	Digital Data Available
	No Digital Data Available
	Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/27/2022 at 7:27 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

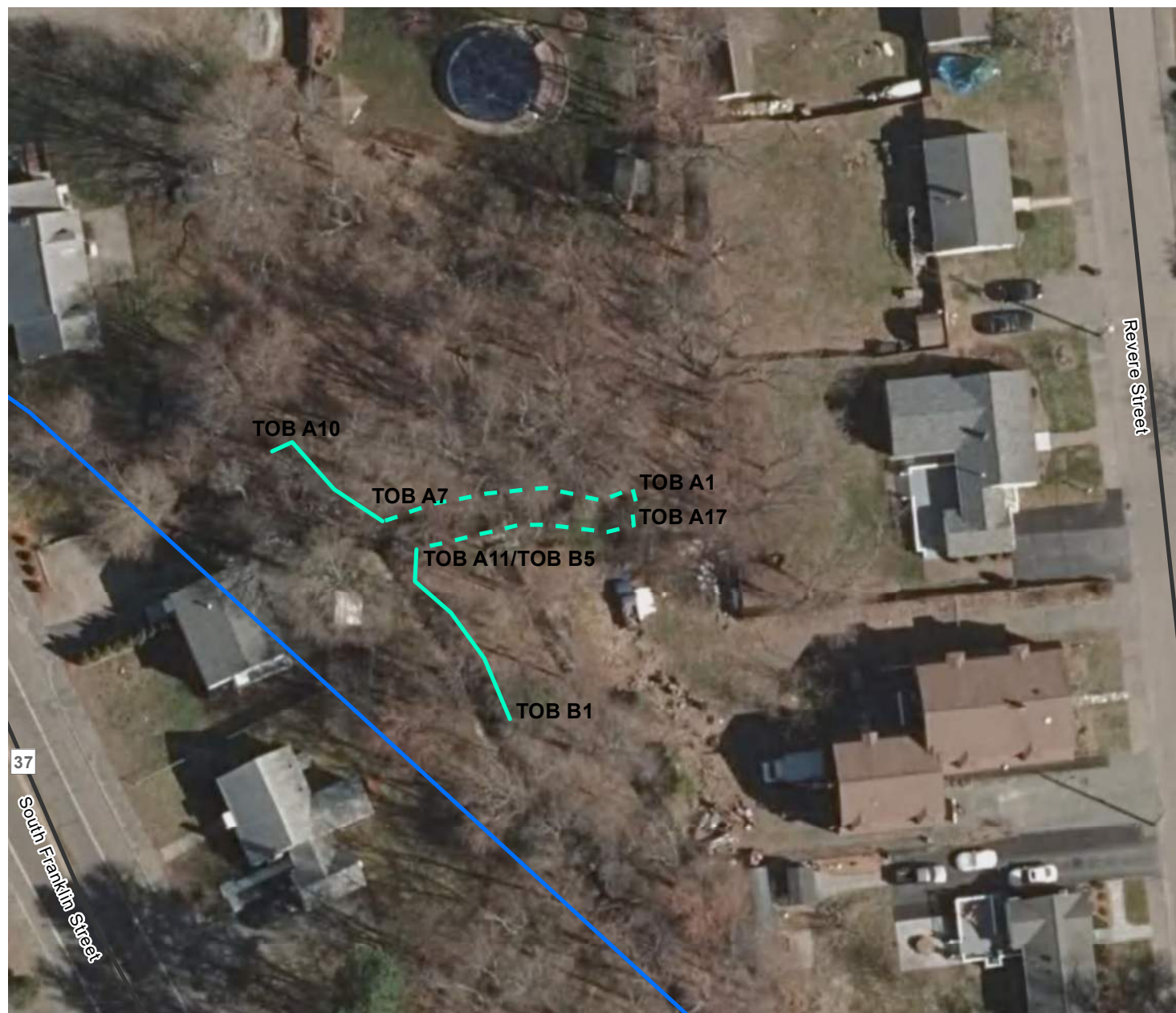
This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

## Legend

  Investigation Area

**FIGURE 3**  
REVERE STREET  
HOLBROOK MA

FEMA MAP



#### Legend

- Bank\_Intermittent Stream
- Bank\_Perennial Stream
- MassDOT Roads
- USGS Perennial Stream
- USGS Intermittent Stream
- ACECs
- NHESP Estimated Habitats of Rare Wildlife
- NHESP Priority Habitats of Rare Species
- \* NHESP Certified Vernal Pools
- \* NHESP Potential Vernal Pools
- Cold Water Fisheries
- Public Water Supply Contributor
- ORW for ACEC
- ORW for both Water Supply and Other

#### FIGURE 4

REVERE STREET  
HOLBROOK MA

ENVIRONMENTAL RESOURCES  
MAP

Weston & Sampson



50 25 0 50  
Feet

Data Source: Office of Geographic and Environmental Information (MassGIS),  
Commonwealth of Massachusetts Executive Office of Environmental Affairs

