



Conservation Commission AGENDA

Thursday, July 23, 2026 - 6:00 PM

Regular Meeting
Agawam Senior Center
954 Main Street
Agawam, MA 01001

A. Conservation Commission

- 1) Request for Determination Cont.-130 South Westfield Street-Tirone
- 2) Public Hearing Cont.-Notice of Intent-365 Main Street-O'Malley
- 3) Approval of Minutes-July 9, 2026
- 4) Correspondence and Complaints

REQUEST FOR DETERMINATION OF APPLICABILITY

Submitted To:

Town Of Agawam Conservation Commission

c/o Henry A. Kozloski, Chairperson

1000 Suffield Steet, Agawam, MA 01001

Project Location:

Parcel E8-1-8

130 South Westfield Rd

Feeding Hills, MA 01030

SALVINI ASSOCIATES LLC

Land Surveyors

Wetland Scientists

Land Use Consultants

Office Locations:

585 Route 20
P. O. Box 742
Chester, MA 01011
(413) 354-1032

www.SALVINIassociates.com

ITEM

SECTION

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Figure No. 1 – Assessors Map

Figure No. 2 – FEMA Flood Map

Figure No. 3 – Natural Heritage

Figure No. 4 – Owner’s Deed

Figure No. 5 – Site Plan

May 4, 2026

SALVINI Associates, LLC

Land Surveyors & Land Use Consultants

Surveying Western Massachusetts Since 1995

May 4, 2026

Agawam Conservation Commission
1000 Suffield Street
Agawam, MA 01001

**RE: Request for Determination of Applicability (RDA)
Parcel E8-1-8, 130 South Westfield St., Agawam, MA**

Dear Chairperson, Henry A. Kozloski:

On behalf of Giuseppe Tirone, Salvini Associates, LLC is submitting this Request for Determination of Applicability (RDA) for approval of delineated bordering and isolated vegetated wetlands on Parcel E8-1-8, 130 South Westfield Street in Feeding Hills. Direct access to the site is easiest from either Sunset Terrace or Hamilton Circle termini.

Enclosed please find the original and two copies of the RDA. As requested, we have emailed a pdf copy of the complete application submittal to your office. The completed application package has also been electronically filed with the Western Regional Office of the Massachusetts Department of Environmental Protection.

We look forward to presenting this RDA at the Commission's May 12 meeting. If you have any questions regarding this application or would like to schedule a site visit, please do not hesitate to contact me at email:steves@SALVINIassociates.com or (413)354-1032.

SALVINI Associates, LLC



Stephen A. Salvini
Professional Land Surveyor

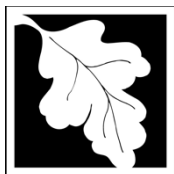
CHESTER
(413) 354-1032

Office Locations

WESTFIELD
(413) 568-1032

Website: www.SALVINIassociates.com

Section 2 Request for Determination of Applicability



Massachusetts Department of Environmental Protection
Bureau of Water Resources - Wetlands

WPA Form 1- Request for Determination of Applicability

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

Agawam
Municipality

A. General Information

Important:

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



1. Applicant:

Joseph

First Name

Tirone

Last Name

36 Allison Lane

Address

Feeding Hills

City/Town

MA

State

01030

Zip Code

(413)330-8722

Phone Number

jtirone@comcast.net

Email Address

2. Property Owner (if different from Applicant):

First Name

Last Name

Address

City/Town

State

Zip Code

Phone Number

Email Address (if known)

3. Representative (if any)

Jeff

First Name

Smith

Last Name

Company Name

585 Route 20

Address

Chester

City/Town

MA

State

01011

Zip Code

413-354-1032

Phone Number

jeffs@salviniassociates.com

Email Address (if known)

B. Project Description

1. a. Project Location (use maps and plans to identify the location of the area subject to this request):

130 South Westfield Street

Street Address

Agawam - Feeding Hills

City/Town

42.06237

Latitude (Decimal Degrees Format with 5 digits after decimal e.g. XX.XXXXX)

72.680413

Longitude (Decimal Degrees Format with 5 digits after decimal e.g. -XX.XXXXX)

E8

Assessors' Map Number

1-8

Assessors' Lot/Parcel Number

b. Area Description (use additional paper, if necessary):

Deciduous wood lot previously used agriculturally.

c. Plan and/or Map Reference(s): (use additional paper if necessary)

Survey For Edwin L Cook, Scale:1"=80', Feeding Hills, MA, James J Elasmarr

Title

10/19/1972

Date

Title

Date

[How to find Latitude and Longitude](#)

[and how to convert to decimal degrees](#)



Massachusetts Department of Environmental Protection

Bureau of Water Resources - Wetlands

WPA Form 1- Request for Determination of Applicability

Agawam

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

Municipality

B. Project Description (cont.)

2. a. Activity/Work Description (use additional paper and/or provide plan(s) of Activity, if necessary):

No proposed work.

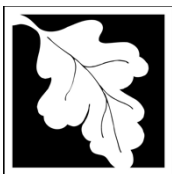
- b. Identify provisions of the Wetlands Protection Act or regulations which may exempt the applicant from having to file a Notice of Intent for all or part of the described work (use additional paper, if necessary).

N/A

3. a. If this application is a Request for Determination of Scope of Alternatives for work in the Riverfront Area, indicate the one classification below that best describes the project.

- ☐ Single family house on a lot recorded on or before 8/1/96
- ☐ Single family house on a lot recorded after 8/1/96
- ☐ Expansion of an existing structure on a lot recorded after 8/1/96
- ☐ Project, other than a single-family house or public project, where the applicant owned the lot before 8/7/96
- ☐ New agriculture or aquaculture project
- ☐ Public project where funds were appropriated prior to 8/7/96
- ☐ Project on a lot shown on an approved, definitive subdivision plan where there is a recorded deed restriction limiting total alteration of the Riverfront Area for the entire subdivision
- ☐ Residential subdivision; institutional, industrial, or commercial project
- ☐ Municipal project
- ☐ District, county, state, or federal government project
- ☐ Project required to evaluate off-site alternatives in more than one municipality in an Environmental Impact Report under MEPA or in an alternatives analysis pursuant to an application for a 404 permit from the U.S. Army Corps of Engineers or 401 Water Quality Certification from the Department of Environmental Protection.

- b. Provide evidence (e.g., record of date subdivision lot was recorded) supporting the classification above (use additional paper and/or attach appropriate documents, if necessary.)



Massachusetts Department of Environmental Protection
Bureau of Water Resources - Wetlands

WPA Form 1- Request for Determination of Applicability

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

Agawam
Municipality

C. Determinations

1. I request the Agawam make the following determination(s). Check any that apply:
Conservation Commission

- ☐ a. whether the **area** depicted on plan(s) and/or map(s) referenced above is an area subject to jurisdiction of the Wetlands Protection Act.
- ☒ b. whether the **boundaries** of resource area(s) depicted on plan(s) and/or map(s) referenced above are accurately delineated.
- ☐ c. whether the **Activities** depicted on plan(s) referenced above is subject to the Wetlands Protection Act and its regulations.
- ☒ d. whether the area and/or Activities depicted on plan(s) referenced above is subject to the jurisdiction of any **municipal wetlands' ordinance** or **bylaw** of:

City of Agawam

Name of Municipality

- ☐ e. whether the following **scope of alternatives** is adequate for Activities in the Riverfront Area as depicted on referenced plan(s).

D. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Request for Determination of Applicability and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge.

I further certify that the property owner, if different from the applicant, and the appropriate DEP Regional Office were sent a complete copy of this Request (including all appropriate documentation) simultaneously with the submittal of this Request to the Conservation Commission.

Failure by the applicant to send copies in a timely manner may result in dismissal of the Request for Determination of Applicability.

Signatures:

I also understand that notification of this Request will be placed in a local newspaper at my expense in accordance with Section 10.05(3)(b)(1) of the Wetlands Protection Act regulations.

Signature of Applicant

Date

Signature of Representative (if any)

Date

WETLAND DELINEATION REPORT

130 SOUTH WESTFIELD STREET, FEEDING HILLS, MA

Introduction

As requested by the applicant, Salvini Associates, LLC. conducted a site assessment and wetland delineations at 130 South Westfield Street, Feeding Hills, MA to determine if there are any resource areas subject to protection under Massachusetts Wetland Protection Act M.G.L. c. 131 § 40 or municipal wetlands regulation. The subject property is 19.20 acres located along the westerly side of South Westfield Street and south of Overlook Drive. It is listed as Parcel E8-1-8 on the Town of Agawam GIS. Please see Figure 1 in Section 5. Most of the property is forested upland. A portion of the property at the easterly end was previously used for crops and nursery planting. There are three wetlands located on the property.

Based on FEMA's GIS Flood Hazard mapping, none of the subject property is located within the 100 or 500-year flood zones. Please see Figure 2 in Section 5.

Utilizing Mass Mapper's Natural Heritage Endangered Species Program (NHESP) layer, there are no Priority Habitat of Rare Species, Natural Communities, Estimated Habitats of Rare Wildlife, or Vernal Pools located on the subject property. Please see Figure 3 in Section 5.

Property Overview

The property is a wooded lot composed of both mature and early successional forest. The area formally used for agriculture is grown in with pioneer species. The property is located on a low-lying hilltop and is level to slightly sloping with small undulations except the east and west ends of the property which are steeper and slope downhill to the east and west. Most of the property drains to the south and west. There is a bordering vegetated wetland located along the south-central portion of the property and two smaller isolated wetlands located along the northerly part of the property. Most of the property is upland forest dominated by mature White Pine, Red Oak, and Sugar Maple.

Using USDA Web Soil Survey, most of the property is mapped as Paxton 305B and 305C fine sandy loams and Meckesville 327 B, C, and D fine sandy loams. A section along the west end of the property is mapped as Charlton soil and a portion of the central portion of the property is mapped as Ridgebury 70A fine sandy loam.

Paxton soils are classified as well drained fine sandy loams. The 305B modifier indicates the soil is on 0-8% slopes and very stony. The 305C modifier indicates the soil is on 8-15% slopes and is extremely stony. Paxton soils are derived from schist, gneiss, and granite and formed in lodgment till on hills, drumlins, till plains, and eskers.

Meckesville soils are classified as well drained fine sandy loam. The 3272B modifier indicates the soil is on 3-8% slopes and the D modifier indicates 15 to 25% slopes. Meckesville soils are formed on undulating glacial hilltops and slopes derived from eolian and colluvium deposits of red sandstone, siltstone, and shale.

Charlton soils are classified as well drained fine sandy loams. The 305B modifier indicates the soil is on 0-8% slopes. Charlton soils are derived from schist, gneiss, and granite and formed in melt-out till on hills, moraines, and ridges.

Ridgebury soils are classified as very deep poorly drained fine sandy loams. The A modifier indicates 0 to 3% slopes. Ridgebury soils are formed in lodgement till derived from schist, gneiss, granite in concave areas, and along the toe of slopes.

Methodology

The site was assessed in October 2025 to determine if there are any resource areas protected by the Massachusetts Wetlands Protection Act or any local Wetland By-laws. Delineations were conducted following the methodology in the Massachusetts DEP Delineating Bordering Vegetated Wetlands under the Wetlands Protection Act Handbook (1995). Wetlands are flagged with blue consecutively numbered flags. Delineations were conducted under dryer than normal conditions. BVW Field Data forms listing vegetation, hydrology, and soils data for each of the wetland and adjacent upland plots are attached to this report in Section 5.

Resource Area Descriptions Bordering Vegetated Wetland (BVW)

As stated in 310 CMR 10.55(2)(a) “*Bordering Vegetated Wetlands are 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 wetlands delineated on the property are classified as palustrine forested wetland (PFO), a subclass of palustrine wetlands, which *includes all nontidal wetlands dominated by trees, shrubs, persistent emergent, emergent mosses, or lichens...* according to Classification of Wetlands and Deepwater Habitats of the United States (1979).

Wetland AB

Wetland AB is an isolated forested wetland located on a shallow slope along the north part of the property. Ground cover vegetation is dominated by Sensitive fern (*Onoclea sensibilis*), Jewelweed (*Impatiens capensis*), and Yellow Sedge (*Carex flava*). The shrub and understory layer are dominated by Red Maple (*Acer rubrum*) saplings and Red Chokeberry (*Aronia arbutifolia*). The canopy is dominated by mature Red Maple.

Hydrology is from groundwater seeps and precipitation. The Hydrologic indicators observed include trees with shallow root systems, drainage patterns, and water-stained leaves. The wetland drains north and east at the edge of the property to a storm drain at Hamilton Circle terminus. The wetland does not connect hydrologically with another resource area.

The soil profile from 0 to 4 inches is an O horizon composed of mineral muck with a matrix color of 10 YR 3/2. This overlays an AB horizon from 4 to 10 inches of sand with a matrix color of 10 YR 4/2 with blotches of 10YR 4/4. From 10 inches to 18 inches is a B horizon of sand and silt with a matrix color of 10YR 4/2 and 20% redox concentrations of 10YR 5/6. The soil was saturated to the surface at the time of the delineation.

Wetland AB is 6,967.0 square feet and does not meet the quarter acre/foot volume to be classified as isolated land subject to flooding under state regulations for Isolated Land Subject

to Flooding. The perimeter of the wetland is flagged with blue flagging marked Wetland AB is flagged with blue flagging marked WF A1 through WF A6 beginning at the edge of the property at the end of Hamilton Circle and extends west behind residential homes on Overlook Drive. The north side of the wetland begins at the Hamilton terminus and extends southwest into the woods and is flagged with blue flagging marked WF B1 through WF B8 closing with Wetland flag WF A6 .Soil bores are flagged with blue flagging marked Soil Bore.

Wetland C

Wetland C is a bordering vegetated forested wetland located in the central part of the property and extending south onto adjacent property. Ground cover in the interior of the wetland is sparse with sphagnum moss covered, cobble sized stones and Sensitive fern (*Onoclea sensibilis*) along the margins. The shrub and understory layer around the perimeter includes Red Maple (*Acer rubrum*) saplings, Speckled Alder (*Alnus rugosa*), Flowering Dogwood (*Cornus amomum*), and Red Chokeberry (*Aronia arbutifolia*). The canopy is dominated by Red Maple.

Hydrology is from seasonal high groundwater, runoff, and precipitation. The Hydrologic indicators observed include a sparsely vegetated concave surface, drainage patterns, and water-stained leaves. There was some standing water in places at the time of the delineation. The wetland drains south connecting to a series of wetlands.

The soil profile from 0 to 4 inches is composed of muck and peat with a matrix color of 10 YR 3/2. This overlays an O horizon from 4 to 9 inches of organic muck with a matrix color of 10 YR 3/1. From 9 to 17 inches is a B horizon with a matrix color of 10YR 5/3 and 10% redox concentrations of 5 YR 5/6. The soil profile was saturated at 8 inches with standing water at 6 inches in the test hole at the time of the delineation. The perimeter of the wetland is flagged with blue flagging marked WF C1 through WF C 15 open at the south property line.

Wetland D

Wetland D is an isolated vegetated wetland located in a small depression in the northcentral part of the property. Ground cover in the interior of the wetland is sparse, indicating seasonal flooding. The ground cover within the wetland is sparse with sphagnum moss, and Sensitive fern (*Onoclea sensibilis*) along the margins. The shrub and understory layer around the perimeter includes Red Maple (*Acer rubrum*), saplings, Flowering Dogwood (*Cornus amomum*), and Red Chokeberry (*Aronia arbutifolia*). The canopy is dominated by Red Maple.

Hydrology is from seasonal high groundwater and precipitation. The Hydrologic indicators observed include a sparsely vegetated concave surface and water-stained leaves. There was standing water in the wetland at an initial site visit but none at the time of the delineation. There is no inlet or outlet and the wetland does not connect with another resource area.

The soil profile from 0 to 10 inches is an O horizon composed of mineral muck with a matrix color of 10 YR 3/2. This overlays an AB horizon from 10 to 20 inches of organic muck with a matrix color of 10 YR 5/4. and redox concentrations of 5 YR 5/6. The soil profile was saturated at 12 inches with standing water in the test pit at 15 inches at the time of the delineation.

Wetland D is 2,499.5 square feet and does not meet the quarter acre/foot volume to be classified as isolated land subject to flooding under state regulations for Isolated Land Subject to Flooding. The perimeter of the wetland is flagged with blue flagging marked WF D1 through WF D 14.

Upland Forest

Most of the subject property is upland forest composed of a mix of hardwood and White Pine. Ground cover is dominated by Canada Mayflower (*Maianthemum canadense*), Christmas Fern (*Polystichum acrostichoides*), and Evergreen Woodfern (*Dryopteris intermedia*). The understory is dominated by White Pine (*Pinus strobus*) and Black Cherry saplings (*Prunus serotina*). In the early successional areas Multiflora rose (*Rosa multiflora*) and Honeysuckle are dominant. Goldenrod (*Solidago Spp.*) and Garlic mustard (*Alliaria petiolata*) are dominant groundcover in the open areas. The canopy is dominated by White Pine (*Pinus strobus*) in the middle of the property area with Red Oak (*Quercus rubra*) and Sugar Maple (*Acer saccharum*) throughout the remainder of the property. Black Cherry (*Prunus serotina*), Elm (*Ulmus spp*), and Pignut Hickory (*Carya glabra*) are common throughout.

The soil profile from 0-7 inches is an A horizon of fine sandy loam with a matrix color of 10 YR 3/2. From 7 to 15 inches is an AB horizon of sandy loam with a matrix color of 10 YR 5/4. This overlays a B horizon composed of sandy gravel with a matrix color of 10YR 5/4. The soil was not saturated and there was no standing water in the soil test hole at the time of the delineation.

Conclusion

In conclusion Salvini Associates, LLC completed wetland delineations on Parcel E8-1-8 located at 130 South Westfield Street, Feeding Hills, MA. There are three wetlands located within the subject property. Two of the wetlands are isolated and one is a BVW.

Wetland C is a jurisdictional wetland regulated under the MA Wetlands Protection Act 310 CMR 10.55(2).

Wetland AB does not connect directly to another resource area and therefore does not meet the definition under 10.55 (2). Furthermore, the area and volume calculations are also less than the ¼ acre foot threshold under 10.57(b) for Isolated Land Subject to Flooding.

Wetland D due to its isolation and size also does not meet the jurisdictional description of a regulated wetland under 310 CMR 10.55(2) and is not subject to state regulation.

BVW Field Data Forms are included for Wetland C and an adjacent upland plot. BVW Field Data Forms were not completed for the isolated wetlands.

BORDERING VEGETATED WETLAND DETERMINATION FORM

Project/Site: 130 South Westfield Street City/Town: Feeding Hills Sampling Date: 07-12-2025
 Applicant/Owner: Joseph Tirone Sampling Point or Zone: Wetland C
 Investigator(s): Jeff Smith, Salvini Associates, LLC Latitude / Longitude: 42.062377 / 72.680413
 Soil Map Unit Name: Ridgebury 70A 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 ☒	No ☐	Is the Sampled Area within a Wetland? Yes ☒ No ☐
Hydric Soils criterion met?	Yes ☒	No ☐	
Wetlands hydrology present?	Yes ☒	No ☐	
Remarks, Photo Details, Flagging, etc.: Flagged WF-C1 to WF- C15 w blue flagging open to the south			

HYDROLOGY

Field Observations:			
Surface Water Present?	Yes ☒	No ☐	Depth (inches) <u>2.00</u>
Water Table Present?	Yes ☐	No ☒	Depth (inches) <u>0.00</u>
Saturation Present (including capillary fringe)?	Yes ☒	No ☒	Depth (inches) <u>0.00</u>
Wetland Hydrology Indicators			
Reliable Indicators of Wetlands Hydrology	Indicators that can be Reliable with Proper Interpretation	Indicators of the Influence of Water	
☒ Water-stained leaves ☐ Evidence of aquatic fauna ☐ Iron deposits ☐ Algal mats or crusts ☐ Oxidized rhizospheres/pore linings ☐ Thin muck surfaces ☐ Plants with air-filled tissue (aerenchyma) ☐ Plants with polymorphic leaves ☐ Plants with floating leaves ☐ Hydrogen sulfide odor	☐ Hydrological records ☐ Free water in a soil test hole ☐ Saturated soil ☐ Water marks ☐ Moss trim lines ☐ Presence of reduced iron ☐ Woody plants with adventitious roots ☒ Trees with shallow root systems ☐ Woody plants with enlarged lenticels	☐ Direct observation of inundation ☒ Drainage patterns ☐ Drift lines ☐ Scoured areas ☐ Sediment deposits ☐ Surface soil cracks ☐ Sparsely vegetated concave surface ☐ Microtopographic relief ☒ Geographic position (depression, toe of slope, fringing lowland)	
Remarks (describe recorded data from stream gauge, monitoring well, aerial photos, previous inspections, if available): Site was delineated in June and October 2025. There was standing water and water flowing from groundwater seeps in June.			

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 _____		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. Slippery elm	Ulmus rubra	FAC	10.5	Yes	Yes		
3.							
4.							
5.							
6.							
7.							
8.							
9.							
			48.5 = Total Cover				
<u>Shrub/Sapling Stratum</u>		Plot size _____		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indicator? (yes/no)
Common name	Scientific name						
1. Speckled alder	Alnus rugosa	FACW	10.5	Yes	Yes		
2. Red Maple	Acer rubrum	FAC	20.5	Yes	Yes		
3.							
4.							
5.							
6.							
7.							
8.							
9.							
			31.0 = Total Cover				
<u>Herb Stratum</u>		Plot size _____		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indicator? (yes/no)
Common name	Scientific name						
1. Sensitive Fern	Onoclea sensibilis	FACW	10.5	Yes	Yes		
2. Jewelweed	Impatiens capensis	FACW	10.5	Yes	Yes		
3. Sphagnum moss		OBL	20.5	Yes	Yes		
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
			41.5 = Total Cover				

VEGETATION – continued.

<u>Woody Vine Stratum</u>		Plot size _____		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indicator? (yes/no)
Common name		Scientific name					
1.							
2.							
3.							
4.							
				0.0 = Total Cover			

Rapid Test: Do all dominant species have an indicator status of OBL or FACW?				Yes ☐ No ☒
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?
	7	7		Yes ☒ No ☐
Prevalence Index:		Total % Cover (all strata)	Multiply by:	Result
	OBL species	21	X 1	= 20.50
	FACW species	32	X 2	= 63.00
	FAC species	69	X 3	= 207.00
	FACU species	0	X 4	= 0.00
	UPL species		X 5	= 0.00
	Column Totals	(A) 121		(B) 290.5
Prevalence Index		B/A = 2.40		Is the Prevalence Index ≤ 3.0?
				Yes ☒ No ☐
Wetland vegetation criterion met? Yes ☒ No ☐				

Definitions of Vegetation Strata

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

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

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		
0-4	10YR3/2	100.00					mineral muck	
4-9	10YR3/3	100.00						
9-17	10YR5/3	80.00	10YR5/6	20.00	C	M		

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
☐ Histosol (A1)	☐ Polyvalue Below Surface (S8)	☐ 2 cm Muck (A10)
☐ Histic Epipedon (A2)	☐ Thin Dark Surface (S9)	☐ 5 cm Mucky Peat or Peat (S3)
☐ Black Histic (A3)	☐ Loamy Gleyed Matrix (F2)	☐ Iron-Manganese Masses (F12)
☐ Hydrogen Sulfide (A4)	☐ Depleted Matrix (F3)	☐ Mesic Spodic (A17)
☐ Stratified Layers (A5)	☐ Redox Dark Surface (F6)	☐ Red Parent Material (F21)
☐ Depleted Below Dark Surface (A11)	☐ Depleted Dark Surface (F7)	☐ Very Shallow Dark Surface (F22)
☐ Thick Dark Surface (A12)	☐ Redox Depressions (F8)	
☒ Sandy Mucky Mineral (S1)		
☐ Sandy Gleyed Matrix (S4)		
☐ Sandy Redox (S5)		☐ Other (Include Explanation in Remarks)
☐ Stripped Matrix (S6)		
☐ Dark Surface (S7)		

Restrictive Layer (if observed)

Type:

Depth (inches):

Remarks:

Hydric Soils criterion met?

Yes☒

No☐

BORDERING VEGETATED WETLAND DETERMINATION FORM

Project/Site: 130 South Westfield Street City/Town: Feeding Hills Sampling Date: 07-12-2025
 Applicant/Owner: Joseph Tirone Sampling Point or Zone: Wetland C
 Investigator(s): Jeff Smith, Salvini Associates, LLC Latitude / Longitude: 42.062377 / 72.680413
 Soil Map Unit Name: Ridgebury 70A 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 ☒ No ☐	Is the Sampled Area within a Wetland? Yes ☒ No ☐
Hydric Soils criterion met?	Yes ☒ No ☐	
Wetlands hydrology present?	Yes ☒ No ☐	
Remarks, Photo Details, Flagging, etc.: Flagged WF-C1 to WF- C15 w blue flagging open to the south		

HYDROLOGY

Field Observations:		
Surface Water Present?	Yes ☒ No ☐	Depth (inches) <u>2.00</u>
Water Table Present?	Yes ☐ No ☒	Depth (inches) <u>0.00</u>
Saturation Present (including capillary fringe)?	Yes ☒ No ☒	Depth (inches) <u>0.00</u>
Wetland Hydrology Indicators		
Reliable Indicators of Wetlands Hydrology	Indicators that can be Reliable with Proper Interpretation	Indicators of the Influence of Water
☒ Water-stained leaves ☐ Evidence of aquatic fauna ☐ Iron deposits ☐ Algal mats or crusts ☐ Oxidized rhizospheres/pore linings ☐ Thin muck surfaces ☐ Plants with air-filled tissue (aerenchyma) ☐ Plants with polymorphic leaves ☐ Plants with floating leaves ☐ Hydrogen sulfide odor	☐ Hydrological records ☐ Free water in a soil test hole ☐ Saturated soil ☐ Water marks ☐ Moss trim lines ☐ Presence of reduced iron ☐ Woody plants with adventitious roots ☒ Trees with shallow root systems ☐ Woody plants with enlarged lenticels	☐ Direct observation of inundation ☒ Drainage patterns ☐ Drift lines ☐ Scoured areas ☐ Sediment deposits ☐ Surface soil cracks ☐ Sparsely vegetated concave surface ☐ Microtopographic relief ☒ Geographic position (depression, toe of slope, fringing lowland)
Remarks (describe recorded data from stream gauge, monitoring well, aerial photos, previous inspections, if available): Site was delineated in June and October 2025. There was standing water and water flowing from groundwater seeps in June.		

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 _____		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. Slippery elm	Ulmus rubra	FAC	10.5	Yes	Yes
3.					
4.					
5.					
6.					
7.					
8.					
9.					
48.5 = Total Cover					
<u>Shrub/Sapling Stratum</u> Plot size _____		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indicator? (yes/no)
Common name	Scientific name				
1. Speckled alder	Alnus rugosa	FACW	10.5	Yes	Yes
2. Red Maple	Acer rubrum	FAC	20.5	Yes	Yes
3.					
4.					
5.					
6.					
7.					
8.					
9.					
31.0 = Total Cover					
<u>Herb Stratum</u> Plot size _____		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indicator? (yes/no)
Common name	Scientific name				
1. Sensitive Fern	Onoclea sensibilis	FACW	10.5	Yes	Yes
2. Jewelweed	Impatiens capensis	FACW	10.5	Yes	Yes
3. Sphagnum moss		OBL	20.5	Yes	Yes
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
41.5 = Total Cover					

VEGETATION – continued.

