

# Notice of Intent Lot O-32 Wetland Restoration Project

**Town of Shutesbury**  
Shutesbury, Massachusetts

May 4, 2023



1550 Main Street, Suite 400  
Springfield, MA 01103



FUSS & O'NEILL

May 4, 2023

Shutesbury Conservation Commission  
1 Cooleyville Road  
PO Box 276  
Shutesbury, MA 01072

Re: Notice of Intent  
Lot O-32 Wetland Restoration Project  
66 Leverett Road  
Shutesbury, Massachusetts

Dear Members of the Conservation Commission:

On behalf of the Town of Shutesbury, Fuss & O'Neill is submitting this Notice of Intent (NOI) under the Massachusetts Wetlands Protection Act (MAWPA: M.G.L. c 131 § 40) and the Town of Shutesbury General Wetlands Protection Bylaw (Wetlands Bylaw) and associated regulations for the Lot O-32 Road Wetland Restoration Project. The project includes the removal of historic fill from Bordering Vegetated Wetlands (BVW) 2 and 3 and restoration with native vegetation.

An Order of Conditions is required as work will occur within BVW and the 100-foot Buffer Zone for the restoration efforts. This project is being submitted to MassDEP through the online eDEP portal. Should you have any questions or require additional information, please contact me at [mkissane@fando.com](mailto:mkissane@fando.com) / 413-333-5472.

Sincerely,

Matthew Kissane  
Senior Geologist

1550 Main Street  
Suite 400  
Springfield, MA  
01103  
† 413.452.0445  
800.286.2469  
f 860.533.5143

Copy: MassDEP (WERO) Division of Wetlands and Waterways  
Mary Anne Antonellis, Director, M.N. Spear Memorial Library

[www.fando.com](http://www.fando.com)

California  
Connecticut  
Maine  
Massachusetts  
New Hampshire  
Rhode Island  
Vermont



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**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 |
| Shutesbury                  |
| 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):

|  |                                    |                             |
|--|------------------------------------|-----------------------------|
| <u>66 Leverett Road</u><br>a. Street Address | <u>Shutesbury</u><br>b. City/Town  | <u>01072</u><br>c. Zip Code |
| Latitude and Longitude:                      |                                    |                             |
| <u>0</u><br>f. Assessors Map/Plat Number     | <u>32</u><br>g. Parcel /Lot Number | <u></u><br>e. Longitude     |

2. Applicant:

|   |                                   |  |
|---|-----------------------------------|--|
| <u>Mary Anne</u><br>a. First Name                           | <u>Antonellis</u><br>b. Last Name |  |
| <u>Town of Shutesbury</u><br>c. Organization                |                                   |  |
| <u>10 Cooleyville Road, PO Box 256</u><br>d. Street Address |                                   |  |
| <u>Shutesbury</u><br>e. City/Town                           | <u>MA</u><br>f. State             | <u>01072</u><br>g. Zip Code                                |
| <u>413-259-1213</u><br>h. Phone Number                      | <u></u><br>i. Fax Number          | <u>library.director@shutesbury.org</u><br>j. Email Address |

3. Property owner (required if different from applicant):  Check if more than one owner

|                              |                          |                             |
|------------------------------|--------------------------|-----------------------------|
| <u></u><br>a. First Name     | <u></u><br>b. Last Name  |                             |
| <u></u><br>c. Organization   |                          |                             |
| <u></u><br>d. Street Address |                          |                             |
| <u></u><br>e. City/Town      | <u></u><br>f. State      | <u></u><br>g. Zip Code      |
| <u></u><br>h. Phone Number   | <u></u><br>i. Fax Number | <u></u><br>j. Email address |

4. Representative (if any):

|   |                                |   |
|---|--------------------------------|---|
| <u>Matthew</u><br>a. First Name                         | <u>Kissane</u><br>b. Last Name |   |
| <u>Fuss &amp; O'Neill</u><br>c. Company                 |                                |   |
| <u>1550 Main Street, Suite 400</u><br>d. Street Address |                                |   |
| <u>Springfield</u><br>e. City/Town                      | <u>MA</u><br>f. State          | <u>01103</u><br>g. Zip Code                   |
| <u>413-333-5472</u><br>h. Phone Number                  | <u></u><br>i. Fax Number       | <u>mkissane@fando.com</u><br>j. Email address |

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

|  |                              |                                  |
|--|------------------------------|----------------------------------|
| <u>Fee Exempt</u><br>a. Total Fee Paid | <u></u><br>b. State Fee Paid | <u></u><br>c. City/Town Fee Paid |
|--|------------------------------|----------------------------------|



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:        |  |
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| Document Transaction Number |  |
| Shutesbury                  |  |
| City/Town                   |  |

## A. General Information (continued)

6. General Project Description:

The proposed project includes the restoration of BVW 2 and BVW 3. Proposed activities include the removal of historic fill from BVW 2 and BVW 3, seeding with a native seed mix, and installation of native trees and shrubs.

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 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 checked="" 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)
- 310 CMR 10.53 (4) Ecological Restoration Project - although eligible, we are not filing this project as an ecological restoration project

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

8. Property recorded at the Registry of Deeds for:

|           |                                       |
|-----------|---------------------------------------|
| Franklin  |                                       |
| a. County | b. Certificate # (if registered land) |
| 4708      | 107                                   |
| c. Book   | 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 type="checkbox"/> Bank                                   | 1. linear feet                            | 2. linear feet                |
| b. <input checked="" type="checkbox"/> Bordering Vegetated Wetland | See restoration/enhancement section below | 2. square feet                |
| c. <input type="checkbox"/> Land Under Waterbodies and Waterways   | 1. square feet<br>3. cubic yards dredged  | 2. square feet                |

| Resource Area  | Size of Proposed Alteration   | Proposed Replacement (if any)            |
|--|---|--|
| d. <input type="checkbox"/> Bordering Land Subject to Flooding | 1. square feet<br>3. cubic feet of flood storage lost                 | 2. square feet<br>4. cubic feet replaced |
| e. <input type="checkbox"/> Isolated Land Subject to Flooding  | 1. square feet<br>2. cubic feet of flood storage lost                 | 3. cubic feet replaced                   |
| f. <input type="checkbox"/> Riverfront Area                    | 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: \_\_\_\_\_ square feet

4. Proposed alteration of the Riverfront Area:

|                      |                               |  |
|----------------------|-------------------------------|--|
| 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      |

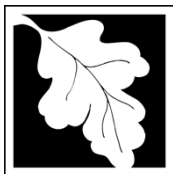
|   | <u>Size of Proposed Alteration</u>  | <u>Proposed Replacement (if any)</u>   |
|---|---|--|
| f. <input type="checkbox"/> Coastal Banks                         | _____   |  |
|   | 1. linear feet  |  |
| g. <input type="checkbox"/> Rocky Intertidal Shores               | _____   |  |
|   | 1. square 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.  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.

|                        |                              |
|------------------------|------------------------------|
| <u>1,355 (maximum)</u> | <u>0</u>                     |
| a. square feet of BVW  | b. square feet of Salt Marsh |

5.  Project Involves Stream Crossings

|                                   |   |
|-----------------------------------|---|
| _____                             | _____                                     |
| a. number of new stream crossings | b. number of replacement stream crossings |



Massachusetts Department of Environmental Protection  
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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 1, 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

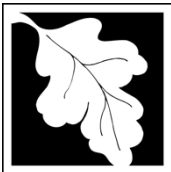
\* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see <https://www.mass.gov/endangered-species-act-mesa-regulatory-review>).

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.







Massachusetts Department of Environmental Protection  
Bureau of Resource Protection - Wetlands

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

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

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

- 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.

Wetland Restoration Overview (Figure 2)

a. Plan Title

Fuss & O'Neill

b. Prepared By

May 2023

d. Final Revision Date

c. Signed and Stamped by

as noted

e. Scale

Topographic Map (Figure 1), BVW 2 Restoration Plan (Figure 3-1),  
BVW 3 Restoration Plan (Figure 3-2)

f. Additional Plan or Document Title

May 2023

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:

2. Municipal Check Number

3. Check date

4. State Check Number

5. Check date

6. Payor name on check: First Name

7. Payor name on check: Last Name



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**F. Signatures and Submittal Requirements**

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

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

1. Signature of Applicant, Mary Anne Antonellis, Town of Shutesbury

2. Date

3. Signature of Property Owner (if different)

4. Date

05/04/2023

5. Signature of Representative (if any), Matthew Kissane, Fuss & O'Neill

6. Date

**For Conservation Commission:**

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

**For MassDEP:**

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

**Other:**

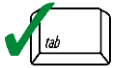
If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

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



**Massachusetts Department of Environmental Protection**  
 Bureau of Resource Protection - Wetlands  
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 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:

66 Leverett Road Shutesbury  
 a. Street Address b. City/Town  
 Fee Exempt  
 c. Check number d. Fee amount

2. Applicant Mailing Address:

Mary Anne Antonellis  
 a. First Name b. Last Name  
 Town of Shutesbury  
 c. Organization  
 10 Cooleyville Road, PO Box 256  
 d. Mailing Address  
 Shutesbury MA 01072  
 e. City/Town f. State g. Zip Code  
 413-259-1213 library.director@shutesbury.org  
 h. Phone Number i. Fax Number j. Email Address

3. Property Owner (if different):

a. First Name b. Last Name  
 c. Organization  
 d. Mailing Address  
 e. City/Town f. State 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: 0.00  
 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.)

**Shutesbury Conservation Commission**  
**PO Box 276**  
**Shutesbury, MA 01072**

This letter includes instructions for completing a Notice of Intent (NOI). The Shutesbury Conservation Commission and Land Use Clerk (contact info below) are here to answer questions and provide assistance. Notices of Intent are reviewed under the Wetlands Protection Act (MGL Chapter 131 §40) and the Shutesbury General Wetlands Protection Bylaw, but applicants are only required to submit one application per the requirements below. **The Commission requires all application materials, except for the Abutter Notifications and Legal Notice documentation, to be submitted by noon, ten (10) business days before the Public Hearing date.**

To file an NOI. you will need to follow these steps:

Go to [https://shutesbury.org/wetlands-permit\\_applications](https://shutesbury.org/wetlands-permit_applications). Click on “WPA Form 3 (NOI)” and “Instructions.” Review the instructions carefully. Download MassDEP’s WPA Form 3, follow the DEP instructions to complete the form, using the DEP Fee Transmittal Form to determine the fee appropriate to your project, and print out the completed form. Alternatively, NOIs can also be submitted electronically through the MassDEP’s Online Filing System (<https://www.mass.gov/edep-online-filing-for-massdep-environmental-permits-reports> ). All applications shall be reviewed under both the Wetlands Protection Act and the Shutesbury General Wetlands Protection Bylaw.

Carefully review the Pre-Filing Frequently Asked Questions (FAQ) handout attached below for important details that applicants should be aware of.

WPA Form 3 and all accompanying documents are submitted both to the Conservation Commission (address above) and to MassDEP either through its online permitting portal at <https://www.mass.gov/how-to/wpa-form-3-wetlands-notice-of-intent> or by sending the application by USPS Certified Mail or hand-delivery to: Massachusetts Department of Environmental Protection, Western Region Office, Wetlands Division, 436 Dwight Street, 4<sup>th</sup> Floor, Springfield, MA 01103.

A signed *Site Access Authorization Form* must be submitted to the Commission with the application.

Contact the Shutesbury Board of Assessors at 413-259-3790 ([assessor@shutesbury.org](mailto:assessor@shutesbury.org)) to obtain a Certified List of 100-foot abutters from your project area. **A current list (not older than 30 days) must be included in your NOI application.**

Fees: NOI applicants must pay WPA NOI fees both to the state and also to the Town of Shutesbury. A separate fee is required under the Town of Shutesbury General Wetland Protection Bylaw. Refer to the **NOI Frequently Asked Questions** handout for information about the fee required under the town Bylaw. All fees must be paid in full upon application submission per instruction below. **See instructions below.**

N/A - The Applicant is requesting a waiver as a Town project

Once the NOI is received by the Commission, either the Land Use Clerk or Commission Chair will give you the dates for a site visit and the Public Hearing. Public Hearings are being conducted virtually at present.

You must publish a legal notice to inform the public of the Hearing. It must appear one time in a local newspaper **at least five (5) business days before your Hearing**, using the attached “*Template for Public Legal Notice.*”

All 100-foot abutters, based upon a Certified Abutter List, must be formally given notice of the project and Public Hearing information **at least seven (7) days** before the Public Hearing, either by US Postal Service Certified Mail with Return Receipts or by hand delivery with a signed Affidavit of Service (see below).

If you have been informed that your property is located within the Town of Amherst Watershed, an abutter notification must also be sent to Water Department, Town Hall, 4 Boltwood Avenue, Amherst, MA 01002.

Prior to the Public Hearing, the Commission must conduct a site visit to review the project. The Commission will contact you to arrange the site visit. Prior to the site visit, you must ensure that the project area is staked, and the delineated wetlands are flagged for Commission review.

Virtually attend the Public Hearing. Following the closing of the Public Hearing, you will receive an Order of Conditions. You have 10 business days to appeal any decision.

Record the Permit (Order of Conditions) at the Franklin County Registry of Deeds at 43 Hope Street, Greenfield, MA. Telephone: 413-772-0239, and submit proof of recording to the Commission within 30 days of the issuance of the permit.

**Please contact the Commission with any questions: 413-259-3792 or [concom@shutesbury.org](mailto:concom@shutesbury.org)**

**Thank you,**

**Carey Marshall, Land Use Clerk**

Office Hours: Tuesdays and Thursdays 10am – 1 pm

**Enclosures:**

NOI Frequently Asked Questions

Template for Abutter Notification

Affidavit of Service (for hand delivery of abutter notifications)

Template for Public Legal Notice

Site Access Authorization Form





Town of Shutesbury, Massachusetts 01072

TOWN OF SHUTESBURY  
Conservation Commission

SITE ACCESS AUTHORIZATION

Date: 5-3-2023

Project: Lot O-32 Wetland Restoration Project

Location: 66 Leverett, Shutesbury, MA

Property Owner: Town of Shutesbury

I (We) hereby authorize the individual members of the Shutesbury Conservation Commission and its agents to enter upon the referenced property for the purpose of gathering information regarding the application filed with the Commission pursuant to the Wetlands Protection Act (MGL Ch 131, s. 40) and/or the Shutesbury General Wetlands Protection Bylaw.

Additionally, if an Order of Condition or other Permit is issued for the project, I (we) grant permission for Commission members and the Commission's agents to enter the above referenced property for the purpose of inspecting for compliance with the Order or Permit. This site access authorization is valid until a Certificate of Compliance is issued by the Conservation Commission or the Permit has expired.

Authorized Signature: *Mary Anne Antorellis* Date 5-3-2023

Please Print Mary Anne Antorellis, owner's representative

(If other than owner, please state whether tenant, agent or other)

Mailing Address: 10 Cooleyville Road, PO Box 256  
Shutesbury, MA 01072

Phone: 413-259-1213 Email: library.director@shutesbury.org

Cell: \_\_\_\_\_ Fax: \_\_\_\_\_



# 1 Introduction

Project Name: Lt O-32 Wetland Restoration Project  
Project Location: 66 Leverett Road, Shutesbury, Massachusetts  
Project Proponent: Town of Shutesbury

---

## 1.1 Background

The wetland delineation for a portion of 66 Leverett Road was conducted by Fuss & O'Neill on August 5 and 16, and November 10 and 28, 2022. The Abbreviated Notice of Resource Area Delineation (ANRAD) was filed with the Shutesbury Conservation Commission on September 30, 2023 for this delineation. The wetland delineation was peer-reviewed by Stockman Associates LLC (Stockman Associates). After review by the Conservation Commission and Stockman Associates, the final version of the ANRAD application was submitted on February 9, 2023 (MassDEP File No. 286-0297). An Order of Resource Area Delineation (ORAD) was issued by the Shutesbury Conservation Commission on March 10, 2023.

During the ANRAD process, the presence of a mounded fill pile within Bordering Vegetated Wetland (BVW) 2 was identified by Stockman Associates. Indicators were also found suggesting that a portion of BVW 3 was filled, including the presence of buried trash and debris between flags 3A-114 and 3A-115. Due to the depth of the overburden material, an investigation to determine the presence or extent of potential fill with hand tools was not possible. Due to the potential that wetlands were buried between flags 3A-114 and 3A-115, the boundary between these flags was excluded from the ANRAD and ORAD.

This property was formerly operated as a military communications facility with a radio tower, a three-car garage, and other infrastructure, which has since been demolished. Based on a review of aerials, extent of mature vegetation growing in the mounded fill pile, and materials found within the mounded fill pile, it is believed that the fill or disturbance to these wetlands occurred decades ago.

Although the fill was not placed by the Town of Shutesbury (the current owner of the property) the Town is proposing to restore the wetlands and work towards promoting the interests of the Wetlands Protection Act. Therefore, the proposed project includes the removal of historic fill from BVW 2 and BVW 3 and restoration with native seeding and installation of native trees and shrubs.

## 2 Existing Environment

### 2.1 Project Locus

The proposed project is located within the 21.2-acre Project Locus, Parcel ID #O-32, which is located at 66 Leverett Road, Shutesbury and is owned by the Town of Shutesbury (Town). There are no buildings currently present on the parcel.

The Project Locus is bordered to the north by Leverett Road, and to the south, east, and west by forested land. The northeast portion of the parcel has been regularly mowed and contains a gravel driveway accessed from Leverett Road. The remainder of the parcel is forested with mixed deciduous and coniferous species. A compacted, sandy access route generally aligned in a north-south direction provides access from the regularly maintained portion of the parcel to the interior of the parcel. The access route is approximately 12 feet wide, 1,300 feet long, and transitions into a narrower walking path at its southernmost extent. Additional access routes and walking paths are present within the Project Locus. Due to the past use of this site, there are multiple groundwater monitoring wells located primarily within the forested portion of the parcel.

The Project Locus consists of forested uplands, with four wetland areas primarily within the northern portion. Refer to the Wetland Report in *Appendix A* for a detailed description of wetlands identified on site. This Wetland Report is the report that was included in the final ANRAD submittal and includes a description of the methodology of wetland resource area investigation.

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## 2.2 BVW 2

BVW 2 is best described as a previously disturbed Palustrine Forested Wetlands (PFO). This BVW includes a fill pile, other debris, and a portion that has been regularly mowed (approximately 65 square feet (sf)). Multiple invasive species have been observed within BVW 2 including winged euonymus (*Euonymus alatus*), Japanese honeysuckle (*Lonicera japonica*), multiflora rose (*Rosa multiflora*), and Japanese barberry (*Berberis thunbergia*). Other vegetation observed within BVW 2 include silky dogwood (*Cornus amomum*), meadowsweet (*Spiraea alba*), sensitive fern (*Onoclea sensibilis*), willow (*Salix spp.*), quaking aspen (*Populus tremuloides*), and white pine (*Pinus strobus*). The fill pile located in BVW 2 is approximately 510 sf and ranges in height from 3 to 5 feet. The pile is currently vegetated with trees up to eight inches diameter at breast height (DBH). The limits of the fill pile are shown in Figures 2 and 3-1. Refer to the Wetland Report in *Appendix A* for more information on BVW 2.

