

Abbreviated Notice of Resource Area Delineation

March 12, 2024

Subject Property

0 Maple Street
Map R-3, Lots 28-17C and 28-18C
Stow, Massachusetts

Applicant and Property Owner

David Corey
Northeast Venture Group
220 North Main Street, Suite 301
Natick, MA 01760

Prepared by

LEC Environmental Consultants, Inc.

380 Lowell Street, Suite 101
Wakefield, MA 01880
781-245-2500

www.lecenvironmental.com



March 12, 2024

Electronic and Fedex Delivery (conservation@stow-ma.gov)

Stow Conservation Commission
Stow Town Building
380 Great Road
Stow, MA 01775

Re: Abbreviated Notice of Resource Area Delineation
0 Maple Street
Map R-3, Lots 28-17C and 28-18C
Stow, Massachusetts

[LEC File #: NVG\23-518.02]

Dear Members of the Conservation Commission:

On behalf of the Applicant, Northeast Venture Group, LEC Environmental Consultants, Inc., (LEC) is filing the enclosed *Abbreviated Notice of Resource Area Delineation* (ANRAD) Application with the Stow Conservation Commission to confirm the boundaries of jurisdictional Wetland Resource Areas associated with 0 Maple Street in Stow, Massachusetts. The ANRAD Application and associated wetland boundary determinations have been completed in accordance with the *Massachusetts Wetlands Protection Act* (M.G.L. c. 131, § 40, the *Act*) and its implementing Regulations (310 CMR 10.00, the *Act Regulations*); and the *Town of Stow Wetlands Protection Bylaw* (Article 9, the *Bylaw*) and its *Local Wetlands Protection Bylaw Regulations* (the *Bylaw Regulations*).

A check made payable to the Town of Stow in the amount of Nine Hundred Thirty-Two Dollars and Fifty Cents (\$932.50) for the Town portion of the *Act* filing fee is enclosed. An electronic payment in the amount of Nine Hundred Seven Dollars and Fifty Cents (\$907.50) has been sent to the MA Department of Environmental Protection by eDEP.

Thank you for considering this application. We look forward to meeting with you at the April 2, 2024 Public Hearing to discuss the ANRAD. If you have any questions, please do not hesitate to contact me in our Wakefield Office at 781-245-2500 or at dwells@lecenvironmental.com.

Sincerely,

LEC Environmental Consultants, Inc.

Dan Wells
Senior Wildlife/Wetland Scientist

cc: DEP, Central Region; Northeast Venture Group

LEC Environmental Consultants, Inc.

www.lecenvironmental.com

12 Resnik Road
Suite 1
Plymouth, MA 02360
508.746.9491

PLYMOUTH, MA

380 Lowell Street
Suite 101
Wakefield, MA 01880
781.245.2500

WAKEFIELD, MA

100 Grove Street
Suite 302
Worcester, MA 01605
508.753.3077

WORCESTER, MA

P.O. Box 590
Rindge, NH 03461
603.899.6726

RINDGE, NH

680 Warren Avenue
Suite 3
East Providence, RI 02914
401.685.3109

EAST PROVIDENCE, RI

Abbreviated Notice of Resource Area Delineation

- i. WPA Form 4A – Abbreviated Notice of Resource Area Delineation
- ii. Wetland Fee Transmittal Form
- iii. Affidavit of Service
- iv. Letter to Abutters
- v. Abutter Notification Form (to be provided by Stow Conservation Commission)
- vi. Certified Lists of Abutters

ANRAD Application Report

1.	Introduction	1
2.	General Site Description	1
2.1	Natural Heritage and Endangered Species Program Designation	2
2.2	Floodplain Designation	2
3.	Wetland Boundary Determination Methodology	2
3.1	Plant Species Identification	3
3.1.1	Identification of Wetland Indicator Species	3
3.1.2	Measurement of Relative Abundance	4
3.1.3	Measurement of Vegetative Distribution and Density	4
3.2	Evaluation of Edaphic Characteristics	4
3.2.1	General Soil Analysis	4
3.2.2	Soil Horizon Thickness and Depth	4
3.2.3	Soil Texture	5
3.2.4	Soil Color	5
3.2.5	Redoximorphic Features	6
4.	Wetland Resource Areas	6
4.1	Bordering Vegetated Wetlands	6
5.	Summary	7

Literature Referenced

Appendices

Appendix A

Locus Maps

Figure 1: USGS Topographic Map

Figure 2: MassGIS Orthophoto & NHESP Map

Figure 3: FEMA FIRMette

Appendix B

MassDEP Bordering Vegetated Wetland Delineation Field Data Forms

Appendix C

Existing Conditions Plan (ANRAD Plan), prepared by Dillis & Roy, dated March 1, 2024



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
WPA Form 4A – Abbreviated Notice of
Resource Area Delineation
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Stow
 City/Town

A. General Information

1. Project Location (**Note:** electronic filers will click on button for GIS locator):

0 Maple Street

a. Street Address

Stow

b. City/Town

01775

c. Zip Code

Latitude and Longitude:

42.429111

d. Latitude

-71.550023

e. Longitude

R-3

f. Assessors Map/Plat Number

28-17C and 28-18C

g. Parcel /Lot Number

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



2. Applicant:

David

a. First Name

Corey

b. Last Name

Northeast Venture Group

c. Organization

220 North Main Street, Suite 301

d. Mailing Address

Natick

e. City/Town

MA

f. State

01760

g. Zip Code

774.278.0257

h. Phone Number

i. Fax Number

dcorey@northeastventuregroup.com

j. Email Address

3. Property owner (if different from applicant):

☐ Check if more than one owner (attach additional sheet with names and contact information)

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

4. Representative (if any):

Dan

a. Contact Person First Name

Wells

b. Contact Person Last Name

LEC Environmental Consultants, Inc.

c. Organization

380 Lowell Street, Suite 101

d. Mailing Address

Wakefield

e. City/Town

MA

f. State

01880

g. Zip Code

781.245.2500

h. Phone Number

i. Fax Number

dwells@lecenvironmental.com

j. Email Address

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

\$1,840.00

a. Total Fee Paid

\$907.50

b. State Fee Paid

\$ 932.50

c. City/Town Fee Paid

Fees will be calculated for online users.

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



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
**WPA Form 4A – Abbreviated Notice of
 Resource Area Delineation**
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

 MassDEP File Number

 Document Transaction Number

 Stow
 City/Town

B. Area(s) Delineated

1. Bordering Vegetated Wetland (BVW) +/- 920

Linear Feet of Boundary Delineated
2. Check all methods used to delineate the Bordering Vegetated Wetland (BVW) boundary:
 - a. ☒ MassDEP BVW Field Data Form (attached)
 - b. ☐ Other Methods for Determining the BVW boundary (attach documentation):
 1. ☐ 50% or more wetland indicator plants
 2. ☐ Saturated/inundated conditions exist
 3. ☐ Groundwater indicators
 4. ☐ Direct observation
 5. ☐ Hydric soil indicators
 6. ☐ Credible evidence of conditions prior to disturbance
3. Indicate any other resource area boundaries that are delineated:

a. Resource Area	b. Linear Feet Delineated
c. Resource Area	d. Linear Feet Delineated

C. Additional Information

Applicants must include the following plans with this Abbreviated Notice of Resource Area Delineation. 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. ☒ ANRAD (Delineation Plans only)
2. ☒ 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.)
3. ☒ Plans identifying the boundaries of the Bordering Vegetated Wetlands (BVW) (and/or other resource areas, if applicable).
4. ☒ List the titles and final revision dates for all plans and other materials submitted with this Abbreviated Notice of Resource Area Delineation.


Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

**WPA Form 4A – Abbreviated Notice of
Resource Area Delineation**

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

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Stow

City/Town

D. Fees

The fees for work proposed under each Abbreviated Notice of Resource Area Delineation must be calculated and submitted to the Conservation Commission and the Department (see Instructions and Wetland Fee Transmittal Form).

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 the attached Wetland Fee Transmittal Form) to confirm fee payment:

1852

2. Municipal Check Number

Paid electronically via eDEP

4. State Check Number

David Corey & David Sohn

6. Payor name on check: First Name

3/6/2024

3. Check date

5. Check date

Northeast Venture Group & Realty, LLC

7. Payor name on check: Last Name



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

**WPA Form 4A – Abbreviated Notice of
Resource Area Delineation**

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

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Stow
City/Town

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 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.

I hereby grant permission, to the Agent or member of the Conservation Commission and the Department of Environmental Protection, to enter and inspect the area subject to this Notice at reasonable hours to evaluate the wetland resource boundaries subject to this Notice, and to require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.

I acknowledge that failure to comply with these certification requirements is grounds for the Conservation Commission or the Department to take enforcement action.

1. Signature of Applicant *Dan Casey*

2. Date *3/6/27*

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any)

6. Date *3/11/24*

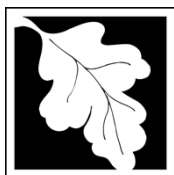
For Conservation Commission:

Two copies of the completed Abbreviated Notice of Resource Area Delineation (Form 4A), including supporting plans and documents; two copies of the ANRAD Wetland Fee Transmittal Form; and the city/town fee payment must be sent to the Conservation Commission by certified mail or hand delivery.