<u>Woody Vine Stratum</u>		Plot size _____			
		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indicator? (yes/no)
Common name		Scientific name			
1.					
2.					
3.					
4.					
0.0 = Total Cover					

Rapid Test: Do all dominant species have an indicator status of OBL or FACW? Yes ☐ No ☒				
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 ☒ No ☐
	7	7		
Prevalence Index:		Total % Cover (all strata)	Multiply by:	Result
	OBL species	21	X 1	= 20.50
	FACW species	32	X 2	= 63.00
	FAC species	69	X 3	= 207.00
	FACU species	0	X 4	= 0.00
	UPL species		X 5	= 0.00
	Column Totals	(A) 121		(B) 290.5
Prevalence Index		B/A = 2.40		Is the Prevalence Index ≤ 3.0? Yes ☒ No ☐
Wetland vegetation criterion met? Yes ☒ No ☐				

Definitions of Vegetation Strata

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

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

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		
0-4	10YR3/2	100.00					mineral muck	
4-9	10YR3/3	100.00						
9-17	10YR5/3	80.00	10YR5/6	20.00	C	M		

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
☐ Histosol (A1)	☐ Polyvalue Below Surface (S8)	☐ 2 cm Muck (A10)
☐ Histic Epipedon (A2)	☐ Thin Dark Surface (S9)	☐ 5 cm Mucky Peat or Peat (S3)
☐ Black Histic (A3)	☐ Loamy Gleyed Matrix (F2)	☐ Iron-Manganese Masses (F12)
☐ Hydrogen Sulfide (A4)	☐ Depleted Matrix (F3)	☐ Mesic Spodic (A17)
☐ Stratified Layers (A5)	☐ Redox Dark Surface (F6)	☐ Red Parent Material (F21)
☐ Depleted Below Dark Surface (A11)	☐ Depleted Dark Surface (F7)	☐ Very Shallow Dark Surface (F22)
☐ Thick Dark Surface (A12)	☐ Redox Depressions (F8)	
☒ Sandy Mucky Mineral (S1)		
☐ Sandy Gleyed Matrix (S4)		
☐ Sandy Redox (S5)		☐ Other (Include Explanation in Remarks)
☐ Stripped Matrix (S6)		
☐ Dark Surface (S7)		

Restrictive Layer (if observed) Type:

Depth (inches):

Remarks:

Hydric Soils criterion met? Yes ☒ No ☐

130 South Westfield Street, Feeding Hills MA
Site Photographs, June and October, 2025

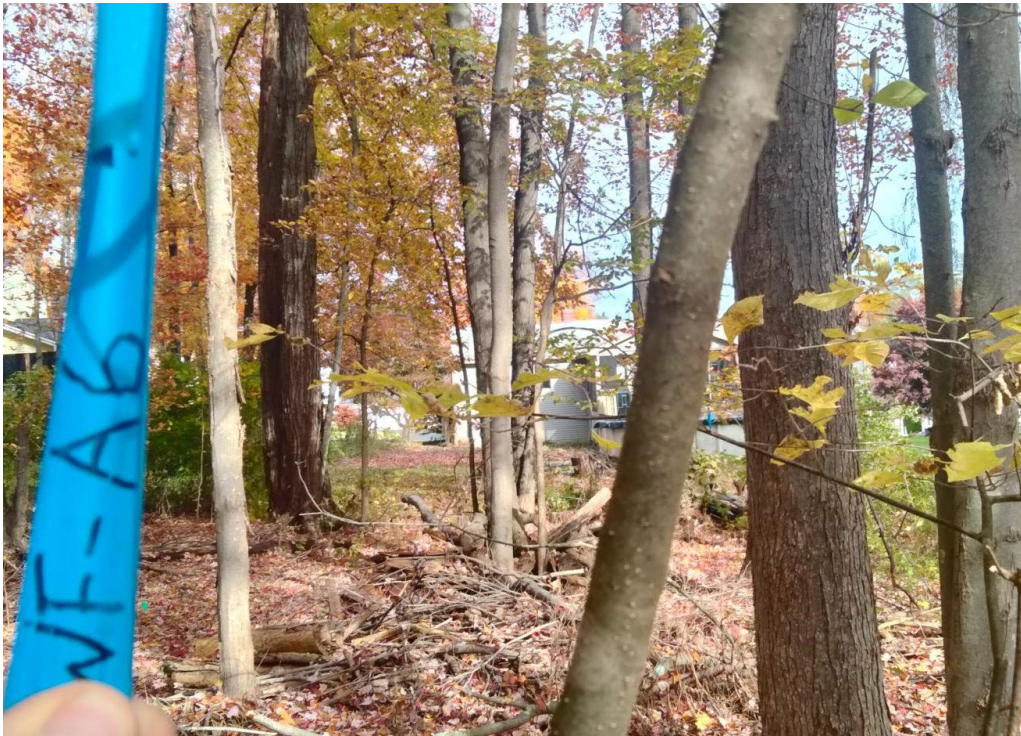


View north of Wetland AB.



View south at the terminus of Hamilton circle where Wetland AB drains to a storm drain.

130 South Westfield Street, Feeding Hills MA
Site Photographs, June and October, 2025



View northwest Wetland AB.



View west at the edge of the woods Wetland AB.

130 South Westfield Street, Feeding Hills MA
Site Photographs, June and October, 2025



View north of Wetland C.



View south along Wetland C.

130 South Westfield Street, Feeding Hills MA
Site Photographs, June and October, 2025



View north along Wetland C.



View south at the property line where Wetland C continues onto adjacent property.

**130 South Westfield Street, Feeding Hills MA
Site Photographs, June and October, 2025**



View south Wetland D.



View north of Wetland D.

**130 South Westfield Street, Feeding Hills MA
Site Photographs, June and October, 2025**



View south of Wetland D.



View southwest of Wetland D.

130 South Westfield Street, Feeding Hills MA
Site Photographs, June and October, 2025



View east of Wetland D.



Adjacent upland along the northerly property line.

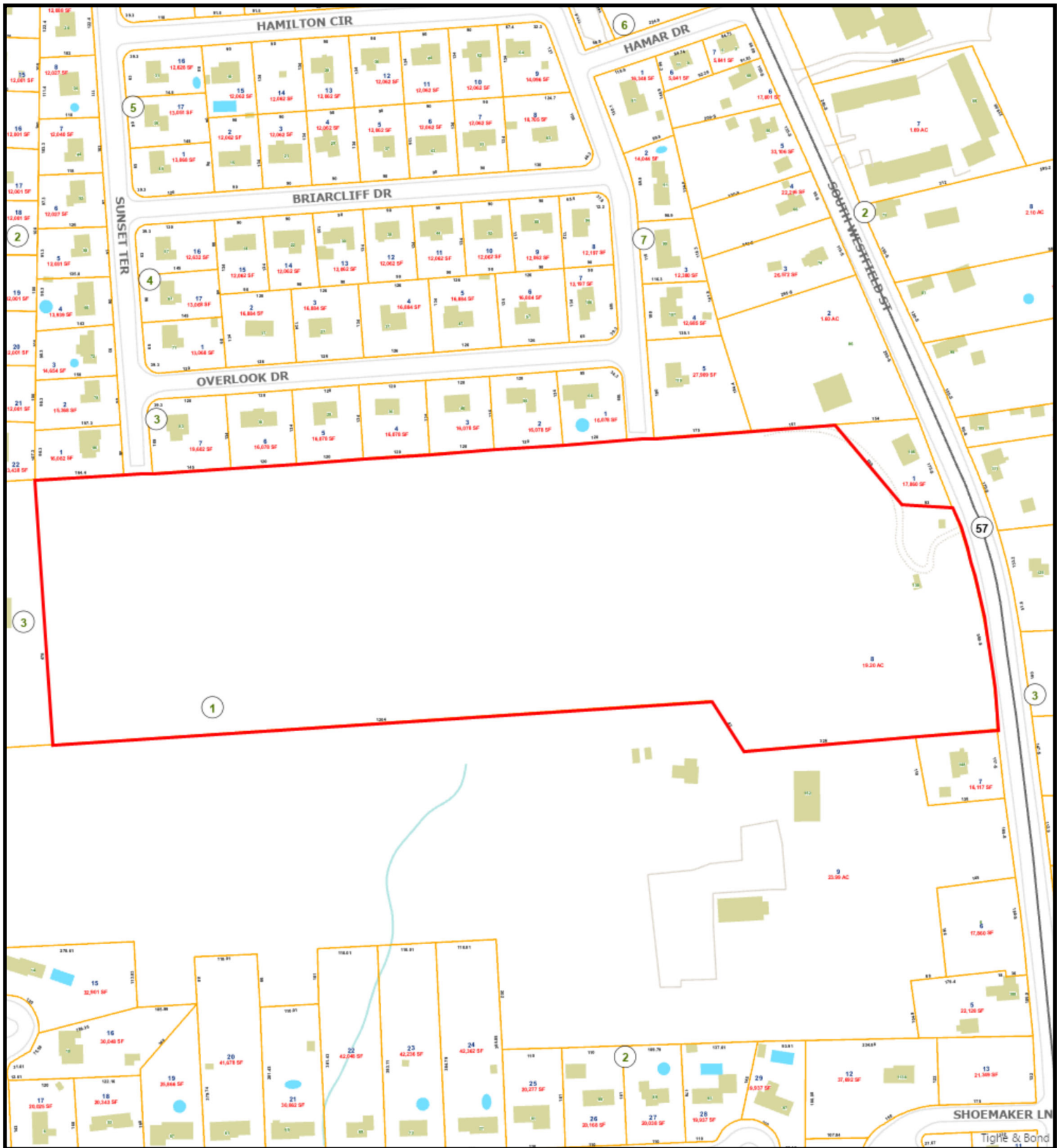
130 South Westfield Street, Feeding Hills MA
Site Photographs, June and October, 2025



Upland area at the terminus of Sunset Avenue.



View of overgrown fields.



130 South Westfield St,

5/1/2026 10:50:02 AM

Scale: 1"=250'

Scale is approximate

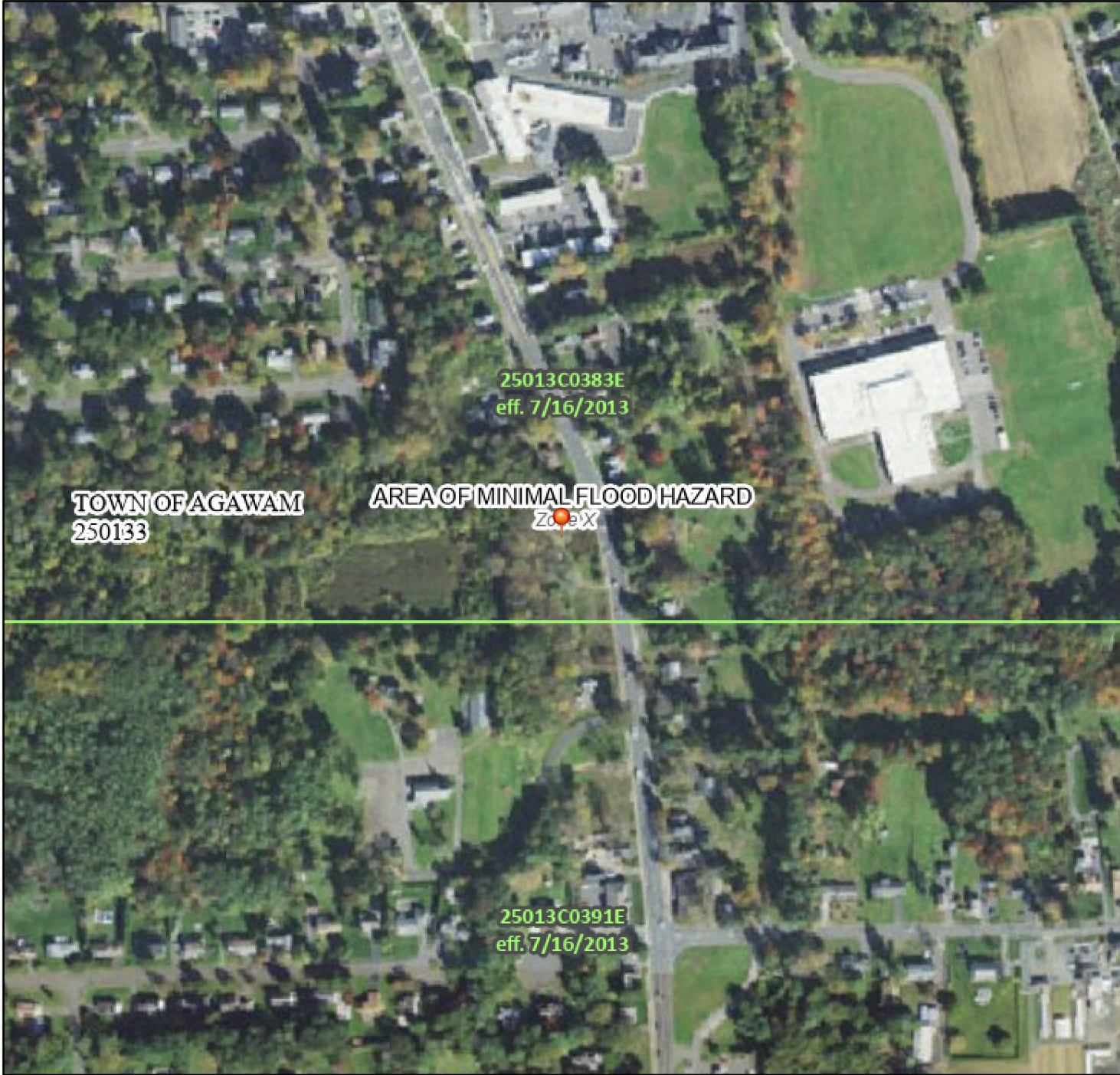
The information depicted on this map is for planning purposes only.
It is not adequate for legal boundary definition, regulatory
interpretation, or parcel-level analyses.



National Flood Hazard Layer FIRMMette



72°40'56"W 42°4'N



1:6,000

Figure No. 2

72°40'18"W 42°3'34"N

Basemap Imagery Source: USGS National Map 2023

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		Cross Sections with 1% Annual Chance 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 **5/1/2026 at 3:30 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.

Natural Heritage



- Potential Vernal Pools
- NHESP Natural Communities
- NHESP Certified Vernal Pools
- NHESP Ecoregions
- NHESP Priority Habitats of Rare Species
- NHESP Estimated Habitats of Rare Wildlife
- Property Tax Parcels

PROJECT NO: A005-25-142

SALVINI Associates, LLC

Land Surveyors - Wetland Scientist -Land Use Consultants

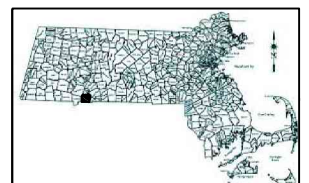
585 Route 20 - P. O. Box 742

Chester, MA 01011 (413)-354-1032

www.SALVINIAssociates.com

FIGURE NO. 3
Natural Heritage
Parcel E8-1-8
130 South Westfield Street
Agawam, MA

SCALE: N.T.S.



Latitude: N42.062377

Longitude: W72.680413

May 1, 2026



Affected Premises:

130 South Westfield Street
Agawam (Feeding Hills), MA

MASSACHUSETTS STATE EXCISE TAX
HAMPDEN COUNTY REGISTRY OF DEEDS
Date: 06-30-2025 @ 02:00pm
Ct1#: 373 Doc#: 29567
Fee: \$2,736.00 Cons: \$600,000.00

QUITCLAIM DEED

KNOW ALL PERSONS BY THESE PRESENTS THAT I, **STEPHEN M. NACEWICZ**, of 200 Wildwood Avenue, Springfield, Hampden County, Massachusetts

for consideration paid and in full consideration of **SIX HUNDRED THOUSAND AND no/100 (\$600,000.00) DOLLARS**,

grant to **GIUSEPPE TIRONE and GERALDINE TIRONE**, a married couple, of 36 Allison Lane, Agawam, Hampden County, Massachusetts, as Tenants by the Entirety,

with ***Quitclaim Covenants***,

Certain real estate, with the buildings thereon, located in Agawam, Hampden County, Massachusetts, and shown on a Plan of Lots entitled "Survey for Edwin I. Cook" and recorded with Hampden County Registry of Deeds in Book of Plans 141, Page 108, said real estate more particularly bounded and described as follows:

Beginning at an iron pin at the Northwestern corner of land now or formerly of Stephanie Shaker located One Hundred Thirty-six and 26/100 (136.26) feet from an iron pin on the westerly side of South Westfield Street, Agawam, Hampden County, Massachusetts, as shown on said Plan, thence running SOUTHEASTERLY along the westerly side of said land, One Hundred Eighty and 56/100 (180.56) feet to an iron pipe; thence running Southeasterly at an angle along the southwesterly side of said land now or formerly of said Stephanie Shaker, Ninety-one and 60/100 (91.60) feet to an iron pipe at South Westfield Street; thence SOUTHERLY along the westerly side of said South Westfield Street, Four Hundred (400) feet, more or less, to a point; thence NORTHWESTERLY along land of owner unknown, Four Hundred Sixty (460) feet to a point; thence at an angle running NORTHWESTERLY, Eighty-five (85) feet to a point; thence at an angle running NORTHWESTERLY along land of owner unknown, Seven Hundred Eighty (780) feet, more or less, to an iron pin at the southeasterly corner of land now or formerly of Hope Farms, Inc.; thence NORTHEASTERLY N. 9° 47' 37" E., Four Hundred Seventy-eight and 08/100 (478.08) feet to an iron pin; thence SOUTHEASTERLY 80° 35' 32", One Thousand Twenty (1,020) feet, more or less, to the place of beginning.

Subject to Taking by Commonwealth of Massachusetts for street layout dated September 8, 1993 and recorded in the Hampden County Registry of Deeds in Book 8568, Page 505.

BEING the same premises conveyed to Edward S. Nacewicz, Lillian M. Nacewicz, Robert L. Nacewicz and Stephen M. Nacewicz by Deed of Joyce M. Bodak, Anthony I. Shaker, Edward Nacewicz, Viola Bishop, Richard F. Nacewicz, Thomas R. Shaker, Helen Krupinski, and Raymond E. Nacewicz dated November 22, 1982 and recorded November 23, 1982 with Hampden County Registry of Deeds in Book 5344, Page 340.

Edward S. Nacewicz died December 14, 1999. Death Certificate filed in Hampden County Probate and Family Court Docket HD01P1166EP1. Lillian M. Nacewicz died October 23, 1990. M792 is recorded in Hampden County Registry of Deeds in Book 8593, Page 353. Robert L. Nacewicz died on April 10, 2025. Death Certificate and Estate Tax Certificate to be recorded simultaneously herewith.

As per M.G.L. Chapter 188, sect. 13, the Grantor, under oath and subject to the pains and penalties of perjury, does hereby depose, state and certify that: (i) I release all rights of Homestead in the subject realty, (ii) that no spouse, nonowner spouse, former spouse, or any other person resides in the home, and (iii) at the time of delivery of this deed, no spouse, former spouse, or any other person is entitled to claim the benefit of an existing estate of homestead.

Executed as a sealed instrument under the pains and penalties of perjury this 27th day of June, 2025

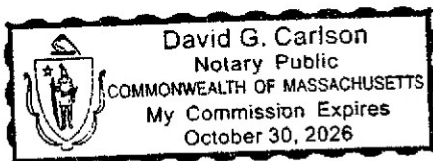

STEPHEN M. NACEWICZ

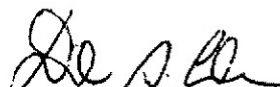
COMMONWEALTH OF MASSACHUSETTS

Hampden County

June 27th, 2025

On this 27th day of June, 2025, before me, the undersigned notary public, personally appeared, **STEPHEN M. NACEWICZ**, proved to me through satisfactory evidence of identification, being (check whichever applies): ☒ MA driver's license ☐ oath or affirmation of a credible witness known to me who knows the above signatory, or ☐ my own personal knowledge of the identity of the signatory, to be the person whose name is signed above, and acknowledged the foregoing to be signed by him voluntarily for its stated purpose.




Notary Public, David G. Carlson
My commission expires: 10/30/2026
Seal

Affected Premises:

130 South Westfield Street
Agawam (Feeding Hills), MA

MASSACHUSETTS STATE EXCISE TAX
HAMPDEN COUNTY REGISTRY OF DEEDS
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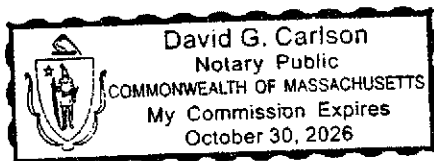

STEPHEN M. NACEWICZ

COMMONWEALTH OF MASSACHUSETTS

Hampden County

June 27th, 2025

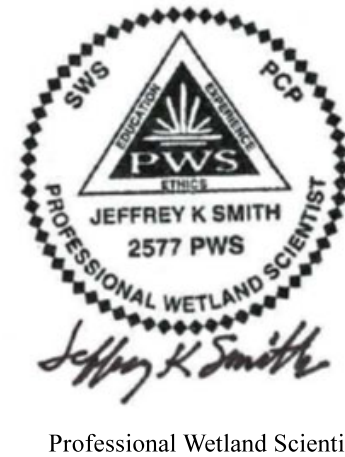
On this 27th day of June, 2025, before me, the undersigned notary public, personally appeared, **STEPHEN M. NACEWICZ**, proved to me through satisfactory evidence of identification, being (check whichever applies): ☒ MA driver's license ☐ oath or affirmation of a credible witness known to me who knows the above signatory, or ☐ my own personal knowledge of the identity of the signatory, to be the person whose name is signed above, and acknowledged the foregoing to be signed by him voluntarily for its stated purpose.




Notary Public, David G. Carlson
My commission expires: 10/30/2026
Seal

[illegible]

www.SALVINIAssociates.com



Request For Determination Of Applicability

130 South Westfield Street
Agawam, Massachusetts

PLAN DATE: May 5, 2026	
Project Number: A005-25-142	
Scale: 1" = 40' 	
DRAWING #	REV.
RDA-1	0

Prepared For:

Giuseppe Tirone
Geraldine Tirone
36 Allison Lane, Agawam, MA



Town of Agawam

Conservation Commission

Conservation Commission
1000 Suffield Street
Agawam, MA 01001
Ph: 413-786-0400 ext.
8737
Fax: 413-786-9927

June 25, 2026

Joe O'Malley
361 Main Street
Agawam, Ma 01001

RE: Notice of Intent for 365 Main Street, Agawam, Ma 01001

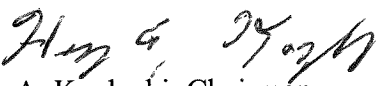
Dear Mr. O'Malley:

At its duly called meeting held on June 25, 2026, the Agawam Conservation Commission voted to require a peer review for the Notice of Intent at 365 Main Street, Agawam once the following is received:

- All property owner signatures
- Confirmation from Army Corp of Engineers that no filing is necessary
- Updated sequencing plan with correct dates
- A plan showing both the wetland restoration area and invasive species, in color if possible
- Location of the 20' transect
- The area/amount of invasive species to be removed

Once received, we will forward all documents to get a quote on the peer review, which will then need to be discussed and voted on at a regularly scheduled meeting.

Sincerely,


Henry A. Kozloski, Chairman
AGAWAM CONSERVATION COMMISSION

Cc:
Town Clerk
File

Invasive Plant Species Map Site off of 365 Main St. Agawam, MA

Area of Sparse and Sporadic Invasive Plants
Area of Significant Invasive Plants

Potential Vernal Pools

Certified Vernal Pools

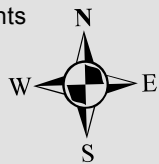
Estimated Site Area

MassDEP Wetlands

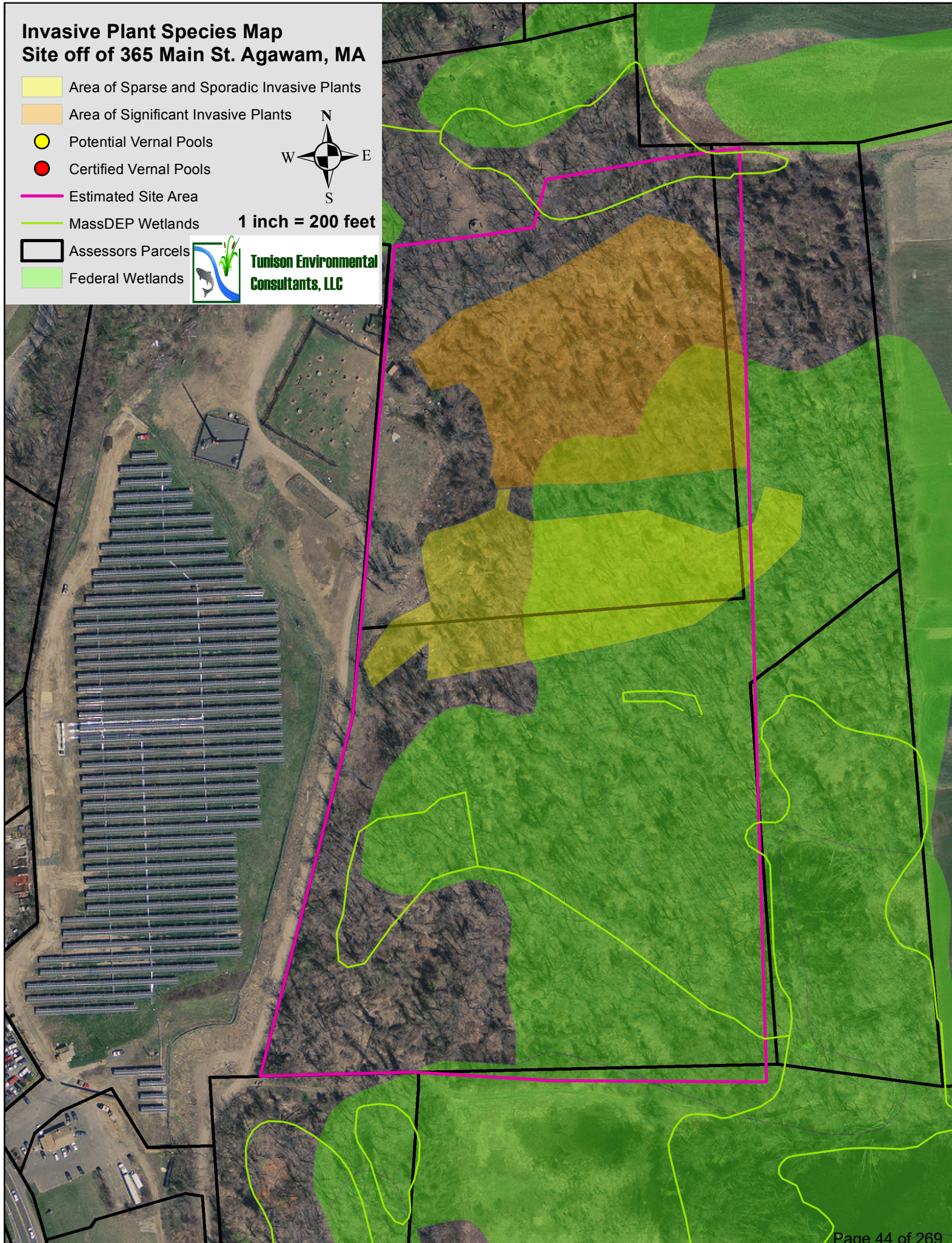
1 inch = 200 feet

Assessors Parcels

Federal Wetlands



**Tunison Environmental
Consultants, LLC**





Tunison Environmental Consultants, LLC

June 5, 2026

Attn: Mark Stinson
MassDEP
Western Regional Office
Town Hall
436 Dwight Street
Springfield, Massachusetts 01103

**RE: Response to MassDEP Comments (MassDEP File #: WE 087-0714) for
Wetland and Ecological Restorations at a site off of Main Street (Assessor's
ID: L14 1 3) in Agawam, Massachusetts**

Dear Agent Stinson:

Below are our responses to the nine comments listed on the June 1, 2026,
Notification of Wetland Protection Act File Number. The comments are listed below in
parenthesis and italics followed by the response.

1. *"Section 1 of the NOI, Street Address, does not appear to be correct. Form 3
may need to be corrected. Also, the map/parcel ID information needs to be
verified. Name of property owner may be different."*

Both parcels were included on the site plan from the engineers and was also
presented to the U.S. Army Corps of Engineers (USACE) when requesting a
determination for filing the project as a "General Permit" and not an "Individual
Permit" as to the area where some brush was cut. The response from the
USACE was that they would not take jurisdiction over this site so no USACE
Permit was required. We kept the information the same when filing the Notice of
Intent (NOI). We have since removed the 365 Main Street address even though
it is shown on the plans as the applicant doesn't own this parcel but leases it.
The alteration to the vegetation in the Bordering Vegetated Wetland (BVW) and
Bordering Land Subject to Flooding only occurs on the parcel owned by the
applicant so the other parcel (Parcel ID: L14 1 3) was removed from the
application on the attached updated NOI Form 3 (Attachment 1, Updated NOI
Form 3).

2. *"The restoration work is not apparently a limited project and only the generic citation of 310 CMR 10.53 is even noted. Only the invasive species removal could be considered an Ecological Restoration Limited Project. However, since the NOI submitted does not include an Appendix A, nor was notice apparently placed in the Environmental Monitor, then it can't be reviewed that way. The applicant needs to comply with the requirements of 310 CMR 10.11, 310 CMR 10.12 and 310 CMR 10.53(4)(e)5."*

The checkbox was accidentally checked when the Form 3 was filled out back in November of 2023 just prior to providing the project information to the USACE. This checkbox has been unchecked on the updated Form 3. The Appendix A is attached (refer to Attachment 2, Appendix A) which was prepared back in 2023 but updated on June 4, 2026. Please note, even though the shrub and some tree cutting occurred in an area greater than 5,000 sq. ft. of wetland, the USACE has decided the project will not be under USACE jurisdiction.

3. *"The Commission needs to understand the definition of BLSF and how BVW boundaries are reviewed. Per the regulations in the definition of BLSF, it states it (BLSF) extends from the banks of these waterways and water bodies; where a bordering vegetated wetland occurs, it extends from said wetland. One can't have BVW and BLSF in the same footprint. The specific footprint is either one or the other resource area, it can't be both."*

No comment.

4. *"Any use of herbicides in BVW likely requires a WM04 Permit from MassDEP."*

This is understood and typically required under a Special Condition within the Order of Conditions (OOC). The majority of the herbicide applicators that we use have both aquatic applications and right-of-way applications. It states that an herbicide applicator's license is required in five locations within the Ecological Restoration Plan which is generic as our reports are often used for rights-of-way and/or aquatic applications. This is always a request for the municipality or if a state agency is contracting the herbicide applicator to provide a copy of this license prior to the commencement of work.