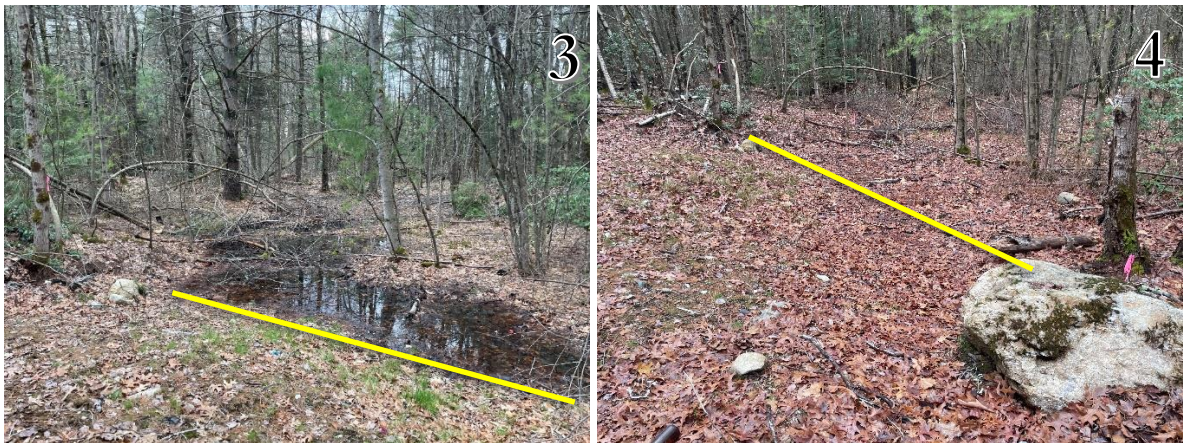


**Photograph 1-2.** Fill pile within BVW 2 (April 24, 2023 and April 7, 2023).



## 2.3 BVW 3

BVW 3 is best described as a PFO and Palustrine Emergent (PEM) wetland. The portion of the wetland adjacent to wetland flags 3A-114 and 3A-115 is sparsely vegetated. Vegetation growing near these flags include sedges (*Carex spp.*), highbush blueberry (*Vaccinium corymbosum*), and meadowsweet. Mature trees are located approximately 23 feet upgradient (east) of the flags 3A-114 and 3A-115. Stumps 4 to 5 inches in diameter were observed approximately 12 feet east of flags 3A-114 and 3A-115.



**Photographs 3-4.** View of the sparsely vegetated BVW 3 (right side of the yellow line) between flags 3A-114 and 3A-115 (April 24, 2022 and November 28, 2022).



**Photograph 5-6.** View of the mature trees flagged with orange survey tape located upgradient (east) of flags 3A-114 and 3A-115 (April 24, 2023 and April 7, 2023).

## 2.4 Rare Species

The NHESP Atlas, 14th edition, effective August 2021, and MassMapper online mapping data were consulted during the preparation of this Notice of Intent (NOI). According to these sources, no portion of the proposed work is within the limits of mapped Estimated Habitat for Rare Wildlife or Priority Habitat for Rare Species.

## 3 Proposed Project

The proposed project includes the restoration of BVW 2 and BVW 3 by removal of historic fill and planting of native species. Refer to Figure 2 for an overview of the site and Figures 3-1 and 3-2 for the Restoration Plans.

---

### 3.1 BVW 2 Restoration

Restoration of BVW 2 was designed based on improving wetland function of disturbed areas to match or exceed that of other areas of BVW 2. Fill removal, seeding, and native plant installation at BVW 2 will result in approximately 630 sf of restoration of BVW 2.

Restoration of BVW 2 Sequence of Work:

- Install erosion control measures
- Remove trees/shrubs within the upland adjacent to BVW 2 and within the BVW 2 fill pile
- Excavate and remove the mounded fill pile with an excavator or backhoe to the buried topsoil
- Stockpile material in upland areas for off-site disposal or live-load material to a truck bed for immediate off-site disposal
- Install 3 native trees and 10 native shrubs in disturbed wetland area and 2 native shrubs in disturbed adjacent upland area
- Seed disturbed wetland area with New England Wetland Seed Mix and disturbed upland area with New England Erosion Control/Restoration Mix for Dry Sites
- Apply weed free straw mulch
- Remove erosion controls upon vegetative stabilization

#### 3.1.1 Site Preparation

Erosion control measures will be installed approximately 1 foot downgradient of the fill pile. The erosion controls will help protect sedimentation into other portions of the wetland and help define the limits of work. The erosion controls are proposed 1 foot downgradient of the fill pile to allow for an adequate work area, and to facilitate grading of the fill removal area to match the adjacent wetland elevation.

#### 3.1.2 Species Selection

The New England Wetland Seed Mix (New England Wetland Plants, Inc., NEWP) is proposed as the seed mix for restoration of BVW 2. This seed mix was selected as it includes a wide variety of species that can germinate in wetland restoration areas. If unavailable, this seed mix may be substituted with an equivalent approved by the Fuss & O'Neill wetland scientist. Refer to *Appendix B*, for the list of species within this seed mix.

Three trees and ten shrubs are proposed for planting within the BVW 2 restoration area based on recommended spacing of plants within the footprint of the fill pile. Red maples were selected as the tree species as this species can grow in a range of soil moisture conditions and can tolerate full sun to full shade. Red maple was also observed throughout the site. Highbush blueberry, silky dogwood, and

arrowwood viburnum shrubs were selected as both species can tolerate full sun to part shade conditions and their fruits provide food for wildlife. In addition, highbush blueberry and silky dogwood flowers are used by pollinators. Silky dogwood is currently growing in BVW 2 and highbush blueberry is growing along the forested margin and in wetlands in other locations in the Project Locus.

---

## 3.2 BVW 3 Restoration

The limits of potential fill within BVW 3, if any, will be determined during restoration activities. During the peer-review process of the ANRAD, the reviewer described that trash buried in the side slope along the wetland boundary between flags 3A-114 and 3A-115 may indicate wetland fill at this location. The limits of potential fill removal area shown in Figure 2 were determined based on the presence of a tree line of larger and more mature trees, including an 11-inch DBH tree. Based on this tree line, it is anticipated the maximum wetland fill area to be restored would amount to approximately 725 sf.

Restoration of BVW 3 Sequence of Work:

- Install erosion control measures
- Excavate test pit in Potential Restoration Area (*Figure 3-2*)
- If wetland fill is observed, delineate wetland fill area and remove material until buried topsoil is encountered
- Stockpile material in upland areas for off-site disposal or live-load material to a truck bed for immediate off-site disposal
- Add wetland soil to any over-excavated wetland area
- Install erosion control blanket, as needed
- Install 7 shrubs along the wetland boundary between flags 3A-114 and 3A-115
- Seed disturbed wetland area with New England Erosion Control/Restoration Mix for Detention Basins and Moist Sites and disturbed upland area with New England Erosion Control/Restoration Mix for Dry Sites
- Apply weed free straw mulch
- Remove erosion controls upon vegetative stabilization

### 3.2.1 Wetland Fill Determination

To determine the limits of the wetland fill, the contractor will excavate a soil test pit starting from the current boundary between flags 3A-114 and 3A-115. The soil test pit will be excavated below the elevation of the existing wetland. A wetland scientist will be present during construction activities and will describe the soil morphology to determine if wetlands were filled. Indicators of buried soil include the presence of a darker horizon beneath lighter colored horizons. This would indicate that the former topsoil, which is typically higher in organic material and therefore darker, was buried. To determine if a wetland was buried, the presence of buried hydric soils will be assessed. In addition, soils observed in the area of excavation will be compared to soils within the BVW 3. Refer to Figure 3-2 for the general restoration plan.

If a buried wetland is encountered, the buried wetland topsoil will be preserved to the maximum extent practicable. For investigation areas where the filled wetland was excavated beyond the topsoil, wetland soil will be replaced with 6 inches of amended soils. The proposed soil mix will consist of topsoil mixed



with compost that is free of invasive plant species to an organic carbon content of 4-12% (7 to 21% organic matter) on a dry weight basis. This should be enough organic matter for microbial processes to give rise to hydric soil features. Well-decomposed leaf compost is the preferred soil amendment to achieve organic matter requirements for a created hydric soil.

### 3.2.2 Species Selection

If a filled wetland is observed, the area will be excavated to the buried topsoil. The New England Erosion Control/Restoration Mix for Detention Basins and Moist Sites (NEWP) is proposed as the seed mix for restoration of BVW 3. This seed mix was selected as this seed mix can tolerate infrequent inundation which is anticipated in this location. If unavailable, this seed mix may be substituted with an equivalent approved by the Fuss & O'Neill wetland scientist. Refer to *Appendix B*, for the list of species within this seed mix.

Seven shrubs (4 highbush blueberry and 3 winterberry) are proposed for planting along the boundary of BVW 3. Highbush blueberry was selected as the flowers are used by pollinators and the fruits provide food for wildlife, and it was observed within BVW 3. Winterberry was selected as the fruits provide food for wildlife and this species can tolerate full sun to partial shade. Shrub plantings are proposed along the boundary of BVW 3 because the existing BVW in the vicinity of the restoration activities is primarily sparsely vegetated. See photos 3 and 4 above.

---

## 3.3 Buffer Zone Restoration

A portion of the 100-foot Buffer Zone directly adjacent to BVW 2 will require tree removal to access BVW 2. As described in the sequence of work in *Sections 3.1 and 3.2* above, tree removal in uplands adjacent to BVW 2 will be restored with installation of two witch hazel (*Hamamelis virginiana*) shrubs and New England Erosion Control/Restoration Mix for Dry Sites (NEWP). Witch hazel was selected as the seeds, buds, and twigs provide food for wildlife, this species can tolerate partial to full shade, and the yellow flowers which bloom in the fall will improve aesthetics. Disturbed Buffer Zone within the vicinity of BVW 3 will be seeded with New England Erosion Control/Restoration Mix for Dry Sites (NEWP). Weed-free straw mulch will be applied to seeded areas. Refer to *Appendix B* for a list of species in the seed mix.

---

## 3.4 Construction-Period Protective Measures

Wetland resource areas will be protected by silt fence, straw wattles, or similarly effective controls. These protective measures will be placed in a fashion that restricts the contractor to areas necessary to conduct the work and will define the limits of work. The locations of these erosion controls are illustrated in the Restoration Plans. In addition, any materials temporarily stockpiled on-site will be surrounded by erosion controls. Stockpiled material will be placed on a tarp or similarly effective barrier.

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### 3.5 Access

BVW 2 will be accessed from the gravel driveway off of Leverett Road and via the existing compacted access route. BVW 3 will be accessed from the gravel driveway and via maintained portions of the property. No tree clearing is required to access BVW 3.

## 4 Alternatives Analysis

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### 4.1 No Action

The no action alternative includes allowing BVW 2 and BVW 3 to remain as is. Vegetation would continue to grow on the mounded fill pile in BVW 2 and the limits of BVW 3 would remain the same. This alternative was discarded from consideration as wetland fill remains and therefore the capacity of these wetlands to provide wetland ecosystem services is inhibited.

---

### 4.2 Fill Removal and Wetland Restoration (Preferred)

This alternative includes the fill removal and wetland restoration as described in Section 3. This alternative is preferred as it restores historically filled wetland areas and promotes the interests of the Wetlands Protection Act. This alternative also facilitates delineation of the boundary between BVW 3 flags 3A-114 and 3A-115.

---

### 4.3 Wetland Enhancement

This alternative includes improvements to the existing wetland areas with no fill removal. Enhancement could include the following:

- Removal of household refuse/debris within or adjacent to wetlands
- Removal of invasive species within or adjacent to wetlands
- Installation of native plantings in the mowed portions of BVWs on-site

Although this alternative was considered, the primary goal of this wetland restoration is to remove historic fill and restore the wetland at this fill removal location. Native plantings are proposed in the restoration as described in *Section 3*. This alternative was discarded from consideration because it does not meet the Town's primary goal of historic fill removal.

## 5 Impacts and Regulatory Compliance

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### 5.1 Impacts

The proposed project will result in a restoration of up to 1,355 sf of BVW (630 sf BVW 2 restoration and up to 725 sf of BVW 3 restoration).

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## 5.2 Regulatory Compliance

### 5.2.1 Bordering Vegetated Wetland Performance Standards

The project meets the performance standards of BVW set forth in 310 CMR 10.55(4) as it improves or restores wetland functions and values protected under the Massachusetts Wetlands Protection Act and Town of Shutesbury General Wetlands Protection Bylaw (Wetlands Bylaw) and regulations including:

- Prevention of pollution
- Groundwater and groundwater quality
- Surface water and surface water quality
- Wildlife habitat
- Aesthetics

### 5.2.2 Abutter Notification

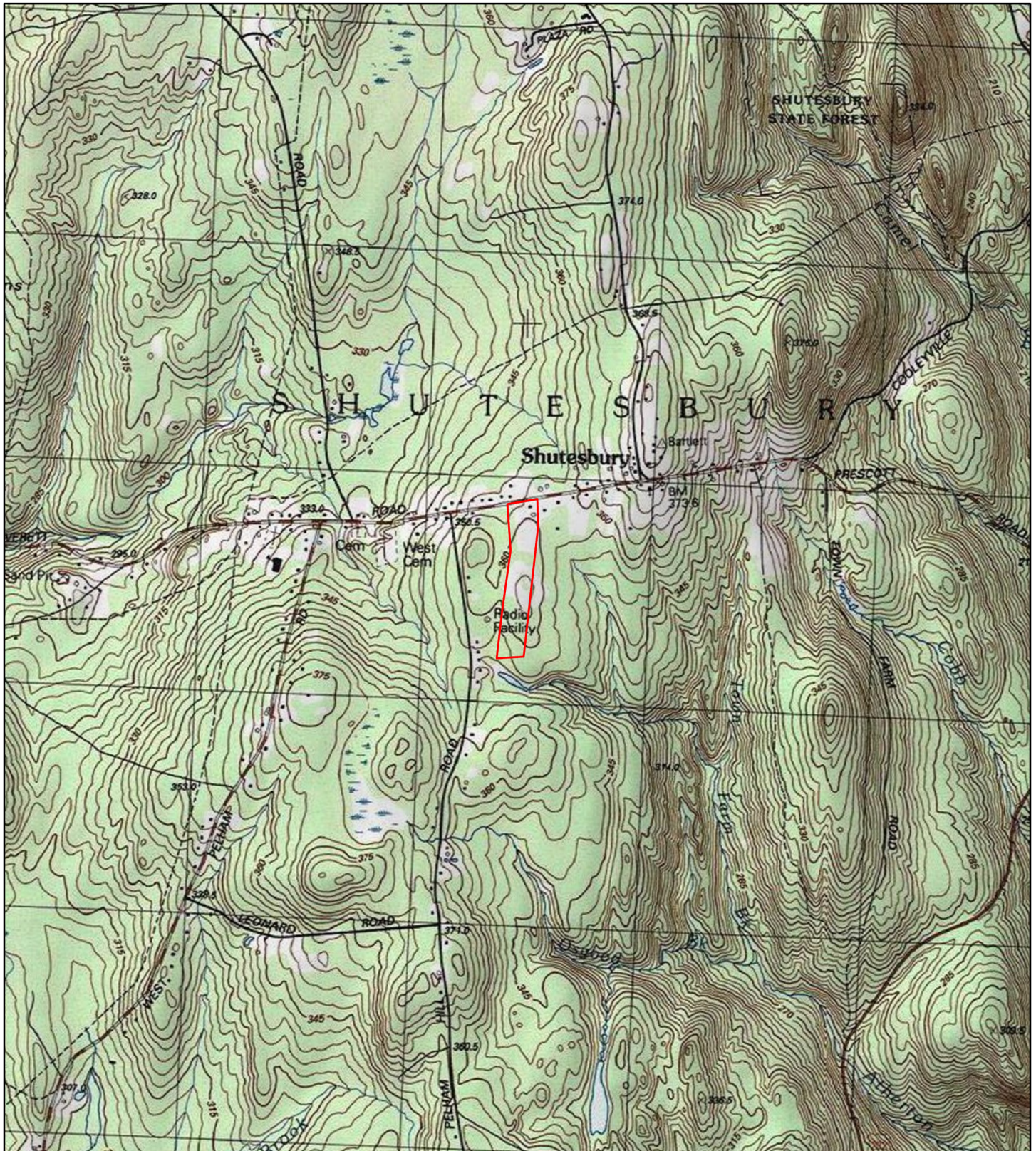
Abutters will be notified in accordance with the MAWPA and Wetlands Bylaw and notice of the public hearing for this NOI will be published in the Greenfield Recorder. Refer to *Appendix C* for the certified abutters list.




## Figures

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 Project Locus

 0 1,000 2,000 Feet

1:24,000



**USGS Topographic Map**  
Wetland Restoration Project  
66 Leverett Road

Shutesbury, MA

May 2023

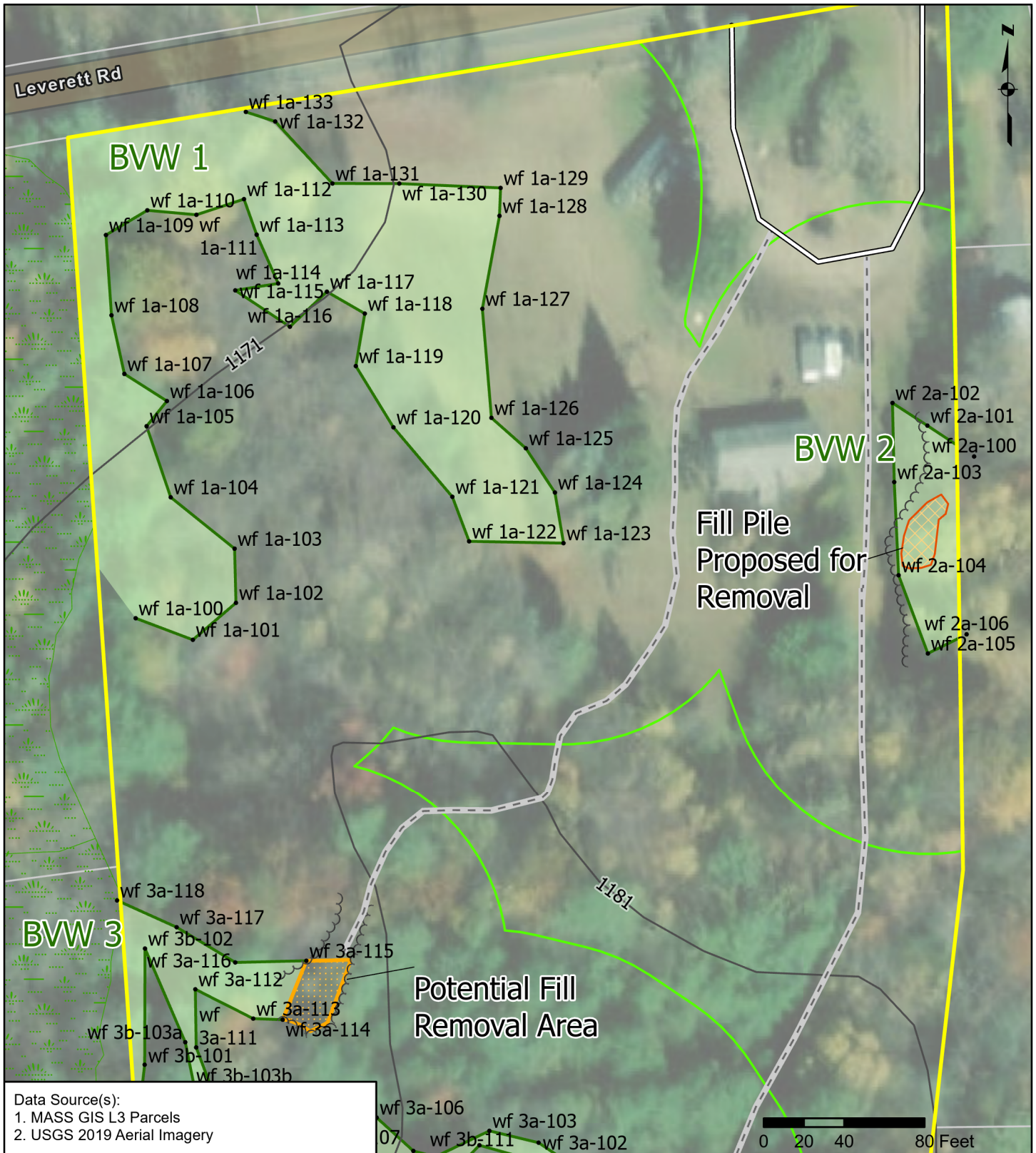


1550 Main Street, Suite 400  
Springfield, MA 01103  
413.452.0445 | www.fando.com

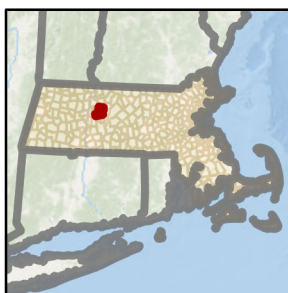
**Figure 1**

Note(s):  
(1) Project Locus at 66 Leverett Road is Shutesbury Parcel No. O-32.