For MassDEP:

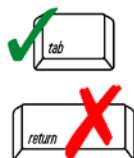
One copy of the completed Abbreviated Notice of Resource Area Delineation (Form 4A), including supporting plans and documents; one copy of the ANRAD Wetland Fee Transmittal Form; and a copy of the state fee payment must be sent to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery. (E-filers may submit these electronically.)

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
ANRAD Wetland Fee Transmittal Form
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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



A. Applicant Information

1. Location of Project:

0 Maple Street

a. Street Address

Stow

b. City/Town

\$907.50

c. Fee amount

Paid electronically via eDEP

d. Check number

2. Applicant:

David

a. First Name

Corey

b. Last Name

Northeast Venture Group

c. Company

220 North Main Street, Suite 301

d. Mailing Address

Natick

e. City/Town

MA

f. State

01760

g. Zip Code

774.278.0257

h. Phone Number

3. Property Owner (if different):

a. First Name

b. Last Name

c. Company

d. Mailing Address

e. City/Town

f. State

g. Zip Code

h. Phone Number

B. Fees

The fee is calculated as follows for each Resource Area Delineation included in the ANRAD (check applicable project type). The maximum fee for each ANRAD, regardless of the number of Resource Area Delineations, is \$200 activities associated with a single-family house and \$2,000 for any other activity.

Bordering Vegetated Wetland Delineation Fee:

1. ☐ single family house project

a. feet of BVW

x \$2.00 =

b. Fee for BVW

2. ☒ all other projects

+/- 920

\$1,840

\$ 1,840

a. feet of BVW

x \$2.00 =

b. Fee for BVW

Other Resource Area (e.g., bank, riverfront area, etc.):

3. ☐ single family house project

a. linear feet

x \$2.00 =

b. Fee

4. ☐ all other projects

a. linear feet

x \$2.00 =

b. Fee

Total Fee for all Resource Areas:

\$1,840.00

Fee

State share of filing fee:

\$ 907.50

5. 1/2 of total fee **less** \$12.50

City/Town share of filing fee:

\$ 932.50

6. 1/2 of total fee **plus** \$12.50

☐ **Online users:** check box if fee exempt.



Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

ANRAD Wetland Fee Transmittal Form

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

C. Submittal Requirements

- a.) Send a copy of this form, with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts, to:

Department of Environmental Protection
Box 4062
Boston, MA 02211

- b.) **To the Conservation Commission:** Send the Abbreviated Notice of Resource Area Delineation; a **copy** of this form; and the city/town fee payment.
- c.) **To DEP Regional Office:** Send one copy of the Abbreviated Notice of Resource Area Delineation (and any additional documentation required as part of a Simplified Review Buffer Zone Project); a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)



**Town of Stow
Conservation Commission**

**380 Great Road
Stow, Massachusetts 01775**
(978) 897-8615
FAX (978) 897-4534
conservation@stow-ma.gov

**Affidavit of Service Under the Massachusetts Wetlands Protection Act
and the Town of Stow Wetlands Bylaw**

*(to be submitted to Stow Conservation Commission and MA Department of Environmental
Protection when filing a Notice of Intent or Request for Determination)*

I, Sharon A. Sullivan (name), hereby certify under the pains and
penalties of perjury that on March XX, 2024 (date of mailing), I gave notification
to abutters in compliance with the second paragraph of Massachusetts General Laws Chapter
131, Section 40 and/or the Stow Wetlands Bylaw, in connection with the following matter:

Request for Determination (via regular mail)
☒ Abbreviated Notice of Resource Area Delineation
(via certified mail or certificate of mailing)
Notice of Intent (via certified mail or certificate of mailing)

For property located at: 0 Maple Street (Map R-3, Lots 28-17C and 28-18C)

Sharon A. Sullivan
Signature

3/XX/2024
Date

March XX, 2024

Certificate of Mailing

«Name»

«Name2»

«Address»

«City», «State» «Zip»

Re: Abbreviated Notice of Resource Area Delineation
0 Maple Street
Map R-3, Lots 28-17C and 28-18C
Stow, Massachusetts

[LEC File #: NVG\23-518.02]

Dear Abutter:

On behalf of the Applicant, Northeast Venture Group, LEC Environmental Consultants, Inc. (LEC) has filed an Abbreviated Notice of Resource Area Delineation (ANRAD) Application with the Stow Conservation Commission to confirm the jurisdictional boundaries of Bordering Vegetated Wetlands located on the above-referenced parcels. The ANRAD Application has been completed in accordance with the *Massachusetts Wetlands Protection Act* (M.G.L. c. 131, s. 40, the *Act*) and its implementing *Regulations* (310 CMR 10.00, the *Act Regulations*), and the *Town of Stow Wetlands Protection Bylaw* (Article 9, the *Bylaw*) and its *Local Wetlands Protection Bylaw Regulations* (the *Bylaw Regulations*).

The report entitled *Abbreviated Notice of Resource Area Delineation* and accompanying site plans are available for review by the public by contacting the Stow Conservation Commission. A remote Public Hearing will be held on April 3, 2024 at 7:00 p.m., in accordance with the provisions of the *Act* and its implementing *Act Regulations*, and the *Bylaw*. Notice of the Public Hearing, including its date, time, and place, will be published at least five (5) days in advance in the *Stow Independent*. Notice of the Public Hearing also will be posted at the Stow Town Hall at least 48 hours in advance. Please check the Town/Conservation Commission website page for any updated information on the meeting.

Please do not hesitate to review the materials and/or attend the public hearing should you have questions or concerns about the proposed project.

Sincerely,

LEC Environmental Consultants, Inc.

Daniel L. Wells
 Senior Wildlife/Wetland Scientist

LEC Environmental Consultants, Inc.

www.lecenvironmental.com

12 Resnik Road
 Suite 1
 Plymouth, MA 02360
 508.746.9491

380 Lowell Street
 Suite 101
 Wakefield, MA 01880
 781.245.2500

100 Grove Street
 Suite 302
 Worcester, MA 01605
 508.753.3077

P.O. Box 590
 Rindge, NH 03461
 603.899.6726

680 Warren Avenue
 Suite 3
 East Providence, RI 02914
 401.685.3109

PLYMOUTH, MA

WAKEFIELD, MA

WORCESTER, MA

RINDGE, NH

EAST PROVIDENCE, RI



Town of Stow
BOARD OF ASSESSORS

380 Great Road
Stow, Massachusetts 01775-1122
(978) 897-4597
Email: Assessors2@Stow-MA.gov

Town of Stow

MAR - 5 2024

Assessors

PAID
3/11/24

Scanned to Lec Environmental
3/11/24

REQUEST FOR CERTIFIED ABUTTERS' LIST

Date of Request: March 5, 2023

Property Owner: Northeast Venture Group & Realty LLC

Property Location: 0 Maple Street

Parcel ID: (Map & Lot): Map R-3, Lot 28-17C and Map R-3, Lot 28-18C

Requesting Board: Conservation Commission (300 feet)

Requestor Information:

Name: Sharon Sullivan - LEC Environmental Consultants, Inc.

Mailing Address: 380 Lowell Street, Suite 101, Wakefield, MA 01880

Email address: ssullivan@lecenvironmental.com

Phone Number: (781) 245-2500

FEE: \$20.00 for first 20 abutters or less:

PLUS: \$1.00 per abutter above 20 entries and \$2.00 per sheet of labels.

Assessors' Office Use Only:

Deposit: \$ 24.00 Cash ☐ Check ☒ (check # 1856)
Add'l Fee: \$ 0 Cash ☐ Check ☐ (check #)

The Board of Assessors has 10 business days to provide all Certified Lists of Abutters.
The list is valid for 90 days from the date of Certification.
Applications submitted without all necessary information may be returned for completion.