5. *"Multiple locations in the NOI mention work occurring in the year 2024. Elsewhere it notes work to occur in the year 2025. All dates need to be checked."*

Yes, the report references 2025 as it has been updated multiple times since 2023. Prior to mentioning the year listed in the report it states in several areas

that, "This will **LIKELY** occur in...." This is done since most ecological restorations take several years to complete and the years for certain actions are unknown. Invasive plants typically aren't under control in one to two years as some of the plant basis (roots) will survive and the existing seed bank will sprout new plants once the ones targeted are eradicated. In addition, the lack of native plants if not ordered a year in advance will often extend the timeline of an ecological restoration. These delays make the actual year irrelevant but we include an estimated year for permitting purposes. The report has been updated (refer to Attachment 3, Ecological Restoration Plan Updated Narrative).

6. "The restoration plants list needs to note the plants wetland indicator status."

Table 1 from our report has been included with the wetland indicator status shown below.

Table 1 Wetland Restoration Areas Planting Table					
Plant Species	# of Plants	Plant On Center	Plant Height	Size	Wetland Indicator Status*
New England Wetmix Seed Mix application rates to bare wetland restoration areas: 1 lb./1,200 sq. ft.					
Northern Spicebush (<i>Lindera benzoin</i>)	22	8 – 10 ft.	18 - 24 in.	2 - 4 gal. container	FACW
Highbush Blueberry (<i>Vaccinium corymbosum</i>)	17	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container	FACW
Southern Arrowwood (<i>Viburnum dentatum</i>)	15	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container	FAC
Silky Dogwood (<i>Cornus amomum</i>)	13	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container	FACW
Common Winterberry (<i>Ilex verticillata</i>)	7	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container	FACW
Pin Oaks (<i>Quercus palustris</i>)	2	10 – 15 ft.	24-30 in.	2 - 4 gal. container	FACW
Red Maple (<i>Acer rubrum</i>)	8	10 – 15 ft.	24-30 in.	2 - 4 gal. container	FAC
The altered area of Wetlands A and B will include planting of 10 trees and 74 shrubs.					
Status based on USACE National Plant List: Northcentral and Northeast Region, 2022					

7. "Page 26 of 27 mentions Riverfront restoration, yet there is no Riverfront on the mentioned parcels."

This was a typo that existed from our report template as it should have been "BLSF" or "restoration area". It has been removed from the updated report that is attached.

8. *"The submitted plans do not appear to show what vertical elevation datum is being used. Since the flood plain elevation is based upon NAVD88, the plans need to show that."*

The client is not proposing to file a Letter of Map Amendment (LOMA) with the Federal Emergency Management Agency (FEMA) for the floodplain. No filling, earthwork or location of any structures or materials are proposed within the Bordering Land Subject to Flooding so we don't see the need for a vertical elevation datum for planting of small shrubs and trees that existed before they were cut. Any soil removed for a plant's root ball will be placed on a section of tarp or in a 5-gallon bucket to avoid any piles of soil and permanent damage to surrounding vegetation. The soil will be disposed of offsite.

Please call (508) 737-7104 or email me at garretttunison@tunison.com if you have any questions or concerns.

Sincerely,



Garrett M. Tunison, PWS, Principal
Tunison Environmental Consultants, LLC

CC: Agawam Conservation Commission
Mr. Joseph O'Malley
TEC File #: 2308-001

Attachment 1

Updated NOI Form 3



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

Agawam

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):

Off of 365 Main Street

a. Street Address

Agawam

b. City/Town

01001

c. Zip Code

Latitude and Longitude:

42.083 N

d. Latitude

-72.612 W

e. Longitude

L14

f. Assessors Map/Plat Number

1/3

g. Parcel /Lot Number

2. Applicant:

Joseph

a. First Name

O'Malley

b. Last Name

Property owner

c. Organization

351 Main Street

d. Street Address

Agawam

e. City/Town

MA

f. State

01001

g. Zip Code

(413) 626-8212

h. Phone Number

N/A

i. Fax Number

xtremepbma@yahoo.com

j. Email Address

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

Same as above

a. First Name

b. Last Name

c. Organization

d. Street Address

e. City/Town

f. State

g. Zip Code

h. Phone Number

i. Fax Number

j. Email address

4. Representative (if any):

Garrett

a. First Name

Tunison

b. Last Name

Tunison Environmental Consultants, LLC

c. Company

P.O. Box 992

d. Street Address

Plymouth

e. City/Town

MA

f. State

02362

g. Zip Code

(508) 737-7104

h. Phone Number

N/A

i. Fax Number

garretttunison@gmail.com

j. Email address

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

\$2,500.00

a. Total Fee Paid

\$1,237.50

b. State Fee Paid

\$1,262.50

c. City/Town Fee Paid



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

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A. General Information (continued)

6. General Project Description:

The applicant was clearing land removed 8 to 10 trees and cut the shrub layer) for a tree farm that turned out to be Bordering Land Subject to Flooding and Bordering Vegetated Wetland. He received a WPA-9 Form and stopped cutting. A wetland restoration has been proposed and is included in the attached Wetland Restoration Plan and additional details are provided in the attached narrative.

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

- | | |
|---|---|
| 1. ☐ Single Family Home | 2. ☐ Residential Subdivision |
| 3. ☐ Commercial/Industrial | 4. ☐ Dock/Pier |
| 5. ☐ Utilities | 6. ☐ Coastal engineering Structure |
| 7. ☐ Agriculture (e.g., cranberries, forestry) | 8. ☐ Transportation |
| 9. ☒ Other | |

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ☐ Yes ☐ No If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR 10.24(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:

Hampden

a. County

24430 & 25309

c. Book

N/A

b. Certificate # (if registered land)

259 & 166

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. ☐ Bank	N/A 1. linear feet	N/A 2. linear feet
b. ☒ Bordering Vegetated Wetland	80,031 +/- (cut shrubs & trees) 1. square feet	80,031 +/- restoration 2. square feet
c. ☐ Land Under Waterbodies and Waterways	N/A 1. square feet N/A 3. cubic yards dredged	N/A 2. square feet

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. ☒ Bordering Land Subject to Flooding	1. square feet N/A 3. cubic feet of flood storage lost	2. square feet N/A 4. cubic feet replaced
e. ☐ Isolated Land Subject to Flooding	N/A 1. square feet N/A 2. cubic feet of flood storage lost	N/A 3. cubic feet replaced
f. ☐ Riverfront Area	N/A 1. Name of Waterway (if available) - specify coastal or inland	

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: N/A
square feet

4. Proposed alteration of the Riverfront Area:

<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
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. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. ☐ Land Under the Ocean	N/A 1. square feet N/A 2. cubic yards dredged	
c. ☐ Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. ☐ Coastal Beaches	N/A 1. square feet	N/A 2. cubic yards beach nourishment
e. ☐ Coastal Dunes	N/A 1. square feet	N/A 2. cubic yards dune nourishment
	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
f. ☐ Coastal Banks	N/A 1. linear feet	
g. ☐ Rocky Intertidal Shores	N/A 1. square feet	
h. ☐ Salt Marshes	N/A 1. square feet	N/A 2. sq ft restoration, rehab., creation
i. ☐ Land Under Salt Ponds	N/A 1. square feet N/A 2. cubic yards dredged	
j. ☐ Land Containing Shellfish	N/A 1. square feet	
k. ☐ Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above N/A 1. cubic yards dredged	
l. ☐ Land Subject to Coastal Storm Flowage	N/A 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.

N/A

a. square feet of BVW

N/A

b. square feet of Salt Marsh

5. ☐ Project Involves Stream Crossings

N/A

a. number of new stream crossings

N/A

b. number of replacement stream crossings



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C. Other Applicable Standards and Requirements

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

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

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

a. ☐ Yes ☒ No

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

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

August 2021

b. Date of map

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

- c. Submit Supplemental Information for Endangered Species Review*

1. ☐ Percentage/acreage of property to be altered:

(a) within wetland Resource Area N/A
percentage/acreage

(b) outside Resource Area N/A
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/mas-endangered-species-act-mesa-regulatory-review>).

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

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



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

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

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

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

- (d) ☐ Vegetation cover type map of site

- (e) ☐ Project plans showing Priority & Estimated Habitat boundaries

- (f) OR Check One of the Following

1. ☐ Project is exempt from MESA review.
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, <https://www.mass.gov/service-details/exemptions-from-review-for-projectsactivities-in-priority-habitat>; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2. ☐ Separate MESA review ongoing. N/A N/A
a. NHESP Tracking # b. Date submitted to NHESP

3. ☐ Separate MESA review completed.
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

- a. ☐ Not applicable – project is in inland resource area only b. ☐ Yes ☐ No

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

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

North Shore - Plymouth to New Hampshire border:

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

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

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

- c. ☐ Is this an aquaculture project? d. ☐ Yes ☐ No

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



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City/Town

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

Online Users:

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

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?
a. ☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.
N/A
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.



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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Agawam

City/Town

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 Filing Plan

a. Plan Title

R Levesque Associates, Inc.

b. Prepared By

2/20/24

d. Final Revision Date

c. Signed and Stamped by

1" = 50'

e. Scale

f. Additional Plan or Document Title

g. Date

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

E. Fees

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

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

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



Massachusetts Department of Environmental Protection
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Provided by MassDEP:

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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 Filing Plan

a. Plan Title

R Levesque Associates, Inc.

b. Prepared By

2/20/24

d. Final Revision Date

c. Signed and Stamped by

1" = 50'

e. Scale

f. Additional Plan or Document Title

g. Date

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

E. Fees

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

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

1092

2. Municipal Check Number

1091

4. State Check Number

Joseph

6. Payor name on check: First Name

05/04/26

3. Check date

05/04/26

5. Check date

O'Malley

7. Payor name on check: Last Name



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F. Signatures and Submittal Requirements

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

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

1. Signature of Applicant

2. Date

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any)

6. Date

For Conservation Commission:

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

For MassDEP:

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

Other:

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

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



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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



A. Applicant Information

1. Location of Project:

365 Main Street

a. Street Address

1091

c. Check number

Agawam

b. City/Town

\$1,237.50

d. Fee amount

2. Applicant Mailing Address:

Joseph

a. First Name

O'Malley

b. Last Name

Property owner

c. Organization

351 Main Street

d. Mailing Address

Agawam

e. City/Town

MA

f. State

01001

g. Zip Code

(413) 626-8212

h. Phone Number

N/A

i. Fax Number

xtremepbma@yahoo.com

j. Email Address

3. Property Owner (if different):

Same as above

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).

Attachment 2

Appendix A



Wildlife Habitat Protection Guidance

Appendix A: Simplified Wildlife Habitat Evaluation

Project Information

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



Off of Main Street (Parcel ID: L14 1 3)

Project Location (from NOI)

Garrett M. Tunison

Name of Person Completing Form

6/4/26

Date

Important Habitat Features

Direct alterations to the following important habitat features in resource areas may be permitted only if they will have no adverse effect (refer to Section V).

- ☐ Habitat for state-listed animal species (receipt of a positive opinion or permit from MNHESP shall be presumed to be correct. Do not refer to Section V).
- ☐ Sphagnum hummocks and pools suitable to serve as nesting habitat for four-toed salamanders
- ☐ Trees with large cavities (≥ 18 " tree diameter at cavity entrance)
- ☐ Existing beaver, mink or otter dens
- ☐ Areas within 100 feet of existing beaver, mink or otter dens (if significant disturbance)
- ☐ Existing nest trees for birds that traditionally reuse nests (bald eagle, osprey, great blue heron)
- ☐ Land containing freshwater mussel beds
- ☐ Wetlands and waterbodies known to contain open water in winter with the capacity to serve as waterfowl winter habitat
- ☐ Turtle nesting areas
- ☐ Vertical sandy banks (bank swallows, rough-winged swallows or kingfishers)

The following habitat characteristics when not commonly encountered in the surrounding area:

- ☐ Stream bed riffle zones (e.g. in eastern MA)
- ☐ Springs
- ☐ Gravel stream bottoms (trout and salmon nesting substrate)
- ☐ Plunge pools (deep holes) in rivers or streams
- ☐ Medium to large, flat rock substrates in streams



Wildlife Habitat Protection Guidance

Appendix A: Simplified Wildlife Habitat Evaluation

Activities

When any one of the following activities is proposed within resource areas, applicants should complete a Detailed Wildlife Habitat Evaluation (refer to Appendix B).

- ☐ Activities located in mapped “Habitat of Potential Regional or Statewide Importance”
- ☐ Activities affecting certified or documented vernal pool habitat, including habitat within 100’ of a certified or documented vernal pool when within a resource area
- ☐ Activities in bank, land under water, bordering land subject to flooding (presumed significant) where alterations are more than twice the size of thresholds
- ☒ Activities affecting vegetated wetlands >5000 sq. ft. occurring in resource areas other than Bordering Vegetated Wetland
- ☐ Activities affecting the sole connector between habitats >50 acres in size
- ☐ Installation of structures that prevent animal movement
- ☐ Activities for the purpose of bank stabilization using hard structure solutions that significantly affect ability of stream channel to shift and meander, or disrupt continuity in cover that would inhibit animal passage
- ☐ Dredging (greater than 5,000 sf)

Attachment 3
Ecological Restoration Plan
Updated Narrative

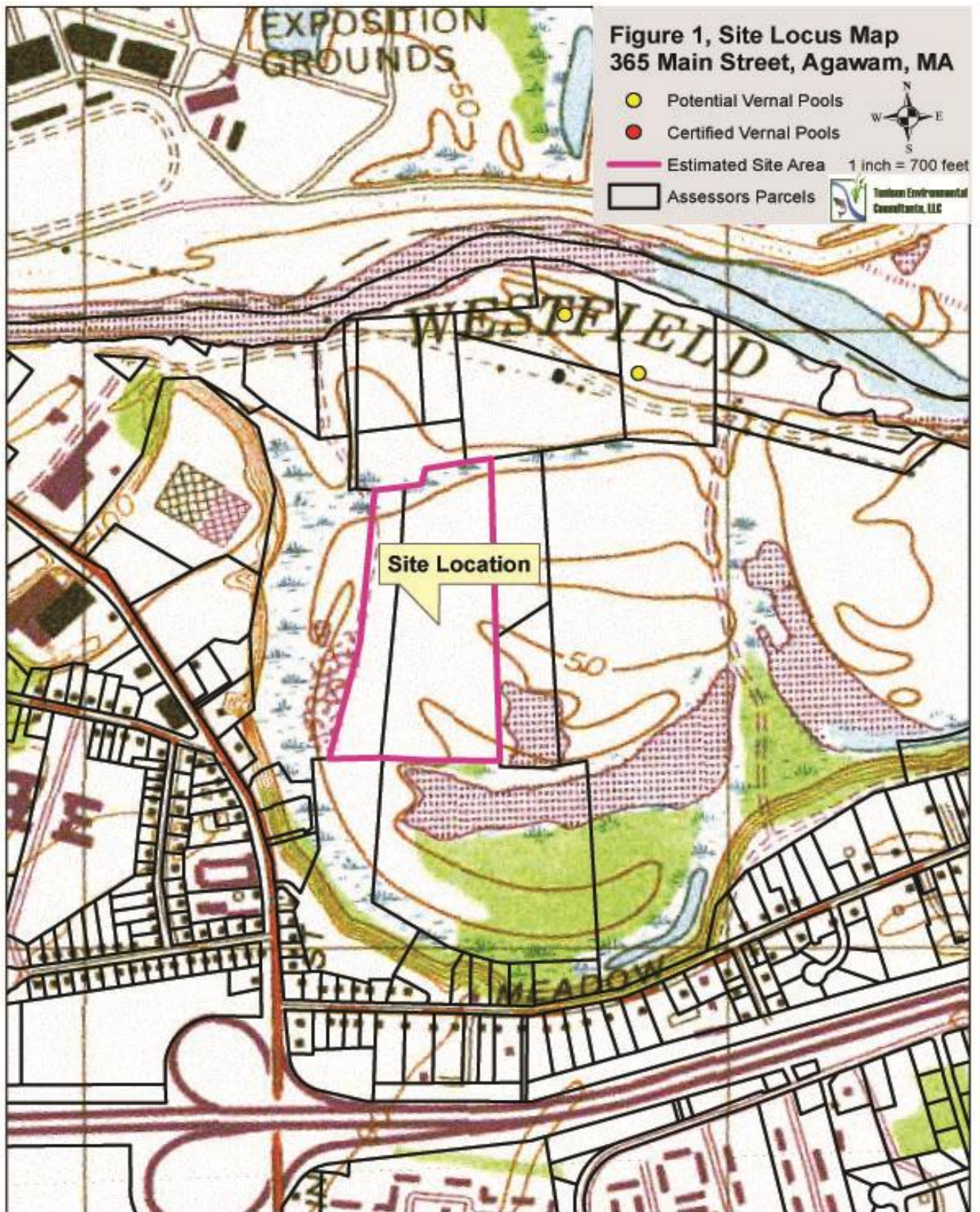


Tunison Environmental Consultants, LLC

1.0 Introduction

On August 23, 2023, Garrett M. Tunison, PWS of Tunison Environmental Consultants, LLC, visited the property at 365 Main Street (Assessor's Parcel ID Numbers: L 131/ 1/ 5 & L13/ 1/ 3), Agawam, Massachusetts (refer to Figure 1, Site Locus Map) to inspect the wetland alterations under a current Agawam Conservation Commission Wetlands Violation (refer to Attachment 1, Agawam Conservation Commission Violation Letter). The soils and ground cover within the area where the vegetation was cut appeared to be intact except for a few tire marks in the wetland (refer to Attachment 2, Site Photographs, Photos 1 through 4). The wetland alterations consisted of cutting vegetation including many herbs, shrubs and some trees. TEC identified the cutting of 17 trees including 2 Red Maple (*Acer rubrum*), 1 Eastern White Pine (*Pinus strobus*), 2 Quaking Aspens (*Populus tremuloides*), 2 Pin Oaks (*Quercus palustris*), 3 Tree of Heaven (*Ailanthus altissima*) and 7 Black Locust (*Robinia pseudoacacia*). The cutting occurred in the southern half of the site with the 16 cut trees that were mostly visible but there could be 1 or 2 additional trees in the pile of removed trees that weren't visible. Most of the trees were from the 100 yr. floodplain and not the delineated vegetated wetlands. Almost all of the vines cut on the site were invasive Oriental Bittersweet. The shrubs were mostly Blackberries, Black Raspberry, Multiflora Rose, Glossy Buckthorn and Common Buckthorn with a few of the native shrubs mentioned above with some sporadic Common Witch Hazels (*Hamamelis virginiana*) and Smooth Sumacs (*Rhus glabra*). At the time of the wetland delineation, many of the cut stalks were beginning to regrow, including most of the cut tree stumps. Hundreds of invasive plant stalks were observed at the site and in the attached photographs that were cut. These invasive plant stalks were mostly Oriental Bittersweet (*Celastrus orbiculata*) and Common Mugwort (*Artemisia vulgaris*). These species have begun to regrow on the site and are dominating the western portion of the cut area between the access drive, Wetland C and along the western edge of Wetland A. The area where shrubs had been cut along with the 17 trees occurred is approximately 1.8 ac. of Wetland A and the adjacent floodplain to the east. Many of these areas have sprouted new herbs, shrubs and trees along with new sprouts on the basal areas of the cut shrubs and trees. This is the same for the 100-yr. floodplain. Native wetland vegetation is thriving within the cut areas of Wetland A and B.

The site is approximately 25.3 acres and appears to be relatively flat with only a slight slope from north to south and east to west. All areas of the site are highly disturbed and appeared to have been cleared in the past. Most areas of the site lack an "O" and "A" Horizon soils and there is a lot of trash and debris on the site that likely came from the old landfill and previous paintball playing fields (Attachment 2, Site Photographs, Photos 5 through 12). There are many invasive plants including Garlic Mustard (*Alliaria petiolata*), Common Mugwort and Oriental Bittersweet in the herbaceous layer; Glossy Buckthorn (*Frangula alnus*), Multiflora Rose (*Rosa multiflora*), Tartarian Honeysuckle and an occasional Autumn Olive (*Elaeagnus umbellata*) in the shrub layer and Tree-of-



Heaven and Black Locust in the tree layer (refer to the attached Site Plant List within Attachment 3, Wetland Resource Areas Delineation Report). The site is highly disturbed including garbage, yard debris, and fill materials (asphalt, brick and concrete chunks) scattered throughout the western portion of the site (refer to Attachment 2, Photos 5 through 12). Please note, these areas of trash and debris precede the current ownership of property and the wetland violation. The northern portions of the site consist of an existing paintball and air-soft facility that also precede the current owner.

2.0 Wetland Resource Areas

Three wetland resource areas were delineated on the site as Wetlands A, B and C. A Wetland Resource Area Report has been prepared and is included as an attachment to this Wetland Restoration Plan (Attachment 3). Wetlands A and B likely connect east of the site along the drainage wetlands to the adjacent farm fields. Wetland C is an isolated wetland that appears to have been dug and is a drainage ditch that connects to a larger stormwater basin. The entire site is within the 100 yr. floodplain or Bordering Land Subject to Flooding to the Westfield River. Wetlands A and B are gently sloping where water appears to occur within 12 in. of the soil surface during periods of substantial precipitation. The area of the wetlands has likely occurred in recent years as soil matrix colors mostly ranged from 10YR 6/1 to 10YR 6/4 in the "B" Horizon with depletions that were approximately 10YR 6/1 or 10YR 6/2 in color. There were many upland plants (UPL) or facultative upland (FACU) occurring in the delineated wetlands and most wetland plants were facultative (FAC). There were a few pockets of mostly dominant facultative wetland (FACW) plants such as Sensitive Fern (*Onoclea sensibilis*) in the herbaceous layer and Silky Dogwood (*Cornus amomum*) in the shrub layer. Sensitive Fern appeared to be popping up throughout Wetland A after the tree and shrub layers had been cut along with a few patches of Oriental Bittersweet.

3.0 Cutting of Vegetation

Invasive plant species exist along the eastern and northeastern edge of Wetland A and the 100 yr. floodplain. Most of these invasive plants in the wetland included Oriental Bittersweet in the vine layer; Common Buckthorn, Glossy Buckthorn and Multiflora Rose in the shrub layer and Black Locust and Tree-of-Heaven in the tree layer. The majority or approximately 60% to 70% of the vegetation cut was invasive plants and only the remaining vegetation consisting of native herbs, shrubs and trees (refer to Attachment 2, Site Photographs, Photos 13 through 17). The native plant species that occurred within the wetland area and surrounding 100 yr. floodplain included Wild or False Lily-of-the-Valley (*Maianthemum canadense*), Thin-leaved Sunflower (*Helianthus divaricalus*), Purple or Red Clover (*Trifolium pratense*), White Heath Aster (*Symphyotrichum ericoides*), several species of goldenrods (*Solidago spp.*), Sensitive Fern, Cinnamon Fern (*Osmundastrum cinnamomeum*), a few Royal Fern (*Osmunda spectabilis*), Hay-scented Fern (*Dennstaedtia punctilobula*) and upland and wetland

grasses (*Gramineae spp.*) in the herbaceous layer; Poison Ivy (*Toxicodendron radicans*), Virginia Creeper (*Parthenocissus quinquefolia*) in the vine layer; Silky Dogwood, Blackberries (*Rubus spp.*), Black Raspberry (*Rubus occidentalis*), Highbush Blueberry (*Vaccinium corymbosum*), Southern Arrowwood (*Viburnum dentatum*) and some Common Winterberry (*Ilex verticillata*) and Northern Spicebush (*Lindera benzoin*).

4.0 Wetland Restoration

Restoration of the tree and shrub layers is proposed within the cut area along with seeding of the herbaceous layer with native wetland vegetation found within Wetland A in areas of bare soils or where the majority of the herbaceous layer was removed since it was mostly invasive plants. Wetland C has not been cut or disturbed but contain some invasive plants and Wetland B has only been partially cut within the northern 2/3's of the delineated area. Wetland B only contains a few invasive plants that will be weeded first. Prior to the restoration, the invasive plant species will be removed as part of an Invasive Plant Species Eradication or Management Plan.

4.1 Goals of the Wetland Restoration

Our goals resulting from the invasive plant species eradication plan and the wetlands and restoration of the naturally forested 100-yr. floodplain area are to: 1) removal and eradicate any invasive plant species from identified within or adjacent to the disturbed areas; 2) restore the areas of cut wetland vegetation with native vegetation; and 3) ensure the wetland restoration area flourishes with native vegetation. This wetland restoration area should contain native vegetation observed on the site that provides significant wildlife habitat. It is anticipated the wetland restoration area and remaining ecological restoration area (including impacted 100-yr. floodplain area) will contain at least 75% native vegetation from planting and seeding after two growing seasons if this plan is followed.

4.2 Invasive Plant Species Eradication or Management Plan

Invasive plant species eradication is discussed below that has been prepared from our site visits. This document has been developed to ensure success of the eradication or management of invasive plant species and wetland restoration to occur within the areas that have been recently disturbed by cutting and removing vegetation (mostly invasive plant species) without a permit. A few additional areas of invasive plants have been identified along the western and northern portions of the site that will need to be addressed under this plan (refer to Attachment 2, Photographs, Photos 13 through 15). This document will provide a guide for the landscaper or contractor to complete the invasive plant species eradication and wetland restoration properly and successfully.

It is the experience of TEC to prioritize the removal all of the invasive plants during the first year of the wetland restoration. There has been extensive invasive plant growth in the disturbed portions of the wetlands and 100-yr. floodplain areas for many years. We recommend removing the remaining invasive plant species from the wetland and natural 100-yr. floodplain areas on the site. This will benefit the restoration efforts and the property owner as the eradication or management of these species will be complete or manageable once the below restoration plan is followed which will result in minimal costs and a successful wetland and floodplain area restoration. Without removing the remaining invasive plants, weeding and cut-and-treating the remaining large invasive plants; the invasive plants will remain and dominate the site as they have for years.

4.3 Invasive Plant Species Eradication

This Restoration Plan has been designed to first remove the majority of the remaining plants through weeding and using the "cut-and-treat" method of invasive plant eradication for large shrubs and trees. This plan is designed for complete eradication of the invasive plant species over numerous growing seasons with the bulk of this work occurring during the first one to three growing seasons with only light maintenance thereafter. There are invasive plants located on the properties to the north and west of the subject property so it is uncertain if we can fully eradicate the invasive plants on the site or almost eliminate them with light annual maintenance after the first three years. Regardless if eradication or light maintenance is needed, the removal of the invasive plants will benefit both the wetlands and the site as the invasive plants will need to be addressed from both a conservation and land management perspectives. This work should be done regardless of the wetland resource area protection.

This eradication program is structured to begin in the summer (late August to September) and/or fall of 2024 (September and/or October) and continue through at least the 2027 growing season. Upon completion of the initial eradication of invasive plant species removal and treatment, the restoration area will be evaluated in the following spring to determine if a significant amount of the invasive plants (80% to 85% reduction or greater) have been removed. The invasive plant species eradication plan will continue throughout the planting and monitoring of the wetlands and floodplain restoration. These areas will be weeded in the summer for any seedlings and will be weeded and if they have root systems that are difficult to remove such as large woody shrubs and vines, they will also be cut and treated or pulled and the remaining roots will be treated. Invasive plant species make up approximately 30% to 95+% coverage within the wetland (eastern portion of Wetland A) and floodplain restoration areas. Areas of invasive plants within the current tree line contain less invasive plants (approximately 10% to 40% invasive plants) than areas such as the

northern and eastern portions of Wetland A (approximately 95+% invasive plants).

4.4 Invasive Plants

Ten invasive plant species were observed on the site (refer to Attachment 2, Photographs, Photos 13 through 17). Most were woody shrubs or vines. Nine of these species will be targeted which include Garlic Mustard, Common Mugwort, Oriental Bittersweet, Glossy Buckthorn, Multiflora Rose, Tartarian Honeysuckle, Autumn Olive, Tree-of-Heaven and Black Locust. Three other invasive plant species observed on the site and within the wetlands and floodplain which included Curly Dock, Common Mugwort and Climbing Nightshade will not be further discussed as they will be weeded from the site. These three invasive plant species will not be discussed further in this document as they will be weeded and discarded into plastic contractor's bags as they are encountered in the wetlands and floodplain area. All invasive plants that are weeded and cut will be placed on large tarps and cut up and put into large contractor's black bags for solarization.

There are a few large Oriental Bittersweets, Glossy Buckthorns, Multiflora Roses, Autumn Olives, Tree-of-Heavens and Black Locust that will need to be cut down and their stumps/stalks treated. There are only patches of Garlic Mustard that can easily be weeded and there is a lot of Common Mugwort in large patches or areas but it can also be easily weeded. All weeded plants will immediately be placed in 5 gal. buckets, contractor's bags or on tarps to be placed into black contractor's bags to be removed from the forested area of the site and placed in an open area for solarization.