## APPENDIX A

### Site Photographs





Photo 1: Culvert Outfall Intermittent Stream TOB A1



Photo 2: Intersection of Intermittent and Perennial Streams





Photo 3: Perennial Stream TOB B



Photo 4: Adjacent Residential Area





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tel: 978.532.1900

# Wetland Delineation Report



July 2022

Project # ENG22-0614

## **Revere Acres Drainage Improvement Project Holbrook, MA**

Wetland Delineation Conducted By:  
Megan Kearns, PWS on 7/11/2022

Delineation Report Reviewed By:  
Mel Higgins, PWS



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## APPENDICES

Appendix A .....	ACOE Wetland Determination Data Forms
Appendix B .....	Site Photographs

## 1.0 SITE DESCRIPTION

On July 11, 2022 the presence of wetland resources was investigated at Revere Acres along Leatherchip Road in Holbrook, MA. The investigation area is located adjacent to undeveloped woodlands, powerlines, and private residential houses. Please see Figure 1 (Wetlands Field Map) and Figure 2 (USGS Topographic Map) of this report for the investigation area.

Bordering Vegetated Wetlands (BVW) were identified and flagged in the field using pink flagging by a Weston & Sampson employee who is trained in the wetland delineation process using the Massachusetts Department of Environmental Protection (MassDEP) and the US Army Corps of Engineers methodology. Additional information on the identified wetland resource areas are presented in the following sections.



## 2.0 DELINEATION OF WETLAND RESOURCES

### 2.1 Site Observations

The Weston & Sampson wetland scientist, trained in the ACOE Wetland Delineation Manual and Massachusetts Department of Environmental Protection (MassDEP) Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetland Protection Act guidance document, observed BVW at the site.

Field data was recorded on US Army Corps of Engineers (ACOE) Wetland Determination Data Forms. See Appendix A for completed data forms and Appendix B for site photographs.

### 2.2 Wetland Delineation Methodology

A wetland delineation assessment was conducted in accordance with the Massachusetts Wetland Protection Act Regulations (310 CMR 10.55(2)(c)), Massachusetts Department of Environmental Protection (MassDEP) Delineating Bordering Vegetated Wetlands Under the Massachusetts Protection Act (March 1995), and ACOE Wetland Manual (Technical Report Y-87-1).

The BVW delineation methodology included the characterization of vegetation, soil and hydrologic conditions in both wetland and upland areas to identify the transitional area, which was used as the wetland limit. Pink flags with distinct flag numbers were left in the field to show wetland resource area limits.

Vegetation, hydrology and soils were assessed in both wetland and upland areas to accurately place the wetland limits at each site. The percentage of vegetative species was estimated by creating sample plots. Sample plot radius for trees, saplings, shrubs, groundcover and woody vine strata was 30', 15', 15', 5' and 30', respectively. After creating the sample plot areas, the percent basal area coverage of each species within the monitoring plot was recorded. Using these field observations, the percent dominance of each species within its stratum was calculated. The 50/20 Rule was then used to determine dominance. Dominant species were considered the most abundant plant species (when ranked in descending order of abundance and cumulatively totaled) that immediately exceeds 50% of the total dominance measure (basal area) for the stratum, plus any additional species comprising 20% or more of the total dominance measure for the stratum. Once the dominant species were determined,

they were treated equally to determine the presence of hydrophytic vegetation. If the number of dominant species with a Wetland Indicator Status of FAC (excluding FAC-), FACW or OBL is greater than, or equal to, the number of remaining dominant species, the area was considered a jurisdictional wetland resource area based on vegetation.

A soil sample from each wetland sample plot was also taken. Each soil sample goes to a depth of at least 12-24 inches. The soil was characterized to determine if the soil sample was considered a hydric (wetland) soil. Soil samples, including mottles, were characterized based on color using Munsell Soil-Color charts as a color reference.

The general area was then assessed for hydrologic conditions, including, but not limited to, site inundation, depth to free water, depth of soil saturation, water marks, drift lines, sediment deposits, water-stained leaves.

### 2.3 Bordering Vegetated Wetlands (BVW)

A single BVW series was delineated at the site. This BVW borders a stream located to the north of Roseen Road. The limit of the BVW resource areas were determined by locating the transitional area between wetland and upland vegetation, soils and hydrologic conditions. Wetland flags left in the field included:

- WET-A-1 through WET-A-17 (BVW "A" Series)

Dominant vegetation within the wetland resource area included cinnamon fern (*Osmunda cinnamomea*), sweet pepperbush (*Clethra alnifolia*), spicebush (*Lindera benzoin*), red maple (*Acer rubrum*), greenbriar (*Smilax sp.*), poison ivy (*Toxicodendron radicans*), arrowwood (*Viburnum dentatum*), common rush (*Juncus effusus*), jewelweed (*Impatiens capensis*) and multiflora rose (*Rosa multiflora*), species that generally thrive in wet conditions. Soils within the BVW's were composed of sandy loam. Other indicators of wetland hydrology included water-stained leaves and drainage patterns.