11/2020

ABUTTERS LIST
0 Maple St
MAP R-3 PARCEL 28-17C and MAP R-3 PARCEL 28-18C

MAP/PARCEL	PROPERTY LOCATION	OWNER NAME 1	OWNER NAME 2	MAILING ADDRESS	CITY	STATE	ZIP CODE	DEED BOOK	DEED PAGE
000R-2 00016D	0 KETTELL PLAIN RD	WHISPERING WOODS HOMEOWNERS ASSC		2 SCHOOL ST	ACTON	MA	01720	30437	16
000R-2 00023B	143 MAPLE ST	CANNELLA EMILIA F		34 SOUTHBOURNE ROAD	JAMAICA	MA	02130	70112	467
000R-2 0023-1	103 MAPLE ST	BELL ROBERT L	GAUTHIER ALLYSON A	103 MAPLE ST	STOW	MA	01775	59270	442
000R-2 0023-2	113 MAPLE ST	COCCIA VINCENT J JR	COCCIA CHRISTINA J	113 MAPLE ST	STOW	MA	01775	20211	430
000R-2 0023-6	121 MAPLE ST	DITOSTI ROY A	WEIGHT KRISTEN D	121 MAPLE ST	STOW	MA	01775	49304	416
000R-2 0023-7	127 MAPLE ST	MARHAFFER KEITH F	MARHAFFER SHAUNA D	127 MAPLE STREET	STOW	MA	01775	66309	584
000R-3 000024	104 MAPLE ST	YANNONI FAMILY NOMINEE TRUS	PAUL G & SANDI YANNONI TRUST	104 MAPLE STREET	STOW	MA	01775	49258	108
000R-3 000025	110 MAPLE ST	LOMBARDO LEANNE M	LOMBARDO WILLIAM F II	110 MAPLE ST	STOW	MA	01775	52425	500
000R-3 000026	0 MAPLE ST	TOWN OF STOW	KETTLE MONUMENT	TOWN HALL	STOW	MA	01775	1657	36
000R-3 000027	116 MAPLE ST	MILLER DANA A	GAIL A MACKENZIE	116 MAPLE STREET	STOW	MA	01775	22836	90
000R-3 00027A	114 MAPLE ST	FULFORD, ADAM	FULFORD, LESLEY A.	114 MAPLE ST	STOW	MA	01775	17931	135
000R-3 0023-2	94 MAPLE ST	NIELSEN, NORMAN A. & DEBORAH	NIELSEN FAMILY 2021 REALTY TR	94 MAPLE ST	STOW	MA	01775	31445	513

Certified by the Stow Board of Assessors:

Handwritten signature

Date Certified or Re-Certified:

Handwritten date: 3/8/24

Conservation



Abbreviated Notice of Resource Area Delineation

0 Maple Street
Map R-3, Lots 28-17C and 28-18C
Stow, Massachusetts

March 12, 2024

1. Introduction

On behalf of the Applicant, Northeast Venture Group, LEC Environmental Consultants, Inc., (LEC) is filing the enclosed *Abbreviated Notice of Resource Area Delineation* (ANRAD) Application to confirm the boundaries of jurisdictional Wetland Resource Areas associated with a property known as 0 Maple Street in Stow. The ANRAD Application and associated wetland boundary determinations have been completed in accordance with the *Massachusetts Wetlands Protection Act* (M.G.L. c. 131, § 40, the *Act*) and its implementing Regulations (310 CMR 10.00, the *Act Regulations*) and the *Town of Stow Wetlands Protection Bylaw* (Article 9, the *Bylaw*) and its implementing *Wetlands Protection Regulations* (the *Bylaw Regulations*). A plan titled *Existing Conditions Plan*, prepared by Dillis & Roy, dated March 1, 2024 (*ANRAD Plan*, Appendix C) depicts the delineated boundaries of Bordering Vegetated Wetlands (BVW).

This report provides a General Site Description, LEC's Wetland Boundary Determination Methodology, and a description of the Wetland Resource Areas.

2. General Site Description

The 3.0± acre site is located to the east of Maple Street, south of Stiles Farm Road and north of Kettell Plain Road. Residential development borders the property to the north, east, and west, while an undeveloped forested property borders to the south (Appendix A, Figures 1 & 2).

The site is undeveloped, and contains a mature deciduous forest cover type, with a tree canopy dominated by eastern white pine (*Pinus strobus*), northern red oak (*Quercus rubra*), and black birch (*Betula lenta*), with smaller amounts of red maple (*Acer rubrum*).

A non-jurisdictional drainage swale is located in the northeastern portions of the property, south of and parallel to Stiles Farm Road. The swale collects surface runoff from Stiles Farm Road and conveys it toward the BVW, upgradient of wetland flags #A3 and A4. Although the swale contained pockets of standing water and/or saturated soils during field evaluations, it contains non-hydric soils and the dominant vegetation species present is partridgeberry (*Mitchella repens*), which is an upland (FACU) indicator species.

LEC inspected soil conditions throughout the uplands adjacent to the BVW boundary and observed a range of upland soil conditions. As a representative example, LEC observed a 2-inch thick, loam O horizon, underlain by a 6-inch-thick sandy loam topsoil (A horizon) with a soil matrix color of 10YR 3/2. The A horizon was underlain by a 6-inch-thick fine sandy loam subsoil (B horizon) with a soil matrix color of 10YR 4/4, rendering the observed soils within the uplands ‘non-hydric’ according to the *Field Indicators for Identifying Hydric Soils in New England* (Version 4, June 2020, the *Field Indicators Guide*).

2.1 Natural Heritage and Endangered Species Program Designation

According to the 15th Edition (August 1, 2021) of the Natural Heritage & Endangered Species Program (NHESP) Massachusetts Natural Heritage Atlas, the project site is not located within an Estimated Habitat of Rare Wildlife or Priority Habitat of Rare Species. No certified or Potential Vernal Pools are mapped within or near the site (Appendix A, Figure 2).

2.2 Floodplain Designation

According to the July 7, 2014 Federal Emergency Management Agency Flood Insurance Rate Map for Stow, Massachusetts (Map No: 25017C0341F), the property is located within Zone X [unshaded]: Areas determined to be outside the 0.2% annual chance floodplain (Appendix A, Figure 3).

3. Wetland Boundary Determination Methodology

LEC conducted site evaluations in August 2021 and January 2024 to determine the extent of Wetland Resource Areas located on or immediately adjacent to the site and to delineate the jurisdictional resource area boundaries.

The extent of Wetland Resource Areas was determined by observing existing plant communities, the presence or absence of hydric soils, and hydrologic indicators in accordance with the aforementioned statutes and as further defined in the Army Corps of Engineers *Wetland Delineation Manual* (Environmental Laboratory, 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (Version 2, January 2012); the *Massachusetts Handbook for Delineation of Bordering Vegetated Wetlands* (Second Edition, September 2022); the *Field Indicators Guide*; and the criteria established in 310 CMR 10.55.

Based on our observations and review of pertinent maps, LEC determined that the Wetland Resource Areas associated with the site include BVW.

The BVW boundary was demarcated in the field with blaze orange surveyor's flagging tape embossed with the words "LEC Resource Area Boundary" in bold, black print numbered A1 through A36. Massachusetts Department of Environmental Protection (MassDEP) BVW Field Data Forms for a representative transect are attached to support the wetland boundary determination (Appendix B).

LEC flagging stations were surveyed by Dillis & Roy and are depicted on the *ANRAD Plan* (Appendix C). A brief description of the Wetland Resource Areas is provided below.

3.1 **Plant Species Identification**

LEC identified plant species comprising 5% or more of the vegetative cover along the BVW boundaries. Identifications were made to the species level when morphologically possible and were used along with other hydrologic indicators to define the BVW boundaries in accordance with definitions and criteria in 310 CMR 10.55(2).

3.1.1 **Identification of Wetland Indicator Species**

The regional wetland indicator status for identified plant species was obtained from the classification system described in the *National List of Plant Species that Occur in Wetlands: Massachusetts* (On-line 2015 - <http://rsgisias.crrel.usace.army.mil/NWPL> ALSO: Northcentral and Northeast 2014 Regional Wetland Plant List, Lichvar, R.W., M. Butterwick, N.C. Melvin, and W.N. Kirchner, *Phytoneuron* 2014-41: 1-42). This classification system divides plant species into five categories and identifies the wetland indicator status based on the frequency of their occurrence in wetland habitat. These include, in order of lowest to highest frequency within wetlands: Upland (UPL), Facultative Upland (FACU), Facultative (FAC), Facultative Wetland (FACW), and Obligate (OBL).

Plant species with a FAC, FACW or OBL wetland indicator status occur in wetlands more than 50% of the time and are considered "wetland indicator plants." Plant species with a FACU and UPL wetland indicator status, and those not contained within the list occur in wetlands less than 50% of the time, are not considered "wetland indicator plants." This system of classification has been adopted by the Department of Environmental Protection (DEP) as the definitive source regarding the indicator status of wetland plants.

3.1.2 **Measurement of Relative Abundance**

The relative abundance or percent cover of each plant species occurring along the BVW boundaries was determined visually. When doing so, the percent cover of each plant species was estimated using total aerial distribution within the plot.

3.1.3 **Measurement of Vegetative Distribution and Density**

The relative pattern of plant distribution within each vegetative layer (trees, shrubs/sapling, vines, and herbs) was visually determined. Plant species within each layer were determined to occur as single plants, patches or clusters, entanglements, or as the dominant plant species. In addition, LEC observed the relative plant density between each vegetation layer, noting whether the sample layer is densely vegetated, contains moderately dense vegetation, is variably dense within the sample layer, or is sparsely vegetated.

3.2 **Evaluation of Edaphic Characteristics**

3.2.1 **General Soil Analysis**

Prior to conducting the site evaluation, LEC reviewed United States Geologic Survey (USGS) Topographic Maps and NRCS Soil Survey Maps, as noted above. The purpose of this review was to become familiar with the site's general soil characteristics. During site reconnaissance, LEC determined the approximate location of the wetland boundaries using a hand-held auger and/or spade. LEC investigated soil conditions within these representative areas by evaluating soils to a depth of at least 24 inches, or refusal. The purpose of this investigation was to confirm and document the difference in soil conditions between the wetland and adjacent upland areas. Specifically, LEC analyzed soil horizon thickness and depth, soil texture, and soil color, noting the presence or absence of redoximorphic features in accordance with *U.S. Army Corps of Engineers, Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, 2012* and *Field Indicators for Identifying Hydric Soils in New England, June 2020*.