The seven of the ten invasive plants listed above are described below in detail in Sections 4.3.1 through 4.3.7. Information provided below for each plant species was acquired from publications (such as factsheets, invasive plant books or booklets) and websites from the Plant Conservation Alliance's Alien Plant Working Group, Penn State University, University of Connecticut, National Park Service, The Nature Conservancy, the NRCS, U.S. Fish and Wildlife Plant Data Base (online) and the Massachusetts Natural Heritage Program.

Invasive plants become established and can often dominate landscapes causing over \$120 billion dollars in damages in the U.S. alone each year. The plants typically have very few native or natural enemies and as a result often thrive in our local environments. They are spread by: 1) animals through their waste, on their skin, fur or feathers; 2) by treads on shoes, tires, tracked vehicles, or other machinery; 3) being transported down streams, other waterways, water bodies, or coastal waters; 4) airborne seeds; 5) people's clothes; 6) yard or construction debris; 7) soils containing seed banks; or even by 8) landscapers or being supplied by plant nurseries. Invasive plants alter natural habitats often reducing

the numbers and diversities of native plants and animals. This can be detrimental to our natural environment and significantly alter ecosystems.

4.4.1 Oriental Bittersweet

Oriental Bittersweet (refer to Attachment 2, Photographs, Photo 25) is a deciduous woody vine that was introduced to the United States in the mid-1800's and has spread throughout much of the Country. This species grows around the trunks, stems and stalks of surrounding vegetation and chokes them out. They can change the natural nutrient cycling systems that take place in our natural environments. These plants can be found along roadsides, trails, fields, wastelands, landscaped areas, sand dunes, and forest interiors.

Oriental Bittersweet looks similar to native American Bittersweet (*Celastrus scandens*) but it can be distinguished by their leaves and fruit. Oriental Bittersweet has fruit and flowers located within the leaf axils along the length of the stem. Their fruit ripen in the fall and have yellow capsules. American Bittersweet only has fruit and flowers in terminal clusters. Their fruit also ripen in the fall as do Oriental Bittersweet but their capsules are orange. Leaves are used as the most distinguishable feature to tell the difference between Oriental Bittersweet and American Bittersweet throughout their life cycle (seedling to maturity). The best time and way to identify the difference between these two species is to observe them at leaf out when two sides of the leaf of the Oriental Bittersweet are folded against each other (conduplicate) and tightly packed in the bud when they emerge in the spring. The leaves of the American Bittersweet have leaf margins rolled in like a scroll (involute) and are not as tightly packed in the bud. An additional method to distinguish the leaves, although not as reliable, is to use the ratio of length-to-width of the leaves which is often greatest for American Bittersweet (90% chance) when it is equal to or greater than 2. If the ratio is less than or equal to 1.4, it is likely (90% chance) Oriental Bittersweet.

Hand pulling (weeding), cutting, and herbicides work best, especially in conjunction with each other. When hand weeding, make sure to get all of the roots to avoid re-growth. Any remaining roots that can't be removed should be treated with a direct (apply directly with a cotton swab, small paint brush or dabbing wand applicator) application of herbicide. Cutting should include cutting the vine near its base (within 2 inches of the ground) and removing the vine from surrounding vegetation, followed by treating the basal area of the vine with herbicide containing 25% glyphosate (such as Accord or Roundup Pro) works best. Remove all cut vines including any berries observed to reduce local seeding by placing them in containers or large plastic bags from where

they were cut. These methods will likely require 2 to 3 years of repeat efforts to ensure full removal of these plants.

This woody vine occurs throughout the wetland and restoration area restoration and makes up approximately 70% to 80% of the invasive plant species at the site. The largest densities of this vine occur in the southeastern portion of the site in and around Wetland C.

Tartarian Honeysuckle (refer to Attachment 2, Invasive Plant Photographs, Photo 21) is a tall rounded or upright oval deciduous shrub that can reach heights of 7 to 12 feet. This plant often is one of the first shrubs to leaf out in the spring and one of the last to lose its leaves in the fall holding an advantage over other native shrubs. It often grows with a few to several stems occurring from the base that are spreading. It has a shallow woody root system that prefers mesic loamy soils but often grows in sandy loam to sandy soils. Leaves are rounded to slightly ovulate in shape and smooth along their margins. The base of each leaf is rounded to slightly cordate but the tip tapers to a blunt point. The upper leaf surface is a medium green color while the lower surface is light green. Leaves grow in opposite pairs along their shoots and range from 1-½ in. to 2 in. long and ¾ to 1-½ in. wide. Their bark is gray to brown with narrow ridges that develop vertically shredded strips of bark as they age. Young shoots appear light green to reddish brown that are predominantly smooth. Its branches are quite fragile as they are hollow. These branches appear glabrous with a brownish to grey color in winter and a yellow to tannish color during spring and summer. The fruit is small in size (average 0.25 in. or 0.6 cm. in diameter) and range in color from orange to red that may persist throughout the winter. Each berry contains several small seeds. Its flowers appear in mid-spring (May through June) that form in pairs in the axils of the leaves. The flowers are tubular and pink to red and white in color and bloom for approximately three weeks. These flowers have a sweet fragrance common to other honeysuckles and are approximately ¾ in. long and across. The flowers consist of a corolla with five long and narrow petals containing five stamens of white filaments and yellow anthers with a pistil carrying a single style.

This plant was introduced to the United States in 1752 as an ornamental plant from central China. It is native to Siberia and other parts of eastern Asia. It grows in uplands along roadsides and trails, in old fields, thickets, fencerows, woodland edges, woodlands, and disturbed areas. Once these plants become established and produce fruit, they infiltrate into the naturally vegetated areas very quickly and are moderately difficult to remove once in large numbers due to their seed base.

Hand pulling (weeding), cutting, and herbicides work best, especially in conjunction with each other. Hand weeding only works with newly established seedlings that are not part of an older, established plant or its

roots. Make sure to get all of the roots to avoid re-growth when weeding any seedlings. Any remaining roots that can't be removed should be treated with a direct (apply directly with a cotton swab, small paint brush or dabbing wand applicator) application of herbicide. Mowing or cutting the stalks or stems near its base (within 2 inches of the ground), removing the plant in large contractor's bags followed by treating the remaining basal area of the plant with herbicide containing glyphosate (such as Roundup Pro) seem to work best. Mowing will not occur on this project. These methods will likely require 2 to 3 years of repeat efforts to ensure full removal of these plants.

This vine occurs along the western and northern portions of the site and makes up approximately 8% to 10% of the invasive plants in the areas identified to contain invasive plant species. The property owner was trying to remove these vines when they were stopped under the violation.

4.4.2 Glossy Buckthorn

Glossy Buckthorn is a tall deciduous shrub or small tree that can reach heights of 20 to 25 feet and have a trunk up to 10 inches in diameter. It often grows with a few to several stems occurring from the base that are spreading with loosely branched crowns. Leaves are thin and glossy with an oval or elliptical shape (not toothed). The upper leaf surface is shiny while the lower leaf surface can be hairy or smooth. Their bark is gray to brown with prominent elongated and light-colored lenticels. The fruit is small in size and range in color from green to red to blackish.

This plant was introduced in Wisconsin in 1849 as an ornamental plant to be used in a hedgerow where it spread across Canada and the northern United States. It grows in wetlands and uplands, along roadsides and trails, in old fields, and in woodlands. Once these plants become established and produce fruit, they infiltrate into the naturally vegetated areas very quickly and are difficult to remove once in large numbers.

Hand pulling (weeding), cutting, and herbicides work best, especially in conjunction with each other. Hand weeding only works with newly established seedlings that are not part of an older, established plant or its roots. Make sure to get all of the roots to avoid re-growth when weeding any seedlings. Any remaining roots that can't be removed should be treated with a direct (apply directly with a cotton swab, small paint brush or dabbing wand applicator) application of herbicide. Mowing or cutting the stalks or stems near its base (within 2 inches of the ground), removing the plant in large contractor's bags followed by treating the remaining basal area of the plant with herbicide containing glyphosate (such as Roundup Pro) seem to work best. Mowing will not occur on this

project. These methods will likely require 2 to 3 years of repeat efforts to ensure full removal of these plants.

Glossy Buckthorn was observed scattered throughout the wetland areas making up approximately 5% to 7% of the invasive plant species.

4.4.3 Multiflora Rose

Multiflora Rose is a large deciduous, woody shrub that was introduced in 1866 from rootstock sent from Japan for ornamental roses. Its use was promoted in the 1930's for use in erosion control and "live fences" for livestock. It occurs along roadsides, paths, in disturbed lands or wastelands, adjacent to and within fields, forest edges and light gaps in forest areas. Most of these plants develop from seeds in the soil and are often spread by wildlife that feed on the rose fruits which are called, "hips". They can also form new plants when long branches touch the ground and get covered with dirt which start to grow roots. They can be dispersed over long distances and seeds can remain viable for up to 10 to 20 years in the soil.

These rose bushes are thorny with arching brown (mature stems) to greenish and/or reddish stems. The leaves are divided into five to eleven sharply toothed leaflets with a pair of fringed bracts at the base of each leaf stalk. Beginning in May or June this rose has abundant small (about an inch across) white to pinkish showy flowers. Small rose hips develop in summer, become leathery in the fall, and remain on the plant through winter. These roses can grow up to 10 feet high and 10 feet wide. The closest relatives to this rose are the Scott Rose (*Rosa spinosissima*) and the Memorial Rose (*Rosa wichuraiana*) which are not present on the site.

Hand pulling (weeding), cutting, and herbicides work best, especially in conjunction with each other. Hand weeding only works with newly established seedlings that are not part of an older established plant or its roots. Make sure to get all of the roots to avoid re-growth when weeding any seedlings. Any remaining roots that can't be removed should be treated with a direct (apply directly with a cotton swab) application of herbicide. Mowing or cutting the stalks or stems near its base (within 2 inches of the ground), removing the plant in large contractor's bags followed by treating the remaining basal area of the plant with herbicide containing glyphosate (such as Roundup Pro) seem to work best. Mowing works well were applicable but often requires 6 to 8 times a year over 4 to 6 years to achieve complete removal but this method will not be used in this eradication plan as there will not be any mowing in the buffer zone area. These methods will likely require 2 to 3 years of repeat efforts to ensure full removal of these plants.

This shrub makes up approximately 2% to 3% of the invasive plant species at the site and was observed along the western portion of the site.

4.4.4 Tartarian Honeysuckle

Tartarian Honeysuckle is a tall rounded or upright oval deciduous shrub that can reach heights of 7 to 12 feet (refer to Attachment 2, Site Photographs, Photo 16). This plant often is one of the first shrubs to leaf out in the spring and one of the last to lose its leaves in the fall holding an advantage over other native shrubs. It often grows with a few to several stems occurring from the base that are spreading. It has a shallow woody root system that prefers mesic loamy soils but often grows in sandy loam to sandy soils. Leaves are rounded to slightly ovulate in shape and smooth along their margins. The base of each leaf is rounded to slightly cordate but the tip tapers to a blunt point. The upper leaf surface is a medium green color while the lower surface is light green. Leaves grow in opposite pairs along their shoots and range from 1-½ in. to 2 in. long and ¾ to 1-½ in. wide. Their bark is gray to brown with narrow ridges that develop vertically shredded strips of bark as they age. Young shoots appear light green to reddish brown that are predominantly smooth. Its branches are quite fragile as they are hollow. These branches appear glabrous with a brownish to grey color in winter and a yellow to tannish color during spring and summer. The fruit is small in size (average 0.25 in. or 0.6 cm. in diameter) and range in color from orange to red that may persist throughout the winter. Each berry contains several small seeds. Its flowers appear in mid-spring (May through June) that form in pairs in the axils of the leaves. The flowers are tubular and pink to red and white in color and bloom for approximately three weeks. These flowers have a sweet fragrance common to other honeysuckles and are approximately ¾ in. long and across. The flowers consist of a corolla with five long and narrow petals containing five stamens of white filaments and yellow anthers with a pistil carrying a single style.

This plant was introduced to the United States in 1752 as an ornamental plant from central China. It is native to Siberia and other parts of eastern Asia. It grows in uplands along roadsides and trails, in old fields, thickets, fencerows, woodland edges, woodlands, and disturbed areas. Once these plants become established and produce fruit, they infiltrate into the naturally vegetated areas very quickly and are moderately difficult to remove once in large numbers due to their seed base.

Hand pulling (weeding), cutting, and herbicides work best, especially in conjunction with each other. Hand weeding only works with newly established seedlings that are not part of an older, established plant or its

roots. Make sure to get all of the roots to avoid re-growth when weeding any seedlings. Any remaining roots that can't be removed should be treated with a direct (apply directly with a cotton swab, small paint brush or dabbing wand applicator) application of herbicide. Mowing or cutting the stalks or stems near its base (within 2 inches of the ground), removing the plant in large contractor's bags followed by treating the remaining basal area of the plant with herbicide containing glyphosate (such as Roundup Pro) seem to work best. Mowing will not occur on this project. These methods will likely require 2 to 3 years of repeat efforts to ensure full removal of these plants.

This shrub occurs along the western edge and within Wetland A and is only about 1% to 2% of the invasive plants on the site. Several of these shrubs were cut down during the violation by the property owner.

4.4.5 Autumn Olive

Autumn Olive is a deciduous shrub that can grow to 20 feet in height. Leaves are alternate and egg or lance-shaped and smooth margined. The leaves are dull green on the upper surface and often silvery with brownish scales on the underside. The stems and buds are often silvery to rusty colored with scales. Autumn Olive have dense clusters of pale-yellow flowers that occur in June and July. Small reddish brown to pink fruit dotted with brown or silvery scales are produced in August through October. This plant was introduced to the United States in 1830 and was widely planted as an ornamental and in clusters as a windbreak.

Hand pulling (weeding), cutting, and the use of herbicides work best, especially in conjunction with each other. Hand weeding only works with newly established seedlings that are not part of an older, established plant or its roots. It is best to pull these seedlings after recent rains when the soil is loose. Make sure to get all of the roots to avoid re-growth when weeding any seedlings. Any remaining roots that can't be removed should be treated with a direct (apply directly with a cotton swab) application of herbicide. Mowing or cutting the stalks or stems near its base (within 2 inches of the ground), removing the plant in large contractor's bags followed by treating the remaining basal area of the plant with herbicide containing glyphosate (such as Roundup Pro) seem to work best. These methods will likely require 2 to 3 years of repeat efforts to ensure full removal of these plants.

Autumn Olive was observed scattered in the western portion of the site and consists of approximately 1% to 2% percent of the invasive plant species. Most of these shrubs were cut down by the property owner during the violation.

4.4.6 Tree of Heaven

Tree of Heaven is a fast growing deciduous tree that can reach heights of 80 to 100 ft. with a diameter of 3 to 6 ft. It was introduced to the United States in the Philadelphia, PA area in 1784 and was later introduced to the West Coast in the 1850's by immigrants. It was initially used as an urban street tree and has been well documented to have been used along the streets in Baltimore and Washington D.C. This tree is native to northeast and central China and Taiwan. A single female tree can produce up to 300,000 seeds which are often wind spread and they can produce seeds once a sapling becomes two years old. These trees are not only prolific but have allelopathic chemicals in their roots, leaves, and bark that can limit or prevent other native plants from becoming established. If the roots, leaves, twigs, bark or any other portion of this tree are crushed or damaged, they will give off a strong odor. This tree's sap can affect human health resulting in skin irritation, dermatitis, and may even lead to myocarditis (inflammation of the heart muscle) in rare occasions if any portions of the plant puncture skin. It is recommended that gloves and protective clothing be worn when removing this tree. Tree of Heaven can be found along roadsides, parking lots, railways, trails, fencerows, woodland edges, wastelands, fields, logging sites, mining sites, and forest openings.

Tree of Heaven looks similar to Black Walnut (*Juglans nigra*) and Sumacs (*Rhus spp.*) but it can be distinguished by their leaves, fruit, and bark. Their leaves are pinnately compound having a central stem with leaflets that are attached on each side. A leaf can range from approximately 1 to 4 ft. in length with 10 to 40 leaflets. These leaflets are lance shaped with smooth margins and one or two protruding bumps known as glandular teeth. The bark of this tree is smooth and green when it is young turning light brown to grey resembling the skin of a cantaloupe as it ages. Their twigs are brittle and alternate on the tree with a greenish to brown color. They lack a terminal bud but have large "v" or heart shaped leaf scars. Once their twigs are broken, a large spongy brown center or pith is exposed. The Tree of Heaven has small yellowish-green flowers that occur in June. Seeds appear during summer as 1 to 2 in. long twisted samara or wings with one seed per samara. Samaras occur in clusters which can be produced in the hundreds of thousands on a single tree and persist through winter.

Hand pulling (weeding), cutting, and herbicides work best, especially in conjunction with each other. When hand weeding, make sure to get all of the roots to avoid re-growth. Any remaining roots that can't be removed should be treated with a direct (apply directly with a cotton swab, small paint brush or dabbing wand applicator) application of herbicide. Cutting should include cutting the vine near its base (within 2 inches of the ground) and removing the vine from surrounding

vegetation, followed by treating the basal area of the vine with herbicide containing 25% glyphosate (such as Accord or Roundup Pro) works best. Remove all cut vines including any berries observed to reduce local seeding by placing them in containers or large plastic bags from where they were cut. These methods will likely require 2 to 3 years of repeat efforts to ensure full removal of these plants.

This tree species occurred in the tree and sapling layers but only makes up approximately 2% to 3% of the restoration area. Several of these trees were cut down by the property owner during the violation.

4.4.7 Black Locust

Black Locust is a medium sized deciduous tree that is originally from the southeastern (southern Appalachia) and central (Ozarks) United States and some areas of Europe (refer to Attachment 2, Site Photographs, Photo 17). It has spread north throughout the northeastern and northern central United States. Black Locust was used in construction projects since their root systems are great for stabilizing soils. Seedlings and sprouts of this tree can grow rapidly and can be identified by their long paired thorns. They can rapidly overtake an area creating a dense tree layer that crowds or shades out native plants by blocking sun light and depleting soil moisture. This tree produces many seeds that seldom germinate but they spread from root suckering. Their nitrogen-fixing root nodules allow these plants to grow just about anywhere, even areas with little nutrients. They grow best in well drained soils with full sunlight. These trees are most often found along woodland edges, in abandoned fields, pastures, wastelands, and along roadsides.

The Black Locust typically grows between 40 to 50 feet tall but can grow from 70 to 100 feet in height. This tree grows relatively upright with a somewhat narrow crown that is widest at the top. Its bark can be a dark greyish brown to a greenish brown to a yellowish brown with distinctive thick rope-like ridges with furrows interlaced. The trunk is long and straight and its branches are often upright to irregular. Leaves are alternate along the stem with smaller oval or elliptical leaflets. Leaves are 6 to 14 inches long and include 7 to 19 leaflets. The leaflets are dark dull green to bluish green above and yellow below. This tree produces clusters of pea-like flowers that are creamy white in color with a yellow patch on the uppermost petal and are very fragrant. Its flower clusters are 4 to 8 inches long that occur in late May through early June for approximately one week. This tree's fruit consists of flat long smooth pods that is approximately 2 to 4 inches in length which mature in October and persist as a dried brown fruit. Each pod contains 4 to 8 seeds.

This species was observed scattered along the western and northern areas of the site in the floodplain and in Wetland A. This tree is approximately 8% to 10% of the invasive plant species on the site. Several of these trees were cut down by the property owner during the violation.

4.5 Invasive Plant Species Removal

The invasive plant species removal or eradication will be considered to be the first part of the Wetland Restoration Plan.

Removal of the invasive plants will begin along the northeastern portion of the site and continue south and then west to the driveway until all invasive plants have been weeded and/or cut-and-treated. The ecologist or wetland scientist will identify the invasive plants and show the landscapers how to identify each species seen. They will also show the landscapers how to cut, tell them which plants to weed or pull, and how to bag the plant waste to avoid seed dispersion. The plants will be weeded, cut, plant waste removed, and the basal area of large shrubs, saplings and trees will be treated with herbicide as the team moves along the site from east to west. The majority of the invasive plants that are immature or easy to extricate from the soil will be weeded/hand pulling such as young Glossy Buckthorn, Japanese Honeysuckle, Tartarian Honeysuckle, Eastern Burning Bush, Multiflora Rose, Japanese Barberry, Oriental Bittersweet, and Autumn Olive. Seedling Japanese Knotweed will also be weeded.

Common Mugwort, Curly Dock, Garlic Mustard and Climbing Nightshade plants identified that will only be weeded and not cut-and-treated. Plants with a stem or stalk that is greater than ½ in. diameter may be cut and treated with herbicide but weeding them from the site will also be attempted prior or in place of the cut-and-treat method. Any plant with a stem or trunk greater than 1-½ in. will be cut and treated with herbicide dabbed on its cut stem or trunk (with a dabbing brush or dapping wand) by an herbicide applicator with a MA Herbicide Applicator's License under the direct supervision of a wetland scientist or ecologist. The wetland and floodplain area to be restored may be divided into transects to aid with coverage of the area and to avoid additional movement within the restoration area that could damage native vegetation. The team will consist of at least three individuals. These individuals include: 1) the ecologist; 2) a landscaper who is cutting/weeding and possibly bagging; 3) a landscaper (who has an MA Herbicide Applicator's License) that is treating the cut basal area of large shrubs under the guidance of the ecologist; and 4) possibly an additional landscaper that is cutting/weeding and bagging the plant waste. Once a contractor's bag is full of plant waste, it will be tied closed and placed on the lawn edge by the driveway to be picked up by the landscapers once a transect is completed and placed in a truck bed. Mowing of invasive shrubs and herbs will not occur on this site as all work is within wetland resource areas. After a section or transect of the restoration is completed, the site ecologist or wetland

scientist will inspect each section or transect to ensure that all invasive plants have been removed.

All invasive plant species above will be weeded except for large Oriental Bittersweet, Glossy Buckthorn, Multiflora Roses, Tartarian Honeysuckle, Autumn Olive and Black Locust as stated above. The small to medium sized invasive plant species will be weeded and discarded in black contractor's bags for offsite removal or in an open area outside of the forested area of the site for solarization.

4.6 Herbicide Use

Herbicide use has been designed into this plan with the intention of using it as infrequently or as sparingly as possible. It is the opinion of this office as a result of several recently published studies that large-scale use of herbicides, including those with glyphosate, negatively impact the environment. Glyphosate that enters surface waters has been linked to DNA damage in fish and other species. Glyphosate is a heavy salt that does breakdown organically into natural elements over time. No spraying release of this herbicide over large areas will occur under this plan. Two brands of glyphosate based herbicides may be used one is Accord XRT II for any aquatic invasive plant stalks or roots and the other will be either RoundUp Pro or Roundup Custom. This herbicide will be applied directly and sparingly to cut basal areas or visible roots only when physical removal of the plant is not possible or is more damaging to surrounding natural vegetation. Herbicide application will occur through the use of cotton swabs, paintbrushes and/or dabbing wands. Dabbing wands are typically sheaths of material that are secured to the sprayer tip and metal shaft of the sprayer to become soaked with herbicide that can be gently placed on the cut basal area of the plant where it will accumulate on the cut area.

Three brands of herbicide have been mentioned within this plan. All three brands contain the active ingredient glyphosate. Accord XRT II is a brand/product that is typically used in aquatic settings to control emergent vegetation. Roundup Pro or Roundup Custom and Accord XRT II contain surfactants which help the herbicide stick to the plant surface where it is applied. This helps it penetrate into the plants tissue, especially when it is a hard woody surface and may be exposed to rain within 3 to 6 days of application. Without the surfactants, the life of the herbicide is greatly reduced and may not be effective. This is especially true when dealing with areas where rainfall may occur within 3 to 6 days after the application of the herbicide.

The application method chosen in this plan (direct basal area application) was determined based on experience and research to provide the most effective manner of application with the highest level of protection for the environment. The time of application has been based upon the end of the growing season so that the plant will absorb the herbicide and store the herbicide in its root system

with its sugars to draw from when it needs energy to grow in the spring. This provides a high rate of efficiency for eliminating invasive plant species within 2 to 3 years if proper weeding programs are in place and areas surrounding the Restoration Area are also free of invasive. Targeting the basal and exposed root areas of shrubs and trees minimizes the herbicide application so that it is almost completely absorbed by the plant unlike foliar spraying. Our Company's experience and research of herbicides that contain glyphosate are that it is harmful to fish and other aquatic organisms if it enters a waterway, waterbody, or coastal waters. It can act as a bio-inhibitor impacting fish reproduction. This is why we have the herbicide applied to the basal area of invasive plants and not sprayed. It is likely that RoundUp Pro or Roundup Custom will be the herbicide chosen to be applied on the cut basal areas of the invasive plant species. The majority of the proposed cut-and-treat method will occur west or north of the wetlands with a few potential spots in the wetlands. Please note, these wetlands rarely contain water but contain high groundwater that reaches the upper 12 in. of the soil.

4.7 Solarization and Disposal

Once the invasive plants are placed in large black contractor's bags, they will be removed from the forested area of the site at the end of each work day and placed along the parking lot of the site. The bags of invasive plant material will either be removed from the site for offsite solarization or kept in an open area of the site for solarization. Solarization will occur over 6 months to ensure the plant material (roots, small branches that could contain seeds, fruits and seeds) will be dead and rotting to ensure no invasive plants can't spread. The best method of disposal is to bring them to a transfer station or place them in a dumpster that is picked up by a contracted waste disposal company that takes its waste to a facility with an incinerator but this process has become unfeasible as costs have risen sharply (\$4,000+ per roll-off dumpster). Burying the plant waste deep such as in a landfill or other location is also a potential solution is the next best option following solarization but taking them anywhere where they can be used for mulch, compost or future top soil should be prohibited. This method of disposal will ensure that no invasive plants will be allowed to spread or resurface in the surrounding environment. It is recommended that a contractor who performs the invasive plant species eradication or is a disposal company that either transfers the plant waste and any refuse from the site follows the decontamination processes discussed below in Section 4.7 Decontamination Plan to a private or public incinerator.

4.8 Decontamination Plan

The spread of invasive plants can occur as a result of the distribution of seeds, roots, and even stem fragments from invasive plant species and can occur on many different sources such as personnel clothing, vehicles and/or machinery.

Any of these sources, such as clothing, tools, or vehicles, need to be inspected and likely cleaned daily prior to leaving the site and at the end of the project or any time before or after leaving the site. Vehicles and mechanical equipment shouldn't be an issue at this site so they will not be part of the decontamination. The decontamination protocols will only apply to workers clothing, footwear and mechanical cutting or treatment equipment.

Inspections should be carried out on a staging area dedicated to cleaning personnel, equipment, and vehicles (on the driveway). Effective inspections require good lighting conditions, personnel trained to look for problem areas that are not apparent upon casual observation, and development of protocols and lists of priority invasive species. Effective inspections also require persons who have the task of inspecting vehicles, equipment, and personnel to be dedicated and accountable for their actions. Inspections should include personnel, vehicles, and equipment that are used in locations known to be infested with invasive species. The equipment should undergo a pre-inspection, followed by thorough cleaning and a post-inspection before being allowed to leave the site.

Decontamination of any and all: 1) clothes; 2) shoes, boots, and any other footwear worn on the site; 3) vehicles; 4) trailers; 5) mowing equipment, 6) any earth-moving equipment; and 7) any other machinery or object brought onto the site that may make contact with the ground or site vegetation during the proposed ecological restoration. Decontamination will occur when anything leaves the site at the end of the work day or when work is completed and will include the removal of seeds, fruits, soils, mud, and plant cuttings/fragments from any of the seven itemized categories listed above. Numerous cleaning methods are available to decontaminate workers and equipment of invasive species. A lint roller and whisk broom or small broom works best with a dust pan. Materials removed from each site worker should be swept up or off personnel, boots, and equipment and placed in one of the black contractor's bags containing the plant waste. The use of mowing and construction equipment is unlikely to occur during the times the invasive plant species eradication program will be executed at the site.

5.0 Wetland Restoration Plan

The success of the ecological restoration can only be accomplished with a well-developed and thoroughly followed restoration plan. Portions of the ecological restoration plan described below has been developed from the Massachusetts Department of Environmental Protection, Massachusetts Inland Wetland Replacement Guidelines, September 2022 such as planting densities and percent coverage of restored plants for qualification of the restoration area after two years of monitoring. All activities identified within the ecological restoration area will be supervised by a qualified wetland scientist. Restoration of Wetland A and B and the floodplain area will not occur until approximately 80% to 85% reduction in invasive plant species occurs within the

restoration area. Once the majority of the invasive plants have been removed from the restoration area, the restoration plantings will commence. This will likely occur in the summer (weeding only) or fall of 2026 when the regrowth or sprouting of invasive plants can be evaluated prior to planting.

5.1 Existing Conditions and Functions

The site consists of an area that was recently disturbed from the removal of invasive plants and some native vegetation that was cut in the process within the eastern portion of the site. The remaining portions of the site consist of forested wetland and mixed forested upland that occur within the 100-yr. floodplain to the Westfield River. The areas of the wetland and floodplain restoration include areas of invasive plant species.