Dominant upland vegetation in the area included red maple (*Acer rubrum*), red oak (*Quercus rubra*) honeysuckle (*Lonicera sp.*), raspberry (*Rubus sp.*), and Virginia creeper (*Parthenocissus quinquefolia*). Soils within the upland were composed of sandy loam with no evidence of mottling or hydrology within the top 12 inches.

Both the Massachusetts Wetlands Protection Act (310 CMR 10.02(2)(b)) and the Town of Holbrook Wetlands Protection By-Laws (Section 11-7) protect the 100-foot Buffer Zone to BVWs.

## 2.4 Other Protected Areas

Weston & Sampson created environmental resources maps (see Figure 4) of the site to determine the presence of other protected areas. The data source of these map layers was the Massachusetts Geographic Information System (MassGIS). Protected areas reviewed in or near the investigation area included:

- NHESP Priority Habitats of Rare Species
- NHESP Estimated Habitats of Rare Wildlife
- NHESP Certified and Potential Vernal Pools
- Areas of Critical Environmental Concern (ACEC)
- Outstanding Resource Waters (ORW)

Wetland resources identified in the field were also added to these maps. A certified vernal pool is located to the north of the investigation area, at the end of Roseen Road (approximately 600 feet from the investigation area). The next closest certified vernal pool is over 2,000 feet away from the investigation area.

A FEMA Flood Insurance Rate Map (FIRM) was created online from the FEMA website to determine if there is a 100-year flood zone at the site. See Figure 3 for FIRM map. Based on FEMA flood maps the investigation area is not located within the 100-year flood zone (Community Panel No. 25021C0219E, dated 7/17/2012).

## 3.0 SUMMARY

On July 11, 2022 the presence of wetland resources was investigated near Leatherchip Road in Revere Acres, in Holbrook, Massachusetts. A single BVW was delineated on site.

Additional environmental mapping was conducted using MassGIS data layers and FEMA FIRM mapping. This additional mapping indicates that the site is not located within NHESP Priority Habitats of Rare Species, NHESP Estimated Habitat of Rare Wildlife, or the 100-year flood zone.

This Wetlands Delineation Report has been reviewed and approved by a Professional Wetland Scientist PWS.

#### 4.0 REFERENCES

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Wojtec, Michael, Bard – A field Guide to Trees of the Northeast.

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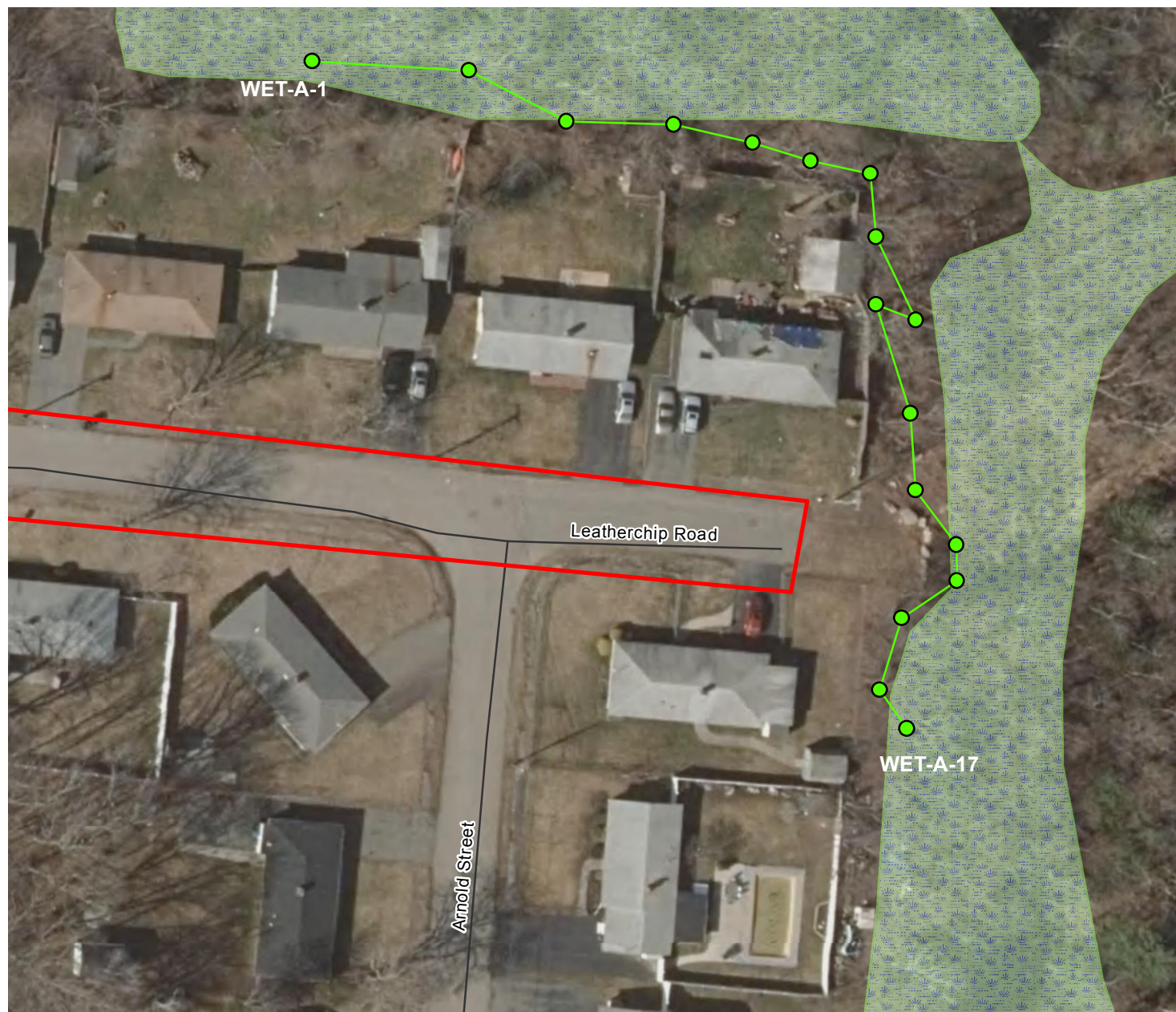
## APPENDIX A