Data Source(s):  
 1. MASS GIS L3 Parcels  
 2. USGS 2019 Aerial Imagery



- BVW Boundary (Delineated)
- 100-ft Buffer Zone
- BVW Area
- Driveway
- BVW Flags
- Access Route
- MassDEP Mapped Wetland
- Project Locus
- Treeline
- Parcel Boundary
- Fill Pile
- Contour (feet)
- Potential Restoration Area

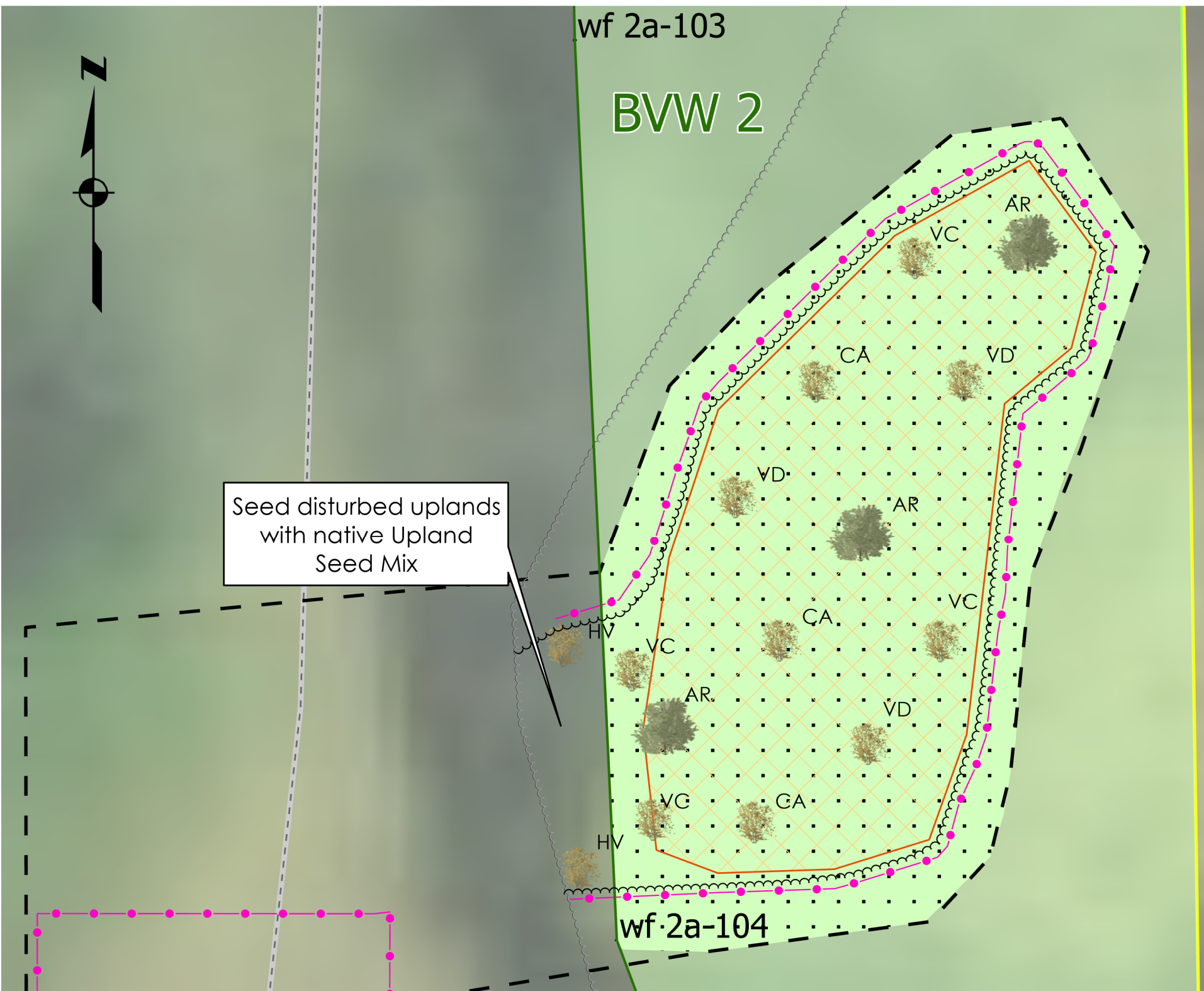
Notes:  
 Wetland Delineation conducted by Fuss & O'Neill on August 5 and 16, November 10 and 28, 2022.  
 Wetland flag locations located by a Harold L. Eaton & Associates, Inc., Massachusetts PLS #35032.

**Site Overview**  
 66 Leverett Road  
 Shutesbury, Massachusetts  
 May 2023

**FUSS & O'NEILL**  
 1550 Main Street, Suite 400  
 Springfield, MA 01103  
 413.452.0445 | www.fando.com

**Figure 2**





**Table 1  
BVW 2 Restoration Tree Species**

| Key | Common Name        | Botanical Name | Shade Tolerance        | Indicator Status | Amount | Size   |
|-----|--------------------|----------------|------------------------|------------------|--------|--------|
| AR  | <i>Acer rubrum</i> | Red Maple      | Full Sun to Full Shade | FAC              | 3      | 4'– 6' |

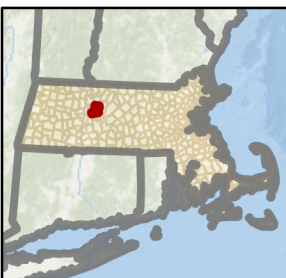
**Table 2  
BVW 2 and Upland Restoration Shrub Species**

| Key | Common Name        | Botanical Name              | Shade Tolerance        | Indicator Status | Amount | Size   |
|-----|--------------------|-----------------------------|------------------------|------------------|--------|--------|
| VC  | Highbush Blueberry | <i>Vaccinium corymbosum</i> | Full Sun to Part Shade | FACW             | 4      | 3'– 4' |
| CA  | Silky Dogwood      | <i>Cornus amomum</i>        | Full Sun to Part Shade | FACW             | 3      | 3'– 4' |
| VD  | Arrowwood Viburnum | <i>Viburnum dentatum</i>    | Full Sun to Full Shade | FAC              | 3      | 3'– 4' |
| HV  | Witch Hazel        | <i>Hamamelis virginiana</i> | Partial to Full Shade  | FACU             | 2      | 3'– 4' |

**Table 3  
BVW 2 Wetland Seed Mix**

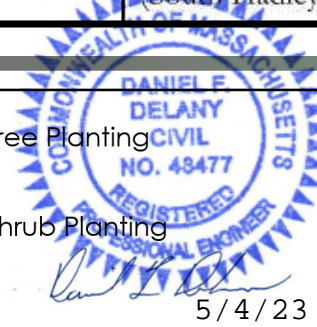
| Wetland Seed Mix             | Supplier  |
|------------------------------|---|
| New England Wetland Seed Mix | New England Wetland Plants, Inc. (South Hadley, MA) |

Data Source(s):  
1. MASS GIS L3 Parcels  
2. World Imagery



- BVW Boundary (Delineated)
- BVW Area
- BVW Flags
- Existing Treeline
- Proposed Treeline
- Access Route
- Limit of Work
- Fill Pile
- Erosion Controls
- Wetland Seed Mix
- Project Locus
- Tree Planting
- Shrub Planting

Notes:  
Wetland Delineation conducted by Fuss & O'Neill on August 5 and 16, November 10 and 28, 2022.  
Wetland Flag locations located by a Harold L. Eaton & Associates, Inc., Massachusetts PLS # 35032.



**BVW 2 Restoration Plan**  
66 Leverett Road  
Shutesbury, Massachusetts  
May 2023

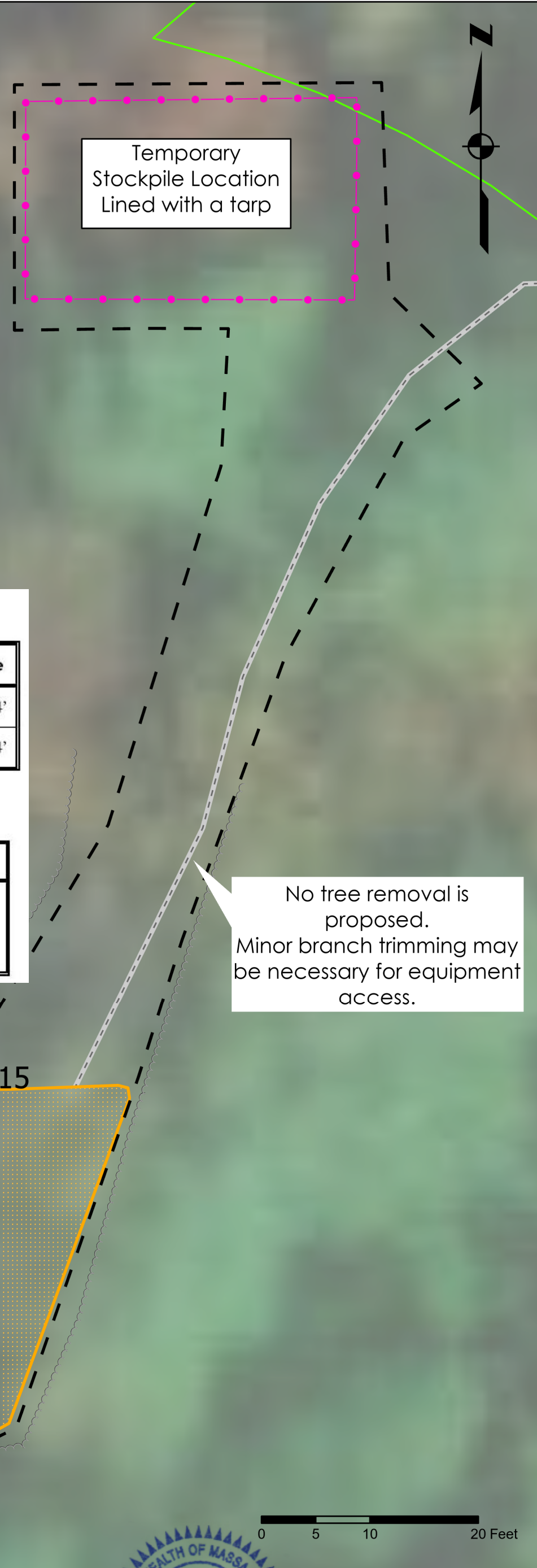
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**Figure 3-1**



**General Restoration Plan**

- (1) Install erosion controls.
- (2) Excavate test pit in Potential Restoration Area immediately adjacent to the existing wetland to determine limits of wetland fill. Delineate wetland fill area. If a filled wetland is observed, remove material until buried topsoil of wetland is encountered.
- (3) Stockpile excavated material in upland or live load material for immediate off-site disposal.
- (4) Add wetland soil to any over-excavated wetland area (resulting from investigation).
- (5) Install erosion control blanket, as needed, upgradient of the new BVW boundary.
- (6) Install 7 shrubs, 5 to 7 feet apart along the new BVW boundary between flags 3A-114 and 3A-115 as determined by the project Wetland Scientist
- (7) Seed disturbed wetland area with native Wetland Seed Mix and mulch with straw.
- (6) Seed disturbed uplands with native Upland Seed Mix and mulch with straw.



**Table 4  
BVW 3 Restoration Shrub Species**

| Common Name        | Botanical Name              | Shade Tolerance        | Indicator Status | Amount | Size   |
|--------------------|-----------------------------|------------------------|------------------|--------|--------|
| Highbush Blueberry | <i>Vaccinium corymbosum</i> | Full Sun to Part Shade | FACW             | 4      | 3'- 4' |
| Winterberry Holly  | <i>Ilex verticillata</i>    | Full Sun to Part Shade | FACW             | 3      | 3'- 4' |

**Table 5  
BVW 3 Wetland Seed Mix**

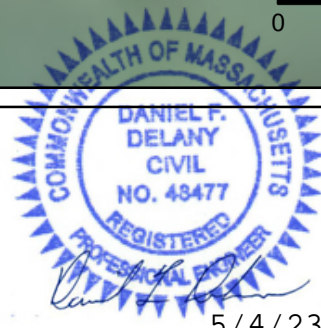
| Wetland Seed Mix   | Supplier  |
|--|---|
| New England Erosion Control/Restoration Mix For Detention Basins and Moist Sites | New England Wetland Plants, Inc. (South Hadley, MA) |

Data Source(s):  
1. MASS GIS L3 Parcels  
2. World Imagery



- BVW Boundary (Delineated)
- Potential Restoration Area
- BVW Area
- - - Erosion Controls
- BVW Flags
- Limit of Work
- Existing Treeline
- 100-ft Buffer Zone
- Access Route

Notes:  
Wetland Delineation conducted by Fuss & O'Neill on August 5 and 16, November 10 and 28, 2022.  
Wetland Flag locations located by a Harold L. Eaton & Associates, Inc., Massachusetts PLS # 35032.



**BVW 3 Restoration Plan**  
66 Leverett Road  
Shutesbury, Massachusetts

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May 2023

**Figure 3-2**

---

## **Appendix A**

### Wetland Report



Massachusetts Inland Resource Area Delineation Report

Report Date: September 6, 2022 (last revised February 1, 2023)

Prepared For: Ms. Mary Anne Antonellis, Director
M.N. Spear Memorial Library
10 Cooleyville Road
PO Box 256
Shutesbury, MA 01072

Site Address: 66 Leverett Road
Shutesbury, Massachusetts 01072

Delineation Date(s): August 5 and 16, November 10 and 28, 2022

Regulated & Protected Resource Areas<sup>1</sup>

- Bank, Land Under Water Bodies and Waterways, Riverfront Area, Isolated Vegetated Wetlands (IVW), Priority Habitats of Rare Species, Bordering Vegetated Wetland (BVW), Land Subject to Flooding, Buffer Zone, Estimated Habitats of Rare Wildlife, Vernal Pool (Certified and/or Potential)

Table 1
Summary of Wetland Delineation Flag Series

Table with 5 columns: Flag Series, Flag Number, Resource Area Type, Jurisdictional Under the MAWPA and Shutesbury Wetlands Bylaw, and Description. It lists 7 flag series with their corresponding numbers, resource types, jurisdictional status, and descriptions.

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Springfield, MA
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New Hampshire
Rhode Island
Vermont

<sup>1</sup>Under the Massachusetts Wetlands Protection Act (MAWPA), Shutesbury General Wetlands Protection Bylaw (Shutesbury Wetlands Bylaw), and Massachusetts Endangered Species Act (MESA)



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Inland resource areas were delineated in accordance with applicable local, state, and federal statutes, as detailed within the Resource Area Description. This delineation does not constitute an official wetland boundary until such time as it is accepted and approved by local, state, or federal regulatory agencies.

The wetland delineation was conducted by:

---

April Doroski, PWS, CPSS  
Water Resources and Climate Resilience Specialist

1550 Main Street  
Suite 400  
Springfield, MA  
01103  
t 413.452.0445  
800.286.2469  
f 860.533.5143

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<sup>1</sup>Under the Massachusetts Wetlands Protection Act (MAWPA), Shutesbury General Wetlands Protection Bylaw (Shutesbury Wetlands Bylaw), and Massachusetts Endangered Species Act (MESA)





**Massachusetts Inland Resource Area Delineation Report**  
September 6, 2022 (last revised February 1, 2023)

## **ATTACHMENTS**

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**A Figures**

- USGS Topographic Map (Figure 1)
- Wetland Delineation Overview (Figure 2)
- Wetland Flag Locations (Figure 3)
- Wetland Delineation Change Map (Figure 4)

**B Site Photographs**

**C Wetland Determination Data Forms – Northcentral and Northeast Region**

- BVWs 1, 2, and 3
- Upland Forms

**D FEMA Information**

- FEMA FIRMette (Panel No. 250128 0001 0020, effective June 18, 1980)

**E NRCS Custom Soil Resource Report**

- Custom Soil Resource Report of Franklin County, Massachusetts (August 30, 2022)

## Massachusetts Inland Resource Area Delineation Report

September 6, 2022 (last revised February 1, 2023)

Page 1

# Resource Area Description

---

## 1.1 Introduction

On August 5 and 26, 2022, a Fuss & O'Neill Inc. wetland and soil scientist performed a wetland resource area delineation within the Parcel O-32 at 66 Leverett Road ("Subject Parcel") located in Shutesbury, Massachusetts. The results of the wetland delineation for the front portion of the Subject Parcel (approximately 1,450 feet from Leverett Road) are discussed below. Refer to the figures in Attachment A for the limits of the ANRAD Review Area.

The purpose of this investigation was to identify and delineate the jurisdictional limits of regulated and protected resource areas as defined by the Wetlands Protection Act (M.G.L. c. 131 § 40) and its implementing regulations (310 CMR 10.00), the 1987 Corps of Engineers Wetlands Delineation Manual, the Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Northcentral and Northeast Region (2012), and the Shutesbury General Wetlands Protection Bylaw and its implementing regulations. This report also includes an assessment of areas protected under the Massachusetts Endangered Species Act (M.G.L. c. 131A).

As part of the Peer-Review process for the Abbreviated Notice of Resource Area Delineation, subsequent investigations were conducted and wetland boundaries updated and new isolated wetlands (non-jurisdictional) were delineated. These subsequent investigations occurred on November 10 and 28, 2022. Revisions were made based on comments from the Peer-Reviewer, Stockman Associates, LLC. The results of the August delineation and November investigations are described below.

This report provides a summary of wetland resource areas within the ANRAD Review Area and includes figures (*Attachment A*), site photographs (*Attachment B*), wetland determination data forms (*Attachment C*), and supplemental information (*Attachments D and E*).

---

## 1.2 Methodology of Resource Area Delineation

The wetland delineation was conducted in conformance with local, state, and federal regulations and guidelines including:

- *Massachusetts Wetlands Protection Act* ("MAWPA"; M.G.L. c. 131, § 40), its implementing regulations set forth at 310 CMR 10.00
- Massachusetts Department of Environmental Protection (MassDEP) *Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act* (March 1995)
- *Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1 (January 1987)

## Massachusetts Inland Resource Area Delineation Report

September 6, 2022 (last revised February 1, 2023)

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- *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (January 2012)
- *Field Indicators for Identifying Hydric Soils in New England in New England* (Version 4, April 2019)
- *Town of Shutesbury General Wetlands Protection Bylaw (Shutesbury Wetlands Bylaw)* and associated *Regulations under the General Wetlands Protection Bylaw*

Due to the disturbed nature of BVWs 1 and 2 and IVWs 4, 5, and 6, these wetlands were delineated in accordance with methodologies for altered areas including:

- 310 CMR 10.55(2)(c)3
- “Delineating BVWs where hydrology or vegetation has been altered” Section, *Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act Handbook*, MassDEP, 1995
- “Section 5 Difficult Situations” of the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center (Version 2.0), US Army Corps of Engineers, 2012.

### 1.2.1 Investigations

During the August 5 and 26, 2022 delineation, the Fuss & O'Neill wetland and soil scientist walked transects approximately 50 feet apart within the Subject Parcel in a generally south to north alignment across the width of the subject parcel. Fuss & O'Neill observed vegetation throughout the subject parcel as well as soils, verifying the presence or absence of wetlands.

Subsequent investigations conducted on November 10 and 28, 2022 included further investigation of wetlands delineated in August and additional isolated wetland (non-jurisdictional) identified by Stockman Associates, LLC. During the November 2022 investigations and sites visits, wetland and upland areas were reviewed, soils and vegetation were documented, wetland boundaries were refined, and two new non-jurisdictional isolated wetland was delineated (#6 and #7).