5.2 Vegetation

All vegetation chosen to be planted in the ecological restoration areas was observed on or adjacent to the site. Other dominant native vegetation that contains high wildlife habitat value throughout the forested areas of the site will be used for the ecological restoration as described below. The purpose of revegetating the areas where the invasive plant species are being eradicated is to avoid these areas from becoming re-infested with invasive plant species. Re-vegetating areas once occupied by invasive plant species has shown these areas can be ecologically restored and will become re-established with native plants instead of invasive species (invasive plant species numbers typically dwindle to near zero in a few growing seasons). This results in effective restorations that cost less and are successful which occurs in a much shorter period of time, typically within one to two growing seasons for dominant native plants when compared to just treating the invasive plant species.

The planting sequence will include planting the trees first at approximately 10 to 15 ft. on-center, then shrubs will be planted approximately 8 to 12 ft. on-center, followed by seeding. The spacing for most of the wetland restoration area and many portions of the floodplain will be at these planting densities but will not reflect this due to the existing shrubs and trees that have regrown or sprouted on their stumps. The proposed Planting Plan (refer to Attachment 4, Restoration Planting Plan) reflects the general locations of the new or regrowth of native shrubs and trees at the site. Once the plant stock is delivered to the site, the plants will be evaluated to ensure they are the proposed plants, they are delivered with the requested quantities of each plant species, and that they are healthy. The plants will be laid out within the ecological restoration area prior to planting. When all nursery stock is planted, the New England Wetmix will be applied to Wetland A in the areas where the invasive herbs have been removed and any other areas where the herbaceous layer has been damaged from the invasive plant species eradication. New England Conservation/Wildlife Seed Mix

will be applied to 100-yr. floodplain within the restoration area. The same native plant species that are located within the existing buffer zone with high wildlife habitat value will be planted in the restoration area.

There are numerous native trees, shrubs, and many herbs in the restoration area that have been estimated in our planting plan (refer to Attachment 4, Restoration Planting Plan). The densities of native plants have been estimated conservatively as any significant open areas in the vegetative cover following the two years of invasive plant species eradication plan will allow the invasive plants to repopulate and dominate these open patches. This would create additional time, costs, and effort to eradicate the invasive plant species from the restoration area.

The wetland restoration area will be seeded with New England Wetmix in the herbaceous layer within the boundaries of Wetland A and B where the herbaceous layer has been weeded or damaged from the invasive plant species eradication and with New England Conservation/Wildlife Seed Mix in the herbaceous layer in the remaining 100-yr. floodplain of the ecological restoration area where the invasive plant species have been removed. Planting of shrubs and trees will not be distinguished from wetland and 100-yr. floodplain as relatively the same in both areas. 15 Silky Dogwoods, 32 Highbush Blueberries, 22 Northern Spicebushes, 53 Southern Arrowwoods, 37 Common Witch Hazels, and 7 Common Winterberry in the shrub layer; and 27 Red Maples and 21 Pin Oaks trees for the tree layer (Refer to Table 1 below).

Table 1 Wetland Restoration Areas Planting Table				
Plant Species	# of Plants	Plant On Center	Plant Height	Size
New England Wetmix Seed Mix application rates to bare wetland restoration areas: 1 lb./1,200 sq. ft.				
Northern Spicebush (<i>Lindera benzoin</i>)	22	8 – 10 ft.	18 - 24 in.	2 - 4 gal. container
Highbush Blueberry (<i>Vaccinium corymbosum</i>)	17	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container
Southern Arrowwood (<i>Viburnum dentatum</i>)	15	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container
Silky Dogwood (<i>Cornus amomum</i>)	13	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container
Common Winterberry (<i>Ilex verticillata</i>)	7	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container
Pin Oaks (<i>Quercus palustris</i>)	2	10 – 15 ft.	24-30 in.	2 - 4 gal. container
Red Maple (<i>Acer rubrum</i>)	8	10 – 15 ft.	24-30 in.	2 - 4 gal. container
The altered area of Wetlands A and B will include planting of 10 trees and 74 shrubs.				

Table 2 Floodplain Restoration Area Planting Table				
Plant Species	# of Plants	Plant On Center	Plant Height	Size
New England Conservation/Wildlife Seed Mix application rates to bare 100-yr. Floodplain areas: 1 lb./1,200 sq. ft.				
Highbush Blueberry (<i>Vaccinium corymbosum</i>)	15	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container
Common Witch Hazel (<i>Hamamelis virginiana</i>)	37	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container
Southern Arrowwood (<i>Viburnum dentatum</i>)	38	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container
Pin Oaks (<i>Quercus palustris</i>)	19	10 – 15 ft.	24 – 30 in.	2 - 4 gal. container
Red Maple (<i>Acer rubrum</i>)	19	10 – 15 ft.	24 – 30 in.	2 - 4 gal. container
The altered floodplain restoration area will include planting of 38 trees and 90 shrubs.				

New England Wetmix seed mix will be used for the native herbaceous layer within Wetland A and B where invasive plants have been removed. This seed mix contains Fox Sedge (*Carex vulpinoidea*), Hop Sedge (*Carex lupulina*), Bearded Sedge (*Carex comosa*), Lurid Sedge (*Carex lurida*), Nodding Bur Marigold (*Bidens cernua*), Soft Rush (*Juncus effusus*), Grass-leaved Goldenrod (*Solidago graminifolia*), Blue Vervain (*Verbena hastata*), Boneset (*Eupatorium perfoliatum*), Flat-top Aster (*Aster umbellatus*), Hard-stem Bulrush (*Scirpus acutus*), Green Bulrush (*Scirpus atrovirens*), Woolgrass (*Scirpus cyperinus*), Sensitive Fern (*Onoclea sensibilis*), Spotted Joe-Pye Weed (*Eupatorium maculatum*), Water Plantain (*Alisma plantago-aquatica*), Soft-Stem Bulrush (*Scirpus validus*), and Ditch Stonecrop (*Penthorum sedoides*). The New England Wetmix will be applied at a rate of 800 sq. ft./lb. to Wetlands A and C.

New England Conservation/Wildlife Seed Mix will be used in the 100-yr. floodplain where invasive plants have been removed which includes: Virginia Wild Rye (*Elymus virginicus*), Little Bluestem (*Schizachyrium scoparium*), Big Bluestem (*Andropogon gerardii*), Red Fescue (*Festuca rubra*), Switch Grass (*Panicum virgatum*), Partridge Pea (*Chamaecrista fasciculata*), Panicleleaf Tick Trefoil (*Desmodium paniculatum*), Indian Grass (*Sorghastrum nutans*), Blue Vervain (*Verbena hastata*), Butterfly Milkweed (*Asclepias tuberosa*), Black Eyed Susan (*Rudbeckia hirta*), Common Sneezeweed (*Helenium autumnale*), Heath Aster (*Aster pilosus/Symphotrichum pilosum*), Early Goldenrod (*Solidago juncea*), and Upland Bentgrass (*Agrostis perennans*). The New England Erosion Control/Restoration Mix for Dry Sites includes: Red Fescue (*Festuca rubra*), Canada Wild Rye (*Elymus canadensis*), Annual Ryegrass (*Lolium multiflorum*), Perennial Ryegrass (*Lolium perenne*), Little Bluestem (*Schizachyrium scoparium*), Indian Grass (*Sorghastrum nutans*), Switch Grass (*Panicum virgatum*), Upland Bentgrass (*Agrostis perennans*). The Conservation Mix will be applied at a rate of 800 sq. ft./lb. to the restoration area.

Planting of the restoration area will follow the invasive plant species eradication plan and will likely occur in spring or fall 2027 or 2028 following the reduction in invasive plant species by at least 80% to 85%. The seeding for the ecological restoration area will only be spread in the spring as the seed mix contains plant seeds that are food sources for native animals and will often be eaten before they can germinate. The ecological restoration area will be planted with shrubs will be planted 8 to 12 ft. on center and trees will be planted 10 to 15 ft. on center. It is anticipated that the vegetation within the ecological restoration area will thrive (establishment of 75% or greater of the native plant species planted in the ecological restoration area) after two consecutive growing seasons. The success of the ecological restoration area will depend upon whether or not predicted conditions, such as normal or average seasonal weather, occur and are met within the ecological restoration area, and that the planting plan is closely followed.

An invasive plant species prevention plan is proposed to continue after the restoration plantings to ensure that the vegetation within the restoration area takes hold and is not dominated by invasive or opportunistic vegetation, a weeding program will be incorporated into this planting plan for all new seedlings. Potential sources of new infestations of invasive vegetation are onsite construction/maintenance equipment, local wildlife populations, or airborne seeds. Invasive plant species have been identified not only on the site in the existing buffer zone but also on the surrounding properties.

Watering of the vegetation is a concern for the success of the ecological restoration. Watering will likely need to occur if planting occurs in the fall or in the spring if we have a dry spring and/or summer.

5.3 Wildlife Habitat

All of the eight native plant species that are to be used in the ecological restoration area are native to the area and site and contain significant wildlife habitat value. According to Readington 1994 and DeGraaf 2002, small mammals, birds, reptiles, amphibians, and insects use these native plant species for feeding, breeding, and shelter.

5.4 Plan

A planting plan has been included as Attachment 7, Restoration Planting Plan that shows the location of the ecological restoration area plantings.

5.5 Stormwater Management

The ecological restoration areas will not receive storm water discharge from the proposed stormwater management system.

5.6 Erosion Control Plan

No sediment or erosion controls are currently proposed as the site is completely vegetated. Areas where invasive plants will be removed will be planted with shrubs and trees and seeded with herbaceous seed mixes.

5.7 Considerations During Construction

Proper scheduling and sequencing of events to prepare and complete work associated with the restoration area will be necessary for the wetland and floodplain restorations to be successful. This includes the eradication plan and planting within the restoration area as described below. The invasive plant species eradication plan will be conducted for the first one to two years to ensure that when the proposed restoration plants are planted, they aren't overtaken by invasive plant species. Prior to planting, the restorations areas will be inspected to ensure that most of the invasive plants have been eradicated. If 80% to 85% or greater removal of the invasive plant species has occurred, the planting of the ecological restoration area will commence. Proposed planting orders will be submitted to the restoration plant suppliers once it is determined that enough of the invasive plants have been eradicated in late summer and/or early fall of 2027. The proposed ecological restoration plantings will be ordered in late winter/early spring 2027 to ensure the availability of the plant stock for the restoration area.

5.8 Schedule & Sequencing

The restoration area must be constructed in a sequenced plan to ensure its success. The construction sequencing for the restoration area is listed below.

5.8.1 Invasive Plant Eradication

Weeding of the invasive plants will commence at the end of summer or early fall of 2024. The way in which the ecological restoration plan will be executed is described below in Section 5.8.1.1 Construction Sequencing.

5.8.1.1 Construction Sequencing

This section will be followed closely by the site's wetland scientist and the landscaping crew to ensure each task is completed in proper sequence and thoroughly to avoid additional contamination on and off the site of invasive plant species. If each step of the construction sequencing is performed fully and accurately, the ecological restoration should be successful.

1. In late summer and/or early fall of 2024, the wetland scientist will instruct the landscaping crew on how to identifying each invasive plant species at the seedling, juvenile and adult plant stages at the site. Each person's task(s) will be conveyed so that everyone will know who is weeding, cutting and removing the slash or plant matter and placing it in black contractor's bags. The location for the placement of full bags is along on the edge of the access drive where they will be picked up and either placed in an open area along the existing parking lot or move to another offsite location for solarization.
2. Once the instruction is completed, the eradication of invasive plant species will begin with weeding and cut-and-treat of larger woody plants along the northern and eastern extent of the site moving (moving south to west) around and in Wetland A and removal of the few invasive plants from the cut area of Wetland B.
3. A transect that is approximately 20 ft. wide will be established to keep trampling of the native vegetation to a minimum and to focus on the invasive plants in the transect so none are missed.
4. The herbicide applicator with the MA Herbicide Applicator's License will dab the cut stalk or stump of the invasive plants along the path of the transect as needed.
5. Upon completion of the invasive plant species removal and treatment, all slash or plant waste (except for the trunks and large branches from the trees and shrubs that don't contain any seeds or fruits) will be collected and put into black contractor's bags. All personnel that have been in the field will have to be inspected for any plant materials, especially seeds, berries, and roots. Once all personnel have been inspected and cleaned off with a lint roller and nylon brush. Any dirt from boots, lint rollers, and brushes and dust pans will be discarded into the remaining plant materials bag.

6. In spring 2027, the area will be inspected in late April or early May to determine the extent of regrowth or new invasive plant species. If less than 20% are present, planting could begin.
7. If a fall 2027 planting is proposed, the areas of invasive plants will be inspected at the end of August to determine if another treatment is necessary prior to planting and what level of weeding, cutting and treatment is needed to eradicate new and plants with regrowth.
8. Planting will include coordinating the plant stock ordering, establishing a staging area, evaluating plant stock once it arrives on the site.
9. Prior to planting, the shrubs and trees will be laid out in the locations by the site's wetland scientist and proper planting procedures will be discussed and monitoring of planting will occur by the wetland scientist to ensure the plants are planted properly according to the Restoration Planting Plan.
10. Shrubs will be planted 8 to 12 ft. apart and trees will be planted 10 to 15 ft. apart.
11. The seed mixes for the herbaceous area will be cast across the bare areas of the ecological restoration areas at a rate of 1 lb./1,200 sq. ft.
12. All plants will be watered immediately following planting.
13. The restored ecological restoration areas will be inspected by the wetland scientist following planting.
14. **All activities described in #1 through #12 will be supervised and authorized by the wetland scientist until completed and approved.**
15. **Activities listed above are subject to change due to site conditions, weather, failure of equipment or other unforeseen issues that may arise and will be addressed by the supervising wetland scientist.** If any changes do occur, they will be documented and discussed in full detail in the first report to the Conservation Commission, MassDEP and the U.S. Army Corps of Engineers following completion of the restoration area.

5.9 Ecological Restoration Monitoring

Monitoring of the restoration area will occur twice (during spring and fall) following planting to observe the health of the plantings and to determine when watering is necessary during the first growing season and if there are any issues with the plants. A quick monitoring will be performed twice in the first one to two weeks following the planting to ensure the plants aren't in shock (are healthy) and there isn't any evidence of animals eating the plants. Monitoring at the end of the growing seasons for both years will include observing the health of the plantings and to evaluate any replaced plantings. This monitoring will include evaluating the location of each shrub and tree planted, health of the vegetation, the overall success of the wetland restoration and BLSF restoration area, and to set two sample plot monitoring locations to evaluate the wetland restoration area based on percent coverage of wetland vegetation and to sample soils in the center of each sample plot. One sample plot location will be established within the BLSF area restoration. The plots will be marked in the field with flagging tape and marked "TEC Sample Plot 1", "TEC Sample Plot 2" and "TEC Sample Plot 3". Any dead or significantly stressed vegetation will be marked with flagging tape and will be photographed and discussed in the monitoring report. The area of the wetland restoration will be documented for hydrology, wetland vegetated coverage, soils, potential for erosion, colonizing wetland plant species, any evidence of invasive plants, signs or observation of wildlife utilization, and the ability of the wetland restoration to blend into or become part of the adjacent existing wetland system. The 100-yr. floodplain will be monitored for all parameters of the wetland restoration area minus the hydrology. If any plantings are dead, they will be marked with flagging tape, their location within the restoration area will be marked on a plan and the plant species will be documented both in field notes and in the monitoring report.

Access to the restoration area will be limited to prevent damage to the vegetation and disturbance of the soils. Water will be obtained onsite and vegetation will be watered by hose or by buckets during the first month after planting if necessary. If a drought or extreme wet weather occurs, monitoring will be increased and necessary action taken to prevent damage or stress to the plantings. The restoration area will also be monitored to ensure invasive or unwanted plant species from becoming established during the two site visits. If invasive or unwanted species are found in the restoration area, a weeding program will be implemented to remove these species.

The first year of monitoring will include two site visits during the first full growing season, in early summer and late September. Each site visit will involve inspecting and documenting any changes in the health and growth of the planted vegetation. Photographs of the restoration area will be taken to show how the vegetation throughout these areas has fared. The locations of where the photos were taken will be marked for subsequent site visits. Photos of planted vegetation and volunteer species will be taken and included in the monitoring reports. A qualified wetland scientist will conduct all inspections of the

restoration area for plant vitality, vegetational coverage, and any potential erosion or sedimentation in the restoration area. A report regarding the inspection will be completed and submitted to the Agawam Conservation Commission, MassDEP and the Army Corps of Engineers after every inspection. A yearly monitoring report will be prepared after each growing season to document the yearly success.



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WESTERN REGIONAL OFFICE
436 DWIGHT STREET, SPRINGFIELD, MA 01103 413-784-1100

MAURA T. HEALEY
Governor

KIMBERLEY DRISCOLL
Lieutenant Governor

REBECCA L. TEPPER
Secretary

BONNIE HEIPLE
Commissioner

DATE: June 1, 2026

Municipality AGAWAM
(city/town)

RE: NOTIFICATION OF WETLANDS PROTECTION ACT FILE NUMBER

The Department of Environmental Protection has received a Notice of Intent filed in accordance with the Wetlands Protection Act (M.G.L. c. 131, §40):

Applicant: JOSEPH O'MALLEY
Address: 351 MAIN STREET
AGAWAM, MA

Owner:
Address:

LOCUS: 365 MAIN STREET

This project has been assigned the following file # : WE 087-0714

A FILE NUMBER ONLY INDICATES THAT THE APPLICATION CONTAINS THE MINIMAL SUBMITTAL REQUIREMENTS AND IS ADMINISTRATIVELY COMPLETE - NOT THAT THE INFORMATION IN THE APPLICATION IS ADEQUATE FOR ISSUANCE OF AN ORDER OF CONDITIONS.

Although a file # is being issued, please note the following:

[1] Section 1 of the NOI, Street Address, does not appear to be correct. Form 3 may need to be corrected. Also, the map/parcel ID information needs to be verified. Name of property owner may also be different.

[2] The restoration work is not apparently a limited project and only the generic citation of 310 CMR 10.53 is even noted. Only the invasive species removal could be considered an Ecological Restoration Limited Project. However, since the NOI submittal does not include an Appendix A, nor was notice apparently placed in the Environmental Monitor, then it cannot be reviewed that way. The applicant needs to comply with the requirements of 310 CMR 10.11, 310 CMR 10.12 and 310 CMR 10.53(4)(e)5.

[3] The commission needs to understand the definition of BLSF and how BVW boundaries are reviewed. Per the regulations in the definition of BLSF, it states It (BLSF) extends from the banks of these waterways and water bodies; where a bordering vegetated wetland occurs, it extends from said wetland. One cannot have BVW and BLSF in the same footprint. The specific footprint is either one or the other resource area, it cannot be both.

[4] Any use of herbicides in BVW likely requires a WM04 permit from MassDEP. <https://www.mass.gov/how-to/wm-04-herbicide-application>

This information is available in alternate format. Call Donald M. Gomes, ADA Coordinator at 617-556-1057. TDD# 1-866-539-7622 or 1-617-574-6868.



Printed on Recycled Paper

JOSEPH O'MALLEY
351 MAIN STREET
AGAWAM, MA

[5] Multiple locations in the NOI mention work occurring in the year 2024. Elsewhere it notes work to occur in the year 2025. All dates need to be checked.

[6] The restoration plants list needs to note the plants wetland indicator status.

[7] Page 26 of 27 mentions Riverfront restoration, yet there is no Riverfront on the mentioned parcels.

[8] The submitted plans do not appear to show what vertical elevation datum is being used. Since the flood plain elevation is based upon NAVD88, the plans need to show that.

[9] To help ensure that conservation commissions have sufficient expertise available to address specific issues regarding an applicant's filing, M.G.L. c. 44, section 53g gives Commissions authority to charge a fee for the employment of outside consultants that allow for the use of the fee to ensure that they have the necessary information for them to make a decision pursuant to the Wetlands Protection Act, M.G.L. c. 131, sec. 40 and 310 CMR 10.00.

If you have any questions regarding this letter, please contact: MARK STINSON @ (413)-961-9583

Cc: Agawam Conservation Commission, DPW Inspection Services 1000 Suffield Street, Agawam, MA, 01001
Representative: Tunison Env. Consultants, LLC, PO Box 992, PLYMOUTH, MA, 02362



Tunison Environmental Consultants, LLC

May 6, 2026

Agawam Conservation Commission
1000 Suffield Street
Agawam, Massachusetts 01001

**RE: Notice of Intent for Wetland Resource Area Restoration at 365 Main in
Agawam, Massachusetts**

Dear Agent and Members of the Commission:

On behalf of Mr. Joseph O'Malley, Tunison Environmental Consultants, LLC is pleased to submit two copies of this Notice of Intent (NOI), including project plans at the above referenced site for the ecological restoration of a Bordering Vegetated Wetland and Bordering Land Subject to Flood. Some trees and shrubs were cut from an approximately 2.5-acre area that consists of wetland and floodplain. Most of the vegetation has begun to grow back in this area. The proposed restoration will consist of planting approximately 136 shrubs and 48 trees. The abutter's mailings have been prepared and will be immediately sent out upon receiving the information for the proposed Agawam Conservation Commission hearing.

As requested in WPA Form 3-Notice of Intent, Section D, Additional Information, all additional information is included in the narrative or attachments (see Table of Contents) to the enclosed NOI. The attached plan set has not been revised.

Please call me (508) 737-7104 or email me garretttunison@gmail.com if you have any questions or concerns.

Sincerely,

Garrett M. Tunison, PWS
Principal
Tunison Environmental Consultants, LLC

Cc: Mr. Joseph O'Malley
TEC File #: 2308-001



Tunison Environmental Consultants, LLC

Notice of Intent for Wetland Resource Area Restoration at 365 Main Street in Agawam, Massachusetts

Prepared for:

Mr. Joseph O'Malley
361 Main Street
Agawam, MA 01001

Prepared by:

Tunison Environmental Consultants, LLC
P.O. Box 992
Plymouth, Massachusetts 02362

May 6, 2026

TEC #: 2308-001

Tunison Environmental Consultants, LLC

P.O. Box 992
Plymouth, Massachusetts 02362
Phone: (508) 737-7104



Table of Contents

WPA Form 3- Notice of Intent Form

Attachments

Appendix A	Invasive Plant Species Eradication and Wetland Restoration Plan
Appendix B	Abutters' Notification
Appendix C	Affidavit of Service

**Commonwealth of Massachusetts
Department of Environmental Protection
Notice of Intent Form (WPA Form 3)**



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

Agawam

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):

365 Main Street

a. Street Address

Agawam

b. City/Town

01001

c. Zip Code

Latitude and Longitude:

42.083 N

d. Latitude

-72.612 W

e. Longitude

L131 & L13

f. Assessors Map/Plat Number

1/5 & 1/3

g. Parcel /Lot Number

2. Applicant:

Joseph

a. First Name

O'Malley

b. Last Name

Property owner

c. Organization

351 Main Street

d. Street Address

Agawam

e. City/Town

MA

f. State

01001

g. Zip Code

(413) 626-8212

h. Phone Number

N/A

i. Fax Number

xtremepbma@yahoo.com

j. Email Address

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

Same as above

a. First Name

b. Last Name

c. Organization

d. Street Address

e. City/Town

f. State

g. Zip Code

h. Phone Number

i. Fax Number

j. Email address

4. Representative (if any):

Garrett

a. First Name

Tunison

b. Last Name

Tunison Environmental Consultants, LLC

c. Company

P.O. Box 992

d. Street Address

Plymouth

e. City/Town

MA

f. State

02362

g. Zip Code

(508) 737-7104

h. Phone Number

N/A

i. Fax Number

garretttunison@gmail.com

j. Email address

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

\$2,500.00

a. Total Fee Paid

\$1,237.50

b. State Fee Paid

\$1,262.50

c. City/Town Fee Paid



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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A. General Information (continued)

6. General Project Description:

The applicant was clearing land removed 8 to 10 trees and cut the shrub layer for a tree farm that turned out to be Bordering Land Subject to Flooding and Bordering Vegetated Wetland. He received a WPA-9 Form and stopped cutting. A wetland restoration has been proposed and is included in the attached Wetland Restoration Plan and additional details are provided in the attached narrative.

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

- | | |
|---|---|
| 1. ☐ Single Family Home | 2. ☐ Residential Subdivision |
| 3. ☐ Commercial/Industrial | 4. ☐ Dock/Pier |
| 5. ☐ Utilities | 6. ☐ Coastal engineering Structure |
| 7. ☐ Agriculture (e.g., cranberries, forestry) | 8. ☐ Transportation |
| 9. ☒ Other | |

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ☒ Yes ☐ No If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

310 CMR 10.53

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR 10.24(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:

Hampden

a. County

24430 & 25309

c. Book

N/A

b. Certificate # (if registered land)

259 & 166

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.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

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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. ☐ Bank	N/A 1. linear feet	N/A 2. linear feet
b. ☒ Bordering Vegetated Wetland	80,031 +/- (cut shrubs & trees) 1. square feet	80,031 +/- restoration 2. square feet
c. ☐ Land Under Waterbodies and Waterways	N/A 1. square feet N/A 3. cubic yards dredged	N/A 2. square feet

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. ☒ Bordering Land Subject to Flooding	1. square feet N/A 3. cubic feet of flood storage lost	2. square feet N/A 4. cubic feet replaced
e. ☐ Isolated Land Subject to Flooding	N/A 1. square feet N/A 2. cubic feet of flood storage lost	N/A 3. cubic feet replaced
f. ☐ Riverfront Area	N/A 1. Name of Waterway (if available) - specify coastal or inland	

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: N/A
square feet

4. Proposed alteration of the Riverfront Area:

<u>N/A</u> a. total square feet	<u>N/A</u> b. square feet within 100 ft.	<u>N/A</u> 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. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. ☐ Land Under the Ocean	N/A 1. square feet N/A 2. cubic yards dredged	
c. ☐ Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. ☐ Coastal Beaches	N/A 1. square feet	N/A 2. cubic yards beach nourishment
e. ☐ Coastal Dunes	N/A 1. square feet	N/A 2. cubic yards dune nourishment
	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
f. ☐ Coastal Banks	N/A 1. linear feet	
g. ☐ Rocky Intertidal Shores	N/A 1. square feet	
h. ☐ Salt Marshes	N/A 1. square feet	N/A 2. sq ft restoration, rehab., creation
i. ☐ Land Under Salt Ponds	N/A 1. square feet N/A 2. cubic yards dredged	
j. ☐ Land Containing Shellfish	N/A 1. square feet	
k. ☐ Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above N/A 1. cubic yards dredged	
l. ☐ Land Subject to Coastal Storm Flowage	N/A 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.	
	N/A a. square feet of BVW	N/A b. square feet of Salt Marsh
5. ☐ Project Involves Stream Crossings	N/A a. number of new stream crossings	N/A b. number of replacement stream crossings



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C. Other Applicable Standards and Requirements

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

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

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

a. ☐ Yes ☒ No

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

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

August 2021

b. Date of map

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

- c. Submit Supplemental Information for Endangered Species Review*

1. ☐ Percentage/acreage of property to be altered:

(a) within wetland Resource Area N/A
percentage/acreage

(b) outside Resource Area N/A
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/mas-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
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C. Other Applicable Standards and Requirements (cont'd)

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

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

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

- (d) ☐ Vegetation cover type map of site

- (e) ☐ Project plans showing Priority & Estimated Habitat boundaries

- (f) OR Check One of the Following

1. ☐ Project is exempt from MESA review.
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, <https://www.mass.gov/service-details/exemptions-from-review-for-projectsactivities-in-priority-habitat>; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2. ☐ Separate MESA review ongoing. N/A N/A
a. NHESP Tracking # b. Date submitted to NHESP

3. ☐ Separate MESA review completed.
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

- a. ☐ Not applicable – project is in inland resource area only b. ☐ Yes ☐ No

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

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

North Shore - Plymouth to New Hampshire border:

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

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

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

- c. ☐ Is this an aquaculture project? d. ☐ Yes ☐ No

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



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

Online Users:

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

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?
 a. ☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.
 N/A
 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.