3.2.2 **Soil Horizon Thickness and Depth**

LEC noted the presence of all soil layers and horizons (e.g., O, A, E, B, and/or C) and their relative thickness and depth. The thickness of the O soil layer may be directly related to wetness, and is critical to the identification of a hydric soil. Specifically, histosols (organic soil layers measuring greater than 16 inches thick) and soils with a histic epipedon (an organic layer between 8 and 16 inches thick) always qualify as hydric

soils, provided the hydrology that created these soil conditions still exists and has not been altered. Although not directly related to wetness, the thickness of the A or A_p horizons is a function of the depth of plowing (many of New England's forests today were historically agricultural fields) and/or a function of erosion and deposition of organic matter. Interpreting redoximorphic features within the A or A_p horizons can be difficult given their relatively dark color. Redoximorphic features are best observed in the soil layers beneath the A or A_p horizons.

3.2.3

Soil Texture

Soil texture refers to the relative proportions of sand, silt, and clay particles in the soil. Although there are several standard systems for determining soil texture, LEC utilized the United States Department of Agriculture (USDA) system, because it is widely accepted and referred to in the *Field Indicators* guide referenced above. Specifically, LEC identified whether the soil is classified as sand, loamy sand, sandy loam, loam, silt loam, silty clay loam, or clay. LEC also estimated the relative proportion of organic matter within the topsoil to determine if the soil is classified as an organic soil. Differences in soil texture affect how water moves through the soil and the type of hydrologic indicators that form when hydric conditions are present during the growing season.

3.2.4

Soil Color

Using the Munsell® Soil Color Charts, LEC examined the hue, value, and chroma of the different soil horizon matrixes (dominant soil color) and redoximorphic features present. The purpose of examining the soil color within the A or A_p horizon is to determine whether these horizons are rich in organic material and meet the criteria for dark or very dark. This distinction refers to the relative amount of organic matter within the soil horizon and may indicate the presence of saturated conditions during the growing season.

Within the B and/or C horizons, the soil color and color patterns may indicate the movement of iron and/or other minerals within the soil. The movement and/or concentration of iron and other minerals, such as manganese, may indicate hydric conditions persist during the growing season. Specifically, a soil matrix color with a relatively low chroma (chroma 2 or less) and high value (value 4 or more) due to wetness is often defined as a depleted matrix - the iron and/or other minerals have been removed or depleted from the soil due to groundwater fluctuations, soil saturation, and reduction. A soil with a depleted matrix due to wetness within the upper 20 inches will likely constitute a hydric soil.

3.2.5

Redoximorphic Features

During the soil evaluation, LEC documented the presence or absence of redoximorphic features within the soil sample. Redoximorphic features are changes in soil color and/or texture that contrast from the matrix color and dominant soil texture and include redox depletions (formerly referred to as “low-chroma mottles”), redox concentrations (formerly referred to as “high-chroma mottles”), nodules, concretions, pore linings, and oxidized rhizospheres. Redoximorphic features form through the processes of reduction, translocation, and oxidation of Fe and Mn oxides when groundwater levels fluctuate near the soil surface. Commonly observed redoximorphic features include redox depletions, occurring when minerals in the soil are reduced or removed, and redox concentrations or soil masses, occurring when minerals accumulate. Less commonly observed redoximorphic features include nodules and concretions, which are hardened, cemented soil masses. Pore linings are localized areas of brightly colored soils located adjacent to a pore within the soil. Oxidized rhizospheres are a form of pore lining that occurs on the surface of live roots of certain plants.

4.**Wetland Resource Areas**

Wetland Resource Areas associated with the site include BVW. A description of this Wetland Resource Area is provided below.

4.1

Bordering Vegetated Wetland (BVW)

According to the *Act Regulations* [310 CMR 10.55(2)(a)], Bordering Vegetated Wetlands (BVW) are *freshwater wetlands which border on creeks, rivers, streams, ponds, and lakes where the soils are saturated and/or inundated such that they support a predominance of wetland indicator plants.*

BVW is not defined in the *Bylaw* or *Bylaw Regulations*.

The A-series BVW is a large, seasonally flooded forested wetland. Vegetation within the forested BVW consisted of a tree canopy of red maple, white pine (*Pinus strobus*), and yellow birch (*Betula allegheniensis*), with highbush blueberry (*Vaccinium corymbosum*), glossy false buckthorn (*Frangula alnus*), and winterberry (*Ilex verticillata*) shrubs, with cinnamon (*Osmunda cinnamomea*), royal (*O. spectabilis*) and sensitive ferns (*Onoclea sensibilis*).

LEC inspected soil conditions within the BVW using a hand-held, Dutch-style auger and observed an 8-inch thick, loam soil (O horizon) underlain by a depleted subsoil (B horizon) with a soil matrix color of 10YR 4/2, having a color of 10YR 4/6. The soil meets the Histic Epipedon (A2.) indicator for a hydric soil in accordance with the *Field Indicators Guide*. Massachusetts Department of Environmental Protection (MassDEP) BVW Field Data Forms, sampled in the vicinity of BVW flag # A25, are attached to support the wetland boundary determination (Appendix B). A 100-foot Buffer Zone (under the *Act* and *Bylaw*) is offset from the BVW boundaries. A 35-foot No Disturbance Zone is offset from the BVW boundaries under the *Bylaw Regulations*.

5. Summary

On behalf of the Applicant, David Corey of Northeast Venture Group, LEC is filing the enclosed ANRAD Application to confirm the boundaries of jurisdictional Wetland Resource Areas within 0 Maple Street in Stow. The ANRAD Application and associated wetland boundary determinations have been completed in accordance with the *Act* and its implementing *Act Regulations*, and the *Bylaw* and *Bylaw Regulations*. The delineated wetland boundaries are depicted on the included *ANRAD Plan*. MassDEP Field Delineation Forms are included herein to support the wetland delineation. The Applicant requests that the Commission issue an Order of Resource Area Delineation (ORAD) confirming the extent of Wetland Resource Areas located on the site and approving their boundaries as described and depicted herein.

Massachusetts Department of Environmental Protection, Division of Wetlands and Waterways 1995. *Massachusetts Handbook for Delineation of Bordering Vegetated Wetlands (Second Edition, September 2022)*.

MA Division of Fisheries & Wildlife, Natural Heritage & Endangered Species Program. *Guidelines for the Certification of Vernal Pool Habitat* (March 2009).

Massachusetts Natural Heritage and Endangered Species Program Atlas of Estimated Habitat of State-listed Rare Wetlands Wildlife. Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries & Wildlife, Route 135, Westborough, MA 01581, www.state.ma.us/dfwele/dfw. August 2017.

Massachusetts Wetlands Protection Act (M.G.L. c. 131, §. 40), www.state.ma.us/dep
Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00 & 310 CMR 10.58 (2) (a) 1.d.), www.state.ma.us/dep

National Flood Insurance Program, Federal Emergency Management Agency Flood Insurance Rate Map, Stow, Massachusetts (Map No: 25017C0341F), July 7, 2014.

New England Hydric Soils Technical Committee, *Field Indicators for Identifying Hydric Soils in New England*, Version 4, June 2020.

NRCS Web Soil Survey. <http://websoilsurvey.nrcs.usda.gov/app/websoilsurvey.aspx>

Town of Stow Wetlands Protection Bylaw (Article 9), and its implementing *Wetlands Protection Regulations*.