Where Bordering Vegetated Wetlands (BVW) or Isolated Vegetated Wetlands (IVW) was observed, the resource area boundaries were delineated and information regarding vegetation, soils, and hydrology was collected. Each flag location was named based on a numeric-alpha-numeric nomenclature and collected by GPS with sub-meter accuracy. A Professional Land Surveyor located flags on December 13, 2022. The Figures in Attachment A include flag locations located by the Professional Land Surveyor.

Fuss & O'Neill also conducted a desktop review of available online resources prior to performing the wetland delineation including Massachusetts Mapper (MassMapper) and FEMA mapping. The Franklin County FEMA Flood Insurance Rate Map (FIRM, Map No. 250128 0001-0020, effective June 18, 1980) and the Natural Heritage & Endangered Species Program (NHESP) database 15th Edition, effective August 1, 2021 was reviewed for the Subject Parcel.

## Massachusetts Inland Resource Area Delineation Report

September 6, 2022 (last revised February 1, 2023)

Page 3

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### 1.3 Resource Areas

#### 1.3.1 Resource Areas Not Present

The following resource areas are not located within the Subject Parcel according to MassMapper and the FEMA FIRM:

- FEMA 100-year Floodplain
- Natural Heritage Endangered Species Program (NHESP) Estimated Habitats of Rare Wildlife
- NHESP Priority Habitats of Rare Species
- NHESP Certified Vernal Pools
- Potential Vernal Pools

#### 1.3.2 Resource Areas and Protected Areas Present Within the Site

##### **Bordering Vegetated Wetlands (BVW): Regulatory Framework**

Bordering Vegetated Wetlands are defined under 310 CMR 10.55(2)(a) as “freshwater wetlands which border on creeks, rivers, streams, ponds, and lakes. The types of freshwater wetlands are wet meadows, marshes, swamps and bogs. Bordering Vegetated Wetlands are areas where the soils are saturated and/ or inundated such that they support a predominance of wetland indicator plants. The ground and surface water regime and the vegetation community which occur in each type of freshwater wetland are specified in M.G.L. c. 131, § 40.”

Bordering Vegetated Wetlands are also regulated under the Shutesbury Wetlands Bylaw. Three BVW’s were identified during the wetland delineation. BVW’s 1 and 3 extend beyond the Subject Parcel and therefore bordering status was not confirmed, but assumed based on mapped DEP wetlands and hydrologic connections. BVW 2 is considered bordering on the pond on 62 Leverett Road via a drop inlet structure. The pond is connected to a mapped wetland system to the east via cross culverts.

##### **BVW: Resource Area Description**

###### BVW 1

Bordering Vegetated Wetland 1 is best described as a seasonally saturated Palustrine Forested Wetland (PFO) and a Palustrine Emergent Wetland (PEM). BVW 1 is located within the northern portion of the Subject Parcel. The western portion of the wetland is primarily forested, while the eastern portion consists of a disturbed, regularly mowed area. Due to recent mowing, species identification was limited, but pockets of sensitive fern (*Onoclea sensibilis*, FACW) were visible. Within the mowed area, the wetland slopes down to the north to a vegetated drainage swale which conveys flow to the west. No standing water was observed within the swale at the time of the delineation. Within the mowed wetland area,

## Massachusetts Inland Resource Area Delineation Report

September 6, 2022 (last revised February 1, 2023)

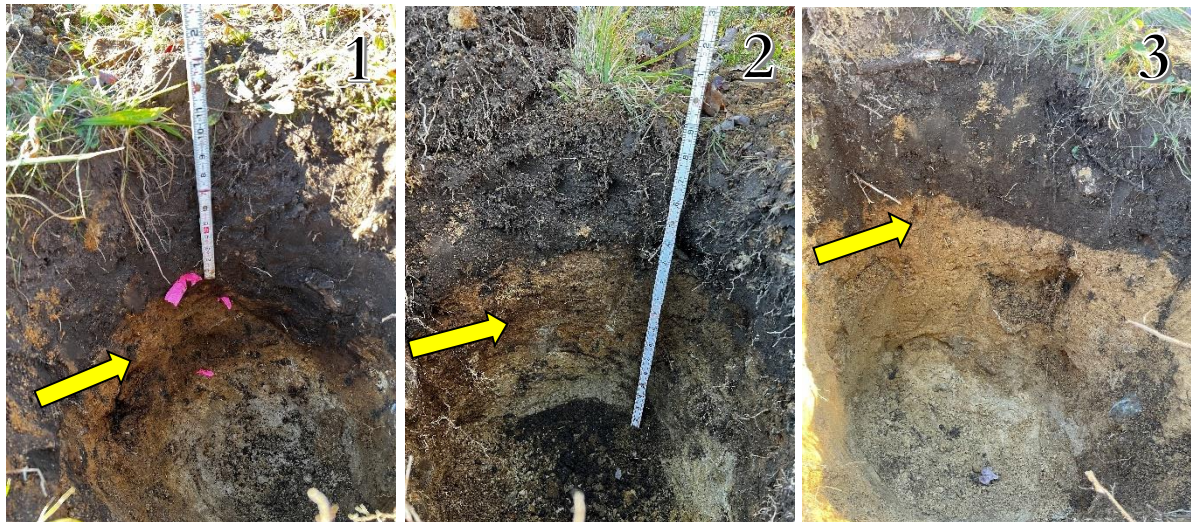
Page 4

BVW 1 was generally delineated based on the presence of sensitive fern, observations of multiple soil test holes, and minor changes in topographic relief.

Due to drought conditions reported for the Connecticut River Valley Region since May, hydrologic conditions are not typical for this time of year. According to the Massachusetts Department of Conservation and Recreation (DCR), the Connecticut River Valley Region experienced the following drought statuses: Level 1 – Mild Drought (May 2022), Level 2 -Significant Drought (June and July 2022), and Level 3 – Critical Drought (August 2022).

Vegetation observed within BVW 1 mowed area includes: sensitive fern, swamp dewberry (*Rubus hispida*; FACW), and sedges and grasses. Hydrology indicators include drainage patterns, saturation visible on aerial imagery (World Imagery; updated July 1, 2020), and FAC-neutral test. Soils exhibited a redox dark surface (F6) hydric soil indicator.

The Natural Resource Conservation Service (NRCS) mapped the BVW 1 area as Metacomet fine sandy loam. The mapped soil texture is generally consistent with field observations, but soils observed do not align with the mapped hydric soil rating of 'no'. Detailed information of these soil series mapped within the Site Parcel is included within the NRCS Custom Soil Resource Report in *Attachment E*.



**Photographs 1-3** View of BVW 1 test pits from left to right: Test Pit #1, Test Pit #2, Test Pit #3. View of dark yellowish brown colors (yellow arrows) indicative of upland soils directly beneath the Ap horizon.



**Massachusetts Inland Resource Area Delineation Report**

September 6, 2022 (last revised February 1, 2023)

Page 5

**BVW 2**

BVW 2 is best described as a seasonally saturated PFO wetland located along the eastern border of the Subject Parcel. Vegetation includes: green ash (*Fraxinus pennsylvanica*; FACW), winterberry (*Ilex verticillata*; FACW), silky dogwood (*Cornus amomum*; FACW), sensitive fern, Oriental bittersweet (*Celastrus orbiculatus*; UPL), and Virginia creeper (*Parthenocissus quinquefolia*; FACU). BVW 2 soils were sandy and exhibited a sandy redox (S5) hydric soil indicator. Soils observed within BVW 2 do not align with the mapped hydric soil rating of 'no'.

Although the only hydrology indicator includes FAC-neutral test, this wetland contained hydrophytic vegetation and hydric soils, and is therefore considered a wetland according to the MassDEP Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act (March 1995) and Shutesbury Wetland Regulations.

As recommended by Stockman Associates, the western boundary of BVW 2 was revisited during the November 10, 2022 site investigation. One test pit, BVW 2, Test Pit # 4, was dug approximately 13 feet west of the original BVW 2 boundary. The test pit, dug with a spade was advanced to 34 inches at the location below:

- BVW 2, Test Pit #4: 42.450713, -72.415545

Findings from a review of historic aerials and from the soil evaluation of one test pit in BVW 2 are summarized below:

1. The earliest aerial photograph available (1938) on Historic Aerials.com shows the land cover as a field within the vicinity of BVW 2. The 1962 historic aerial shows disturbance within the vicinity of BVW 2. In addition, an access route is visible in the 1962 aerial. These areas were altered prior to the "Hatch" Act, Chapter 220, Acts of 195, adopted March 25, 1965 and the MA Wetlands Protection Act of 1972. The soil test pit was advanced within the vicinity of the disturbance visible on the 1962 aerial.
2. Within Test Pit #4, a darker horizon was observed between 16 inches and 26 inches. Based on known past disturbance, this horizon is likely a buried A horizon.
3. A buried hydric soil (Problem Hydric Soils, Three Chroma Sands NE-S1) was observed within the Test Pit #4 (see yellow arrow in Photograph 7 below). Although the review of the 1962 aerial shows disturbance within the vicinity of the BVW 2 was prior to pertinent regulations, the location of Test Pit #4 was conservatively included in the updated BVW 2 delineation.
4. As recommended by Ms. Stockman, the mounded fill pile originally excluded from the BVW 2 delineation is included in the updated BVW 2 delineation. It is assumed the pile was placed after 1965 and in the absence of the pile, a wetland would be present.
5. The updated BVW 2 delineation generally follows the toe of access road slope.



**Massachusetts Inland Resource Area Delineation Report**

September 6, 2022 (last revised February 1, 2023)

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**Photographs 1-2** View of BVW 2, Test Pit #4. Buried A horizon indicated by the yellow arrow.

**BVW 3**

BVW 3 is best described as a seasonally flooded/saturated PEM and PFO. BVW 3 is located south of BVW 1 and extends off the Subject Parcel to the west. BVW 3 is generally located at the toe of slope within a depression. The eastern portion of BVW 3 is a sparsely vegetated convex surface. Vegetation observed within BVW 3 includes: rice cut grass (*Leersia oryzoides*, OBL), American bugleweed (*Lycopus americanus*; OBL), white meadowsweet (*Spiraea alba*; FACW), red maple (*Acer rubrum*, FAC) saplings and trees, unidentified grasses, marsh fern (*Thelypteris palustris*, FACW), and cinnamon fern (*Osmunda cinnamomea*, FACW). Soils exhibited a sandy redox (F5) hydric soil indicator. The NRCS mapped the BVW 3 area as Pilsbury fine sandy loam. Soils observed align with the mapped hydric soil rating of 'yes'. Buried debris was observed between flags 3A-114 and 3A-115. There is potential there could be wetland fill between these flags, but due to the depth of the overburden material (~3 feet), an investigation with hand tools was not possible. Heavy machinery may be required to excavate this area to verify or determine the wetland boundary.

**Buffer Zone**

Buffer Zone is defined in 310 CMR 10.04 as “that area of land extending 100 feet horizontally outward from the boundary of any area specified in 310 CMR 10.02(1)(a).” Buffer Zone is considered an area subject to protection under the MAWPA, but is not regulated as a resource area under the MAWPA.

## Massachusetts Inland Resource Area Delineation Report

September 6, 2022 (last revised February 1, 2023)

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Unlike the MAWPA, the Shutesbury Wetlands Bylaw considers the 100-foot Buffer Zone a separate jurisdictional resource area.

The 100-foot Buffer Zone within the Subject Parcel consists of forested areas and the regularly maintained lawn area within the northern portion of the parcel. The forested areas are vegetated with a combination of deciduous and coniferous trees including red maple, American beech (*Fagus grandifolia*, FAU), white pine (*Pinus strobus*; FAU) eastern hemlock (*Tsuga canadensis*, FACU), and gray birch. Portions of the upland forest consist of a denser understory of mountain laurel and other portions have a more open understory. Additional vegetation observed includes sheep laurel (*Kalmia angustifolia*; FAC), cinnamon fern, lowbush blueberry (*Vaccinium angustifolium*; FACU), and eastern teaberry (*Gaultheria procumbens*; FACU).

Because the wetland delineation did not occur outside of the Subject Parcel, and wetlands were observed adjacent to the Subject Parcel to the west, a No-Contest 100-foot Buffer Zone has been added to along the southwest and southeast boundary of the review area. This No-Contest 100-foot Buffer Zone has been added to maximize protection of potential wetland resource areas off parcel.

---

### 1.4 Isolated Vegetated Wetlands (Non-Jurisdictional)

Four IVW's were identified within the Subject Parcel (IVW 4 through 7). These IVW's each included a surface area less than one thousand (1,000) square feet and therefore are not jurisdictional IVW's under the Shutesbury Wetland Regulations. In addition, these IVW's are not subject to jurisdiction or protection under the MAWPA.

Descriptions of these non-jurisdictional IVW's observed within the Subject Parcel review area are provided below for reference.

#### **IVW (Non-Jurisdictional): Description**

##### IVW 4 (663 sf)

IVW 4 is best described as a seasonally saturated/flooded PEM wetland located along the access route to the former radio tower location. IVW 4 is approximately 8 feet wide. This IVW was likely manmade due to compaction from vehicle traffic of upland areas over time. The access road ruts are 0.5 to 1 foot lower elevation than directly adjacent upland areas. IVW 4 likely collects and holds water due to its geomorphic position. No standing water was observed at the time of delineation. Vegetation observed within IVW 4 includes: cranberry (*Vaccinium oxycoccos*; OBL), red maple saplings, white meadowsweet, mountain laurel (*Kalmia latifolia*; FACU), grey birch saplings (*Betula populifolia*), and sedges (*Rhynchospora spp.*). Soils within the tire track areas were compacted. The interior of the road was more densely vegetated and included soils with a sandy redox (S5) hydric soil indicator. Soils observed within IVW 4 do not align with the mapped hydric soil rating of 'no'.



## Massachusetts Inland Resource Area Delineation Report

September 6, 2022 (last revised February 1, 2023)

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### IVW 5 (167 sf)

IVW 5 is best described as a seasonally saturated/flooded PEM wetland located within the access route just south of IVW 4. IVW 5 is approximately 8 feet wide with an area of 167 sf. This IVW was separated by IVW 4 by an upland island and consists of similar vegetation, hydrology, and disturbance history as IVW 4.

### IVW 6 (535 sf)

IVW 6 is best described as a seasonally saturated/flooded PEM wetland located within the access route south of IVW 5. A portion of this IVW extends outside of the access route. The portion within the access route includes deep ruts. Standing water was not observed at the time of the delineation, but this area likely collects and holds water during precipitation events. Hydric soil indicator Depleted Matrix (F3) was observed at the base of the ruts. Vegetation included cranberry (*Vaccinium oxycoccos*; OBL), sedges (*Rhynchospora* spp.), and sheep laurel (*Kalmia angustifolia*; FAC).

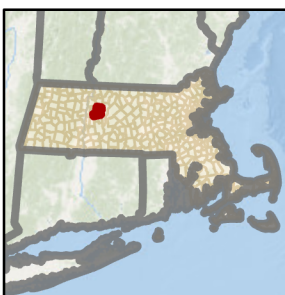
### IVW 7 (321 sf)

IVW 7 is best described as a seasonally saturated/flooded PEM wetland located east of the access route. During the November 28, 2022 delineation, which is outside the growing season, this IVW was holding water. Ponding was not observed in this area during previous site visits. Vegetation observed included cranberries and sheep laurel.

---

**Attachment A**  
**Figures**





 Subject Parcel

0 1,000 2,000 Feet



**Topographic Map**  
66 Leverett Road  
Shutesbury, Massachusetts

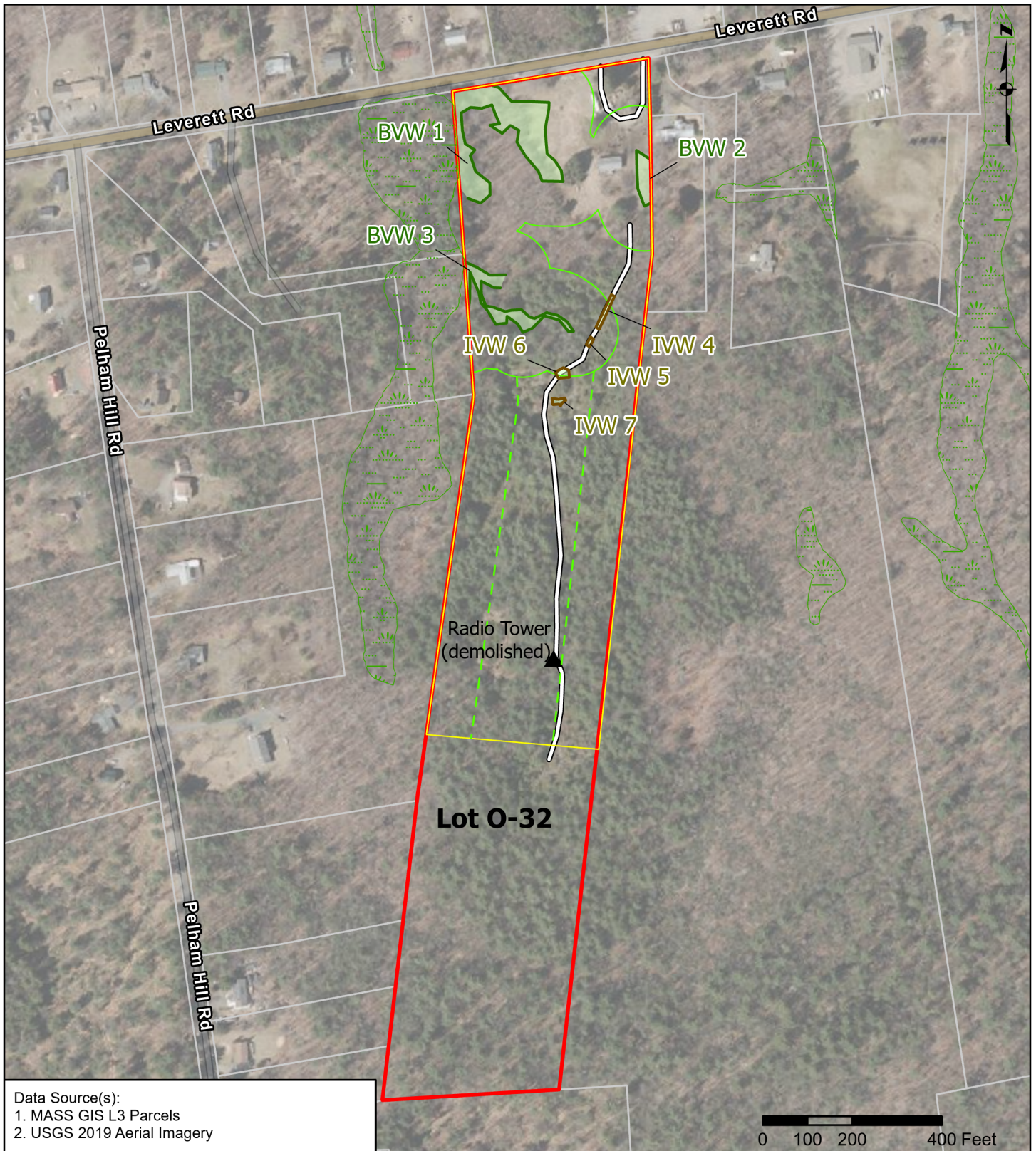
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**Figure 1**





Data Source(s):  
 1. MASS GIS L3 Parcels  
 2. USGS 2019 Aerial Imagery



- |   |                        |
|---|------------------------|
| Subject Parcel                                | Wetland Area           |
| ANRAD Review Area                             | 100-ft Buffer Zone     |
| Parcel Boundary                               | No-Contest Buffer Zone |
| BVW Boundary (Delineated)                     | MassDEP Mapped Wetland |
| IWW Boundary (Delineated; Not Jurisdictional) | Access                 |

Notes:  
 Wetland Delineation conducted by Fuss & O'Neill on August 5 and 16, November 10 and 28, 2022.  
 Wetland flag locations located by a Harold L. Eaton & Associates, Inc., Massachusetts PLS #35032.  
 The No-Contest Buffer Zone extends 100 feet from the subject parcel boundary.