### ACOE Wetland Determination Data Forms

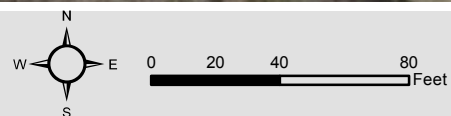
## APPENDIX B

### Site Photographs





- Legend**
- Updated WetFlags
  - Wetland Boundary
  - Work Area
  - Marsh/Bog
  - Wooded marsh
  - Cranberry Bog
  - Salt Marsh
  - Open Water
  - Reservoir (with PWSID)
  - Tidal Flats
  - Beach/Dune

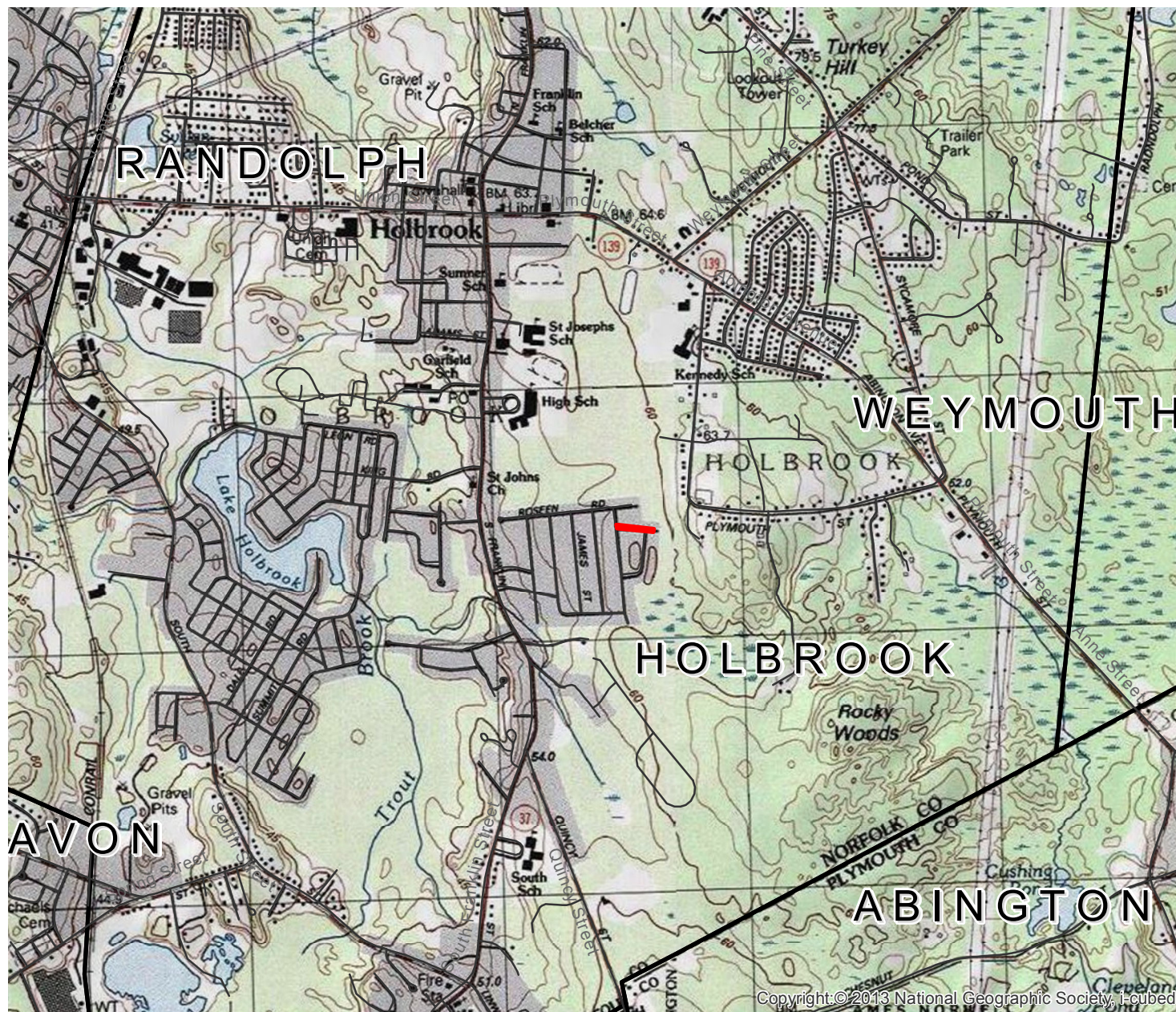


Data Source: Office of Geographic and Environmental Information (MassGIS),  
Commonwealth of Massachusetts Executive Office of Environmental Affairs

**FIGURE 1**  
Revere Acres  
Leatherchip Road  
Holbrook, MA  
  
Wetland Delineation  
Map

Weston & Sampson<sup>SM</sup>





# Legend

- Work Area
- MA Towns

## FIGURE 2

Revere Acres  
Leatherchip Road  
Holbrook, MA

USGS Map

Copyright © 2013 National Geographic Society, I-cubed

Data Source: Office of Geographic and Environmental Information (MassGIS),  
Commonwealth of Massachusetts Executive Office of Environmental Affairs

Weston & Sampson<sup>SM</sup>



0 500 1,000 2,000  
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## NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updates or additional flood hazard information.

To obtain more data or information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of **Water Elevation** tables contained within the Flood Insurance Study (FIS) Report that accompanies this FIRM. Users should be aware that the BFEs shown on this FIRM represent a one-time recurrence event. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS Report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

**Coastal Base Flood Elevations** shown on this map apply only to landward of 0.6 North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal base flood elevations are also provided in the Summary of **Water Elevation** tables in the Flood Insurance Study Report for this panel. Elevations shown in the Summary of **Water Elevation** tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study Report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 2 of "Flood Protection Measures" of the Flood Insurance Study Report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Massachusetts State Plane (NAD 83, GRS 1980 spheroid). Differences in datum, projection, or UTM zone used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structures and ground elevations referenced to the same vertical datum. For information regarding the conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov> or contact the National Geodetic Survey at the following address:

National Information Services  
NOAA/NMFS-2  
National Geodetic Survey  
5500 S. 2600th  
1315 East-West Highway  
Silver Spring, Maryland 20910-3282  
(301) 713-3342

To obtain current elevation, description, and/or location information to beach marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3342, or visit its website at <http://www.ngs.noaa.gov>.

**Base map** information shown on this FIRM was derived from a 1:50,000 orthophotography. Base map files were provided in digital format by Massachusetts Geographic Information Systems (MassGIS). Ortho imagery was produced at a scale of 1:50,000. Aerial photography is dated April 2008.

The **profile baselines** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the profile baselines, in some cases, may deviate significantly from the channel centerline or appear outside the channel.