Appendix A

Locus Maps

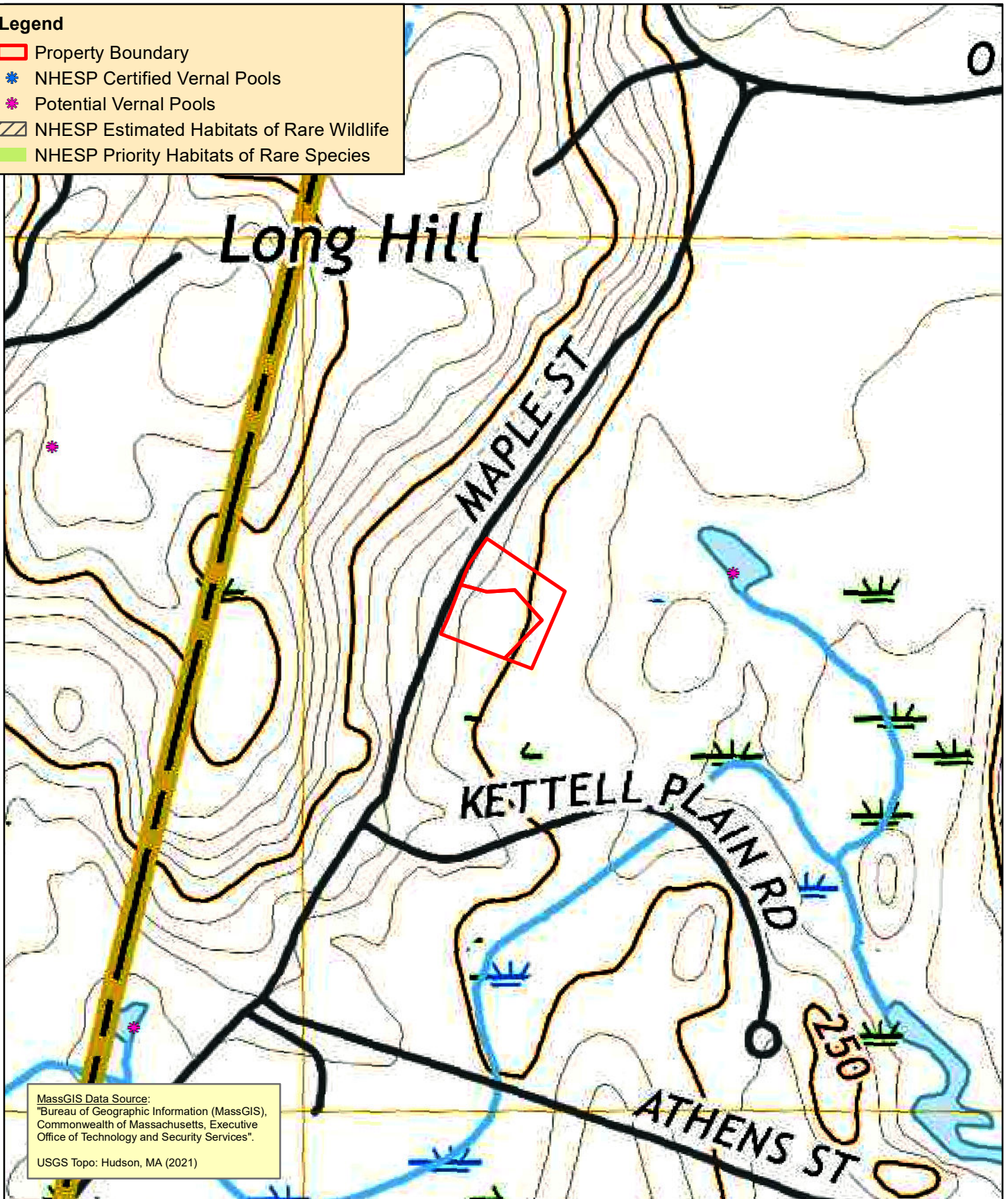
Figure 1: USGS Topographic Map

Figure 2: MassGIS Orthophoto & NHESP Map

Figure 3: FEMA FIRMette

Legend

- Property Boundary
- NHESP Certified Vernal Pools
- Potential Vernal Pools
- NHESP Estimated Habitats of Rare Wildlife
- NHESP Priority Habitats of Rare Species



MassGIS Data Source:
"Bureau of Geographic Information (MassGIS),
Commonwealth of Massachusetts, Executive
Office of Technology and Security Services".

USGS Topo: Hudson, MA (2021)



LEC Environmental Consultants, Inc.
Wakefield, MA 781.245.2500
www.lecenvironmental.com

Figure 1 USGS Topographic Map

0 Maple Street
Stow, MA

Date: 2/12/2024

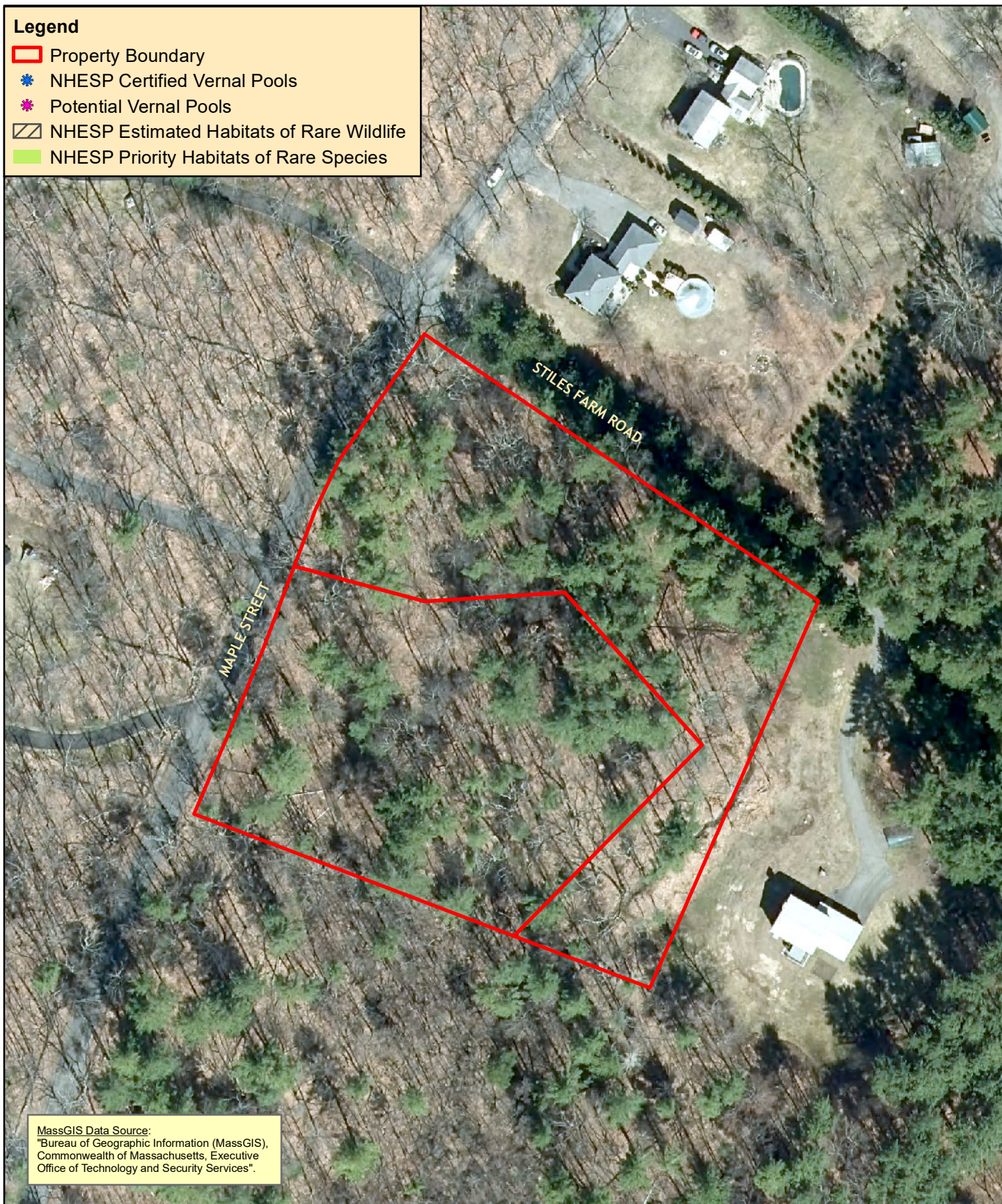


1 inch = 500 feet

0 125 250 500 Feet

Legend

- ▭ Property Boundary
- ✱ NHESP Certified Vernal Pools
- ✱ Potential Vernal Pools
- ▨ NHESP Estimated Habitats of Rare Wildlife
- ▭ NHESP Priority Habitats of Rare Species



MassGIS Data Source:
"Bureau of Geographic Information (MassGIS),
Commonwealth of Massachusetts, Executive
Office of Technology and Security Services".

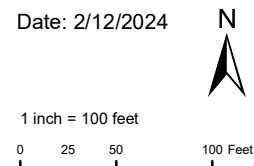


LEC Environmental Consultants, Inc.
Wakefield, MA 781.245.2500
www.lecenvironmental.com