### Wetland Delineation Overview

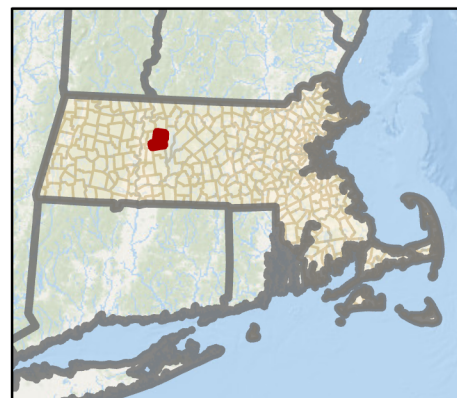
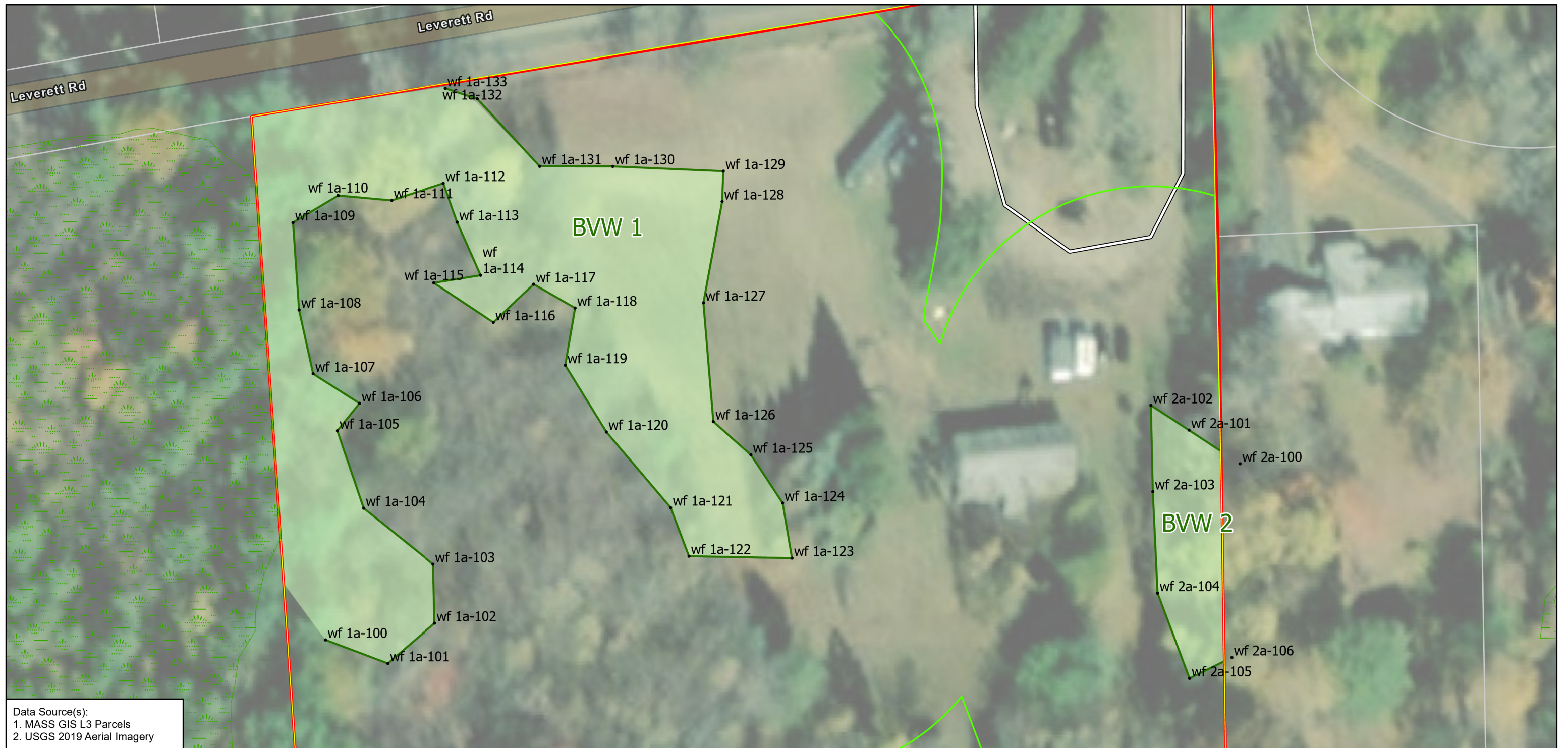
66 Leverett Road  
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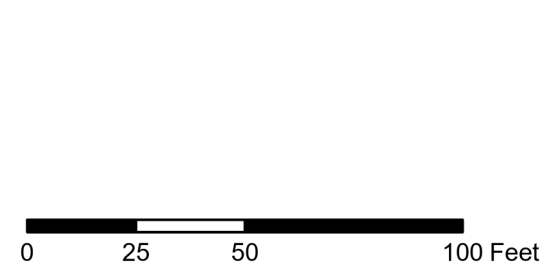
**Figure 2**





- Subject Parcel
- ANRAD Review Area
- Parcel Boundary
- Access
- BVW Boundary (Delineated)
- IVW Boundary (Delineated; Not Jurisdictional)
- Wetland Flag
- Wetland Area
- 100-ft Buffer Zone
- No-Contest Buffer Zone
- MassDEP Mapped Wetland

Notes:  
Wetland Delineation conducted by Fuss & O'Neill on August 5 and 16, November 10 and 28, 2022.  
Wetland flag locations located by a Harold L. Eaton & Associates, Inc., Massachusetts PLS #35032.  
The No-Contest Buffer Zone extends 100 feet from the subject parcel boundary.



**Wetland Flag Locations**

66 Leverett Road  
Shutesbury, Massachusetts

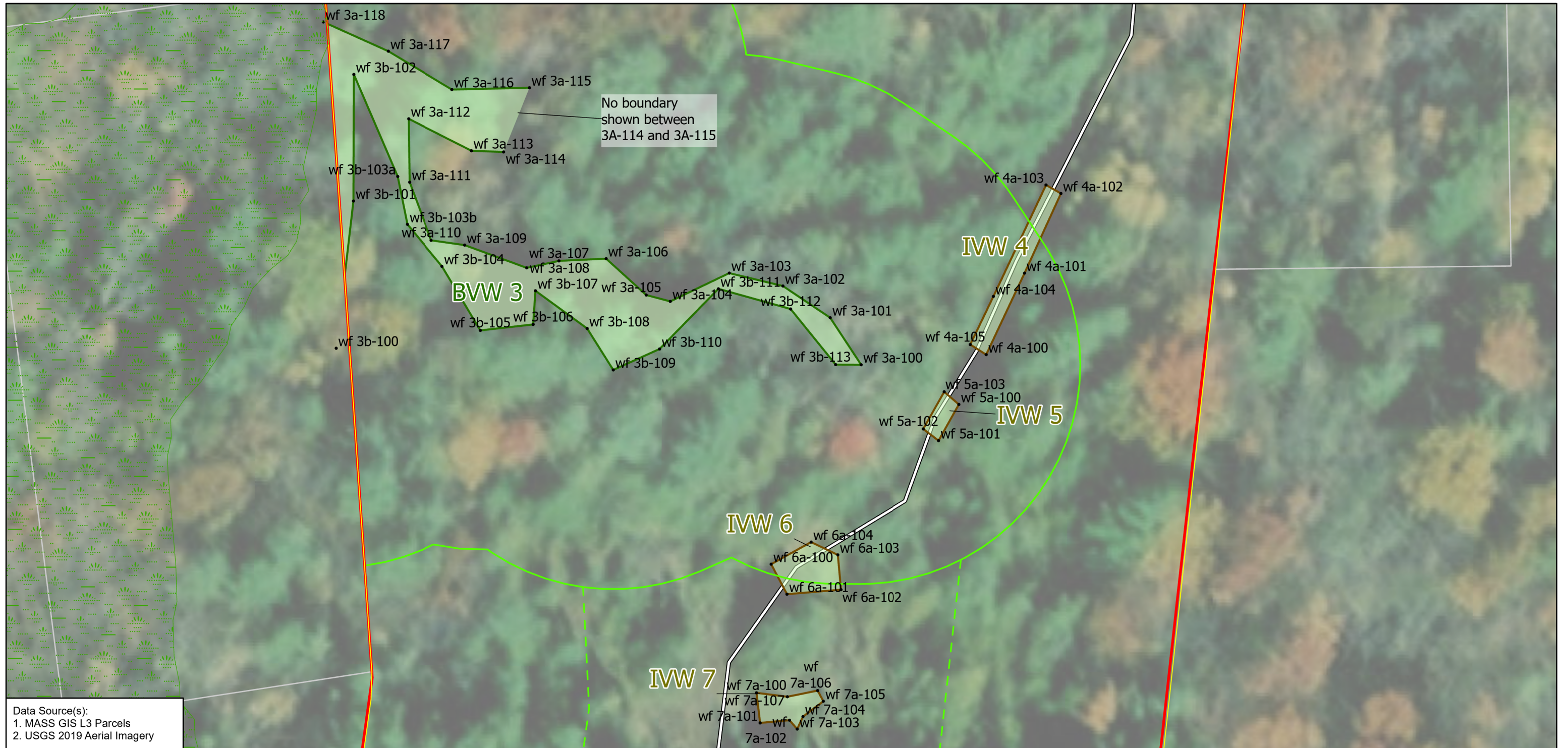
February 2023 (last revised)



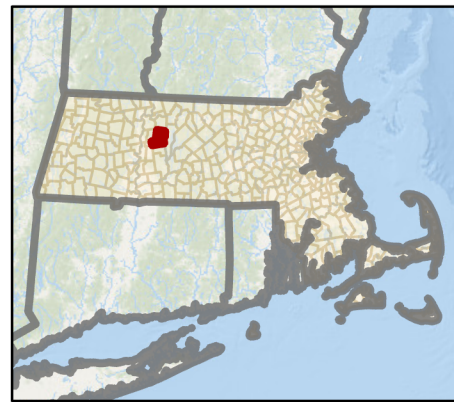
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**Figure 3-1**





Data Source(s):  
 1. MASS GIS L3 Parcels  
 2. USGS 2019 Aerial Imagery



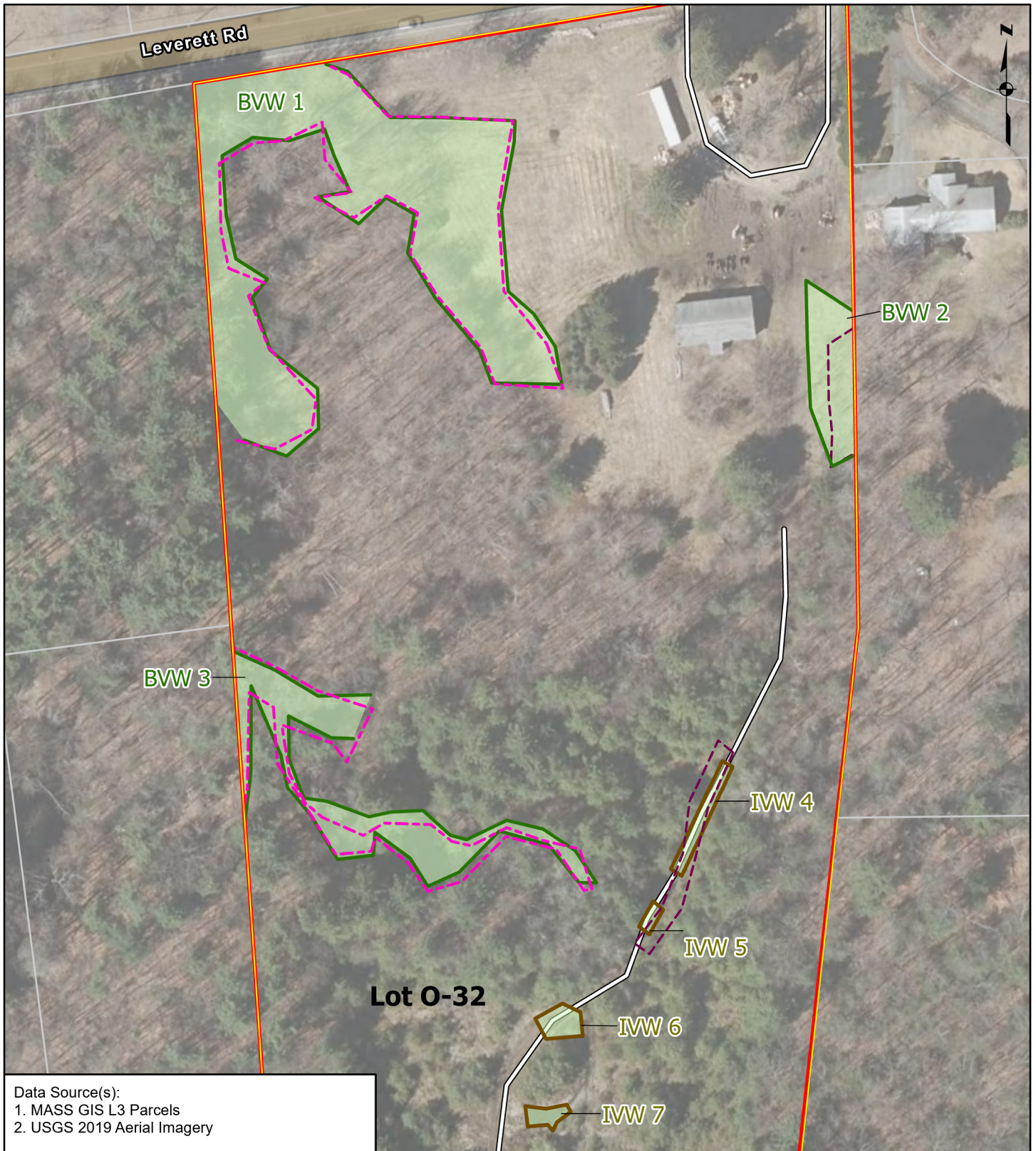
|   |  |
|---|--|
| <ul style="list-style-type: none"> <li><span style="border: 1px solid red; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Subject Parcel</li> <li><span style="border: 1px solid yellow; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> ANRAD Review Area</li> <li><span style="border-bottom: 1px solid gray; display: inline-block; width: 15px; margin-right: 5px;"></span> Parcel Boundary</li> <li><span style="border-bottom: 1px solid gray; display: inline-block; width: 15px; margin-right: 5px;"></span> Access</li> <li><span style="border-bottom: 2px solid green; display: inline-block; width: 15px; margin-right: 5px;"></span> BVW Boundary (Delineated)</li> <li><span style="border-bottom: 2px solid brown; display: inline-block; width: 15px; margin-right: 5px;"></span> IVW Boundary (Delineated; Not Jurisdictional)</li> </ul> | <ul style="list-style-type: none"> <li>• Wetland Flag</li> <li><span style="background-color: #d9ead3; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Wetland Area</li> <li><span style="border: 2px solid green; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> 100-ft Buffer Zone</li> <li><span style="border-bottom: 2px dashed green; display: inline-block; width: 15px; margin-right: 5px;"></span> No-Contest Buffer Zone</li> <li><span style="background-color: #d9ead3; border: 1px dashed green; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> MassDEP Mapped Wetland</li> </ul> |
|---|--|

Notes:  
 Wetland Delineation conducted by Fuss & O'Neill on August 5 and 16, November 10 and 28, 2022.  
 Wetland flag locations located by a Harold L. Eaton & Associates, Inc., Massachusetts PLS #35032.  
 The No-Contest Buffer Zone extends 100 feet from the subject parcel boundary.

**Wetland Flag Locations**  
 66 Leverett Road  
 Shutesbury, Massachusetts  
 February 2023 (last revised)

|  |                       |
|--|-----------------------|
| <b>FUSS &amp; O'NEILL</b><br><small>1550 Main Street, Suite 400<br/>     Springfield, MA 01103<br/>     413.452.0445   www.fando.com</small> | <b>Figure<br/>3-2</b> |
|--|-----------------------|

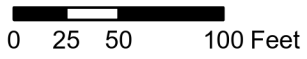




Data Source(s):  
 1. MASS GIS L3 Parcels  
 2. USGS 2019 Aerial Imagery



- ANRAD Review Area
- Subject Parcel
- BVW Boundary (Final)
- IVW Boundary (Final)
- Wetland Area (Final)
- BVW Boundary (Original)
- IVW Boundary (Original)
- Parcel Boundary
- Access



Notes:  
 Wetland Delineation conducted by Fuss & O'Neill on August 5 and 16, November 10 and 28, 2022.  
 Final wetland flag locations located by a Harold L. Eaton & Associates, Inc., Massachusetts PLS #35032.

**Wetland Delineation Change**  
 66 Leverett Road  
 Shutesbury, Massachusetts  
 February 2023 (last revised)

**FUSS & O'NEILL**  
 1550 Main Street, Suite 400  
 Springfield, MA 01103  
 413.452.0445 | www.fando.com

**Figure 4**

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**Attachment B**  
**Site Photographs**





Photo 1: Overview of northern portion of the Subject Parcel, facing BVW 1 (view west, 8/16/22).



Photo 2: View of sensitive fern growing within the mowed portion of BVW 1 near flag 1A-129 (view south, 8/16/22).





Photo 3: View of the forested portion of BVW 1 near flag 1A-112 (view west, 8/5/22).



Photo 4: View of redox concentrations (yellow arrows) visible in BVW 1 soils (8/5/22).





Photo 5: View of BVW 3 near flag 3B-110 (view north, 8/16/22)



Photo 6: View of the sandy redox hydric soil in BVW 3.





Photo 7: View of BVW 2 (view southeast, 8/5/22).



Photo 8: View of IVW 4 within the access route near flag 4A-102 (view south, 8/16/22).





Photo 9: View of IVW 5 (11/28/22).



Photo 10: View of IVW 6 (view northeast, 11/10/22).





Photo 11: View of IVW 7 (view east, 11/28/22).



Photo 12: Representative view of the access route to the former radio tower location (view south, 8/5/22).





Photo 13: View of the former radio tower location (view west, 8/5/22).



Photo 14: Representative view of upland forest within 100 feet of the former radio tower location (view west, 8/16/22).