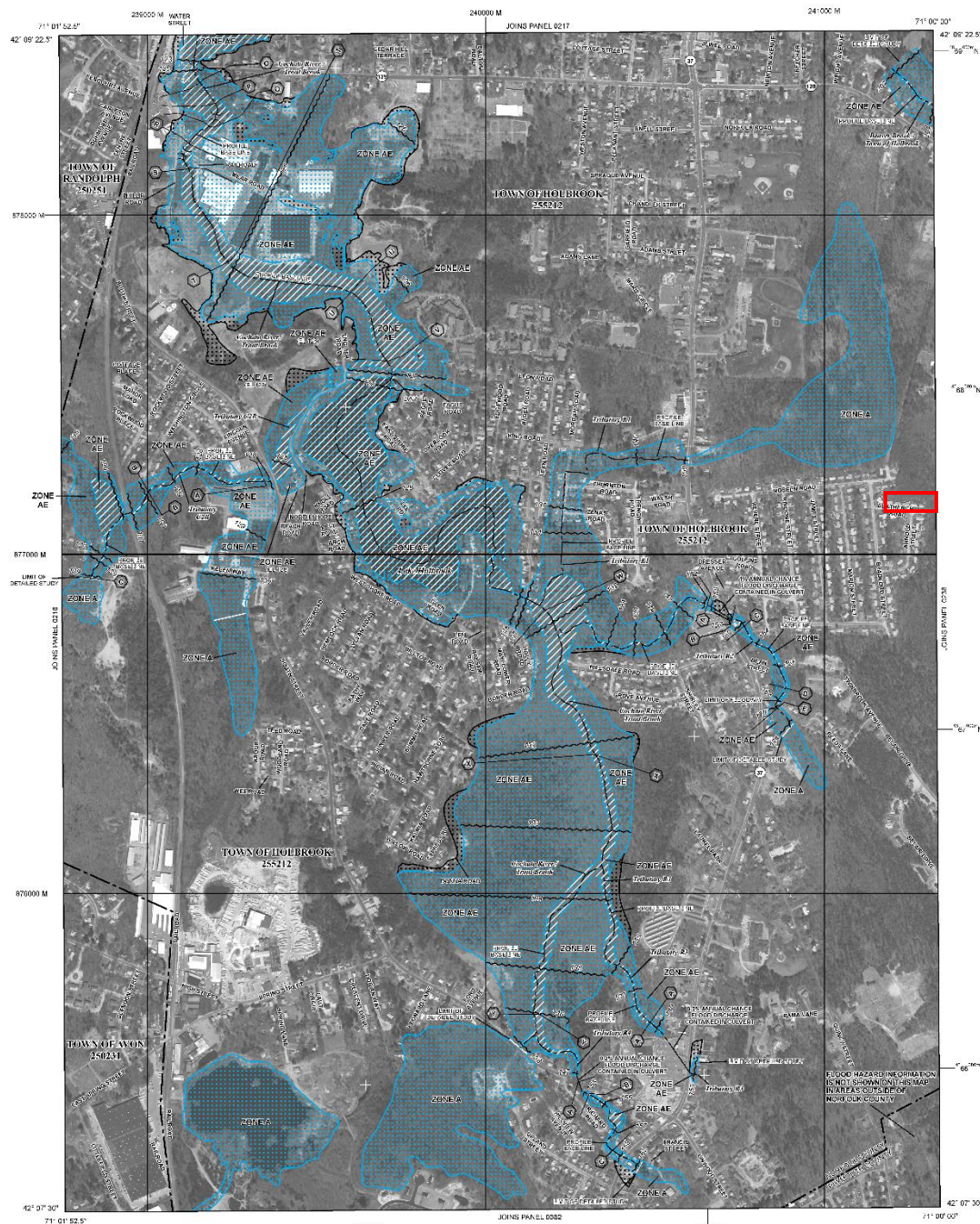
Based on updated topographic information, this map reflects more detailed and up-to-date stream channel configurations and floodplain delineations than those shown on the previous FIRM for this jurisdiction. As a result, the flood profiles and floodway data tables for multiple streams in the Flood Insurance Study Report (which contain authoritative hydraulic data) may reflect stream channel disparities that differ from what is shown on the map. Also, the relationship of floodplain relationships for cross-sections may differ from what is shown on previous maps.

**Corporate limits** shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels, community map repository addresses, and a listing of communities with active National Flood Insurance Program data for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at <http://www.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

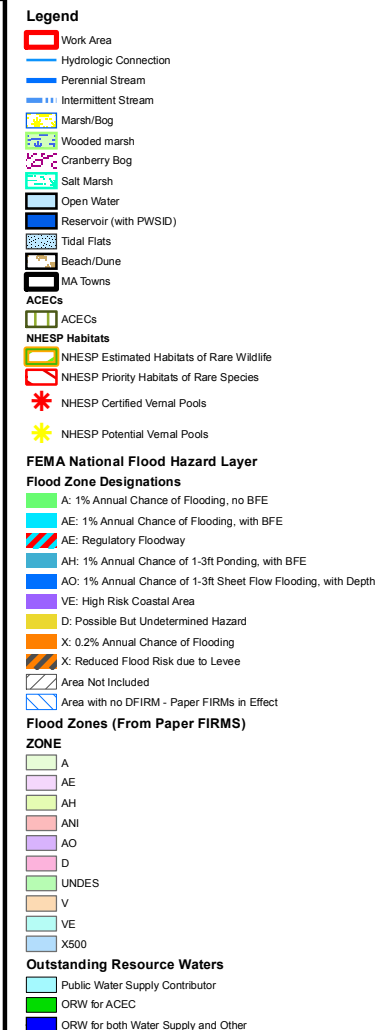
If you have questions about this map, how to order products in the National Flood Insurance Program in general, please call the FEMA Map Information eXchange (FMIX) at 1-877-FEMA-Map or 1-877-335-2677 or visit the FEMA website at <http://www.fema.gov/business/fip>.