Figure 2 Orthophoto Map

0 Maple Street
Stow, MA

Date: 2/12/2024



1 inch = 100 feet

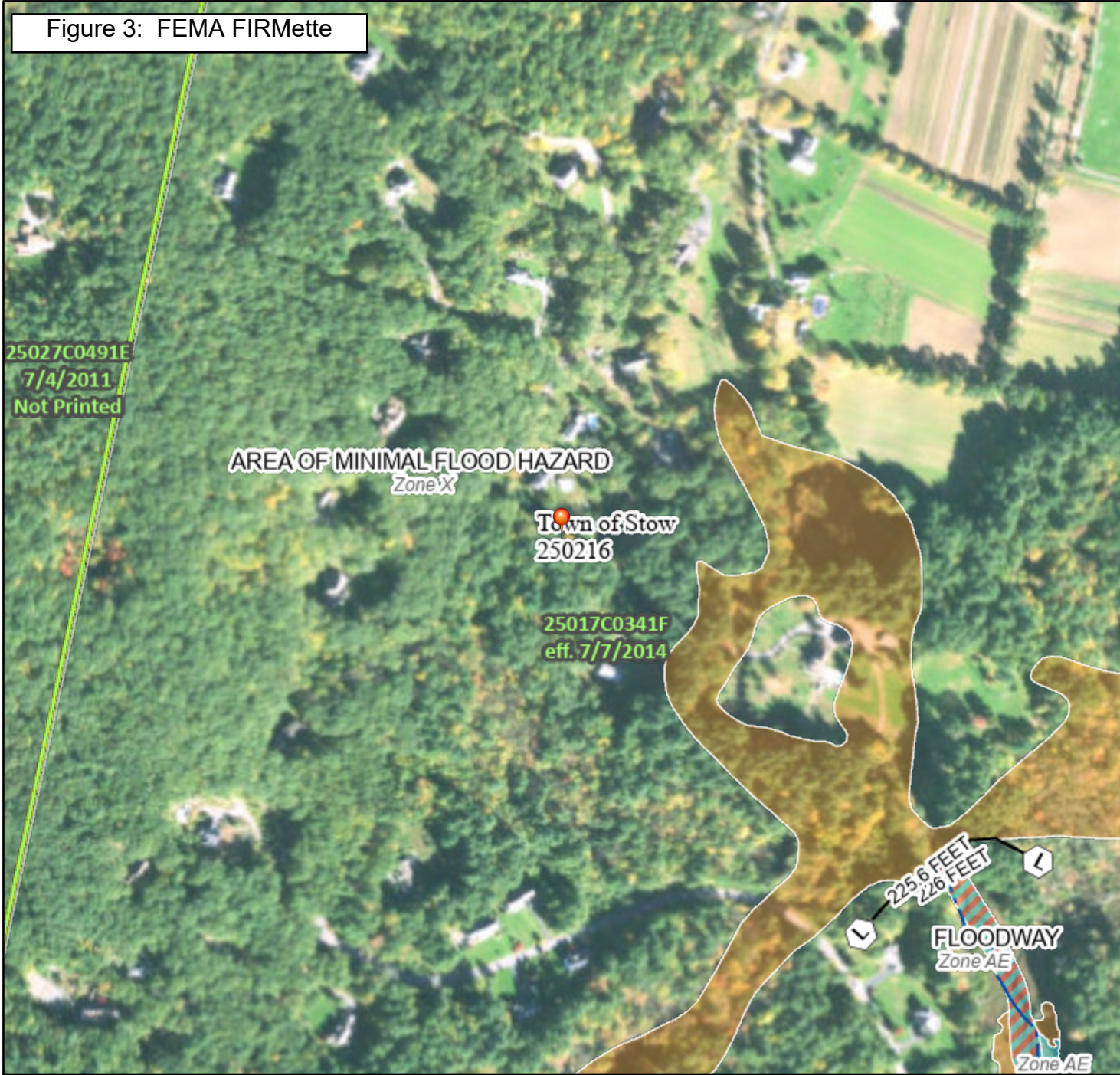
0 25 50 100 Feet

National Flood Hazard Layer FIRMette



71°33'17"W 42°26'N

Figure 3: FEMA FIRMette



Legend

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

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D

OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D

GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall

OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance
		17.5 Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature

MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/11/2024 at 1:20 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

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

Basemap Imagery Source: USGS National Map 2023

Appendix B

MassDEP Bordering Vegetated Wetland Field Data Forms

BORDERING VEGETATED WETLAND DETERMINATION FORM

Project/Site: 0 Maple Street City/Town: Stow Sampling Date: August 5, 2021
 Applicant/Owner: Northeast Venture Group Sampling Point or Zone: upgradient of WF A-25
 Investigator(s): Dan Wells Latitude / Longitude: not recorded
 Soil Map Unit Name: Woodbridge Fine Sandy Loam NWI or DEP Classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? (If yes, explain in Remarks)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If yes, explain in Remarks)

SUMMARY OF FINDINGS – Attach site map and photograph log showing sampling locations, transects, etc.

Wetland vegetation criterion met?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soils criterion met?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Wetlands hydrology present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks, Photo Details, Flagging, etc.:			

HYDROLOGY

Field Observations:		
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches) _____
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches) _____
Saturation Present (including capillary fringe)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches) _____
Wetland Hydrology Indicators		
Reliable Indicators of Wetlands Hydrology	Indicators that can be Reliable with Proper Interpretation	Indicators of the Influence of Water
<input type="checkbox"/> Water-stained leaves <input type="checkbox"/> Evidence of aquatic fauna <input type="checkbox"/> Iron deposits <input type="checkbox"/> Algal mats or crusts <input type="checkbox"/> Oxidized rhizospheres/pore linings <input type="checkbox"/> Thin muck surfaces <input type="checkbox"/> Plants with air-filled tissue (aerenchyma) <input type="checkbox"/> Plants with polymorphic leaves <input type="checkbox"/> Plants with floating leaves <input type="checkbox"/> Hydrogen sulfide odor	<input type="checkbox"/> Hydrological records <input type="checkbox"/> Free water in a soil test hole <input type="checkbox"/> Saturated soil <input type="checkbox"/> Water marks <input type="checkbox"/> Moss trim lines <input type="checkbox"/> Presence of reduced iron <input type="checkbox"/> Woody plants with adventitious roots <input type="checkbox"/> Trees with shallow root systems <input type="checkbox"/> Woody plants with enlarged lenticels	<input type="checkbox"/> Direct observation of inundation <input type="checkbox"/> Drainage patterns <input type="checkbox"/> Drift lines <input type="checkbox"/> Scoured areas <input type="checkbox"/> Sediment deposits <input type="checkbox"/> Surface soil cracks <input type="checkbox"/> Sparsely vegetated concave surface <input type="checkbox"/> Microtopographic relief <input type="checkbox"/> Geographic position (depression, toe of slope, fringing lowland)
Remarks (describe recorded data from stream gauge, monitoring well, aerial photos, previous inspections, if available):		

This form is only for BVW delineations. Other wetland resource areas may be present and should be delineated according to the applicable regulatory provisions.

VEGETATION – Use both common and scientific names of plants.

<u>Tree Stratum</u>		Plot size <u>30' radius</u>		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indicator? (yes/no)
Common name	Scientific name						
1. Red oak	Quercus rubra	FACU	63.0	Yes	No		
2. White pine	Pinus strobus	FACU	20.5	Yes	No		
3.							
4.							
5.							
6.							
7.							
8.							
9.							
				83.5 = Total Cover			
<u>Shrub/Sapling Stratum</u>		Plot size <u>15' radius</u>		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indicator? (yes/no)
Common name	Scientific name						
1. Black birch	Betula lenta	FACU	38.0	Yes	No		
2. White ash	Fraxinus americana	FACU	3.0	No	No		
3. Red maple	Acer rubrum	FAC	3.0	No	Yes		
4.							
5.							
6.							
7.							
8.							
9.							
				44.0 = Total Cover			
<u>Herb Stratum</u>		Plot size <u>5' radius</u>		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indicator? (yes/no)
Common name	Scientific name						
1. Lowbush blueberry	Vaccinium angustifolium	FACU	3.0	Yes	No		
2. Partridgeberry	Mitchella repens	FACU	3.0	Yes	No		
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
				6.0 = Total Cover			

VEGETATION – continued.

<u>Woody Vine Stratum</u>		Plot size <u>none</u>			
		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indicator? (yes/no)
Common name		Scientific name			
1.					
2.					
3.					
4.					
<u>0.0</u> = Total Cover					

Rapid Test: Do all dominant species have an indicator status of OBL or FACW? Yes <input type="checkbox"/> No <input type="checkbox"/>				
Dominance Test:	Number of dominant species	Number of dominant species that are wetland indicator plants		Do wetland indicator plants make up ≥ 50% of dominant plant species? Yes <input type="checkbox"/> No <input type="checkbox"/>
Prevalence Index:		Total % Cover (all strata)	Multiply by:	Result
	OBL species		X 1	= 0.00
	FACW species		X 2	= 0.00
	FAC species		X 3	= 0.00
	FACU species		X 4	= 0.00
	UPL species		X 5	= 0.00
	Column Totals	(A) 0		(B) 0
Prevalence Index		B/A = 0.00		Is the Prevalence Index ≤ 3.0? Yes <input type="checkbox"/> No <input type="checkbox"/>
Wetland vegetation criterion met? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				

Definitions of Vegetation Strata

- Tree - Woody plants 3 in. (7.62 cm) or more in diameter at breast height (DBH), regardless of height
- Shrub / Sapling - Woody plants less than 3 in. (7.62 cm) DBH and greater than or equal to 3.3 ft. (1 m) tall
- Herb - All herbaceous (non-woody plants, regardless of size, and woody plants less than 3.3 ft. (1 m) tall
- Woody vines - All woody vines greater than 3.3 ft. (1 m) in height

Cover Ranges	
Range	Midpoint
1-5 %	3.0 %
6-15 %	10.5 %
15-25 %	20.5 %
26-50 %	38.0 %
51-75 %	63.0 %
76-95 %	85.5 %
96-100 %	98.0 %

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Location ²		
0-2	10YR 2/1						loam	
2-8	10YR 3/2						sandy loam	
8-14	10YR 4/4						fine sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators (Check all that apply)				Indicators for Problematic Hydric Soils	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8)	<input type="checkbox"/> 2 cm Muck (A10)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Iron-Manganese Masses (F12)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Mesic Spodic (A17)			
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)				
<input type="checkbox"/> Sandy Mucky Mineral (S1)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)					
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Other (Include Explanation in Remarks)			
<input type="checkbox"/> Stripped Matrix (S6)					
<input type="checkbox"/> Dark Surface (S7)					

Restrictive Layer (if observed) Type: _____ Depth (inches): _____

Remarks:

Hydric Soils criterion met? Yes ☐ No ☒

BORDERING VEGETATED WETLAND DETERMINATION FORM

Project/Site: 0 Maple Street City/Town: Stow Sampling Date: August 5, 2021
 Applicant/Owner: Northeast Venture Group Sampling Point or Zone: downgradient of WF A-25
 Investigator(s): Dan Wells Latitude / Longitude: not recorded
 Soil Map Unit Name: Ridgebury fine sandy loam, 3-8% slopes, extremely stony NWI or DEP Classification: Wooded Swamp Deciduous
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? (If yes, explain in Remarks)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If yes, explain in Remarks)

SUMMARY OF FINDINGS – Attach site map and photograph log showing sampling locations, transects, etc.