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**Attachment C**  
**Wetland Determination Data Forms**

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 66 Leverett Road City/County: Shutesbury Sampling Date: 8/5/2022  
 Applicant/Owner: Town of Shutesbury State: MA Sampling Point: 1A-129  
 Investigator(s): April Doroski, PWS, CPSS, Fuss & O'Neill Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): none Slope (%): 3-8  
 Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: 42.451036 Long: -72.416368 Datum: NAD83  
 Soil Map Unit Name: 368B - Metacomet fine sandy loam and 368A - Metacomet fine sandy loam NWI classification: PEM  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No X  
 Are Vegetation X, Soil X, or Hydrology X 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 _____<br>Hydric Soil Present? Yes <u>X</u> No _____<br>Wetland Hydrology Present? Yes <u>X</u> No _____  | <b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____<br>If yes, optional Wetland Site ID: <u>BVW 1A</u> |
| Remarks: (Explain alternative procedures here or in a separate report.)<br>Due to drought conditions reported for the Connecticut River Valley Region since May, hydrologic conditions are not typical for this time of year. According to the Massachusetts Department of Conservation and Recreation (DCR) the Connecticut River Valley Region experienced drought conditions starting in May 2022 and continuing through August 2022. |   |

### HYDROLOGY

|   |  |
|---|--|
| <b>Wetland Hydrology Indicators:</b><br><u>Primary Indicators (minimum of one is required; check all that apply)</u><br>_____ Surface Water (A1) _____ Water-Stained Leaves (B9)<br>_____ High Water Table (A2) _____ Aquatic Fauna (B13)<br>_____ Saturation (A3) _____ Marl Deposits (B15)<br>_____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1)<br>_____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3)<br>_____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4)<br>_____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6)<br>_____ Iron Deposits (B5) _____ Thin Muck Surface (C7)<br>_____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks)<br>_____ Sparsely Vegetated Concave Surface (B8) | <u>Secondary Indicators (minimum of two required)</u><br>_____ Surface Soil Cracks (B6)<br><u>X</u> Drainage Patterns (B10)<br>_____ Moss Trim Lines (B16)<br>_____ Dry-Season Water Table (C2)<br>_____ Crayfish Burrows (C8)<br><u>X</u> Saturation Visible on Aerial Imagery (C9)<br>_____ Stunted or Stressed Plants (D1)<br>_____ Geomorphic Position (D2)<br>_____ Shallow Aquitard (D3)<br>_____ Microtopographic Relief (D4)<br><u>X</u> FAC-Neutral Test (D5) |
| <b>Field Observations:</b><br>Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____<br>Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____<br>Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____<br>(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:<br>The plot was taken within the disturbed (mowed) portion of the wetland, south of the vegetated swale. Portions of the wetland are forested. Hydrology observed within the forested portion includes water stained leaves.   |  |

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

Sampling Point: 1A-129

|  | Absolute<br>% Cover       | Dominant<br>Species? | Indicator<br>Status |      |
|--|---------------------------|----------------------|---------------------|------|
| <b>Tree Stratum</b> (Plot size: <u>30</u> )          |                           |                      |                     |      |
| 1.   |                           |                      |                     |      |
| 2.   |                           |                      |                     |      |
| 3.   |                           |                      |                     |      |
| 4.   |                           |                      |                     |      |
| 5.   |                           |                      |                     |      |
| 6.   |                           |                      |                     |      |
| 7.   |                           |                      |                     |      |
|  | =Total Cover              |                      |                     |      |
| <b>Sapling/Shrub Stratum</b> (Plot size: <u>15</u> ) |                           |                      |                     |      |
| 1.   |                           |                      |                     |      |
| 2.   |                           |                      |                     |      |
| 3.   |                           |                      |                     |      |
| 4.   |                           |                      |                     |      |
| 5.   |                           |                      |                     |      |
| 6.   |                           |                      |                     |      |
| 7.   |                           |                      |                     |      |
|  | =Total Cover              |                      |                     |      |
| <b>Herb Stratum</b> (Plot size: <u>5</u> )           |                           |                      |                     |      |
| 1.   | <u>Onoclea sensibilis</u> | 20                   | Yes                 | FACW |
| 2.   | <u>Rubus hispidus</u>     | 5                    | No                  | FACW |
| 3.   | <u>Sedges spp.</u>        | 5                    | No                  |      |
| 4.   | <u>Grass spp.</u>         | 60                   | Yes                 |      |
| 5.   |                           |                      |                     |      |
| 6.   |                           |                      |                     |      |
| 7.   |                           |                      |                     |      |
| 8.   |                           |                      |                     |      |
| 9.   |                           |                      |                     |      |
| 10.  |                           |                      |                     |      |
| 11.  |                           |                      |                     |      |
| 12.  |                           |                      |                     |      |
|  | 90 =Total Cover           |                      |                     |      |
| <b>Woody Vine Stratum</b> (Plot size: <u>5</u> )     |                           |                      |                     |      |
| 1.   |                           |                      |                     |      |
| 2.   |                           |                      |                     |      |
| 3.   |                           |                      |                     |      |
| 4.   |                           |                      |                     |      |
|  | =Total Cover              |                      |                     |      |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

---

**Prevalence Index worksheet:**

| Total % Cover of:                    | Multiply by:    |
|--------------------------------------|-----------------|
| OBL species <u>0</u>                 | x 1 = <u>0</u>  |
| FACW species <u>25</u>               | x 2 = <u>50</u> |
| FAC species <u>0</u>                 | x 3 = <u>0</u>  |
| FACU species <u>0</u>                | x 4 = <u>0</u>  |
| UPL species <u>0</u>                 | x 5 = <u>0</u>  |
| Column Totals: <u>25</u> (A)         | <u>50</u> (B)   |
| Prevalence Index = B/A = <u>2.00</u> |                 |

---

**Hydrophytic Vegetation Indicators:**

     1 - Rapid Test for Hydrophytic Vegetation

     2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0<sup>1</sup>

     4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

X Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

---

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

---

**Hydrophytic Vegetation Present?**      Yes X      No

Remarks: (Include photo numbers here or on a separate sheet.)  
 Area of wetland plot is problematic due to regular mowing. Identification of grass species is not possible. Sensitive fern observed in pockets. Vegetation observed within the forested portion of the wetland consisted of cinnamon fern, sensitive fern, grey birch, winterberry, and red maple.





## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 66 Leverett Road City/County: Shutesbury Sampling Date: 8/5/2022, 11/10/2022  
 Applicant/Owner: Town of Shutesbury State: MA Sampling Point: 2A-101  
 Investigator(s): April Doroski, PWS, CPSS, Fuss & O'Neill Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): none Slope (%): 3-8  
 Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: 42.450612 Long: -72.415453 Datum: NAD83  
 Soil Map Unit Name: 368B - Metacomet fine sandy loam, 3 to 8 percent slopes NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation X, Soil X, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No X  
 Are Vegetation \_\_\_\_\_, Soil X, or Hydrology X 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 _____<br>Hydric Soil Present? Yes <u>X</u> No _____<br>Wetland Hydrology Present? Yes _____ No _____ | <b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____<br>If yes, optional Wetland Site ID: <u>BVW 2</u> |
|--|--|

Remarks: (Explain alternative procedures here or in a separate report.)  
 Due to drought conditions reported for the Connecticut River Valley Region since May, hydrologic conditions are not typical for this time of year. According to the Massachusetts Department of Conservation and Recreation (DCR) the Connecticut River Valley Region experienced drought conditions starting in May 2022 and continuing through August 2022.

### HYDROLOGY

|   |  |
|---|--|
| <b>Wetland Hydrology Indicators:</b><br><u>Primary Indicators (minimum of one is required; check all that apply)</u><br>_____ Surface Water (A1) _____ Water-Stained Leaves (B9)<br>_____ High Water Table (A2) _____ Aquatic Fauna (B13)<br>_____ Saturation (A3) _____ Marl Deposits (B15)<br>_____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1)<br>_____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3)<br>_____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4)<br>_____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6)<br>_____ Iron Deposits (B5) _____ Thin Muck Surface (C7)<br>_____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks)<br>_____ Sparsely Vegetated Concave Surface (B8) | <u>Secondary Indicators (minimum of two required)</u><br>_____ Surface Soil Cracks (B6)<br>_____ Drainage Patterns (B10)<br>_____ Moss Trim Lines (B16)<br>_____ Dry-Season Water Table (C2)<br>_____ Crayfish Burrows (C8)<br>_____ Saturation Visible on Aerial Imagery (C9)<br>_____ Stunted or Stressed Plants (D1)<br>_____ Geomorphic Position (D2)<br>_____ Shallow Aquitard (D3)<br>_____ Microtopographic Relief (D4)<br><u>X</u> FAC-Neutral Test (D5) |
|---|--|

|  |  |
|--|--|
| <b>Field Observations:</b><br>Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____<br>Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____<br>Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____<br>(includes capillary fringe) | <b>Wetland Hydrology Present?</b> Yes _____ No _____ |
|--|--|

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: 2A-101

|  | Absolute<br>% Cover | Dominant<br>Species? | Indicator<br>Status |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
|--|---------------------|----------------------|---------------------|---|-------------------|--------------|----------------------|----------------|-------------------------|------------------|----------------------|----------------|-----------------------|-----------------|----------------------|-----------------|-------------------------------|----------------|--------------------------------------|--|
| <b>Tree Stratum</b> (Plot size: <u>30</u> )          |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 1. <u>Fraxinus pennsylvanica</u>                     | 80                  | Yes                  | FACW                | <b>Dominance Test worksheet:</b><br><br>Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)<br><br>Total Number of Dominant Species Across All Strata: <u>6</u> (B)<br><br>Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.7%</u> (A/B)   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 2. _____   |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 3. _____   |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 4. _____   |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 5. _____   |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 6. _____   |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 7. _____   |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
|  | 80                  | =Total Cover         |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| <b>Sapling/Shrub Stratum</b> (Plot size: <u>15</u> ) |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 1. <u>Ilex verticillata</u>                          | 10                  | Yes                  | FACW                | <b>Prevalence Index worksheet:</b><br><br><table style="width:100%; border:none;"> <tr> <td style="text-align:right;">Total % Cover of:</td> <td style="text-align:center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>176</u></td> <td>x 2 = <u>352</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>5</u></td> <td>x 4 = <u>20</u></td> </tr> <tr> <td>UPL species <u>5</u></td> <td>x 5 = <u>25</u></td> </tr> <tr> <td>Column Totals: <u>186</u> (A)</td> <td><u>397</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>2.13</u></td> </tr> </table> | Total % Cover of: | Multiply by: | OBL species <u>0</u> | x 1 = <u>0</u> | FACW species <u>176</u> | x 2 = <u>352</u> | FAC species <u>0</u> | x 3 = <u>0</u> | FACU species <u>5</u> | x 4 = <u>20</u> | UPL species <u>5</u> | x 5 = <u>25</u> | Column Totals: <u>186</u> (A) | <u>397</u> (B) | Prevalence Index = B/A = <u>2.13</u> |  |
| Total % Cover of:                                    | Multiply by:        |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| OBL species <u>0</u>                                 | x 1 = <u>0</u>      |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| FACW species <u>176</u>                              | x 2 = <u>352</u>    |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| FAC species <u>0</u>                                 | x 3 = <u>0</u>      |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| FACU species <u>5</u>                                | x 4 = <u>20</u>     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| UPL species <u>5</u>                                 | x 5 = <u>25</u>     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| Column Totals: <u>186</u> (A)                        | <u>397</u> (B)      |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| Prevalence Index = B/A = <u>2.13</u>                 |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 2. <u>Cornus amomum</u>                              | 5                   | Yes                  | FACW                |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 3. _____   |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 4. _____   |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 5. _____   |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 6. _____   |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 7. _____   |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
|  | 15                  | =Total Cover         |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| <b>Herb Stratum</b> (Plot size: <u>5</u> )           |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 1. <u>Onoclea sensibilis</u>                         | 80                  | Yes                  | FACW                | <b>Hydrophytic Vegetation Indicators:</b><br><input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation<br><input checked="" type="checkbox"/> 2 - Dominance Test is >50%<br><input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup><br><input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)<br><input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)<br><br><sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 2. <u>Fraxinus pennsylvanica</u>                     | 1                   | No                   | FACW                |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 3. _____   |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 4. _____   |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 5. _____   |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 6. _____   |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 7. _____   |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 8. _____   |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 9. _____   |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 10. _____  |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 11. _____  |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 12. _____  |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
|  | 81                  | =Total Cover         |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| <b>Woody Vine Stratum</b> (Plot size: <u>5</u> )     |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 1. <u>Celastrus orbiculatus</u>                      | 5                   | Yes                  | UPL                 | <b>Definitions of Vegetation Strata:</b><br><br><b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.<br><br><b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.<br><br><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.<br><br><b>Woody vines</b> – All woody vines greater than 3.28 ft in height.  |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 2. <u>Parthenocissus quinquefolia</u>                | 5                   | Yes                  | FACU                |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 3. _____   |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
| 4. _____   |                     |                      |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |
|  | 10                  | =Total Cover         |                     |   |                   |              |                      |                |                         |                  |                      |                |                       |                 |                      |                 |                               |                |                                      |  |

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





## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 66 Leverett Road City/County: Shutesbury Sampling Date: 8/5/2022  
 Applicant/Owner: Town of Shutesbury State: MA Sampling Point: 3B-110  
 Investigator(s): April Doroski, PWS, CPSS, Fuss & O'Neill Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): convex Slope (%): 3-8  
 Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: 42.449704 Long: -72.416383 Datum: NAD83  
 Soil Map Unit Name: 75B - Pillsbury fine sandy loam NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation X, Soil X, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No X  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology X 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 _____<br>Hydric Soil Present? Yes <u>X</u> No _____<br>Wetland Hydrology Present? Yes <u>X</u> No _____ | <b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____<br>If yes, optional Wetland Site ID: <u>BVW 3</u> |
|---|--|

Remarks: (Explain alternative procedures here or in a separate report.)  
 Due to drought conditions reported for the Connecticut River Valley Region since May, hydrologic conditions are not typical for this time of year. According to the Massachusetts Department of Conservation and Recreation (DCR) the Connecticut River Valley Region experienced drought conditions starting in May 2022 and continuing through August 2022.

### HYDROLOGY

|   |   |
|---|---|
| <b>Wetland Hydrology Indicators:</b><br><u>Primary Indicators (minimum of one is required; check all that apply)</u><br>_____ Surface Water (A1) <u>X</u> Water-Stained Leaves (B9)<br>_____ High Water Table (A2)                      _____ Aquatic Fauna (B13)<br>_____ Saturation (A3)                                      _____ Marl Deposits (B15)<br>_____ Water Marks (B1)                                      _____ Hydrogen Sulfide Odor (C1)<br>_____ Sediment Deposits (B2)                              _____ Oxidized Rhizospheres on Living Roots (C3)<br>_____ Drift Deposits (B3)                                      _____ Presence of Reduced Iron (C4)<br>_____ Algal Mat or Crust (B4)                                      _____ Recent Iron Reduction in Tilled Soils (C6)<br>_____ Iron Deposits (B5)                                      _____ Thin Muck Surface (C7)<br>_____ Inundation Visible on Aerial Imagery (B7)                      _____ Other (Explain in Remarks)<br><u>X</u> Sparsely Vegetated Concave Surface (B8) | <u>Secondary Indicators (minimum of two required)</u><br>_____ Surface Soil Cracks (B6)<br>_____ Drainage Patterns (B10)<br>_____ Moss Trim Lines (B16)<br>_____ Dry-Season Water Table (C2)<br>_____ Crayfish Burrows (C8)<br>_____ Saturation Visible on Aerial Imagery (C9)<br>_____ Stunted or Stressed Plants (D1)<br><u>X</u> Geomorphic Position (D2)<br>_____ Shallow Aquitard (D3)<br>_____ Microtopographic Relief (D4)<br><u>X</u> FAC-Neutral Test (D5) |
|---|---|

|  |   |
|--|---|
| <b>Field Observations:</b><br>Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____<br>Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____<br>Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____<br>(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:  
 The plot was taken within a sparsely vegetated area which could be a potential vernal pool. No egg masses were observed at the time of delineation. Portions of this BVW are forested.

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

Sampling Point: 3B-110

|  | Absolute<br>% Cover | Dominant<br>Species? | Indicator<br>Status |  |
|--|---------------------|----------------------|---------------------|--|
| <b>Tree Stratum</b> (Plot size: <u>30</u> )          |                     |                      |                     |  |
| 1.   |                     |                      |                     |  |
| 2.   |                     |                      |                     |  |
| 3.   |                     |                      |                     |  |
| 4.   |                     |                      |                     |  |
| 5.   |                     |                      |                     |  |
| 6.   |                     |                      |                     |  |
| 7.   |                     |                      |                     |  |
|  | =Total Cover        |                      |                     |  |
| <b>Sapling/Shrub Stratum</b> (Plot size: <u>15</u> ) |                     |                      |                     |  |
| 1.   | 5                   | Yes                  |                     |  |
| 2.   |                     |                      |                     |  |
| 3.   |                     |                      |                     |  |
| 4.   |                     |                      |                     |  |
| 5.   |                     |                      |                     |  |
| 6.   |                     |                      |                     |  |
| 7.   |                     |                      |                     |  |
|  | =Total Cover        |                      |                     |  |
| <b>Herb Stratum</b> (Plot size: <u>5</u> )           |                     |                      |                     |  |
| 1.   | 20                  | Yes                  | OBL                 |  |
| 2.   | 20                  | Yes                  |                     |  |
| 3.   | 5                   | No                   | OBL                 |  |
| 4.   | 5                   | No                   | FACW                |  |
| 5.   | 2                   | No                   | FAC                 |  |
| 6.   |                     |                      |                     |  |
| 7.   |                     |                      |                     |  |
| 8.   |                     |                      |                     |  |
| 9.   |                     |                      |                     |  |
| 10.  |                     |                      |                     |  |
| 11.  |                     |                      |                     |  |
| 12.  |                     |                      |                     |  |
|  | =Total Cover        |                      |                     |  |
| <b>Woody Vine Stratum</b> (Plot size: <u>5</u> )     |                     |                      |                     |  |
| 1.   |                     |                      |                     |  |
| 2.   |                     |                      |                     |  |
| 3.   |                     |                      |                     |  |
| 4.   |                     |                      |                     |  |
|  | =Total Cover        |                      |                     |  |

| <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>3</u> (B)  |
| Percent of Dominant Species That Are OBL, FACW, or FAC:   | <u>33.3%</u> (A/B)  |
| <b>Prevalence Index worksheet:</b>  |   |
| Total % Cover of:   | Multiply by:  |
| OBL species <u>25</u>   | x 1 = <u>25</u>   |
| FACW species <u>5</u>   | x 2 = <u>10</u>   |
| FAC species <u>2</u>  | x 3 = <u>6</u>  |
| FACU species <u>0</u>   | x 4 = <u>0</u>  |
| UPL species <u>0</u>  | x 5 = <u>0</u>  |
| Column Totals: <u>32</u> (A)  | <u>41</u> (B)   |
| Prevalence Index = B/A = <u>1.28</u>  |   |
| <b>Hydrophytic Vegetation Indicators:</b>   |   |
| <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation   |   |
| <input type="checkbox"/> 2 - Dominance Test is >50%   |   |
| <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>   |   |
| <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) |   |
| <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  |   |
| <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.                  |   |
| <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.  |   |
| <b>Hydrophytic Vegetation Present?</b>  |   |
| Yes   | <input checked="" type="checkbox"/> No <input type="checkbox"/> |

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

Additional vegetation observed outside of the plot includes marsh fern, sedges, red maple, and cinnamon fern.





## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 66 Leverett Road City/County: Shutesbury Sampling Date: 8/5/22  
 Applicant/Owner: Town of Shutesbury State: MA Sampling Point: UPL 1-2  
 Investigator(s): April Dorosk, PWS, CPSS, Fuss & O'Neill Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 0-3  
 Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: 42.451046 Long: -72.416130 Datum: NAD83  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation X, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ 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><br>Hydric Soil Present? Yes _____ No <u>X</u><br>Wetland Hydrology Present? Yes _____ No <u>X</u> | <b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u><br>If yes, optional Wetland Site ID: <u>UPL 1-2</u> |
|---|--|

Remarks: (Explain alternative procedures here or in a separate report.)  
 Due to drought conditions reported for the Connecticut River Valley Region since May, hydrologic conditions are not typical for this time of year. According to the Massachusetts Department of Conservation and Recreation (DCR) the Connecticut River Valley Region experienced drought conditions starting in May 2022 and continuing through August 2022. Plot is located in regularly mowed area.