## LEGEND

- SPECIAL FLOOD HAZARD AREAS (SFHA) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD**
- The 1% annual chance flood (SFHA) is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Areas are shown in blue on this map. The 1% annual chance flood is the basis for the determination of the 1% annual chance flood.
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**FIGURE 4**  
Revere Acres  
Leatherchip Road  
Holbrook, MA

Environmental Constraints  
Map

Weston & Sampson<sup>SM</sup>

Data Source: Office of Geographic and Environmental Information (MassGIS),  
Commonwealth of Massachusetts Executive Office of Environmental Affairs

## APPENDIX A

### ACOE Wetland Determination Data Forms

# WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Revere Acres, Leatherchip Road City/County: Holbrook Sampling Date: 7/11/22  
 Applicant/Owner: Town of Holbrook State: MA Sampling Point: A13-WET  
 Investigator(s): Megan Kearns, PWS Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Hillside Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 3%  
 Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: 42.143379 Long: -71.000163 Datum: WGS84  
 Soil Map Unit Name: Ridgebury fine sandy loam; 3 to 8 percent slopes, extremely stony NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____ If yes, optional Wetland Site ID: _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: (Explain alternative procedures here or in a separate report.) Data Plot conducted immediately downslope of flag WET-A-13.	

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u>		<u>Secondary Indicators (minimum of two required)</u>
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>0"</u> (includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

**VEGETATION – Use scientific names of plants.**

 Sampling Point: A13-WET

	Absolute % Cover	Dominant Species?	Indicator Status																	
<b>Tree Stratum</b> (Plot size: <u>30</u> )																				
1. <u>Acer rubrum</u>	30	Yes	FAC	<b>Dominance Test worksheet:</b>  Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)  Total Number of Dominant Species Across All Strata: <u>5</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	30	=Total Cover		<b>Prevalence Index worksheet:</b>  <table style="width: 100%;"> <tr> <th style="width: 40%;">Total % Cover of:</th> <th style="width: 60%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>35</u></td> <td>x 1 = <u>35</u></td> </tr> <tr> <td>FACW species <u>40</u></td> <td>x 2 = <u>80</u></td> </tr> <tr> <td>FAC species <u>65</u></td> <td>x 3 = <u>195</u></td> </tr> <tr> <td>FACU species <u>5</u></td> <td>x 4 = <u>20</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>145</u></td> <td>(A) <u>330</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.28</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>35</u>	x 1 = <u>35</u>	FACW species <u>40</u>	x 2 = <u>80</u>	FAC species <u>65</u>	x 3 = <u>195</u>	FACU species <u>5</u>	x 4 = <u>20</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>145</u>	(A) <u>330</u> (B)	Prevalence Index = B/A = <u>2.28</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>35</u>	x 1 = <u>35</u>																			
FACW species <u>40</u>	x 2 = <u>80</u>																			
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UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>145</u>	(A) <u>330</u> (B)																			
Prevalence Index = B/A = <u>2.28</u>																				
<b>Sapling/Shrub Stratum</b> (Plot size: <u>15</u> )																				
1. <u>Clethra alnifolia</u>	25	Yes	FAC																	
2. <u>Rosa multiflora</u>	5	No	FACU																	
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	30	=Total Cover																		
<b>Herb Stratum</b> (Plot size: <u>5</u> )																				
1. <u>Juncus effusus</u>	15	Yes	OBL	<b>Hydrophytic Vegetation Indicators:</b> <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>X</u> <u>3</u> - Prevalence Index is ≤3.0 <sup>1</sup> <u>4</u> - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>        </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Carex lurida</u>	15	Yes	OBL																	
3. <u>Carex scoparia</u>	5	No	FACW																	
4. <u>Euthamia graminifolia</u>	10	No	FAC																	
5. <u>Impatiens capensis</u>	15	Yes	FACW																	
6. <u>Onoclea sensibilis</u>	10	No	FACW																	
7. <u>Leersia oryzoides</u>	5	No	OBL																	
8. <u>Phragmites australis</u>	10	No	FACW																	
9. _____																				
10. _____																				
11. _____																				
12. _____																				
	85	=Total Cover																		
<b>Woody Vine Stratum</b> (Plot size: <u>15</u> )																				
1. _____																				
2. _____																				
3. _____																				
4. _____																				
		=Total Cover																		

Remarks: (Include photo numbers here or on a separate sheet.)