Wetland vegetation criterion met?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soils criterion met?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetlands hydrology present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks, Photo Details, Flagging, etc.:			

HYDROLOGY

Field Observations:		
Surface Water Present?	Yes <input type="checkbox"/>	No <input type="checkbox"/> Depth (inches) _____
Water Table Present?	Yes <input type="checkbox"/>	No <input type="checkbox"/> Depth (inches) _____
Saturation Present (including capillary fringe)?	Yes <input type="checkbox"/>	No <input type="checkbox"/> Depth (inches) _____
Wetland Hydrology Indicators		
Reliable Indicators of Wetlands Hydrology	Indicators that can be Reliable with Proper Interpretation	Indicators of the Influence of Water
<input checked="" type="checkbox"/> Water-stained leaves <input type="checkbox"/> Evidence of aquatic fauna <input type="checkbox"/> Iron deposits <input type="checkbox"/> Algal mats or crusts <input type="checkbox"/> Oxidized rhizospheres/pore linings <input type="checkbox"/> Thin muck surfaces <input type="checkbox"/> Plants with air-filled tissue (aerenchyma) <input type="checkbox"/> Plants with polymorphic leaves <input type="checkbox"/> Plants with floating leaves <input type="checkbox"/> Hydrogen sulfide odor	<input type="checkbox"/> Hydrological records <input type="checkbox"/> Free water in a soil test hole <input type="checkbox"/> Saturated soil <input checked="" type="checkbox"/> Water marks <input type="checkbox"/> Moss trim lines <input type="checkbox"/> Presence of reduced iron <input type="checkbox"/> Woody plants with adventitious roots <input type="checkbox"/> Trees with shallow root systems <input type="checkbox"/> Woody plants with enlarged lenticels	<input type="checkbox"/> Direct observation of inundation <input checked="" type="checkbox"/> Drainage patterns <input type="checkbox"/> Drift lines <input type="checkbox"/> Scoured areas <input type="checkbox"/> Sediment deposits <input type="checkbox"/> Surface soil cracks <input type="checkbox"/> Sparsely vegetated concave surface <input type="checkbox"/> Microtopographic relief <input checked="" type="checkbox"/> Geographic position (depression, toe of slope, fringing lowland)
Remarks (describe recorded data from stream gauge, monitoring well, aerial photos, previous inspections, if available):		

This form is only for BVW delineations. Other wetland resource areas may be present and should be delineated according to the applicable regulatory provisions.

VEGETATION – Use both common and scientific names of plants.

<u>Tree Stratum</u>		Plot size <u>30' radius</u>		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indicator? (yes/no)
Common name	Scientific name						
1. Red maple	Acer rubrum	FAC	38.0	Yes	Yes		
2. Black birch	Betula lenta	FACU	20.5	Yes	No		
3.							
4.							
5.							
6.							
7.							
8.							
9.							
				<u>58.5</u> = Total Cover			
<u>Shrub/Sapling Stratum</u>		Plot size <u>15' radius</u>		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indicator? (yes/no)
Common name	Scientific name						
1. Red maple	Acer rubrum	FAC	20.5	Yes	Yes		
2. White ash	Fraxinus americana	FACU	20.5	Yes	No		
3.							
4.							
5.							
6.							
7.							
8.							
9.							
				<u>41.0</u> = Total Cover			
<u>Herb Stratum</u>		Plot size <u>5' radius</u>		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indicator? (yes/no)
Common name	Scientific name						
1. Royal fern	Osmunda spectabilis	OBL	3.0	Yes	Yes		
2. Cinnamon fern	Osmunda cinnamomea	FACW	3.0	Yes	Yes		
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
				<u>6.0</u> = Total Cover			

VEGETATION – continued.

<u>Woody Vine Stratum</u>		Plot size <u>none</u>			
		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indicator? (yes/no)
Common name	Scientific name				
1.					
2.					
3.					
4.					
		<u>0.0</u> = Total Cover			

Rapid Test: Do all dominant species have an indicator status of OBL or FACW? Yes <input type="checkbox"/> No <input type="checkbox"/>				
Dominance Test:	Number of dominant species	Number of dominant species that are wetland indicator plants		Do wetland indicator plants make up ≥ 50% of dominant plant species? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
	6	4		
Prevalence Index:		Total % Cover (all strata)	Multiply by:	Result
	OBL species		X 1	= 0.00
	FACW species		X 2	= 0.00
	FAC species		X 3	= 0.00
	FACU species		X 4	= 0.00
	UPL species		X 5	= 0.00
	Column Totals	(A) 0		(B) 0
Prevalence Index		B/A = 0.00		Is the Prevalence Index ≤ 3.0? Yes <input type="checkbox"/> No <input type="checkbox"/>
Wetland vegetation criterion met? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				

Definitions of Vegetation Strata

- Tree - Woody plants 3 in. (7.62 cm) or more in diameter at breast height (DBH), regardless of height
- Shrub / Sapling - Woody plants less than 3 in. (7.62 cm) DBH and greater than or equal to 3.3 ft. (1 m) tall
- Herb - All herbaceous (non-woody plants, regardless of size, and woody plants less than 3.3 ft. (1 m) tall
- Woody vines - All woody vines greater than 3.3 ft. (1 m) in height

Cover Ranges	
Range	Midpoint
1-5 %	3.0 %
6-15 %	10.5 %
15-25 %	20.5 %
26-50 %	38.0 %
51-75 %	63.0 %
76-95 %	85.5 %
96-100 %	98.0 %

SOIL

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators (Check all that apply)		Indicators for Problematic Hydric Soils
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8)	<input type="checkbox"/> 2 cm Muck (A10)
<input checked="" type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Mesic Spodic (A17)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Other (Include Explanation in Remarks)
<input type="checkbox"/> Stripped Matrix (S6)		
<input type="checkbox"/> Dark Surface (S7)		

Restrictive Layer (if observed) Type: _____ Depth (inches): _____

Remarks:

Remarks:

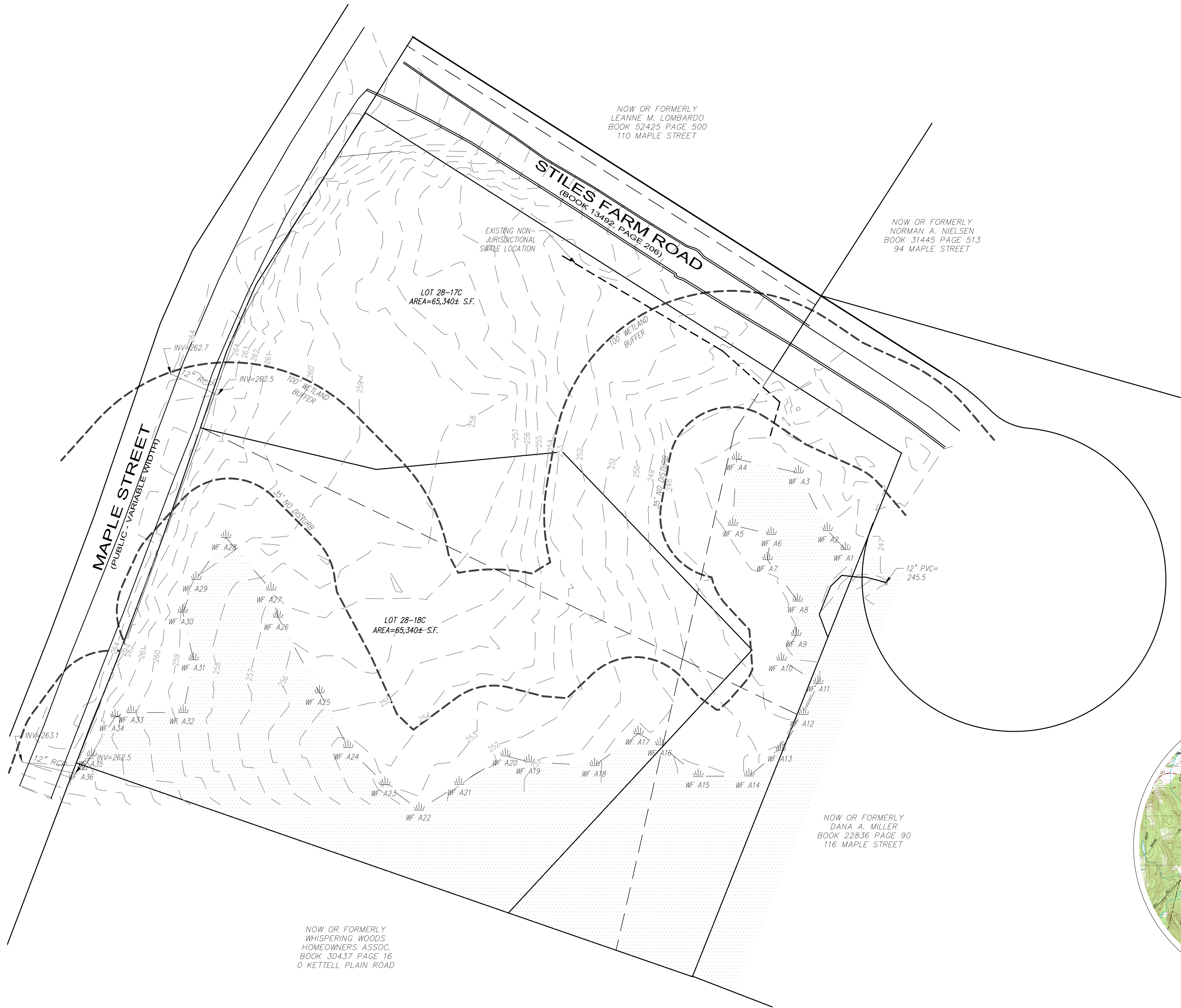
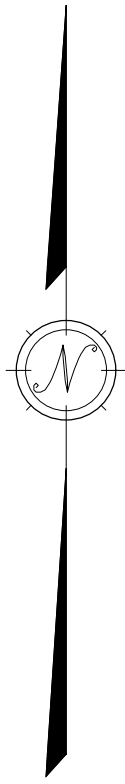
Hydric Soils criterion met? Yes ☒ No ☐

Appendix C

Existing Conditions Plan (ANRAD Plan)

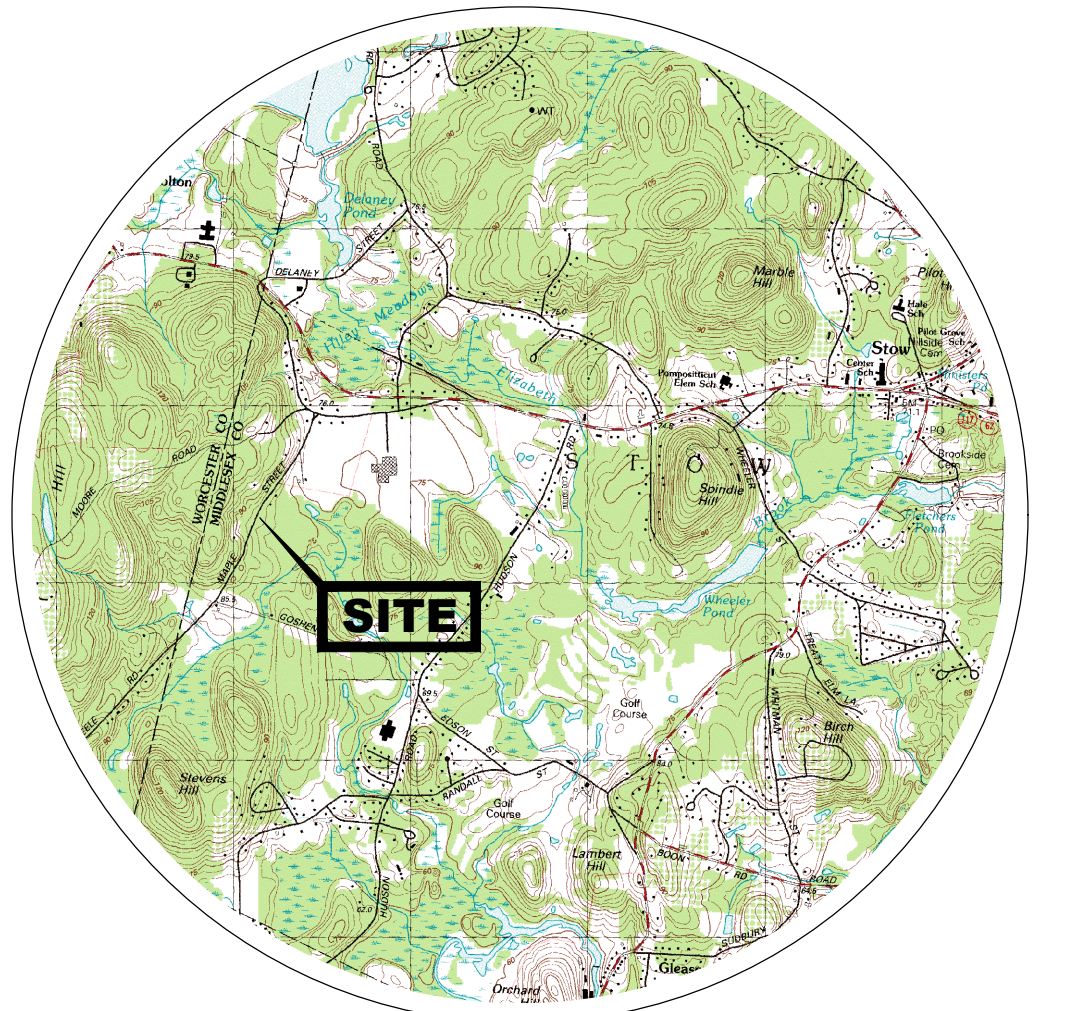
prepared by Dillis & Roy

dated March 1, 2024



GENERAL NOTES:

1. TOPOGRAPHIC INFORMATION SHOWN ON THIS PLAN WAS PREPARED BY MERIDIAN ASSOCIATES BASED ON AN ON-THE-GROUND SURVEY PERFORMED IN AUGUST OF 2023.
2. PROPERTY LINE INFORMATION SHOWN ON THIS PLAN WAS PREPARED BY MERIDIAN ASSOCIATES . BASED ON AN ON-THE-GROUND SURVEY PERFORMED IN SEPTEMBER 2022 AND RECORDED PLANS AND DEEDS AND SUPPLEMENTED BY TOPOLOGICAL SURVEY PERFORMED BY DILLIS & ROY CIVIL DESIGN GROUP, INC IN NOVEMBER OF 2023.
3. ELEVATIONS REFER TO NAVD88.
4. WETLAND RESOURCE AREAS WERE FIELD DELINEATED BY LEC ENVIRONMENTAL CONSULTANTS INC, IN JULY 2021 AND JANUARY 2024.
5. EXISTING UTILITIES SHOWN ON THIS PLAN WERE COMPILED FROM FIELD MEASUREMENT AND RECORD PLANS. THE UTILITIES SHOWN ON THIS PLAN ARE FOR REFERENCE ONLY AND SHOULD NOT BE ASSUMED TO BE CORRECT NOR SHOULD IT BE ASSUMED THAT THE UTILITIES SHOWN ARE THE ONLY UTILITIES LOCATED ON OR NEAR THE SITE. THE CONTRACTOR SHALL CALL DIG SAFE 1-888-DIG-SAFE PRIOR TO CONSTRUCTION IN ACCORDANCE WITH STATE LAWS.



LOCUS MAP

NOT TO SCALE



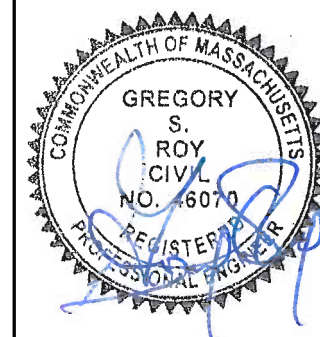
CIVIL ENGINEERS LAND SURVEYORS WETLAND CONSULTANTS
CORPORATE OFFICE: CONCORD OFFICE:
1 MAIN STREET, SUITE 1 978-779-6091 100 MAIN ST., SUITE 310
LUNENBURG, MA 01462 www.dillisandroy.com CONCORD, MA 01742

OWNER:
NORTHEAST VENTURE GROUP
& REALTY LLC
220 NORTH MAIN STREET
NATICK, MA 01760

APPLICANT:
NORTHEAST VENTURE GROUP
& REALTY LLC
220 NORTH MAIN STREET
NATICK, MA 01760

SCALE:

COPYRIGHT DILLIS & ROY CIVIL DESIGN GROUP, INC 2024



DATE: 3/1/24
DESIGN BY: GSR
DRAWN BY: MMK
CHECKED BY: GSR

EXISTING CONDITIONS PLAN
MAPLE STREET
STOW, MASSACHUSETTES

NO.	DATE	DESCRIPTION	BY

JOB NO. 7799
DRAWING NO. 7799-EXIST
SHEET NO. 1 OF 1