### HYDROLOGY

|  |   |
|--|---|
| <b>Wetland Hydrology Indicators:</b><br><u>Primary Indicators (minimum of one is required; check all that apply)</u><br>_____ Surface Water (A1)                      _____ Water-Stained Leaves (B9)<br>_____ High Water Table (A2)                      _____ Aquatic Fauna (B13)<br>_____ Saturation (A3)                                      _____ Marl Deposits (B15)<br>_____ Water Marks (B1)                                      _____ Hydrogen Sulfide Odor (C1)<br>_____ Sediment Deposits (B2)                                      _____ Oxidized Rhizospheres on Living Roots (C3)<br>_____ Drift Deposits (B3)                                      _____ Presence of Reduced Iron (C4)<br>_____ Algal Mat or Crust (B4)                                      _____ Recent Iron Reduction in Tilled Soils (C6)<br>_____ Iron Deposits (B5)                                      _____ Thin Muck Surface (C7)<br>_____ Inundation Visible on Aerial Imagery (B7)                      _____ Other (Explain in Remarks)<br>_____ Sparsely Vegetated Concave Surface (B8) | <u>Secondary Indicators (minimum of two required)</u><br>_____ Surface Soil Cracks (B6)<br>_____ Drainage Patterns (B10)<br>_____ Moss Trim Lines (B16)<br>_____ Dry-Season Water Table (C2)<br>_____ Crayfish Burrows (C8)<br>_____ Saturation Visible on Aerial Imagery (C9)<br>_____ Stunted or Stressed Plants (D1)<br>_____ Geomorphic Position (D2)<br>_____ Shallow Aquitard (D3)<br>_____ Microtopographic Relief (D4)<br>_____ FAC-Neutral Test (D5) |
|--|---|

|  |   |
|--|---|
| <b>Field Observations:</b><br>Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____<br>Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____<br>Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____<br>(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: UPL 1-2

|  | Absolute<br>% Cover                       | Dominant<br>Species? | Indicator<br>Status |      |
|--|---|----------------------|---------------------|------|
| <b>Tree Stratum</b> (Plot size: <u>30</u> )          |   |                      |                     |      |
| 1.   |   |                      |                     |      |
| 2.   |   |                      |                     |      |
| 3.   |   |                      |                     |      |
| 4.   |   |                      |                     |      |
| 5.   |   |                      |                     |      |
| 6.   |   |                      |                     |      |
| 7.   |   |                      |                     |      |
|  | =Total Cover                              |                      |                     |      |
| <b>Sapling/Shrub Stratum</b> (Plot size: <u>15</u> ) |   |                      |                     |      |
| 1.   |   |                      |                     |      |
| 2.   |   |                      |                     |      |
| 3.   |   |                      |                     |      |
| 4.   |   |                      |                     |      |
| 5.   |   |                      |                     |      |
| 6.   |   |                      |                     |      |
| 7.   |   |                      |                     |      |
|  | =Total Cover                              |                      |                     |      |
| <b>Herb Stratum</b> (Plot size: <u>5</u> )           |   |                      |                     |      |
| 1.   | <u>Galium aparine</u>                     | 5                    | No                  | FACU |
| 2.   | <u>Asclepias syriaca</u>                  | 2                    | No                  | UPL  |
| 3.   | <u>Rubus hispidus</u>                     | 1                    | No                  | FACW |
| 4.   | <u>Other mowed herbaceous and grasses</u> | 82                   | Yes                 |      |
| 5.   |   |                      |                     |      |
| 6.   |   |                      |                     |      |
| 7.   |   |                      |                     |      |
| 8.   |   |                      |                     |      |
| 9.   |   |                      |                     |      |
| 10.  |   |                      |                     |      |
| 11.  |   |                      |                     |      |
| 12.  |   |                      |                     |      |
|  | 90 =Total Cover                           |                      |                     |      |
| <b>Woody Vine Stratum</b> (Plot size: <u>5</u> )     |   |                      |                     |      |
| 1.   |   |                      |                     |      |
| 2.   |   |                      |                     |      |
| 3.   |   |                      |                     |      |
| 4.   |   |                      |                     |      |
|  | =Total Cover                              |                      |                     |      |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

---

**Prevalence Index worksheet:**

| Total % Cover of:                    | Multiply by:    |
|--------------------------------------|-----------------|
| OBL species <u>0</u>                 | x 1 = <u>0</u>  |
| FACW species <u>1</u>                | x 2 = <u>2</u>  |
| FAC species <u>0</u>                 | x 3 = <u>0</u>  |
| FACU species <u>5</u>                | x 4 = <u>20</u> |
| UPL species <u>2</u>                 | x 5 = <u>10</u> |
| Column Totals: <u>8</u> (A)          | <u>32</u> (B)   |
| Prevalence Index = B/A = <u>4.00</u> |                 |

---

**Hydrophytic Vegetation Indicators:**

     1 - Rapid Test for Hydrophytic Vegetation

     2 - Dominance Test is >50%

     3 - Prevalence Index is ≤3.0<sup>1</sup>

     4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

     Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

---

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

---

**Hydrophytic Vegetation Present?**      Yes           No   X

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





## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 66 Leverett Road City/County: Shutesbury Sampling Date: 8/16/22  
 Applicant/Owner: Town of Shutesbury State: MA Sampling Point: UPL 3-4  
 Investigator(s): April Dorosk, PWS, CPSS, Fuss & O'Neill Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 0-3  
 Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: 42.449892 Long: -72.415961 Datum: NAD83  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation X, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ 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><br>Hydric Soil Present? Yes _____ No <u>X</u><br>Wetland Hydrology Present? Yes _____ No <u>X</u> | <b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u><br>If yes, optional Wetland Site ID: <u>UPL 3-4</u> |
|---|--|

Remarks: (Explain alternative procedures here or in a separate report.)  
 Due to drought conditions reported for the Connecticut River Valley Region since May, hydrologic conditions are not typical for this time of year. According to the Massachusetts Department of Conservation and Recreation (DCR) the Connecticut River Valley Region experienced drought conditions starting in May 2022 and continuing through August 2022. Plot is located in upland forest between the access route IVW 4 and BVW 3.

### HYDROLOGY

|   |   |
|---|---|
| <b>Wetland Hydrology Indicators:</b><br><u>Primary Indicators (minimum of one is required; check all that apply)</u><br>_____ Surface Water (A1) _____ Water-Stained Leaves (B9)<br>_____ High Water Table (A2) _____ Aquatic Fauna (B13)<br>_____ Saturation (A3) _____ Marl Deposits (B15)<br>_____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1)<br>_____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3)<br>_____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4)<br>_____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6)<br>_____ Iron Deposits (B5) _____ Thin Muck Surface (C7)<br>_____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks)<br>_____ Sparsely Vegetated Concave Surface (B8) | <u>Secondary Indicators (minimum of two required)</u><br>_____ Surface Soil Cracks (B6)<br>_____ Drainage Patterns (B10)<br>_____ Moss Trim Lines (B16)<br>_____ Dry-Season Water Table (C2)<br>_____ Crayfish Burrows (C8)<br>_____ Saturation Visible on Aerial Imagery (C9)<br>_____ Stunted or Stressed Plants (D1)<br>_____ Geomorphic Position (D2)<br>_____ Shallow Aquitard (D3)<br>_____ Microtopographic Relief (D4)<br>_____ FAC-Neutral Test (D5) |
|---|---|

|  |   |
|--|---|
| <b>Field Observations:</b><br>Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____<br>Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____<br>Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____<br>(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: UPL 3-4

|  | Absolute % Cover | Dominant Species? | Indicator Status |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
|--|------------------|-------------------|------------------|--|-------------------|--------------|----------------------|----------------|-----------------------|----------------|----------------------|----------------|-------------------------|------------------|----------------------|----------------|-------------------------------|----------------|--------------------------------------|--|
| <b>Tree Stratum</b> (Plot size: <u>30</u> )          |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 1. <u>Pinus strobus</u>                              | 40               | Yes               | FACU             | <b>Dominance Test worksheet:</b><br><br>Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)<br><br>Total Number of Dominant Species Across All Strata: <u>3</u> (B)<br><br>Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)   |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 2. <u>Fagus grandifolia</u>                          | 10               | Yes               | FACU             |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 3. _____   |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 4. _____   |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 5. _____   |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 6. _____   |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 7. _____   |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
|  | <u>50</u>        | =Total Cover      |                  | <b>Prevalence Index worksheet:</b><br><br><table style="width:100%; border:none;"> <tr> <td style="text-align:right;">Total % Cover of:</td> <td style="text-align:right;">Multiply by:</td> </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>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>100</u></td> <td>x 4 = <u>400</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>400</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>4.00</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>0</u> | x 3 = <u>0</u> | FACU species <u>100</u> | x 4 = <u>400</u> | UPL species <u>0</u> | x 5 = <u>0</u> | Column Totals: <u>100</u> (A) | <u>400</u> (B) | Prevalence Index = B/A = <u>4.00</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>0</u>                                 | x 3 = <u>0</u>   |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| FACU species <u>100</u>                              | x 4 = <u>400</u> |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| UPL species <u>0</u>                                 | x 5 = <u>0</u>   |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| Column Totals: <u>100</u> (A)                        | <u>400</u> (B)   |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| Prevalence Index = B/A = <u>4.00</u>                 |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| <b>Sapling/Shrub Stratum</b> (Plot size: <u>15</u> ) |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 1. <u>Kalmia latifolia</u>                           | 40               | Yes               | FACU             |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 2. <u>Pinus strobus</u>                              | 5                | No                | FACU             |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 3. <u>Vaccinium angustifolium</u>                    | 5                | No                | FACU             |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 4. _____   |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 5. _____   |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 6. _____   |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 7. _____   |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
|  | <u>50</u>        | =Total Cover      |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| <b>Herb Stratum</b> (Plot size: <u>5</u> )           |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 1. _____   |                  |                   |                  | <b>Hydrophytic Vegetation Indicators:</b><br><u>1</u> - Rapid Test for Hydrophytic Vegetation<br><u>2</u> - Dominance Test is >50%<br><u>3</u> - Prevalence Index is ≤3.0 <sup>1</sup><br><u>4</u> - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)<br><u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)<br><br><sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.   |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 2. _____   |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 3. _____   |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 4. _____   |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 5. _____   |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 6. _____   |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 7. _____   |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 8. _____   |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 9. _____   |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 10. _____  |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 11. _____  |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 12. _____  |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
|  |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| <b>Woody Vine Stratum</b> (Plot size: <u>5</u> )     |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 1. _____   |                  |                   |                  | <b>Definitions of Vegetation Strata:</b><br><br><b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.<br><br><b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.<br><br><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.<br><br><b>Woody vines</b> – All woody vines greater than 3.28 ft in height.   |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 2. _____   |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 3. _____   |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
| 4. _____   |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
|  |                  |                   |                  |  |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |
|  |                  |                   |                  | <b>Hydrophytic Vegetation Present?</b> Yes <u>  </u> No <u>  X  </u>   |                   |              |                      |                |                       |                |                      |                |                         |                  |                      |                |                               |                |                                      |  |

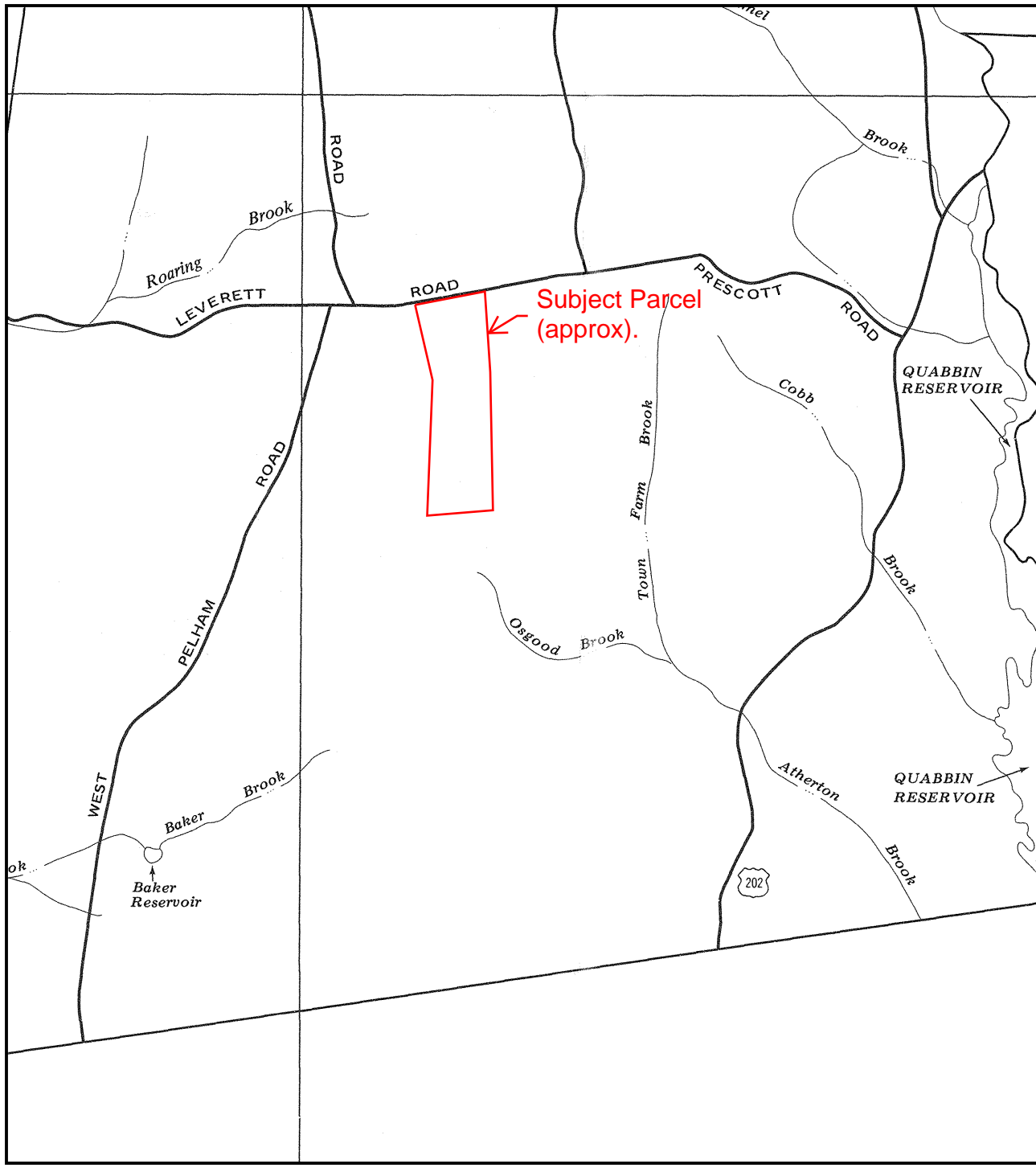
Remarks: (Include photo numbers here or on a separate sheet.)





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**Attachment D**  
**FEMA Information**



NATIONAL FLOOD INSURANCE PROGRAM

**FIRM**  
FLOOD INSURANCE RATE MAP

TOWN OF  
**SHUTESBURY,**  
**MASSACHUSETTS**  
FRANKLIN COUNTY

**MAP INDEX**  
PANELS PRINTED: 5, 10, 15

COMMUNITY-PANEL NUMBERS  
250128 0001-0020

EFFECTIVE DATE:  
JUNE 18, 1980



U.S. DEPARTMENT OF HOUSING  
AND URBAN DEVELOPMENT  
FEDERAL INSURANCE ADMINISTRATION

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.



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**Attachment E**  
**NRCS Custom Soil Resource Report**

# Custom Soil Resource Report for Franklin County, Massachusetts

66 Leverett Road



# Preface

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Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# How Soil Surveys Are Made

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Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil



## Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

## Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

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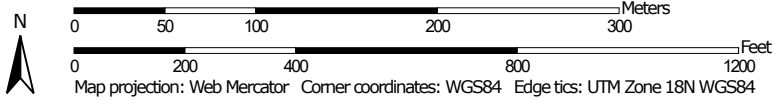
The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



# Custom Soil Resource Report Soil Map



Map Scale: 1:4,160 if printed on A portrait (8.5" x 11") sheet.



### MAP LEGEND

**Area of Interest (AOI)**

 Area of Interest (AOI)

**Soils**

 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

**Special Point Features**

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

**Water Features**

 Streams and Canals

**Transportation**

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

**Background**

 Aerial Photography

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Franklin County, Massachusetts  
 Survey Area Data: Version 16, Sep 2, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 15, 2020—Oct 31, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

| Map Unit Symbol                    | Map Unit Name  | Acres in AOI | Percent of AOI |
|------------------------------------|--|--------------|----------------|
| 75B                                | Pillsbury fine sandy loam, 0 to 8 percent slopes, very stony | 2.2          | 10.8%          |
| 348C                               | Henniker sandy loam, 8 to 15 percent slopes                  | 1.5          | 7.4%           |
| 368A                               | Metacomet fine sandy loam, 0 to 3 percent slopes             | 14.5         | 70.6%          |
| 368B                               | Metacomet fine sandy loam, 3 to 8 percent slopes             | 2.0          | 9.9%           |
| 444B                               | Chichester fine sandy loam, 3 to 8 percent slopes            | 0.3          | 1.3%           |
| <b>Totals for Area of Interest</b> |  | <b>20.5</b>  | <b>100.0%</b>  |

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.



## Custom Soil Resource Report

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

## Franklin County, Massachusetts

### 75B—Pillsbury fine sandy loam, 0 to 8 percent slopes, very stony

#### Map Unit Setting

*National map unit symbol:* 2ty6x  
*Elevation:* 360 to 2,070 feet  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 52 degrees F  
*Frost-free period:* 90 to 140 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Pillsbury, very stony, and similar soils:* 79 percent  
*Minor components:* 21 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Pillsbury, Very Stony

##### Setting

*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Toeslope, footslope  
*Landform position (three-dimensional):* Mountainbase, base slope, interfluve  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Parent material:* Loamy lodgment till derived from gneiss and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from granite

##### Typical profile

*Oe - 0 to 1 inches:* mucky peat  
*A - 1 to 6 inches:* fine sandy loam  
*Bg1 - 6 to 13 inches:* cobbly fine sandy loam  
*Bg2 - 13 to 23 inches:* cobbly fine sandy loam  
*Cd - 23 to 65 inches:* cobbly fine sandy loam

##### Properties and qualities

*Slope:* 0 to 8 percent  
*Surface area covered with cobbles, stones or boulders:* 1.1 percent  
*Depth to restrictive feature:* 21 to 43 inches to densic material  
*Drainage class:* Poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.01 to 1.42 in/hr)  
*Depth to water table:* About 0 to 12 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 3.3 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* D  
*Ecological site:* F144BY305ME - Wet Loamy Flat  
*Hydric soil rating:* Yes

## Minor Components

### Peru, very stony

*Percent of map unit:* 9 percent  
*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Backslope, footslope  
*Landform position (three-dimensional):* Mountainbase, interfluve, base slope  
*Microfeatures of landform position:* Rises, rises  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear, convex  
*Hydric soil rating:* No

### Peacham, very stony

*Percent of map unit:* 5 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Toeslope, footslope  
*Landform position (three-dimensional):* Mountainbase, interfluve, base slope  
*Microfeatures of landform position:* Closed depressions, closed depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

### Wonsqueak

*Percent of map unit:* 4 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Toeslope, footslope  
*Landform position (three-dimensional):* Mountainbase, base slope, interfluve  
*Microfeatures of landform position:* Closed depressions, closed depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

### Lyman, very stony

*Percent of map unit:* 3 percent  
*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Backslope, shoulder, summit  
*Landform position (three-dimensional):* Mountainbase, interfluve, base slope  
*Microfeatures of landform position:* Rises, rises  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

## 348C—Henniker sandy loam, 8 to 15 percent slopes

### Map Unit Setting

*National map unit symbol:* 9cdv  
*Elevation:* 920 to 1,280 feet  
*Mean annual precipitation:* 39 to 53 inches  
*Mean annual air temperature:* 34 to 56 degrees F  
*Frost-free period:* 140 to 174 days



## Custom Soil Resource Report

*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Henniker and similar soils:* 83 percent

*Minor components:* 17 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Henniker

#### Setting

*Landform:* Drumlins, ground moraines

*Landform position (two-dimensional):* Backslope, toeslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Linear, convex

*Across-slope shape:* Convex, linear

*Parent material:* Loamy till underlain by sandy lodgment till derived from gneiss

#### Typical profile

*O<sub>i</sub> - 0 to 0 inches:* slightly decomposed plant material

*O<sub>e</sub> - 0 to 1 inches:* moderately decomposed plant material

*A<sub>p</sub> - 1 to 8 inches:* sandy loam

*B<sub>w</sub>1 - 8 to 15 inches:* sandy loam

*B<sub>w</sub>2 - 15 to 24 inches:* sandy loam

*BC - 24 to 29 inches:* cobbly sandy loam

*Cd1 - 29 to 39 inches:* loamy sand

*Cd2 - 39 to 45 inches:* loamy sand

*Cd3 - 45 to 65 inches:* loamy sand

#### Properties and qualities

*Slope:* 8 to 15 percent

*Surface area covered with cobbles, stones or boulders:* 0.0 percent

*Depth to restrictive feature:* 18 to 36 inches to densic material

*Drainage class:* Well drained

*Runoff class:* Medium

*Capacity of the most limiting layer to transmit water (K<sub>sat</sub>):* Very low to moderately high (0.00 to 0.20 in/hr)