## SOIL

Sampling Point: A13-WET

[illegible]

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

### Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)

- ☐ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ☐ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ☐ High Chroma Sands (S11) (**LRR K, L**)
- ☐ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☒ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (**LRR K, L**)

### Indicators for Problematic Hydric Soils<sup>3</sup>:

☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)  
☐ Coast Prairie Redox (A16) (**LRR K, L, R**)  
☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)  
☐ Polyvalue Below Surface (S8) (**LRR K, L**)  
☐ Thin Dark Surface (S9) (**LRR K, L**)  
☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)  
☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)  
☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)  
☐ Red Parent Material (F21)  
☐ Very Shallow Dark Surface (TF12)  
☐ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No       

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. ([http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_051293.docx](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx))

# WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Revere Acres, Leatherchip Road City/County: Holbrook Sampling Date: 7/11/22  
 Applicant/Owner: Town of Holbrook State: MA Sampling Point: A13-UPL  
 Investigator(s): Megan Kearns, PWS Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Hillside Local relief (concave, convex, none): None Slope (%): 3%  
 Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: 42.143379 Long: -71.000163 Datum: WGS84  
 Soil Map Unit Name: Ridgebury fine sandy loam; 3 to 8 percent slopes, extremely stony NWI classification: Upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No _____ If yes, optional Wetland Site ID: _____
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: (Explain alternative procedures here or in a separate report.) Data Plot conducted immediately upslope of flag WET-A-13.	

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)		<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

**VEGETATION – Use scientific names of plants.**

 Sampling Point: A13-UPL

Tree Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Acer rubrum</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>	<b>Dominance Test worksheet:</b>  Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>10</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>10.0%</u> (A/B)																
2. <u>Quercus rubra</u>	<u>10</u>	<u>Yes</u>	<u>FACU</u>																	
3. <u>Robinia pseudoacacia</u>	<u>15</u>	<u>Yes</u>	<u>FACU</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>35</u> =Total Cover																				
<b>Sapling/Shrub Stratum (Plot size: <u>15</u> )</b>																				
1. <u>Lonicera sp.</u>	<u>30</u>	<u>Yes</u>	<u>UPL</u>	<b>Prevalence Index worksheet:</b>  <table style="width: 100%;"> <tr> <th style="text-align: left;">Total % Cover of:</th> <th style="text-align: left;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>10</u></td> <td>x 3 = <u>30</u></td> </tr> <tr> <td>FACU species <u>105</u></td> <td>x 4 = <u>420</u></td> </tr> <tr> <td>UPL species <u>30</u></td> <td>x 5 = <u>150</u></td> </tr> <tr> <td>Column Totals: <u>145</u> (A)</td> <td><u>600</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>4.14</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>10</u>	x 3 = <u>30</u>	FACU species <u>105</u>	x 4 = <u>420</u>	UPL species <u>30</u>	x 5 = <u>150</u>	Column Totals: <u>145</u> (A)	<u>600</u> (B)	Prevalence Index = B/A = <u>4.14</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>10</u>	x 3 = <u>30</u>																			
FACU species <u>105</u>	x 4 = <u>420</u>																			
UPL species <u>30</u>	x 5 = <u>150</u>																			
Column Totals: <u>145</u> (A)	<u>600</u> (B)																			
Prevalence Index = B/A = <u>4.14</u>																				
2. <u>Rosa multiflora</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>																	
3. <u>Rubus sp.</u>	<u>15</u>	<u>Yes</u>	<u>FACU</u>																	
4. <u>Phytolacca americana</u>	<u>5</u>	<u>No</u>	<u>FACU</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>70</u> =Total Cover																				
<b>Herb Stratum (Plot size: <u>5</u> )</b>																				
1. <u>Parthenocissus quinquefolia</u>	<u>10</u>	<u>Yes</u>	<u>FACU</u>	<b>Hydrophytic Vegetation Indicators:</b> <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 <sup>1</sup> <u>4</u> - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>        </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Rubus sp.</u>	<u>5</u>	<u>Yes</u>	<u>FACU</u>																	
3. <u>Solidago sp.</u>	<u>10</u>	<u>Yes</u>	<u>FACU</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
<u>25</u> =Total Cover																				
<b>Woody Vine Stratum (Plot size: <u>15</u> )</b>																				
1. <u>Vitis sp.</u>	<u>15</u>	<u>Yes</u>	<u>FACU</u>	<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
<u>15</u> =Total Cover																				
<b>Hydrophytic Vegetation Present?</b> Yes <u>        </u> No <u>  X  </u>																				

Remarks: (Include photo numbers here or on a separate sheet.)

## SOIL

Sampling Point: A13-UPL

[illegible]

## APPENDIX B

### Site Photographs





**Photo 1:** View of the proposed work area along Leatherchip Road, facing west.



**Photo 2:** View of Wetland Series A near flag WET-A-16 and the culvert.





**Photo 3:** View of Wetland Series A near flag WET-A-13.



**Photo 4:** View of Wetland Series A near flag WET-A-3.

## APPENDIX G





**Photo 1:** View facing west of the intermittent stream and its connection to Trout Brook.



**Photo 2:** View of the intermittent stream and connection to Trout Brook.





**Photo 3:** View facing east towards 10 Revere Street, showing the corroded 36-inch culvert.



**Photo 4:** View from above of existing 36-inch corroded culvert and intermittent stream channel.





**Photo 5:** View along Leatherchip Road facing west.



**Photo 6:** View of wetland nearby the culvert next to Leatherchip Road.