Massachusetts Department of Environmental Protection
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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 Filing Plan

a. Plan Title

R Levesque Associates, Inc.

b. Prepared By

2/20/24

d. Final Revision Date

c. Signed and Stamped by

1" = 50'

e. Scale

f. Additional Plan or Document Title

g. Date

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

E. Fees

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

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

1092

2. Municipal Check Number

1091

4. State Check Number

Joseph

6. Payor name on check: First Name

05/04/26

3. Check date

05/04/26

5. Check date

O'Malley

7. Payor name on check: Last Name



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

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F. Signatures and Submittal Requirements

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

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

1. Signature of Applicant

2. Date

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any)

6. Date

For Conservation Commission:

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

For MassDEP:

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

Other:

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

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



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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



A. Applicant Information

1. Location of Project:

365 Main Street

a. Street Address

1091

c. Check number

Agawam

b. City/Town

\$1,237.50

d. Fee amount

2. Applicant Mailing Address:

Joseph

a. First Name

O'Malley

b. Last Name

Property owner

c. Organization

351 Main Street

d. Mailing Address

Agawam

e. City/Town

MA

f. State

01001

g. Zip Code

(413) 626-8212

h. Phone Number

N/A

i. Fax Number

xtremepbma@yahoo.com

j. Email Address

3. Property Owner (if different):

Same as above

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
Cat. 2, j. Cutting vegetation	1	\$500	\$500
Cat. 6 Wetland Delineation	1 @ \$2/ln. ft.		\$2,000

Step 5/Total Project Fee: _____

Step 6/Fee Payments:

Total Project Fee:	\$2,500.00
	a. Total Fee from Step 5
State share of filing Fee:	\$1,237.50
	b. 1/2 Total Fee less \$12.50
City/Town share of filing Fee:	\$1,262.50
	c. 1/2 Total Fee plus \$12.50

C. Submittal Requirements

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

Department of Environmental Protection
Box 4062
Boston, MA 02211

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

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

Appendix A

Invasive Plant Species Eradication and Wetland Restoration Plan



Tunison Environmental Consultants, LLC

Invasive Plant Species Eradication and Wetland Restoration Plan for 365 Main Street in Agawam, Massachusetts

Prepared for:

Mr. Joseph O'Malley
361 Main Street
Agawam, MA 01001

Prepared by:

Tunison Environmental Consultants, LLC
P.O. Box 992
Plymouth, Massachusetts 02362

February 26, 2026

TEC #: 2308-001

Tunison Environmental Consultants, LLC

P.O. Box 992
Plymouth, Massachusetts 02362
Phone: (508) 737-7104



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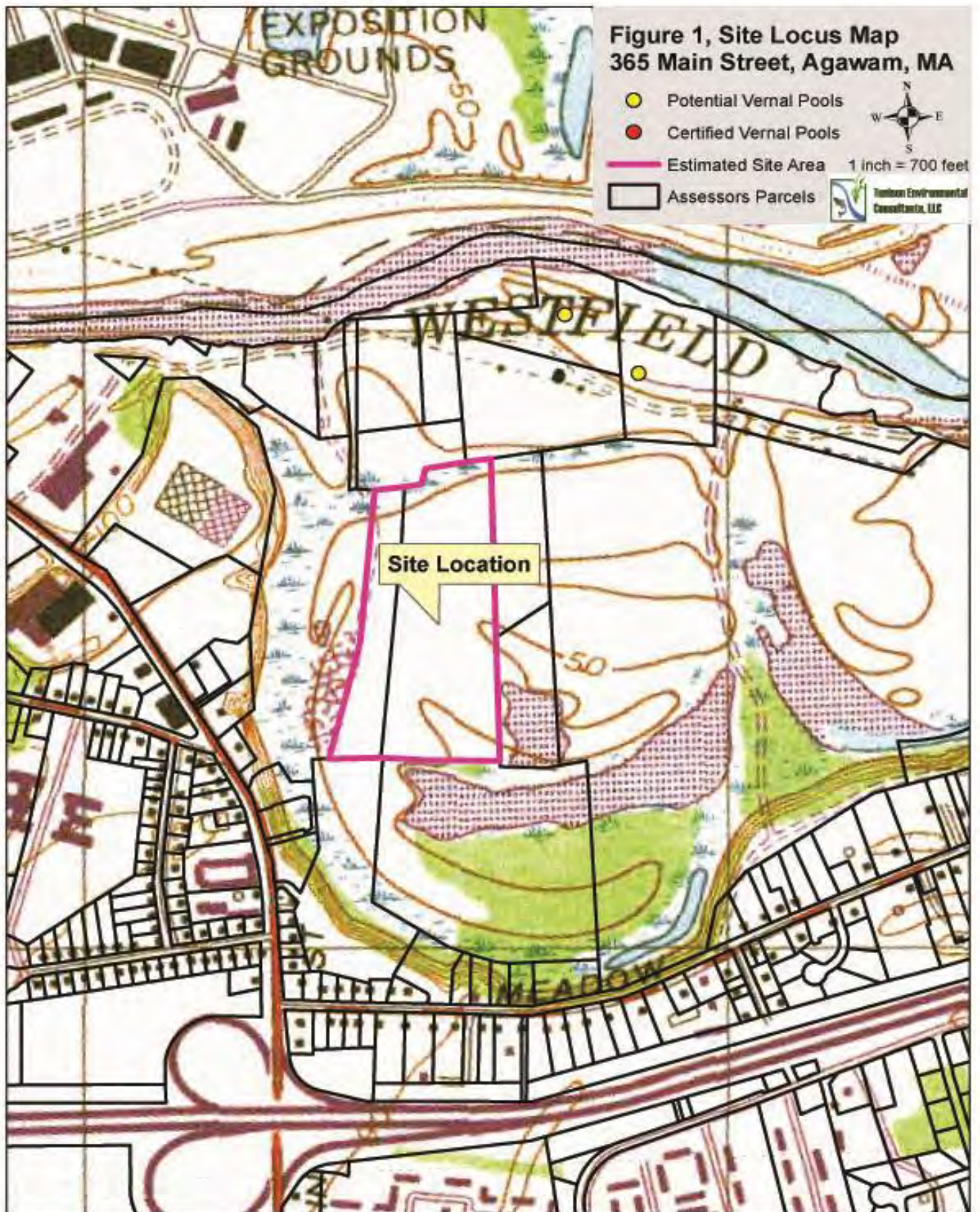


Tunison Environmental Consultants, LLC

1.0 Introduction

On August 23, 2023, Garrett M. Tunison, PWS of Tunison Environmental Consultants, LLC, visited the property at 365 Main Street (Assessor's Parcel ID Numbers: L 131/ 1/ 5 & L13/ 1/ 3), Agawam, Massachusetts (refer to Figure 1, Site Locus Map) to inspect the wetland alterations under a current Agawam Conservation Commission Wetlands Violation (refer to Attachment 1, Agawam Conservation Commission Violation Letter). The soils and ground cover within the area where the vegetation was cut appeared to be intact except for a few tire marks in the wetland (refer to Attachment 2, Site Photographs, Photos 1 through 4). The wetland alterations consisted of cutting vegetation including many herbs, shrubs and some trees. TEC identified the cutting of 17 trees including 2 Red Maple (*Acer rubrum*), 1 Eastern White Pine (*Pinus strobus*), 2 Quaking Aspens (*Populus tremuloides*), 2 Pin Oaks (*Quercus palustris*), 3 Tree of Heaven (*Ailanthus altissima*) and 7 Black Locust (*Robinia pseudoacacia*). The cutting occurred in the southern half of the site with the 16 cut trees that were mostly visible but there could be 1 or 2 additional trees in the pile of removed trees that weren't visible. Most of the trees were from the 100 yr. floodplain and not the delineated vegetated wetlands. Almost all of the vines cut on the site were invasive Oriental Bittersweet. The shrubs were mostly Blackberries, Black Raspberry, Multiflora Rose, Glossy Buckthorn and Common Buckthorn with a few of the native shrubs mentioned above with some sporadic Common Witch Hazels (*Hamamelis virginiana*) and Smooth Sumacs (*Rhus glabra*). At the time of the wetland delineation, many of the cut stalks were beginning to regrow, including most of the cut tree stumps. Hundreds of invasive plant stalks were observed at the site and in the attached photographs that were cut. These invasive plant stalks were mostly Oriental Bittersweet (*Celastrus orbiculata*) and Common Mugwort (*Artemisia vulgaris*). These species have begun to regrow on the site and are dominating the western portion of the cut area between the access drive, Wetland C and along the western edge of Wetland A. The area where shrubs had been cut along with the 17 trees occurred is approximately 1.8 ac. of Wetland A and the adjacent floodplain to the east. Many of these areas have sprouted new herbs, shrubs and trees along with new sprouts on the basal areas of the cut shrubs and trees. This is the same for the 100-yr. floodplain. Native wetland vegetation is thriving within the cut areas of Wetland A and B.

The site is approximately 25.3 acres and appears to be relatively flat with only a slight slope from north to south and east to west. All areas of the site are highly disturbed and appeared to have been cleared in the past. Most areas of the site lack an "O" and "A" Horizon soils and there is a lot of trash and debris on the site that likely came from the old landfill and previous paintball playing fields (Attachment 2, Site Photographs, Photos 5 through 12). There are many invasive plants including Garlic Mustard (*Alliaria petiolata*), Common Mugwort and Oriental Bittersweet in the herbaceous layer; Glossy Buckthorn (*Frangula alnus*), Multiflora Rose (*Rosa multiflora*), Tartarian Honeysuckle and an occasional Autumn Olive (*Elaeagnus umbellata*) in the shrub layer and Tree-of-



Heaven and Black Locust in the tree layer (refer to the attached Site Plant List within Attachment 3, Wetland Resource Areas Delineation Report). The site is highly disturbed including garbage, yard debris, and fill materials (asphalt, brick and concrete chunks) scattered throughout the western portion of the site (refer to Attachment 2, Photos 5 through 12). Please note, these areas of trash and debris precede the current ownership of property and the wetland violation. The northern portions of the site consist of an existing paintball and air-soft facility that also precede the current owner.

2.0 Wetland Resource Areas

Three wetland resource areas were delineated on the site as Wetlands A, B and C. A Wetland Resource Area Report has been prepared and is included as an attachment to this Wetland Restoration Plan (Attachment 3). Wetlands A and B likely connect east of the site along the drainage wetlands to the adjacent farm fields. Wetland C is an isolated wetland that appears to have been dug and is a drainage ditch that connects to a larger stormwater basin. The entire site is within the 100 yr. floodplain or Bordering Land Subject to Flooding to the Westfield River. Wetlands A and B are gently sloping where water appears to occur within 12 in. of the soil surface during periods of substantial precipitation. The area of the wetlands has likely occurred in recent years as soil matrix colors mostly ranged from 10YR 6/1 to 10YR 6/4 in the "B" Horizon with depletions that were approximately 10YR 6/1 or 10YR 6/2 in color. There were many upland plants (UPL) or facultative upland (FACU) occurring in the delineated wetlands and most wetland plants were facultative (FAC). There were a few pockets of mostly dominant facultative wetland (FACW) plants such as Sensitive Fern (*Onoclea sensibilis*) in the herbaceous layer and Silky Dogwood (*Cornus amomum*) in the shrub layer. Sensitive Fern appeared to be popping up throughout Wetland A after the tree and shrub layers had been cut along with a few patches of Oriental Bittersweet.

3.0 Cutting of Vegetation

Invasive plant species exist along the eastern and northeastern edge of Wetland A and the 100 yr. floodplain. Most of these invasive plants in the wetland included Oriental Bittersweet in the vine layer; Common Buckthorn, Glossy Buckthorn and Multiflora Rose in the shrub layer and Black Locust and Tree-of-Heaven in the tree layer. The majority or approximately 60% to 70% of the vegetation cut was invasive plants and only the remaining vegetation consisting of native herbs, shrubs and trees (refer to Attachment 2, Site Photographs, Photos 13 through 17). The native plant species that occurred within the wetland area and surrounding 100 yr. floodplain included Wild or False Lily-of-the-Valley (*Maianthemum canadense*), Thin-leaved Sunflower (*Helianthus divaricalus*), Purple or Red Clover (*Trifolium pratense*), White Heath Aster (*Symphyotrichum ericoides*), several species of goldenrods (*Solidago spp.*), Sensitive Fern, Cinnamon Fern (*Osmundastrum cinnamomeum*), a few Royal Fern (*Osmunda spectabilis*), Hay-scented Fern (*Dennstaedtia punctilobula*) and upland and wetland

grasses (*Gramineae spp.*) in the herbaceous layer; Poison Ivy (*Toxicodendron radicans*), Virginia Creeper (*Parthenocissus quinquefolia*) in the vine layer; Silky Dogwood, Blackberries (*Rubus spp.*), Black Raspberry (*Rubus occidentalis*), Highbush Blueberry (*Vaccinium corymbosum*), Southern Arrowwood (*Viburnum dentatum*) and some Common Winterberry (*Ilex verticillata*) and Northern Spicebush (*Lindera benzoin*).

4.0 Wetland Restoration

Restoration of the tree and shrub layers is proposed within the cut area along with seeding of the herbaceous layer with native wetland vegetation found within Wetland A in areas of bare soils or where the majority of the herbaceous layer was removed since it was mostly invasive plants. Wetland C has not been cut or disturbed but contain some invasive plants and Wetland B has only been partially cut within the northern 2/3's of the delineated area. Wetland B only contains a few invasive plants that will be weeded first. Prior to the restoration, the invasive plant species will be removed as part of an Invasive Plant Species Eradication or Management Plan.

4.1 Goals of the Wetland Restoration

Our goals resulting from the invasive plant species eradication plan and the wetlands and restoration of the naturally forested 100-yr. floodplain area are to: 1) removal and eradicate any invasive plant species from identified within or adjacent to the disturbed areas; 2) restore the areas of cut wetland vegetation with native vegetation; and 3) ensure the wetland restoration area flourishes with native vegetation. This wetland restoration area should contain native vegetation observed on the site that provides significant wildlife habitat. It is anticipated the wetland restoration area and remaining ecological restoration area (including impacted 100-yr. floodplain area) will contain at least 75% native vegetation from planting and seeding after two growing seasons if this plan is followed.

4.2 Invasive Plant Species Eradication or Management Plan

Invasive plant species eradication is discussed below that has been prepared from our site visits. This document has been developed to ensure success of the eradication or management of invasive plant species and wetland restoration to occur within the areas that have been recently disturbed by cutting and removing vegetation (mostly invasive plant species) without a permit. A few additional areas of invasive plants have been identified along the western and northern portions of the site that will need to be addressed under this plan (refer to Attachment 2, Photographs, Photos 13 through 15). This document will provide a guide for the landscaper or contractor to complete the invasive plant species eradication and wetland restoration properly and successfully.

It is the experience of TEC to prioritize the removal all of the invasive plants during the first year of the wetland restoration. There has been extensive invasive plant growth in the disturbed portions of the wetlands and 100-yr. floodplain areas for many years. We recommend removing the remaining invasive plant species from the wetland and natural 100-yr. floodplain areas on the site. This will benefit the restoration efforts and the property owner as the eradication or management of these species will be complete or manageable once the below restoration plan is followed which will result in minimal costs and a successful wetland and floodplain area restoration. Without removing the remaining invasive plants, weeding and cut-and-treating the remaining large invasive plants; the invasive plants will remain and dominate the site as they have for years.

4.3 Invasive Plant Species Eradication

This Restoration Plan has been designed to first remove the majority of the remaining plants through weeding and using the "cut-and-treat" method of invasive plant eradication for large shrubs and trees. This plan is designed for complete eradication of the invasive plant species over numerous growing seasons with the bulk of this work occurring during the first one to three growing seasons with only light maintenance thereafter. There are invasive plants located on the properties to the north and west of the subject property so it is uncertain if we can fully eradicate the invasive plants on the site or almost eliminate them with light annual maintenance after the first three years. Regardless if eradication or light maintenance is needed, the removal of the invasive plants will benefit both the wetlands and the site as the invasive plants will need to be addressed from both a conservation and land management perspectives. This work should be done regardless of the wetland resource area protection.

This eradication program is structured to begin in the summer (late August to September) and/or fall of 2024 (September and/or October) and continue through at least the 2027 growing season. Upon completion of the initial eradication of invasive plant species removal and treatment, the restoration area will be evaluated in the following spring to determine if a significant amount of the invasive plants (80% to 85% reduction or greater) have been removed. The invasive plant species eradication plan will continue throughout the planting and monitoring of the wetlands and floodplain restoration. These areas will be weeded in the summer for any seedlings and will be weeded and if they have root systems that are difficult to remove such as large woody shrubs and vines, they will also be cut and treated or pulled and the remaining roots will be treated. Invasive plant species make up approximately 30% to 95+% coverage within the wetland (eastern portion of Wetland A) and floodplain restoration areas. Areas of invasive plants within the current tree line contain fewer invasive plants (approximately 10% to 40% invasive plants) than areas such as the

northern and eastern portions of Wetland A (approximately 95+% invasive plants).

4.4 Invasive Plants

Ten invasive plant species were observed on the site (refer to Attachment 2, Photographs, Photos 13 through 17). Most were woody shrubs or vines. Nine of these species will be targeted which include Garlic Mustard, Common Mugwort, Oriental Bittersweet, Glossy Buckthorn, Multiflora Rose, Tartarian Honeysuckle, Autumn Olive, Tree-of-Heaven and Black Locust. Three other invasive plant species observed on the site and within the wetlands and floodplain which included Curly Dock, Common Mugwort and Climbing Nightshade will not be further discussed as they will be weeded from the site. These three invasive plant species will not be discussed further in this document as they will be weeded and discarded into plastic contractor's bags as they are encountered in the wetlands and floodplain area. All invasive plants that are weeded and cut will be placed on large tarps and cut up and put into large contractor's black bags for solarization.

There are a few large Oriental Bittersweets, Glossy Buckthorns, Multiflora Roses, Autumn Olives, Tree-of-Heavens and Black Locust that will need to be cut down and their stumps/stalks treated. There are only patches of Garlic Mustard that can easily be weeded and there is a lot of Common Mugwort in large patches or areas but it can also be easily weeded. All weeded plants will immediately be placed in 5 gal. buckets, contractor's bags or on tarps to be placed into black contractor's bags to be removed from the forested area of the site and placed in an open area for solarization.

The seven of the ten invasive plants listed above are described below in detail in Sections 4.3.1 through 4.3.7. Information provided below for each plant species was acquired from publications (such as factsheets, invasive plant books or booklets) and websites from the Plant Conservation Alliance's Alien Plant Working Group, Penn State University, University of Connecticut, National Park Service, The Nature Conservancy, the NRCS, U.S. Fish and Wildlife Plant Data Base (online) and the Massachusetts Natural Heritage Program.

Invasive plants become established and can often dominate landscapes causing over \$120 billion dollars in damages in the U.S. alone each year. The plants typically have very few native or natural enemies and as a result often thrive in our local environments. They are spread by: 1) animals through their waste, on their skin, fur or feathers; 2) by treads on shoes, tires, tracked vehicles, or other machinery; 3) being transported down streams, other waterways, water bodies, or coastal waters; 4) airborne seeds; 5) people's clothes; 6) yard or construction debris; 7) soils containing seed banks; or even by 8) landscapers or being supplied by plant nurseries. Invasive plants alter natural habitats often reducing

the numbers and diversities of native plants and animals. This can be detrimental to our natural environment and significantly alter ecosystems.

4.4.1 Oriental Bittersweet

Oriental Bittersweet (refer to Attachment 2, Photographs, Photo 25) is a deciduous woody vine that was introduced to the United States in the mid-1800's and has spread throughout much of the Country. This species grows around the trunks, stems and stalks of surrounding vegetation and chokes them out. They can change the natural nutrient cycling systems that take place in our natural environments. These plants can be found along roadsides, trails, fields, wastelands, landscaped areas, sand dunes, and forest interiors.

Oriental Bittersweet looks similar to native American Bittersweet (*Celastrus scandens*) but it can be distinguished by their leaves and fruit. Oriental Bittersweet has fruit and flowers located within the leaf axils along the length of the stem. Their fruit ripen in the fall and have yellow capsules. American Bittersweet only has fruit and flowers in terminal clusters. Their fruit also ripen in the fall as do Oriental Bittersweet but their capsules are orange. Leaves are used as the most distinguishable feature to tell the difference between Oriental Bittersweet and American Bittersweet throughout their life cycle (seedling to maturity). The best time and way to identify the difference between these two species is to observe them at leaf out when two sides of the leaf of the Oriental Bittersweet are folded against each other (conduplicate) and tightly packed in the bud when they emerge in the spring. The leaves of the American Bittersweet have leaf margins rolled in like a scroll (involute) and are not as tightly packed in the bud. An additional method to distinguish the leaves, although not as reliable, is to use the ratio of length-to-width of the leaves which is often greatest for American Bittersweet (90% chance) when it is equal to or greater than 2. If the ratio is less than or equal to 1.4, it is likely (90% chance) Oriental Bittersweet.

Hand pulling (weeding), cutting, and herbicides work best, especially in conjunction with each other. When hand weeding, make sure to get all of the roots to avoid re-growth. Any remaining roots that can't be removed should be treated with a direct (apply directly with a cotton swab, small paint brush or dabbing wand applicator) application of herbicide. Cutting should include cutting the vine near its base (within 2 inches of the ground) and removing the vine from surrounding vegetation, followed by treating the basal area of the vine with herbicide containing 25% glyphosate (such as Accord or Roundup Pro) works best. Remove all cut vines including any berries observed to reduce local seeding by placing them in containers or large plastic bags from where

they were cut. These methods will likely require 2 to 3 years of repeat efforts to ensure full removal of these plants.

This woody vine occurs throughout the wetland and riverfront area restoration and makes up approximately 70% to 80% of the invasive plant species at the site. The largest densities of this vine occur in the southeastern portion of the site in and around Wetland C.

Tartarian Honeysuckle (refer to Attachment 2, Invasive Plant Photographs, Photo 21) is a tall rounded or upright oval deciduous shrub that can reach heights of 7 to 12 feet. This plant often is one of the first shrubs to leaf out in the spring and one of the last to lose its leaves in the fall holding an advantage over other native shrubs. It often grows with a few to several stems occurring from the base that are spreading. It has a shallow woody root system that prefers mesic loamy soils but often grows in sandy loam to sandy soils. Leaves are rounded to slightly ovulate in shape and smooth along their margins. The base of each leaf is rounded to slightly cordate but the tip tapers to a blunt point. The upper leaf surface is a medium green color while the lower surface is light green. Leaves grow in opposite pairs along their shoots and range from 1-½ in. to 2 in. long and ¾ to 1-½ in. wide. Their bark is gray to brown with narrow ridges that develop vertically shredded strips of bark as they age. Young shoots appear light green to reddish brown that are predominantly smooth. Its branches are quite fragile as they are hollow. These branches appear glabrous with a brownish to grey color in winter and a yellow to tannish color during spring and summer. The fruit is small in size (average 0.25 in. or 0.6 cm. in diameter) and range in color from orange to red that may persist throughout the winter. Each berry contains several small seeds. Its flowers appear in mid-spring (May through June) that form in pairs in the axils of the leaves. The flowers are tubular and pink to red and white in color and bloom for approximately three weeks. These flowers have a sweet fragrance common to other honeysuckles and are approximately ¾ in. long and across. The flowers consist of a corolla with five long and narrow petals containing five stamens of white filaments and yellow anthers with a pistil carrying a single style.

This plant was introduced to the United States in 1752 as an ornamental plant from central China. It is native to Siberia and other parts of eastern Asia. It grows in uplands along roadsides and trails, in old fields, thickets, fencerows, woodland edges, woodlands, and disturbed areas. Once these plants become established and produce fruit, they infiltrate into the naturally vegetated areas very quickly and are moderately difficult to remove once in large numbers due to their seed base.

Hand pulling (weeding), cutting, and herbicides work best, especially in conjunction with each other. Hand weeding only works with newly established seedlings that are not part of an older, established plant or its

roots. Make sure to get all of the roots to avoid re-growth when weeding any seedlings. Any remaining roots that can't be removed should be treated with a direct (apply directly with a cotton swab, small paint brush or dabbing wand applicator) application of herbicide. Mowing or cutting the stalks or stems near its base (within 2 inches of the ground), removing the plant in large contractor's bags followed by treating the remaining basal area of the plant with herbicide containing glyphosate (such as Roundup Pro) seem to work best. Mowing will not occur on this project. These methods will likely require 2 to 3 years of repeat efforts to ensure full removal of these plants.

This vine occurs along the western and northern portions of the site and makes up approximately 8% to 10% of the invasive plants in the areas identified to contain invasive plant species. The property owner was trying to remove these vines when they were stopped under the violation.

4.4.2 Glossy Buckthorn

Glossy Buckthorn is a tall deciduous shrub or small tree that can reach heights of 20 to 25 feet and have a trunk up to 10 inches in diameter. It often grows with a few to several stems occurring from the base that are spreading with loosely branched crowns. Leaves are thin and glossy with an oval or elliptical shape (not toothed). The upper leaf surface is shiny while the lower leaf surface can be hairy or smooth. Their bark is gray to brown with prominent elongated and light-colored lenticels. The fruit is small in size and range in color from green to red to blackish.

This plant was introduced in Wisconsin in 1849 as an ornamental plant to be used in a hedgerow where it spread across Canada and the northern United States. It grows in wetlands and uplands, along roadsides and trails, in old fields, and in woodlands. Once these plants become established and produce fruit, they infiltrate into the naturally vegetated areas very quickly and are difficult to remove once in large numbers.

Hand pulling (weeding), cutting, and herbicides work best, especially in conjunction with each other. Hand weeding only works with newly established seedlings that are not part of an older, established plant or its roots. Make sure to get all of the roots to avoid re-growth when weeding any seedlings. Any remaining roots that can't be removed should be treated with a direct (apply directly with a cotton swab, small paint brush or dabbing wand applicator) application of herbicide. Mowing or cutting the stalks or stems near its base (within 2 inches of the ground), removing the plant in large contractor's bags followed by treating the remaining basal area of the plant with herbicide containing glyphosate (such as Roundup Pro) seem to work best. Mowing will not occur on this

project. These methods will likely require 2 to 3 years of repeat efforts to ensure full removal of these plants.

Glossy Buckthorn was observed scattered throughout the wetland areas making up approximately 5% to 7% of the invasive plant species.

4.4.3 Multiflora Rose

Multiflora Rose is a large deciduous, woody shrub that was introduced in 1866 from rootstock sent from Japan for ornamental roses. Its use was promoted in the 1930's for use in erosion control and "live fences" for livestock. It occurs along roadsides, paths, in disturbed lands or wastelands, adjacent to and within fields, forest edges and light gaps in forest areas. Most of these plants develop from seeds in the soil and are often spread by wildlife that feed on the rose fruits which are called, "hips". They can also form new plants when long branches touch the ground and get covered with dirt which start to grow roots. They can be dispersed over long distances and seeds can remain viable for up to 10 to 20 years in the soil.

These rose bushes are thorny with arching brown (mature stems) to greenish and/or reddish stems. The leaves are divided into five to eleven sharply toothed leaflets with a pair of fringed bracts at the base of each leaf stalk. Beginning in May or June this rose has abundant small (about an inch across) white to pinkish showy flowers. Small rose hips develop in summer, become leathery in the fall, and remain on the plant through winter. These roses can grow up to 10 feet high and 10 feet wide. The closest relatives to this rose are the Scott Rose (*Rosa spinosissima*) and the Memorial Rose (*Rosa wichuraiana*) which are not present on the site.

Hand pulling (weeding), cutting, and herbicides work best, especially in conjunction with each other. Hand weeding only works with newly established seedlings that are not part of an older established plant or its roots. Make sure to get all of the roots to avoid re-growth when weeding any seedlings. Any remaining roots that can't be removed should be treated with a direct (apply directly with a cotton swab) application of herbicide. Mowing or cutting the stalks or stems near its base (within 2 inches of the ground), removing the plant in large contractor's bags followed by treating the remaining basal area of the plant with herbicide containing glyphosate (such as Roundup Pro) seem to work best. Mowing works well were applicable but often requires 6 to 8 times a year over 4 to 6 years to achieve complete removal but this method will not be used in this eradication plan as there will not be any mowing in the buffer zone area. These methods will likely require 2 to 3 years of repeat efforts to ensure full removal of these plants.

This shrub makes up approximately 2% to 3% of the invasive plant species at the site and was observed along the western portion of the site.

4.4.4 Tartarian Honeysuckle

Tartarian Honeysuckle is a tall rounded or upright oval deciduous shrub that can reach heights of 7 to 12 feet (refer to Attachment 2, Site Photographs, Photo 16). This plant often is one of the first shrubs to leaf out in the spring and one of the last to lose its leaves in the fall holding an advantage over other native shrubs. It often grows with a few to several stems occurring from the base that are spreading. It has a shallow woody root system that prefers mesic loamy soils but often grows in sandy loam to sandy soils. Leaves are rounded to slightly ovulate in shape and smooth along their margins. The base of each leaf is rounded to slightly cordate but the tip tapers to a blunt point. The upper leaf surface is a medium green color while the lower surface is light green. Leaves grow in opposite pairs along their shoots and range from 1-½ in. to 2 in. long and ¾ to 1-½ in. wide. Their bark is gray to brown with narrow ridges that develop vertically shredded strips of bark as they age. Young shoots appear light green to reddish brown that are predominantly smooth. Its branches are quite fragile as they are hollow. These branches appear glabrous with a brownish to grey color in winter and a yellow to tannish color during spring and summer. The fruit is small in size (average 0.25 in. or 0.6 cm. in diameter) and range in color from orange to red that may persist throughout the winter. Each berry contains several small seeds. Its flowers appear in mid-spring (May through June) that form in pairs in the axils of the leaves. The flowers are tubular and pink to red and white in color and bloom for approximately three weeks. These flowers have a sweet fragrance common to other honeysuckles and are approximately ¾ in. long and across. The flowers consist of a corolla with five long and narrow petals containing five stamens of white filaments and yellow anthers with a pistil carrying a single style.