*Depth to water table:* About 13 to 31 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 3.6 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* B

*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods)

*Hydric soil rating:* No

### Minor Components

#### Metacommet

*Percent of map unit:* 10 percent

*Landform:* Drumlins, ground moraines

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Linear

*Across-slope shape:* Convex

## Custom Soil Resource Report

*Hydric soil rating:* No

### **Chichester**

*Percent of map unit:* 5 percent

*Landform:* Ground moraines, valley sides

*Landform position (two-dimensional):* Backslope, footslope

*Landform position (three-dimensional):* Side slope, base slope

*Down-slope shape:* Concave, linear

*Across-slope shape:* Convex, linear

*Hydric soil rating:* No

### **Pillsbury**

*Percent of map unit:* 2 percent

*Landform:* Drumlins, ground moraines

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Base slope

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Hydric soil rating:* Yes

## **368A—Metacomet fine sandy loam, 0 to 3 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 9cck

*Elevation:* 970 to 1,250 feet

*Mean annual precipitation:* 39 to 53 inches

*Mean annual air temperature:* 34 to 56 degrees F

*Frost-free period:* 140 to 174 days

*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*Metacomet and similar soils:* 95 percent

*Minor components:* 5 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Metacomet**

#### **Setting**

*Landform:* Drumlins, ground moraines

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Linear

*Across-slope shape:* Convex

*Parent material:* Loamy till underlain by sandy lodgment till derived from gneiss

#### **Typical profile**

*O<sub>i</sub> - 0 to 2 inches:* slightly decomposed plant material

*O<sub>e</sub> - 2 to 2 inches:* moderately decomposed plant material

*A - 2 to 5 inches:* fine sandy loam

*E - 5 to 6 inches:* fine sandy loam

*Bw<sub>1</sub> - 6 to 13 inches:* fine sandy loam

## Custom Soil Resource Report

*Bw2 - 13 to 18 inches: fine sandy loam*  
*Bw3 - 18 to 27 inches: sandy loam*  
*C - 27 to 32 inches: stony loamy sand*  
*Cd1 - 32 to 48 inches: loamy sand*  
*Cd2 - 48 to 65 inches: sandy loam*

### Properties and qualities

*Slope: 0 to 3 percent*  
*Surface area covered with cobbles, stones or boulders: 0.0 percent*  
*Depth to restrictive feature: 20 to 37 inches to densic material*  
*Drainage class: Moderately well drained*  
*Runoff class: Very high*  
*Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)*  
*Depth to water table: About 16 to 24 inches*  
*Frequency of flooding: None*  
*Frequency of ponding: None*  
*Available water supply, 0 to 60 inches: Low (about 4.9 inches)*

### Interpretive groups

*Land capability classification (irrigated): None specified*  
*Land capability classification (nonirrigated): 2w*  
*Hydrologic Soil Group: B/D*  
*Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)*  
*Hydric soil rating: No*

### Minor Components

#### Pillsbury

*Percent of map unit: 5 percent*  
*Landform: Ground moraines, drumlins*  
*Landform position (two-dimensional): Backslope*  
*Landform position (three-dimensional): Base slope*  
*Down-slope shape: Concave*  
*Across-slope shape: Concave*  
*Hydric soil rating: Yes*

## 368B—Metacomet fine sandy loam, 3 to 8 percent slopes

### Map Unit Setting

*National map unit symbol: 9ccj*  
*Elevation: 960 to 1,260 feet*  
*Mean annual precipitation: 39 to 53 inches*  
*Mean annual air temperature: 34 to 56 degrees F*  
*Frost-free period: 140 to 174 days*  
*Farmland classification: All areas are prime farmland*

### Map Unit Composition

*Metacomet and similar soils: 85 percent*  
*Minor components: 15 percent*



## Custom Soil Resource Report

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Metacommet

#### Setting

*Landform:* Drumlins, ground moraines  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Convex  
*Parent material:* Loamy till underlain by sandy lodgment till derived from gneiss

#### Typical profile

*O<sub>i</sub> - 0 to 2 inches:* slightly decomposed plant material  
*O<sub>e</sub> - 2 to 2 inches:* moderately decomposed plant material  
*A - 2 to 5 inches:* fine sandy loam  
*E - 5 to 6 inches:* fine sandy loam  
*Bw<sub>1</sub> - 6 to 13 inches:* fine sandy loam  
*Bw<sub>2</sub> - 13 to 18 inches:* fine sandy loam  
*Bw<sub>3</sub> - 18 to 27 inches:* sandy loam  
*C - 27 to 32 inches:* stony loamy sand  
*Cd<sub>1</sub> - 32 to 48 inches:* loamy sand  
*Cd<sub>2</sub> - 48 to 65 inches:* sandy loam

#### Properties and qualities

*Slope:* 3 to 8 percent  
*Surface area covered with cobbles, stones or boulders:* 0.0 percent  
*Depth to restrictive feature:* 20 to 37 inches to densic material  
*Drainage class:* Moderately well drained  
*Runoff class:* Very high  
*Capacity of the most limiting layer to transmit water (K<sub>sat</sub>):* Very low to moderately high (0.00 to 0.20 in/hr)  
*Depth to water table:* About 16 to 24 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 4.9 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* B/D  
*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods)  
*Hydric soil rating:* No

### Minor Components

#### Pillsbury

*Percent of map unit:* 10 percent  
*Landform:* Drumlins, ground moraines  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

#### Henniker

*Percent of map unit:* 5 percent

## Custom Soil Resource Report

*Landform:* Drumlins, ground moraines  
*Landform position (two-dimensional):* Backslope, toeslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Linear, convex  
*Across-slope shape:* Convex, linear  
*Hydric soil rating:* No

### **444B—Chichester fine sandy loam, 3 to 8 percent slopes**

#### **Map Unit Setting**

*National map unit symbol:* 9cfm  
*Elevation:* 940 to 1,400 feet  
*Mean annual precipitation:* 39 to 53 inches  
*Mean annual air temperature:* 34 to 56 degrees F  
*Frost-free period:* 140 to 174 days  
*Farmland classification:* All areas are prime farmland

#### **Map Unit Composition**

*Chichester and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### **Description of Chichester**

##### **Setting**

*Landform:* Ground moraines, valley sides  
*Landform position (two-dimensional):* Backslope, footslope  
*Landform position (three-dimensional):* Side slope, base slope  
*Down-slope shape:* Concave, linear  
*Across-slope shape:* Convex, linear  
*Parent material:* Loamy over sandy supraglacial meltout till derived from gneiss

##### **Typical profile**

*Oe - 0 to 1 inches:* moderately decomposed plant material  
*A - 1 to 3 inches:* fine sandy loam  
*Ap - 3 to 7 inches:* fine sandy loam  
*Bw1 - 7 to 10 inches:* fine sandy loam  
*Bw2 - 10 to 20 inches:* fine sandy loam  
*C1 - 20 to 28 inches:* gravelly loamy coarse sand  
*C2 - 28 to 35 inches:* sand  
*C3 - 35 to 44 inches:* stony sand  
*C4 - 44 to 65 inches:* stony sand

##### **Properties and qualities**

*Slope:* 3 to 8 percent  
*Surface area covered with cobbles, stones or boulders:* 0.0 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Low

## Custom Soil Resource Report

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.20 to 6.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 3.5 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* A

*Ecological site:* F144BY505ME - Loamy over Sandy

*Hydric soil rating:* No

### **Minor Components**

#### **Henniker**

*Percent of map unit:* 10 percent

*Landform:* Drumlins, ground moraines

*Landform position (two-dimensional):* Backslope, toeslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Linear, convex

*Across-slope shape:* Convex, linear

*Hydric soil rating:* No

#### **Millsite**

*Percent of map unit:* 5 percent

*Landform:* Hills

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Mountainflank, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Hydric soil rating:* No



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## **Appendix B**

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### Seed Mixes

# **NEW ENGLAND WETLAND PLANTS, INC**

820 WEST STREET, AMHERST, MA 01002

PHONE: 413-548-8000 FAX 413-549-4000

EMAIL: INFO@NEWP.COM WEB ADDRESS: WWW.NEWP.COM

## **New England Wetmix (Wetland Seed Mix)**

| <b>Botanical Name</b>                                   | <b>Common Name</b>           | <b>Indicator</b> |
|---|------------------------------|------------------|
| <i>Carex vulpinoidea</i>                                | Fox Sedge                    | OBL              |
| <i>Carex scoparia</i>                                   | Blunt Broom Sedge            | FACW             |
| <i>Carex lurida</i>                                     | Lurid Sedge                  | OBL              |
| <i>Carex lupulina</i>                                   | Hop Sedge                    | OBL              |
| <i>Poa palustris</i>                                    | Fowl Bluegrass               | FACW             |
| <i>Bidens frondosa</i>                                  | Beggar Ticks                 | FACW             |
| <i>Scirpus atrovirens</i>                               | Green Bulrush                | OBL              |
| <i>Asclepias incarnata</i>                              | Swamp Milkweed               | OBL              |
| <i>Carex crinita</i>                                    | Fringed Sedge                | OBL              |
| <i>Vernonia noveboracensis</i>                          | New York Ironweed            | FACW+            |
| <i>Juncus effusus</i>                                   | Soft Rush                    | FACW+            |
| <i>Aster lateriflorus (Symphyotrichum lateriflorum)</i> | Starved/Calico Aster         | FACW             |
| <i>Iris versicolor</i>                                  | Blue Flag                    | OBL              |
| <i>Glyceria grandis</i>                                 | American Mannagrass          | OBL              |
| <i>Mimulus ringens</i>                                  | Square Stemmed Monkey Flower | OBL              |
| <i>Eupatorium maculatum (Eutrochium maculatum)</i>      | Spotted Joe Pye Weed         | OBL              |

PRICE PER LB. \$135.00 MIN. QUANTITY 1 LBS. TOTAL: \$135.00 APPLY: 18 LBS/ACRE :2500 sq ft/lb

The New England Wetmix (Wetland Seed Mix) contains a wide variety of native seeds that are suitable for most wetland restoration sites that are not permanently flooded. All species are best suited to moist ground as found in most wet meadows, scrub shrub, or forested wetland restoration areas. The mix is well suited for detention basin borders and the bottom of detention basins not generally under standing water. The seeds will not germinate under inundated conditions. If planted during the fall months the seed mix will germinate the following spring. During the first season of growth several species will produce seeds while other species will produce seeds after the second growing season. Not all species will grow in all wetland situations. This mix is comprised of the wetland species most likely to grow in created/restored wetlands and should produce more than 75% ground cover in two full growing seasons.

The wetland seeds in this mix can be sown by hand, with a hand-held spreader, or hydro-seeded on large or hard to reach sites. Lightly rake to insure good seed-to-soil contact. Seeding can take place on frozen soil, as the freezing and thawing weather of late fall and late winter will work the seed into the soil. If spring conditions are drier than usual watering may be required. If sowing during the summer months supplemental watering will likely be required until germination. A light mulch of clean, weed free straw is recommended.

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged. Price is \$/bulk pound, FOB warehouse, Plus SH and applicable taxes.



# **NEW ENGLAND WETLAND PLANTS, INC**

820 WEST STREET, AMHERST, MA 01002

PHONE: 413-548-8000 FAX 413-549-4000

EMAIL: INFO@NEWP.COM WEB ADDRESS: WWW.NEWP.COM

## **New England Erosion Control/Restoration Mix For Detention Basins and Moist Sites**

| <b>Botanical Name</b>                                     | <b>Common Name</b>   | <b>Indicator</b> |
|---|----------------------|------------------|
| <i>Elymus riparius</i>                                    | Riverbank Wild Rye   | FACW             |
| <i>Schizachyrium scoparium</i>                            | Little Bluestem      | FACU             |
| <i>Festuca rubra</i>                                      | Red Fescue           | FACU             |
| <i>Andropogon gerardii</i>                                | Big Bluestem         | FAC              |
| <i>Panicum virgatum</i>                                   | Switch Grass         | FAC              |
| <i>Vernonia noveboracensis</i>                            | New York Ironweed    | FACW+            |
| <i>Agrostis perennans</i>                                 | Upland Bentgrass     | FACU             |
| <i>Bidens frondosa</i>                                    | Beggar Ticks         | FACW             |
| <i>Eupatorium maculatum (Eutrochium maculatum)</i>        | Spotted Joe Pye Weed | OBL              |
| <i>Eupatorium perfoliatum</i>                             | Boneset              | FACW             |
| <i>Aster novae-angliae (Symphyotrichum novae-angliae)</i> | New England Aster    | FACW-            |
| <i>Scirpus cyperinus</i>                                  | Wool Grass           | FACW             |
| <i>Juncus effusus</i>                                     | Soft Rush            | FACW+            |

PRICE PER LB. \$37.00 MIN. QUANTITY 3 LBS. **TOTAL:** \$111.00

APPLY: 35 LBS/ACRE :1250 sq ft/lb

The New England Erosion Control/Restoration Mix for Detention Basins and Moist Sites contains a selection of native grasses and wildflowers designed to colonize generally moist, recently disturbed sites where quick growth of vegetation is desired to stabilize the soil surface. It is an appropriate seed mix for ecologically sensitive restorations that require stabilization as well as long-term establishment of native vegetation. This mix is particularly appropriate for detention basins that do not hold standing water. Many of the plants in this mix can tolerate infrequent inundation, but not constant flooding. The mix may be applied by hand, by mechanical spreader, or by hydro-seeder. After sowing, lightly rake, roll or cultipack to insure good seed-to-soil contact. Best results are obtained with a Spring or late Summer seeding. Late Fall and Winter dormant seeding requires an increase in the application rate. A light mulching of clean, weed-free straw is recommended

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged. Price is \$/bulk pound, FOB warehouse, Plus SH and applicable taxes.

# **NEW ENGLAND WETLAND PLANTS, INC**

820 WEST STREET, AMHERST, MA 01002

PHONE: 413-548-8000 FAX 413-549-4000

EMAIL: INFO@NEWP.COM WEB ADDRESS: WWW.NEWP.COM

## **New England Erosion Control/Restoration Mix for Dry Sites**

| <b>Botanical Name</b>          | <b>Common Name</b> | <b>Indicator</b> |
|--------------------------------|--------------------|------------------|
| <i>Elymus canadensis</i>       | Canada Wild Rye    | FACU+            |
| <i>Festuca rubra</i>           | Red Fescue         | FACU             |
| <i>Lolium multiflorum</i>      | Annual Ryegrass    |                  |
| <i>Lolium perenne</i>          | Perrenial Ryegrass |                  |
| <i>Schizachyrium scoparium</i> | Little Bluestem    | FACU             |
| <i>Panicum virgatum</i>        | Switch Grass       | FAC              |
| <i>Sorghastrum nutans</i>      | Indian Grass       | UPL              |

PRICE PER LB. \$18.00 MIN. QUANTITY 5 LBS. **TOTAL:** \$90.00 APPLY: 35 LBS/ACRE :1250 sq ft/lb

The New England Erosion Control/Restoration Mix For Dry Sites provides an appropriate selection of native and naturalized grasses to ensure that dry and recently disturbed sites will be quickly revegetated and the soil surface stabilized. It is an appropriate seed mix for road cuts, pipelines, steeper slopes, and areas requiring quick cover during the ecological restoration process. The mix may be applied by hydro-seeding, by mechanical spreader, or on small sites it can be spread by hand. Lightly rake, or roll to ensure proper soil-seed contact. Best results are obtained with a Spring or late Summer seeding. Late Spring through Mid-Summer seeding will benefit from a light mulching of weed-free straw to conserve moisture. If conditions are drier than usual, watering will be required. Fertilization is not required unless the soils are particularly infertile. Preparation of a clean weed free seed bed is necessary for optimal results.

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged. Price is \$/bulk pound, FOB warehouse, Plus SH and applicable taxes.

## **Appendix C**

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### Abutter Notification Information

**TOWN OF SHUTESBURY CERTIFIED 100' ABUTTERS LIST FOR A. DOROSKI, FUSS O'NEILL, INC: 66 LEVERETT RD, MAP O PARCEL 32**

| MAP | LOT | OWNER                       | CO-OWNER                         | MAILING ADDRESS      | TOWN       | ST | ZIP   | LOCATION          |
|-----|-----|-----------------------------|----------------------------------|----------------------|------------|----|-------|-------------------|
| O   | 32  | TOWN OF SHUTESBURY          |                                  | PO BOX 276           | SHUTESBURY | MA | 01072 | LEVERETT RD       |
| H   | 8   | HASBROUCK CHRISTOPHER J     |                                  | 75 LEVERETT RD       | SHUTESBURY | MA | 01072 | 73-75 LEVERETT RD |
| H   | 10  | WATKINS LEE MARK            | LYONS-WATKINS SUSAN              | P O BOX 325          | SHUTESBURY | MA | 01072 | 63 LEVERETT RD    |
| H   | 11  | TOWN OF SHUTESBURY          | HIGHWAY DEPARTMENT               | P O BOX 276          | SHUTESBURY | MA | 01072 | 59 LEVERETT RD    |
| H   | 71  | OLANYK KELLY P              |                                  | 81 LEVERETT RD       | SHUTESBURY | MA | 01072 | 81 LEVERETT RD    |
| O   | 23  | BROWN DAVID                 |                                  | 577 MONTAGUE RD      | SHUTESBURY | MA | 01072 | PELHAM HILL RD    |
| O   | 26  | HOPKINS KENNETH H           | NABUUMA EDITH                    | 54 PELHAM HILL RD    | SHUTESBURY | MA | 01072 | 54 PELHAM HILL RD |
| O   | 27  | RULE ROBERT E               | RULE MARLENE L                   | 88 PELHAM HILL RD    | SHUTESBURY | MA | 01072 | 88 PELHAM HILL RD |
| O   | 28  | COVINO DONNA M              |                                  | 84 PELHAM HILL RD    | SHUTESBURY | MA | 01072 | 84 PELHAM HILL RD |
| O   | 30  | TORRES ARTHUR I             | TORRES REBECCA E                 | 11 WILSON RD         | SHUTESBURY | MA | 01072 | 3 & 5 WILSON RD   |
| O   | 31  | KING-FRANKLIN ROBIN MARIE   |                                  | 94 LEVERETT RD       | SHUTESBURY | MA | 01072 | 94 LEVERETT RD    |
| O   | 33  | MCCAHON DAVID J             | MCCAHON CYNTHIA D                | 922 UNIVERSITY BAY D | MADISON    | WI | 53705 | LEVERETT RD       |
| O   | 34  | DIHLMANN,NANCY              |                                  | 62 LEVERETT RD       | SHUTESBURY | MA | 01072 | 62 LEVERETT RD    |
| O   | 56  | BOWEN ROBERT L              | VALENTINE RORY N                 | 50 LEVERETT RD       | SHUTESBURY | MA | 01072 | 50 LEVERETT RD    |
| O   | 79  | JACOBSEN PHILLIP H          | JEAN STEPHEN & SANDRA            | 78 PELHAM HILL RD    | SHUTESBURY | MA | 01072 | 78 PELHAM HILL RD |
| O   | 83  | UNIVERSITY OF MASSACHUSETTS | UNIVERSITY OF MASSACHUSETTS ADMI | 181 PRESIDENTS DR    | AMHERST    | MA | 01003 | PELHAM HILL RD    |

**FOR: April Doroski, PWS, CPSS**  
**Water Resources & Climate Resilience Specialist**  
**Fuss & O'Neill, Inc.**  
**1550 Main ST Suite 400**  
**Springfield MA 01103**  
**Phone: 413.333.5881 | Cell: 413.282.7008**  
[Adoroski@fando.com](mailto:Adoroski@fando.com)

Respectfully submitted,

Leslie Bracebridge, Assessors' Clerk  
 SHUTESBURY BOARD OF ASSESSORS

5/2/2023