This plant was introduced to the United States in 1752 as an ornamental plant from central China. It is native to Siberia and other parts of eastern Asia. It grows in uplands along roadsides and trails, in old fields, thickets, fencerows, woodland edges, woodlands, and disturbed areas. Once these plants become established and produce fruit, they infiltrate into the naturally vegetated areas very quickly and are moderately difficult to remove once in large numbers due to their seed base.

Hand pulling (weeding), cutting, and herbicides work best, especially in conjunction with each other. Hand weeding only works with newly established seedlings that are not part of an older, established plant or its

roots. Make sure to get all of the roots to avoid re-growth when weeding any seedlings. Any remaining roots that can't be removed should be treated with a direct (apply directly with a cotton swab, small paint brush or dabbing wand applicator) application of herbicide. Mowing or cutting the stalks or stems near its base (within 2 inches of the ground), removing the plant in large contractor's bags followed by treating the remaining basal area of the plant with herbicide containing glyphosate (such as Roundup Pro) seem to work best. Mowing will not occur on this project. These methods will likely require 2 to 3 years of repeat efforts to ensure full removal of these plants.

This shrub occurs along the western edge and within Wetland A and is only about 1% to 2% of the invasive plants on the site. Several of these shrubs were cut down during the violation by the property owner.

4.4.5 Autumn Olive

Autumn Olive is a deciduous shrub that can grow to 20 feet in height. Leaves are alternate and egg or lance-shaped and smooth margined. The leaves are dull green on the upper surface and often silvery with brownish scales on the underside. The stems and buds are often silvery to rusty colored with scales. Autumn Olive have dense clusters of pale-yellow flowers that occur in June and July. Small reddish brown to pink fruit dotted with brown or silvery scales are produced in August through October. This plant was introduced to the United States in 1830 and was widely planted as an ornamental and in clusters as a windbreak.

Hand pulling (weeding), cutting, and the use of herbicides work best, especially in conjunction with each other. Hand weeding only works with newly established seedlings that are not part of an older, established plant or its roots. It is best to pull these seedlings after recent rains when the soil is loose. Make sure to get all of the roots to avoid re-growth when weeding any seedlings. Any remaining roots that can't be removed should be treated with a direct (apply directly with a cotton swab) application of herbicide. Mowing or cutting the stalks or stems near its base (within 2 inches of the ground), removing the plant in large contractor's bags followed by treating the remaining basal area of the plant with herbicide containing glyphosate (such as Roundup Pro) seem to work best. These methods will likely require 2 to 3 years of repeat efforts to ensure full removal of these plants.

Autumn Olive was observed scattered in the western portion of the site and consists of approximately 1% to 2% percent of the invasive plant species. Most of these shrubs were cut down by the property owner during the violation.

4.4.6 Tree of Heaven

Tree of Heaven is a fast growing deciduous tree that can reach heights of 80 to 100 ft. with a diameter of 3 to 6 ft. It was introduced to the United States in the Philadelphia, PA area in 1784 and was later introduced to the West Coast in the 1850's by immigrants. It was initially used as an urban street tree and has been well documented to have been used along the streets in Baltimore and Washington D.C. This tree is native to northeast and central China and Taiwan. A single female tree can produce up to 300,000 seeds which are often wind spread and they can produce seeds once a sapling becomes two years old. These trees are not only prolific but have allelopathic chemicals in their roots, leaves, and bark that can limit or prevent other native plants from becoming established. If the roots, leaves, twigs, bark or any other portion of this tree are crushed or damaged, they will give off a strong odor. This tree's sap can affect human health resulting in skin irritation, dermatitis, and may even lead to myocarditis (inflammation of the heart muscle) in rare occasions if any portions of the plant puncture skin. It is recommended that gloves and protective clothing be worn when removing this tree. Tree of Heaven can be found along roadsides, parking lots, railways, trails, fencerows, woodland edges, wastelands, fields, logging sites, mining sites, and forest openings.

Tree of Heaven looks similar to Black Walnut (*Juglans nigra*) and Sumacs (*Rhus spp.*) but it can be distinguished by their leaves, fruit, and bark. Their leaves are pinnately compound having a central stem with leaflets that are attached on each side. A leaf can range from approximately 1 to 4 ft. in length with 10 to 40 leaflets. These leaflets are lance shaped with smooth margins and one or two protruding bumps known as glandular teeth. The bark of this tree is smooth and green when it is young turning light brown to grey resembling the skin of a cantaloupe as it ages. Their twigs are brittle and alternate on the tree with a greenish to brown color. They lack a terminal bud but have large "v" or heart shaped leaf scars. Once their twigs are broken, a large spongy brown center or pith is exposed. The Tree of Heaven has small yellowish-green flowers that occur in June. Seeds appear during summer as 1 to 2 in. long twisted samara or wings with one seed per samara. Samaras occur in clusters which can be produced in the hundreds of thousands on a single tree and persist through winter.

Hand pulling (weeding), cutting, and herbicides work best, especially in conjunction with each other. When hand weeding, make sure to get all of the roots to avoid re-growth. Any remaining roots that can't be removed should be treated with a direct (apply directly with a cotton swab, small paint brush or dabbing wand applicator) application of herbicide. Cutting should include cutting the vine near its base (within 2 inches of the ground) and removing the vine from surrounding

vegetation, followed by treating the basal area of the vine with herbicide containing 25% glyphosate (such as Accord or Roundup Pro) works best. Remove all cut vines including any berries observed to reduce local seeding by placing them in containers or large plastic bags from where they were cut. These methods will likely require 2 to 3 years of repeat efforts to ensure full removal of these plants.

This tree species occurred in the tree and sapling layers but only makes up approximately 2% to 3% of the restoration area. Several of these trees were cut down by the property owner during the violation.

4.4.7 Black Locust

Black Locust is a medium sized deciduous tree that is originally from the southeastern (southern Appalachia) and central (Ozarks) United States and some areas of Europe (refer to Attachment 2, Site Photographs, Photo 17). It has spread north throughout the northeastern and northern central United States. Black Locust was used in construction projects since their root systems are great for stabilizing soils. Seedlings and sprouts of this tree can grow rapidly and can be identified by their long paired thorns. They can rapidly overtake an area creating a dense tree layer that crowds or shades out native plants by blocking sun light and depleting soil moisture. This tree produces many seeds that seldom germinate but they spread from root suckering. Their nitrogen-fixing root nodules allow these plants to grow just about anywhere, even areas with little nutrients. They grow best in well drained soils with full sunlight. These trees are most often found along woodland edges, in abandoned fields, pastures, wastelands, and along roadsides.

The Black Locust typically grows between 40 to 50 feet tall but can grow from 70 to 100 feet in height. This tree grows relatively upright with a somewhat narrow crown that is widest at the top. Its bark can be a dark greyish brown to a greenish brown to a yellowish brown with distinctive thick rope-like ridges with furrows interlaced. The trunk is long and straight and its branches are often upright to irregular. Leaves are alternate along the stem with smaller oval or elliptical leaflets. Leaves are 6 to 14 inches long and include 7 to 19 leaflets. The leaflets are dark dull green to bluish green above and yellow below. This tree produces clusters of pea-like flowers that are creamy white in color with a yellow patch on the uppermost petal and are very fragrant. Its flower clusters are 4 to 8 inches long that occur in late May through early June for approximately one week. This tree's fruit consists of flat long smooth pods that is approximately 2 to 4 inches in length which mature in October and persist as a dried brown fruit. Each pod contains 4 to 8 seeds.

This species was observed scattered along the western and northern areas of the site in the floodplain and in Wetland A. This tree is approximately 8% to 10% of the invasive plant species on the site. Several of these trees were cut down by the property owner during the violation.

4.5 Invasive Plant Species Removal

The invasive plant species removal or eradication will be considered to be the first part of the Wetland Restoration Plan.

Removal of the invasive plants will begin along the northeastern portion of the site and continue south and then west to the driveway until all invasive plants have been weeded and/or cut-and-treated. The ecologist or wetland scientist will identify the invasive plants and show the landscapers how to identify each species seen. They will also show the landscapers how to cut, tell them which plants to weed or pull, and how to bag the plant waste to avoid seed dispersion. The plants will be weeded, cut, plant waste removed, and the basal area of large shrubs, saplings and trees will be treated with herbicide as the team moves along the site from east to west. The majority of the invasive plants that are immature or easy to extricate from the soil will be weeded/hand pulling such as young Glossy Buckthorn, Japanese Honeysuckle, Tartarian Honeysuckle, Eastern Burning Bush, Multiflora Rose, Japanese Barberry, Oriental Bittersweet, and Autumn Olive. Seedling Japanese Knotweed will also be weeded.

Common Mugwort, Curly Dock, Garlic Mustard and Climbing Nightshade plants identified that will only be weeded and not cut-and-treated. Plants with a stem or stalk that is greater than ½ in. diameter may be cut and treated with herbicide but weeding them from the site will also be attempted prior or in place of the cut-and-treat method. Any plant with a stem or trunk greater than 1-½ in. will be cut and treated with herbicide dabbed on its cut stem or trunk (with a dabbing brush or dapping wand) by an herbicide applicator with a MA Herbicide Applicator's License under the direct supervision of a wetland scientist or ecologist. The wetland and floodplain area to be restored may be divided into transects to aid with coverage of the area and to avoid additional movement within the restoration area that could damage native vegetation. The team will consist of at least three individuals. These individuals include: 1) the ecologist; 2) a landscaper who is cutting/weeding and possibly bagging; 3) a landscaper (who has an MA Herbicide Applicator's License) that is treating the cut basal area of large shrubs under the guidance of the ecologist; and 4) possibly an additional landscaper that is cutting/weeding and bagging the plant waste. Once a contractor's bag is full of plant waste, it will be tied closed and placed on the lawn edge by the driveway to be picked up by the landscapers once a transect is completed and placed in a truck bed. Mowing of invasive shrubs and herbs will not occur on this site as all work is within wetland resource areas. After a section or transect of the restoration is completed, the site ecologist or wetland

scientist will inspect each section or transect to ensure that all invasive plants have been removed.

All invasive plant species above will be weeded except for large Oriental Bittersweet, Glossy Buckthorn, Multiflora Roses, Tartarian Honeysuckle, Autumn Olive and Black Locust as stated above. The small to medium sized invasive plant species will be weeded and discarded in black contractor's bags for offsite removal or in an open area outside of the forested area of the site for solarization.

4.6 Herbicide Use

Herbicide use has been designed into this plan with the intention of using it as infrequently or as sparingly as possible. It is the opinion of this office as a result of several recently published studies that large-scale use of herbicides, including those with glyphosate, negatively impact the environment. Glyphosate that enters surface waters has been linked to DNA damage in fish and other species. Glyphosate is a heavy salt that does breakdown organically into natural elements over time. No spraying release of this herbicide over large areas will occur under this plan. Two brands of glyphosate based herbicides may be used one is Accord XRT II for any aquatic invasive plant stalks or roots and the other will be either RoundUp Pro or Roundup Custom. This herbicide will be applied directly and sparingly to cut basal areas or visible roots only when physical removal of the plant is not possible or is more damaging to surrounding natural vegetation. Herbicide application will occur through the use of cotton swabs, paintbrushes and/or dabbing wands. Dabbing wands are typically sheaths of material that are secured to the sprayer tip and metal shaft of the sprayer to become soaked with herbicide that can be gently placed on the cut basal area of the plant where it will accumulate on the cut area.

Three brands of herbicide have been mentioned within this plan. All three brands contain the active ingredient glyphosate. Accord XRT II is a brand/product that is typically used in aquatic settings to control emergent vegetation. Roundup Pro or Roundup Custom and Accord XRT II contain surfactants which help the herbicide stick to the plant surface where it is applied. This helps it penetrate into the plants tissue, especially when it is a hard woody surface and may be exposed to rain within 3 to 6 days of application. Without the surfactants, the life of the herbicide is greatly reduced and may not be effective. This is especially true when dealing with areas where rainfall may occur within 3 to 6 days after the application of the herbicide.

The application method chosen in this plan (direct basal area application) was determined based on experience and research to provide the most effective manner of application with the highest level of protection for the environment. The time of application has been based upon the end of the growing season so that the plant will absorb the herbicide and store the herbicide in its root system

with its sugars to draw from when it needs energy to grow in the spring. This provides a high rate of efficiency for eliminating invasive plant species within 2 to 3 years if proper weeding programs are in place and areas surrounding the Restoration Area are also free of invasive. Targeting the basal and exposed root areas of shrubs and trees minimizes the herbicide application so that it is almost completely absorbed by the plant unlike foliar spraying. Our Company's experience and research of herbicides that contain glyphosate are that it is harmful to fish and other aquatic organisms if it enters a waterway, waterbody, or coastal waters. It can act as a bio-inhibitor impacting fish reproduction. This is why we have the herbicide applied to the basal area of invasive plants and not sprayed. It is likely that RoundUp Pro or Roundup Custom will be the herbicide chosen to be applied on the cut basal areas of the invasive plant species. The majority of the proposed cut-and-treat method will occur west or north of the wetlands with a few potential spots in the wetlands. Please note, these wetlands rarely contain water but contain high groundwater that reaches the upper 12 in. of the soil.

4.7 Solarization and Disposal

Once the invasive plants are placed in large black contractor's bags, they will be removed from the forested area of the site at the end of each work day and placed along the parking lot of the site. The bags of invasive plant material will either be removed from the site for offsite solarization or kept in an open area of the site for solarization. Solarization will occur over 6 months to ensure the plant material (roots, small branches that could contain seeds, fruits and seeds) will be dead and rotting to ensure no invasive plants can't spread. The best method of disposal is to bring them to a transfer station or place them in a dumpster that is picked up by a contracted waste disposal company that takes its waste to a facility with an incinerator but this process has become unfeasible as costs have risen sharply (\$4,000+ per roll-off dumpster). Burying the plant waste deep such as in a landfill or other location is also a potential solution is the next best option following solarization but taking them anywhere where they can be used for mulch, compost or future top soil should be prohibited. This method of disposal will ensure that no invasive plants will be allowed to spread or resurface in the surrounding environment. It is recommended that a contractor who performs the invasive plant species eradication or is a disposal company that either transfers the plant waste and any refuse from the site follows the decontamination processes discussed below in Section 4.7 Decontamination Plan to a private or public incinerator.

4.8 Decontamination Plan

The spread of invasive plants can occur as a result of the distribution of seeds, roots, and even stem fragments from invasive plant species and can occur on many different sources such as personnel clothing, vehicles and/or machinery.

Any of these sources, such as clothing, tools, or vehicles, need to be inspected and likely cleaned daily prior to leaving the site and at the end of the project or any time before or after leaving the site. Vehicles and mechanical equipment shouldn't be an issue at this site so they will not be part of the decontamination. The decontamination protocols will only apply to workers clothing, footwear and mechanical cutting or treatment equipment.

Inspections should be carried out on a staging area dedicated to cleaning personnel, equipment, and vehicles (on the driveway). Effective inspections require good lighting conditions, personnel trained to look for problem areas that are not apparent upon casual observation, and development of protocols and lists of priority invasive species. Effective inspections also require persons who have the task of inspecting vehicles, equipment, and personnel to be dedicated and accountable for their actions. Inspections should include personnel, vehicles, and equipment that are used in locations known to be infested with invasive species. The equipment should undergo a pre-inspection, followed by thorough cleaning and a post-inspection before being allowed to leave the site.

Decontamination of any and all: 1) clothes; 2) shoes, boots, and any other footwear worn on the site; 3) vehicles; 4) trailers; 5) mowing equipment, 6) any earth-moving equipment; and 7) any other machinery or object brought onto the site that may make contact with the ground or site vegetation during the proposed ecological restoration. Decontamination will occur when anything leaves the site at the end of the work day or when work is completed and will include the removal of seeds, fruits, soils, mud, and plant cuttings/fragments from any of the seven itemized categories listed above. Numerous cleaning methods are available to decontaminate workers and equipment of invasive species. A lint roller and whisk broom or small broom works best with a dust pan. Materials removed from each site worker should be swept up or off personnel, boots, and equipment and placed in one of the black contractor's bags containing the plant waste. The use of mowing and construction equipment is unlikely to occur during the times the invasive plant species eradication program will be executed at the site.

5.0 Wetland Restoration Plan

The success of the ecological restoration can only be accomplished with a well-developed and thoroughly followed restoration plan. Portions of the ecological restoration plan described below has been developed from the Massachusetts Department of Environmental Protection, Massachusetts Inland Wetland Replacement Guidelines, September 2022 such as planting densities and percent coverage of restored plants for qualification of the restoration area after two years of monitoring. All activities identified within the ecological restoration area will be supervised by a qualified wetland scientist. Restoration of Wetland A and B and the floodplain area will not occur until approximately 80% to 85% reduction in invasive plant species occurs within the

restoration area. Once the majority of the invasive plants have been removed from the restoration area, the restoration plantings will commence. This will likely occur in the spring (April to early May) or fall of 2025 when the regrowth or sprouting of invasive plants can be evaluated prior to planting.

5.1 Existing Conditions and Functions

The site consists of an area that was recently disturbed from the removal of invasive plants and some native vegetation that was cut in the process within the eastern portion of the site. The remaining portions of the site consist of forested wetland and mixed forested upland that occur within the 100-yr. floodplain to the Westfield River. The areas of the wetland and floodplain restoration include areas of invasive plant species.

5.2 Vegetation

All vegetation chosen to be planted in the ecological restoration areas was observed on or adjacent to the site. Other dominant native vegetation that contains high wildlife habitat value throughout the forested areas of the site will be used for the ecological restoration as described below. The purpose of revegetating the areas where the invasive plant species are being eradicated is to avoid these areas from becoming re-infested with invasive plant species. Revegetating areas once occupied by invasive plant species has shown these areas can be ecologically restored and will become re-established with native plants instead of invasive species (invasive plant species numbers typically dwindle to near zero in a few growing seasons). This results in effective restorations that cost less and are successful which occurs in a much shorter period of time, typically within one to two growing seasons for dominant native plants when compared to just treating the invasive plant species.

The planting sequence will include planting the trees first at approximately 10 to 15 ft. on-center, then shrubs will be planted approximately 8 to 12 ft. on-center, followed by seeding. The spacing for most of the wetland restoration area and many portions of the floodplain will be at these planting densities but will not reflect this due to the existing shrubs and trees that have regrown or sprouted on their stumps. The proposed Planting Plan (refer to Attachment 4, Restoration Planting Plan) reflects the general locations of the new or regrowth of native shrubs and trees at the site. Once the plant stock is delivered to the site, the plants will be evaluated to ensure they are the proposed plants, they are delivered with the requested quantities of each plant species, and that they are healthy. The plants will be laid out within the ecological restoration area prior to planting. When all nursery stock is planted, the New England Wetmix will be applied to Wetland A in the areas where the invasive herbs have been removed and any other areas where the herbaceous layer has been damaged from the invasive plant species eradication. New England Conservation/Wildlife Seed Mix

will be applied to 100-yr. floodplain within the restoration area. The same native plant species that are located within the existing buffer zone with high wildlife habitat value will be planted in the restoration area.

There are numerous native trees, shrubs, and many herbs in the restoration area that have been estimated in our planting plan (refer to Attachment 4, Restoration Planting Plan). The densities of native plants have been estimated conservatively as any significant open areas in the vegetative cover following the two years of invasive plant species eradication plan will allow the invasive plants to repopulate and dominate these open patches. This would create additional time, costs, and effort to eradicate the invasive plant species from the restoration area.

The wetland restoration area will be seeded with New England Wetmix in the herbaceous layer within the boundaries of Wetland A and B where the herbaceous layer has been weeded or damaged from the invasive plant species eradication and with New England Conservation/Wildlife Seed Mix in the herbaceous layer in the remaining 100-yr. floodplain of the ecological restoration area where the invasive plant species have been removed. The proposed wetland restoration area will include 13 Silky Dogwoods, 12 Highbush Blueberries, 18 Northern Spicebushes, 13 Southern Arrowwoods, 7 Common Witch Hazels, and 7 Common Winterberry in the shrub layer; and 8 Red Maples and 2 Pin Oaks trees for the tree layer (Refer to Table 1 below).

Table 1 Wetland Restoration Areas Planting Table				
Plant Species	# of Plants	Plant On Center	Plant Height	Size
New England Wetmix Seed Mix application rates to bare wetland restoration areas: 1 lb./1,200 sq. ft.				
Northern Spicebush (<i>Lindera benzoin</i>)	18	8 – 10 ft.	18 - 24 in.	2 - 4 gal. container
Highbush Blueberry (<i>Vaccinium corymbosum</i>)	12	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container
Southern Arrowwood (<i>Viburnum dentatum</i>)	15	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container
Silky Dogwood (<i>Cornus amomum</i>)	13	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container
Common Winterberry (<i>Ilex verticillata</i>)	7	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container
Pin Oaks (<i>Quercus palustris</i>)	2	10 – 15 ft.	24-30 in.	2 - 4 gal. container
Red Maple (<i>Acer rubrum</i>)	8	10 – 15 ft.	24-30 in.	2 - 4 gal. container
The altered area of Wetlands A and B will include planting of 10 trees and 65 shrubs.				

Table 2 Floodplain Restoration Area Planting Table				
Plant Species	# of Plants	Plant On Center	Plant Height	Size
New England Conservation/Wildlife Seed Mix application rates to bare 100-yr. Floodplain areas: 1 lb./1,200 sq. ft.				
Highbush Blueberry (<i>Vaccinium corymbosum</i>)	7	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container
Common Witch Hazel (<i>Hamamelis virginiana</i>)	32	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container
Southern Arrowwood (<i>Viburnum dentatum</i>)	32	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container
Pin Oaks (<i>Quercus palustris</i>)	19	10 – 15 ft.	24 – 30 in.	2 - 4 gal. container
Red Maple (<i>Acer rubrum</i>)	19	10 – 15 ft.	24 – 30 in.	2 - 4 gal. container
The altered floodplain restoration area will include planting of 38 trees and 71 shrubs.				

The proposed floodplain restoration area will include 7 Highbush Blueberries, 32 Southern Arrowwoods, and 32 Common Witch Hazels in the shrub layer; and 19 Red Maples and 19 Pin Oaks trees for the tree layer (Refer to Table 1 below).

New England Wetmix seed mix will be used for the native herbaceous layer within Wetland A and B where invasive plants have been removed. This seed mix contains Fox Sedge (*Carex vulpinoidea*), Hop Sedge (*Carex lupulina*), Bearded Sedge (*Carex comosa*), Lurid Sedge (*Carex lurida*), Nodding Bur Marigold (*Bidens cernua*), Soft Rush (*Juncus effusus*), Grass-leaved Goldenrod (*Solidago graminifolia*), Blue Vervain (*Verbena hastata*), Boneset (*Eupatorium perfoliatum*), Flat-top Aster (*Aster umbellatus*), Hard-stem Bulrush (*Scirpus acutus*), Green Bulrush (*Scirpus atrovirens*), Woolgrass (*Scirpus cyperinus*), Sensitive Fern (*Onoclea sensibilis*), Spotted Joe-Pye Weed (*Eupatorium maculatum*), Water Plantain (*Alisma plantago-aquatica*), Soft-Stem Bulrush (*Scirpus validus*), and Ditch Stonecrop (*Penthorum sedoides*). The New England Wetmix will be applied at a rate of 800 sq. ft./lb. to Wetlands A and C.

New England Conservation/Wildlife Seed Mix will be used in the 100-yr. floodplain where invasive plants have been removed which includes: Virginia Wild Rye (*Elymus virginicus*), Little Bluestem (*Schizachyrium scoparium*), Big Bluestem (*Andropogon gerardii*), Red Fescue (*Festuca rubra*), Switch Grass (*Panicum virgatum*), Partridge Pea (*Chamaecrista fasciculata*), Panicleleaf Tick Trefoil (*Desmodium paniculatum*), Indian Grass (*Sorghastrum nutans*), Blue Vervain (*Verbena hastata*), Butterfly Milkweed (*Asclepias tuberosa*), Black Eyed Susan (*Rudbeckia hirta*), Common Sneezeweed (*Helenium autumnale*), Heath Aster (*Aster pilosus/Symphyotrichum pilosum*), Early Goldenrod (*Solidago juncea*), and Upland Bentgrass (*Agrostis perennans*). The New England Erosion Control/Restoration Mix for Dry Sites includes: Red Fescue (*Festuca rubra*), Canada Wild Rye (*Elymus canadensis*), Annual Ryegrass (*Lolium multiflorum*), Perennial Ryegrass (*Lolium perenne*), Little Bluestem (*Schizachyrium scoparium*), Indian Grass (*Sorghastrum nutans*), Switch Grass (*Panicum virgatum*), Upland

Bentgrass (*Agrostis perennans*). The Conservation Mix will be applied at a rate of 800 sq. ft./lb. to the riverfront area restoration.

Planting of the restoration area will follow the invasive plant species eradication plan and will likely occur in spring or fall 2025 following the reduction in invasive plant species by at least 80% to 85%. The seeding for the ecological restoration area will only be spread in the spring as the seed mix contains plant seeds that are food sources for native animals and will often be eaten before they can germinate. The ecological restoration area will be planted with shrubs will be planted 8 to 12 ft. on center and trees will be planted 10 to 15 ft. on center. It is anticipated that the vegetation within the ecological restoration area will thrive (establishment of 75% or greater of the native plant species planted in the ecological restoration area) after two consecutive growing seasons. The success of the ecological restoration area will depend upon whether or not predicted conditions, such as normal or average seasonal weather, occur and are met within the ecological restoration area, and that the planting plan is closely followed.

An invasive plant species prevention plan is proposed to continue after the restoration plantings to ensure that the vegetation within the restoration area takes hold and is not dominated by invasive or opportunistic vegetation, a weeding program will be incorporated into this planting plan for all new seedlings. Potential sources of new infestations of invasive vegetation are onsite construction/maintenance equipment, local wildlife populations, or airborne seeds. Invasive plant species have been identified not only on the site in the existing buffer zone but also on the surrounding properties.

Watering of the vegetation is a concern for the success of the ecological restoration. Watering will likely need to occur if planting occurs in the fall or in the spring if we have a dry spring and/or summer.

5.3 Wildlife Habitat

All of the eight native plant species that are to be used in the ecological restoration area are native to the area and site and contain significant wildlife habitat value. According to Readington 1994 and DeGraaf 2002, small mammals, birds, reptiles, amphibians, and insects use these native plant species for feeding, breeding, and shelter.

5.4 Plan

A planting plan has been included as Attachment 7, Restoration Planting Plan that shows the location of the ecological restoration area plantings.

5.5 Stormwater Management

The ecological restoration areas will not receive storm water discharge from the proposed stormwater management system.

5.6 Erosion Control Plan

No sediment or erosion controls are currently proposed as the site is completely vegetated. Areas where invasive plants will be removed will be planted with shrubs and trees and seeded with herbaceous seed mixes.

5.7 Considerations During Construction

Proper scheduling and sequencing of events to prepare and complete work associated with the restoration area will be necessary for the wetland and floodplain restorations to be successful. This includes the eradication plan and planting within the restoration area as described below. The invasive plant species eradication plan will be conducted for the first one to two years to ensure that when the proposed restoration plants are planted, they aren't overtaken by invasive plant species. Prior to planting, the restorations areas will be inspected to ensure that most of the invasive plants have been eradicated. If 80% to 85% or greater removal of the invasive plant species has occurred, the planting of the ecological restoration area will commence. Proposed planting orders will be submitted to the restoration plant suppliers once it is determined that enough of the invasive plants have been eradicated in late summer and/or early fall of 2024. The proposed ecological restoration plantings will be ordered in late winter/early spring 2025 to ensure the availability of the plant stock for the restoration area.

5.8 Schedule & Sequencing

The restoration area must be constructed in a sequenced plan to ensure its success. The construction sequencing for the restoration area is listed below.

5.8.1 Invasive Plant Eradication

Weeding of the invasive plants will commence at the end of summer or early fall of 2024. The way in which the ecological restoration plan will be executed is described below in Section 5.8.1.1 Construction Sequencing.

5.8.1.1 Construction Sequencing

This section will be followed closely by the site's wetland scientist and the landscaping crew to ensure each task is completed in proper sequence and thoroughly to avoid additional contamination on and off the site of invasive plant species. If each step of the construction sequencing is performed fully and accurately, the ecological restoration should be successful.

1. In late summer and/or early fall of 2024, the wetland scientist will instruct the landscaping crew on how to identifying each invasive plant species at the seedling, juvenile and adult plant stages at the site. Each person's task(s) will be conveyed so that everyone will know who is weeding, cutting and removing the slash or plant matter and placing it in black contractor's bags. The location for the placement of full bags is along on the edge of the access drive where they will be picked up and either placed in an open area along the existing parking lot or move to another offsite location for solarization.
2. Once the instruction is completed, the eradication of invasive plant species will begin with weeding and cut-and-treat of larger woody plants along the northern and eastern extent of the site moving (moving south to west) around and in Wetland A and removal of the few invasive plants from the cut area of Wetland B.
3. A transect that is approximately 20 ft. wide will be established to keep trampling of the native vegetation to a minimum and to focus on the invasive plants in the transect so none are missed.
4. The herbicide applicator with the MA Herbicide Applicator's License will dab the cut stalk or stump of the invasive plants along the path of the transect as needed.
5. Upon completion of the invasive plant species removal and treatment, all slash or plant waste (except for the trunks and large branches from the trees and shrubs that don't contain any seeds or fruits) will be collected and put into black contractor's bags. All personnel that have been in the field will have to be inspected for any plant materials, especially seeds, berries, and roots. Once all personnel have been inspected and cleaned off with a lint roller and nylon brush. Any dirt from

- boots, lint rollers, and brushes and dust pans will be discarded into the remaining plant materials bag.
6. In spring 2025, the area will be inspected in late April or early May to determine the extent of regrowth or new invasive plant species. If less than 20% are present, planting could begin.
 7. If a fall 2025 planting is proposed, the areas of invasive plants will be inspected at the end of August to determine if another treatment is necessary prior to planting and what level of weeding, cutting and treatment is needed to eradicate new and plants with regrowth.
 8. Planting will include coordinating the plant stock ordering, establishing a staging area, evaluating plant stock once it arrives on the site.
 9. Prior to planting, the shrubs and trees will be laid out in the locations by the site's wetland scientist and proper planting procedures will be discussed and monitoring of planting will occur by the wetland scientist to ensure the plants are planted properly according to the Restoration Planting Plan.
 10. Shrubs will be planted 8 to 12 ft. apart and trees will be planted 10 to 15 ft. apart.
 11. The seed mixes for the herbaceous area will be cast across the bare areas of the ecological restoration areas at a rate of 1 lb./1,200 sq. ft.
 12. All plants will be watered immediately following planting.
 13. The restored ecological restoration areas will be inspected by the wetland scientist following planting.
 14. All activities described in #1 through #12 will be supervised and authorized by the wetland scientist until completed and approved.
 15. Activities listed above are subject to change due to site conditions, weather, failure of equipment or other unforeseen issues that may arise and will be addressed by the supervising wetland scientist. If any changes do occur, they will be documented and discussed in full detail in the first report to the Conservation Commission, MassDEP and the U.S. Army Corps of Engineers following completion of the restoration area.

5.9 Ecological Restoration Monitoring

Monitoring of the restoration area will occur twice (during spring and fall) following planting to observe the health of the plantings and to determine when watering is necessary during the first growing season and if there are any issues with the plants. A quick monitoring will be performed twice in the first one to two weeks following the planting to ensure the plants aren't in shock (are healthy) and there isn't any evidence of animals eating the plants. Monitoring at the end of the growing seasons for both years will include observing the health of the plantings and to evaluate any replaced plantings. This monitoring will include evaluating the location of each shrub and tree planted, health of the vegetation, the overall success of the wetland restoration and riverfront area, and to set two sample plot monitoring locations to evaluate the wetland restoration area based on percent coverage of wetland vegetation and to sample soils in the center of each sample plot. One sample plot location will be established within the riverfront area restoration. The plots will be marked in the field with flagging tape and marked "TEC Sample Plot 1", "TEC Sample Plot 2" and "TEC Sample Plot 3". Any dead or significantly stressed vegetation will be marked with flagging tape and will be photographed and discussed in the monitoring report. The area of the wetland restoration will be documented for hydrology, wetland vegetated coverage, soils, potential for erosion, colonizing wetland plant species, any evidence of invasive plants, signs or observation of wildlife utilization, and the ability of the wetland restoration to blend into or become part of the adjacent existing wetland system. The 100-yr. floodplain will be monitored for all parameters of the wetland restoration area minus the hydrology. If any plantings are dead, they will be marked with flagging tape, their location within the restoration area will be marked on a plan and the plant species will be documented both in field notes and in the monitoring report.

Access to the restoration area will be limited to prevent damage to the vegetation and disturbance of the soils. Water will be obtained onsite and vegetation will be watered by hose or by buckets during the first month after planting if necessary. If a drought or extreme wet weather occurs, monitoring will be increased and necessary action taken to prevent damage or stress to the plantings. The restoration area will also be monitored to ensure invasive or unwanted plant species from becoming established during the two site visits. If invasive or unwanted species are found in the restoration area, a weeding program will be implemented to remove these species.

The first year of monitoring will include two site visits during the first full growing season, in early summer and late September. Each site visit will involve inspecting and documenting any changes in the health and growth of the planted vegetation. Photographs of the restoration area will be taken to show how the vegetation throughout these areas has fared. The locations of where the photos were taken will be marked for subsequent site visits. Photos of planted vegetation and volunteer species will be taken and included in the monitoring reports. A qualified wetland scientist will conduct all inspections of the

restoration area for plant vitality, vegetational coverage, and any potential erosion or sedimentation in the restoration area. A report regarding the inspection will be completed and submitted to the Agawam Conservation Commission, MassDEP and the Army Corps of Engineers after every inspection. A yearly monitoring report will be prepared after each growing season to document the yearly success.

Attachment 1

Agawam Conservation Commission
Violation Letter



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

DEP File Number: _____

WPA Form 9 – Enforcement Order

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

A. Violation Information

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

This Enforcement Order is issued by:

Agawam

Conservation Commission (Issuing Authority)

8/11/2023

Date

To:

Joseph O'Malley

Name of Violator

351 Main Street, Agawam, MA 01001

Address

1. Location of Violation:

Tree House S LLC

Property Owner (if different)

"Meadow Lot & Kirkland," "Meadow Lot," "Rear Meadow Lot"

Street Address

Agawam

City/Town

L13

Assessors Map/Plat Number

01001

Zip Code

1/3, 1/4, 1/5

Parcel/Lot Number

2. Extent and Type of Activity (if more space is required, please attach a separate sheet):

The Agawam Conservation Commission received an anonymous complaint of clear cutting on Saturday, August 5, 2023 and a second complaint on Monday, August 6, 2023 stating acres of the wooded area have been cut down. The Conservation Commission went onsite and verified the tree cutting. See attached pictures. They were told that the area would be replanted with tomatoes and that they would be starting a Christmas tree farm. This area is in Bordering Land Subject to Flooding.

B. Findings

The Issuing Authority has determined that the activity described above is in a resource area and/or buffer zone and is in violation of the Wetlands Protection Act (M.G.L. c. 131, § 40) and its Regulations (310 CMR 10.00), because:

- ☒ the activity has been/is being conducted in an area subject to protection under c. 131, § 40 or the buffer zone without approval from the issuing authority (i.e., a valid Order of Conditions or Negative Determination).

Attachment 2

Site Photographs



Photo 1. Area that was clearcut with trees cut down east and north of Wetland A.



Photo 2. Cut area east of Wetland A, note ground cover is intact and Oriental Bittersweet vines on tree.



Photo 3. Cut stumps of Pin Oak and Tree of Heaven east of Wetland A.



Photo 4. Cleared area of Wetland A and floodplain to the upper left of photograph.



Photo 5. A few of the many tires observed on the site within the cut or cleared area.



Photo 6. Tire and metal cylinder between Wetland A and Wetland C.



Photo 7. Tires and vehicle parts just southwest of Wetlands A and C.



Photo 8. Piles of trash and debris west of Wetland C and north of Wetland A.



Photo 9. Plastic debris, tires, plastic drums, etc. west of Wetland C and north of Wetland A.



Photo 10. Tires, trash and other debris just west of Wetland C and the eastern most portion of Wetland A.



Photo 11. Trash and debris strewn across the western edge of the site.



Photo 12. Another image of the trash and debris along the western edge of the site.



Photo 13. Area along the southwestern edge of the site, note the Common Mugwort.



Photo 14. Area just west of Wetland A and C along the western edge of the site, note C. Mugwort.



Photo 15. Area on the edge of Wetland A, note Black Locust and Quaking Aspen saplings re-growth.



Photo 16. Tartarian Honeysuckle along the eastern edge of Wetland A.



Photo 17. Black Locust with Fox Grape and goldenrods east of Wetland A.



Photo 18. Native grasses, goldenrods and Eastern Poison Ivy just east of Wetland A.



Photo 19. White Heath Aster, goldenrods and Purple Clover southeast of Wetland A.



Photo 20. White Heath Asters east of Wetland A.



Photo 21. Cut area of Wetland A, note Sensitive Fern and goldenrods in the cut area.



Photo 22. Area southeast of Wetland A, note White Heath Asters and goldenrods.



Photo 23. Area to the east of Wetland A in the southern most portion of the cut area of floodplain.



Photo 24. Raspberry bush near the edge of Wetland A.



Photo 25. Quaking Aspen, Virginia Creeper, goldenrod, Purple Clover, blackberries, Poison Ivy and a couple of Oriental Bittersweets in the 100-yr. floodplain.

Attachment 3

Wetland Resource Areas

Delineation Report



Tunison Environmental Consultants, LLC

Wetland Resource Area Delineation Report for 365 Main Street in Agawam, Massachusetts

Prepared for:

Mr. Joseph O'Malley
351 Main Street
Agawam, MA 01001

Prepared by:

Tunison Environmental Consultants, LLC
P.O. Box 992, 11 South Park Avenue
Plymouth, Massachusetts 02362

July 12, 2024

TEC #: 2308-001

Tunison Environmental Consultants, LLC

P.O. Box 992
Plymouth, Massachusetts 02362
Phone: (508) 737-7104



Tunison Environmental Consultants, LLC

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Figures

Figure 1 Site Locus

Attachments

- Attachment 1 Site Plant List
- Attachment 2 DEP Bordering Vegetated Wetland Delineation Field Data Forms
- Attachment 3 Natural Heritage and Endangered Species Program Estimated Habitat of Rare Wildlife and Certified Vernal Pools, Springfield South Quadrangle Map
- Attachment 4 ACOE Wetland Determination Data Forms – Northcentral and Northeast Region
- Attachment 5 NRCS Soil Report
- Attachment 6 Wetland Plan



Tunison Environmental Consultants, LLC

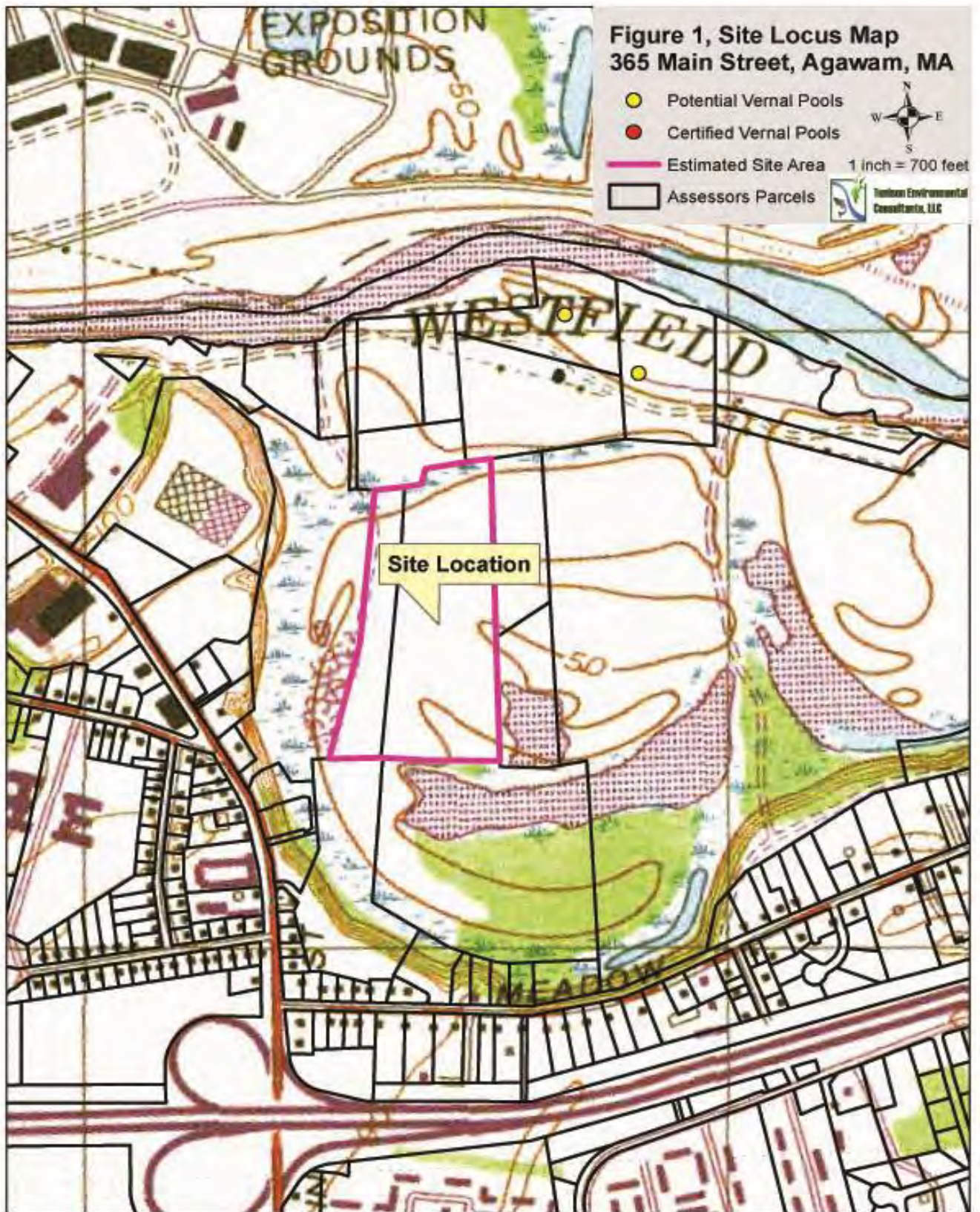
1.0 Introduction

This document presents the methodologies that were used to delineate and identify wetland resources at the property at 365 Main Street (Assessor's Parcel ID Numbers: L 131/ 1/ 5 & L13/ 1/ 3) in Agawam, Massachusetts (refer to Figure 1, Site Locus). The wetlands at this site were delineated on August 23, 2023 by Garrett M. Tunison, of Tunison Environmental Consultants, LLC who applied the methodologies described below.

2.0 Wetland Resource Areas

Under the Massachusetts Wetlands Protection Act (MWPA) (M.G.L. Ch. 131, S.40) and its implementing regulations (310 CMR 10.00), five freshwater resource area categories are defined. These categories are: (1) Bank, (2) Bordering Vegetated Wetlands (BVW), (3) Land Under Water Bodies and Waterways, (4) Land Subject to Flooding (Bordering and Isolated), and (5) Riverfront Area.

Bank, BVW, and Riverfront Area can be delineated in the field. The boundaries of Land Under Water Bodies and Waterways and Land Subject to Flooding are typically not physically delineated on a site for the following reasons. 310 CMR 10.56(2)(c) states: "The boundary of Land Under Water Bodies and Waterways is the mean annual low water level." As a result, this resource is not present within intermittent streams and is below bank resources in perennial streams. 310 CMR 10.57(2)(a)3 states: "The boundary of Bordering Land Subject to Flooding is the



estimated maximum lateral extent of flood water which will theoretically result from statistical 100-year frequency storm.” As such, this boundary is normally obtained from NFIP Profile data or by calculation and is represented on a site plan based upon elevation. The boundary of Isolated Land Subject to Flooding is based upon the “Perimeter of the largest observed or recorded volume of water confined in said area.” (310 CMR 10.57(2)(b)). Often historical data is lacking and the boundary is determined by calculation using the extent of flood water which will result from the statistical 100-year frequency storm.

3.0 Definitions of Wetland Resource Areas Normally Delineated in the Field

BVW is defined 310 CMR 10.55(2) 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 boundary of BVW is defined in 310 CMR 10.55(2)(c) as “...the line within which 50% or more of the vegetated community consists of wetland indicator plants and saturated or inundated conditions exist.”

Bank is defined in 310 CMR 10.54(2)(a) as:

“...the portion of the land surface which normally abuts and confines a water body. It occurs between a water body and a vegetated bordering wetland and adjacent flood plain, or, in the absence of these, it occurs between a water body and an upland.” The boundary of the Bank is defined in 310 CMR 10.54(2)(c) as “the upper boundary of the Bank is the first observable break in slope or the mean annual flood level, whichever

is lower. The lower boundary of a Bank is the mean annual low flow level.”

River is defined in 310.CMR 10.58(2)(a) as:

“...any natural flowing body of water that empties to any ocean, lake, pond or other river and which flows throughout the year.”

Riverfront is defined in 310 CMR 10.58(2)(a)3 as:

“...the area between a river’s mean annual high-water line measured horizontally outward from the river and a parallel line located 200 feet¹ away...” 310 CMR 10.58(2)(a)2 states: “Mean Annual High-Water Line of a river is the line that is apparent from visible markings or changes in the character of soils or vegetation due to the prolonged presence of water and that distinguishes between predominantly aquatic and predominately terrestrial land.”

4.0 Methodologies for Delineation of BVW

Bordering Vegetated Wetlands were delineated in accordance with the methodology set forth in the document entitled “Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act: A Handbook,” dated March 1995, produced by the Massachusetts Department of Environmental Protection, Division of Wetlands and Waterways. Vegetated wetlands are defined by the presence of 50% or more of wetland indicator plants and saturated or inundated conditions.

¹In some instances, the riverfront area may extend outward less than 200 feet.

4.1 Description of Criteria

4.1.1 Wetland Indicator Plants

Wetland indicator plants are defined in the MWPA regulations as any of the following:

1. Plant species listed in the Wetlands Protection Act
2. Plants listed in the National List of Plant Species That Occur in Wetlands, published by the U.S. Army Corps of Engineers, 2012, with an indicator category of: OBL, FACW, and FAC.
3. Individual plants that exhibit morphological or physiological adaptations of life in saturated or inundated conditions.

Wetland indicator species categories are defined as:

OBL: Obligate Wetland. Occur almost always (estimated probability >99%) under natural conditions in wetlands.

FACW: Facultative Wetland. Usually occur in wetlands (estimated probability 67%-99%) but occasionally found in non-wetlands.

FAC: Facultative. Equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%).

Morphological adaptations are evident in the form or shape of a plant. Two examples of a morphological adaptation are a shallow root system and a flared or buttress tree trunk.

4.1.2 Indicators of Hydrology

While wetlands must have saturated or inundated conditions, these conditions do not have to be present throughout the year. Saturation or inundation can be as short as two weeks if it occurs in the right type of soil during the growing season. As a result, indicators of hydrology can be used to satisfy the hydrology criterion when no flooding or saturation is observed.

The presence of hydric soil is an indicator of hydrology. Hydric soil is defined in Appendix D of "Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetland Protection Act: A Handbook," as "...a soil that is saturated, ponded, or flooded long enough during the growing season to cause anaerobic conditions at or near the surface." Soils with at least 8 inches of organic material measured from the ground surface are hydric soils. Anaerobic conditions create physical and chemical changes in hydric mineral soils that are observable primarily by color mottling.

Other evidence of hydrology includes "groundwater, including the capillary fringe, within a major portion of the root zone;" and "observation of prolonged or frequent flowing or standing surface water" (310 CMR 10.55(2)(c)2). Examples of evidence for surface water are watermarks on trees and rocks, water-stained leaves, or drainage patterns. Examples of soil saturation include free water in the test hole and saturated soil within 12 inches of the ground surface.

4.2 Field Methodology

When conducting delineations, it is important to know if the wetland is isolated or borders on a creek, river, stream, pond or lake. This information is used to classify the resource area as either an Isolated Wetland or Bordering Vegetated Wetland. 310 CMR 10.04 states: "Bordering means touching. An area listed in 310 CMR 10.02(1)(a) is bordering on a water body listed in 310 CMR 10.02(1)(a) if some portion of the area is touching the water body or if some portion of the area is touching another area listed in 310 CMR 10.02(1)(a) some portion of which is in turn touching the water body." In practice, the "bordering" test is passed if the wetland somehow extends without a break to the bank of a creek, river, stream, pond or lake.

4.2.1 Boundary Flagging

A search for wetlands is made on a site by walking throughout the site with special attention paid to low lying areas and areas along streams, ponds and lakes. Visual inspection of vegetation allows for a preliminary determination as to the presence of a wetland². Once an area is suspected of being a wetland, detailed observations of vegetation and hydrology indicators are made to confirm that the area qualifies as a vegetated wetland. Once confirmed, observations are made along a transect that extends into adjacent uplands. When the composition of the vegetation changes such that less than 50% of the vegetation is composed of wetland indicator plants, or when indicators of wetland hydrology are lost, the wetland boundary is marked (usually with numbered flagging). This procedure is repeated along the wetland boundary frequently enough so that, when the flag locations are mapped, the resulting line accurately reflects the wetland boundary.

4.2.2 Boundary Documentation

At representative boundary locations data is collected sufficient to complete Department of Environmental Protection Agency (DEP) delineation field data forms. These data support the accurate placement of boundary flags. At a representative boundary location data are collected concerning vegetation, soils and other hydrology indicators from each of two sets of plots. One plot set is located just down gradient of the boundary while the second plot set is located just up gradient of the boundary.

²Disturbed situations require special procedures that are not discussed in this document.

4.2.2.1 Vegetation

Vegetation is evaluated on a layer by layer basis. Vegetation layers consist of ground cover (non-woody vegetation and all woody vegetation less than three feet in height), shrubs (woody vegetation greater than or equal to 3 feet, but less than 20 feet in height), saplings (woody vegetation over 20 feet in height with a diameter at breast height (dbh) greater than or equal to 0.4 inches to less than 5 inches), climbing woody vines, and trees (woody plants with a dbh of 5 inches or greater and a height of 20 feet or more). To be included in the analysis, a layer must contain at least 5 percent plant coverage.

The abundance of each species in a layer is evaluated by estimating percent coverage over a standard plot size. To be included in this analysis, a species must provide over 2 percent coverage within a plot. Generally, circular plots are established for each layer. Ground cover is evaluated using a 5' radius plot. Shrubs and saplings are evaluated using a 15' radius plot. Climbing woody vines and trees are evaluated utilizing a 30' radius plot. The size and shape of the plots may vary based on field conditions.

The dominance of each plant species within each layer is then calculated. This calculation is made by dividing the abundance of a species within a layer by the total plant abundance within that layer and multiplying by 100 to obtain a percent dominance. Those species that individually provide at least 20 percent dominance to the layer are always designated as "dominated species". The species within a layer are arranged by percent dominance in descending order. Those species that cumulatively provide 50% of the percent dominance for the layer, regardless as to whether or not they provide a minimum of 20 percent are designated "dominant species". This is often referred to as the "20/50" rule. Once the dominant species within each layer are determined, the number of dominant wetland indicator species are compared with the number of dominant

non-wetland indicator species. The vegetative criterion is met if at least half of the dominant species are wetland indicator species.

4.2.2.2 Hydrology

The presence of hydric soil is commonly used to indicate the presence of wetland hydrology. To identify whether hydric soils are present, the soil horizons within a test pit are evaluated. Hydric soil indicators as identified in "Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetland Protection Act: A Handbook," include:

- Histosols (organic soils). Histosols are soils with at least 16 inches of organic material measured from the soil surface.
- Histic epipedons. These are soils with 8 to 16 inches of organic material measured from the soil surface.
- Sulfidic material. A strong 'rotten egg' smell generally is noticed immediately after the soil test hold is a dug.
- Gleyed soils. Soils that are predominately neutral gray, or occasionally greenish or bluish gray in color within 12 inches from the bottom O-horizon. (The Munsell Soil color charts have special pages for gleyed soils.)
- Soils with a matrix chroma of 0 or 1 and values of 4 or higher within 12 inches from the bottom of O-horizon.
- Within 12 inches from the bottom of the O-horizon, soils with a chroma of 2 or less and values of 4 or higher in the matrix, and mottles with a chroma of 3 or higher.
- Within 12 inches from the bottom of the O-horizon, soils with a matrix chroma of 3 and values of 4 or higher, with 10 percent or more low-chroma mottles, as well as indicators of saturation (i.e. mottles, oxidized rhizospheres, concretions, nodules) within 6 inches of the soil surface."

Other indicators of wetland hydrology include the presence of surface water flooding, groundwater (including the capillary fringe) within a major portion of the root zone in the test pit, water marks on trees, water-stained leaves, sediment deposits, drift lines, scoured areas, and/or drainage patterns.

5.0 Site Description and Wetland Delineation

The site is approximately 25.3 acres in size and is located at 365 Main Street (Assessor's Parcel ID Numbers: L 131/ 1/ 5 & L13/ 1/ 3) in Agawam, Massachusetts (refer to Figure 1, Site Locus). The property is bound by forested upland and a paintball playing field to the north; forested upland, forested wetland and farm fields to the east; forested upland and farm fields to the South; and a dirt access road and a capped landfill with a solar array on top of it to the west. A cell tower is also located just west of the site or south of the paintball fields parking area.

The site appears to be relatively flat with only a slight slope from north to south and east to west. All areas of the site are highly disturbed and appeared to have been cleared in the past. Most areas of the site lack an "O" and "A" Horizon soils and there is a lot of trash and debris on the site that likely came from the old landfill and previous paintball playing fields. There are many invasive plants including Garlic Mustard (*Alliaria petiolata*), Common Mugwort (*Artemisia vulgaris*) and Oriental Bittersweet (*Celastrus orbiculata*) in the herbaceous layer; Glossy Buckthorn (*Frangula alnus*), Multiflora Rose (*Rosa multiflora*) and an occasional Autumn Olive (*Elaeagnus umbellata*) in the shrub layer and Tree-of-Heaven (*Ailanthus altissima*) and Black Locust (*Robinia pseudoacacia*) in the tree layer (refer to Attachment 1, Plant List). The site is highly disturbed including garbage, yard debris, and fill materials (asphalt, brick and concrete chunks) scattered throughout the western portion of the site.

5.1 Wetland Resources Delineated on the Site

Three wetland resource areas have been delineated on the site which consists of two areas of BVW to bank of an intermittent stream and an isolated wetland.

Wetlands A and B likely join together offsite as one wetland just east of the site property.

5.1.1 Wetland A

Flagging series A-1 through A-9, A-11 through A-28, A-50 through A-78 and A-82 through A-101 delineates a BVW. Flags A-9 through A-11 and A-78 through A-82 delineate bank to an intermittent stream. This intermittent stream appears to have been dug a long time ago and was likely constructed or expanded for farm drainage. Dominant wetland vegetation includes Sensitive Fern (*Solidago gigantea*) in the herbaceous layer and Red Maple (*Acer rubrum*) in the tree layer. The herbaceous and shrub layers in many areas were thin or missing in areas where cutting has occurred. Dominant vegetation in areas outside of our sample plots in addition to the dominant species within our sample plots consisted of sedges (*Carex spp.*), Cinnamon Fern (*Osmundastrum cinnamomeum*), and some Royal Fern (*Osmunda spectabilis*) in the herbaceous layer; Northern Spicebush (*Lindera benzoin*), Glossy Buckthorn (*Frangula alnus*), Silky Dogwood (*Cornus amomum*) and some Highbush Blueberry (*Vaccinium corymbosum*) in the shrub layer; Poison Ivy (*Toxicodendron radicans*) in the vine layer and Box Elder (*Acer negundo*), American Elm (*Ulmus americana*), Pin Oak (*Quercus palustris*) in the tree layer. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.2 Wetland B

Flagging series B-1 through B-10 delineates a BVW just south of Wetland A to bank of an intermittent stream. Dominant wetland vegetation includes Sensitive Fern in the herbaceous layer and American Elm (*Ulmus*

americana) and Red Maple in the tree layer. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.3 Wetland C

Flagging series C-1 through C-13 and C-50 through C-54 delineates an isolated wetland west of Wetland A, east of the dirt road and paintball playing field. Dominant wetland vegetation includes Sensitive Fern in the herbaceous layer; Grey Willow (*Salix bebbiana*) and Silky Dogwood (*Cornus amomum*) in the shrub layer and Red Maple in the tree layer. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.2 Regulations that Apply to Delineated Resources Areas

The interests and functions of wetland resources areas are protected as defined by federal, state, and local regulations. Depending upon the type of wetland present, federal, state and local regulations may all apply to the wetland resources delineated and described above in this report, or only local and/or federal regulations may apply to wetland resources such as small isolated wetlands. The wetland resources delineated on the attached plans and described above in this report are discussed below as they relate to state, federal and local regulations.

5.2.1 Massachusetts Wetlands Protection Act (310 CMR 10.00)

Under the Massachusetts Wetlands Protection Act, 310 CMR 10.55, flag series Flags A-9 through A-11 and A-78 through A-82 delineates bank to

an intermittent stream. Flags A-1 through A-9, A-11 through A-28, A-50 through A-78, A-82 through A-101 and B-1 through B-10 delineate BVW. Both bank (310 CMR 10.54) and BVW (310 CMR 10.55) have a 100 ft. buffer zone extending horizontally outward from the BVW line (refer to Attachment 5, Wetland Plan).

Massachusetts Department of Environmental Protection (DEP) Bordering Vegetated Wetland Delineation Field Data Forms were completed for observation plots located in the wetlands and uplands along each wetland transect discussed above and are presented as Attachment 2.

5.2.2 Federal Clean Water Act

Wetlands A and B drain to intermittent streams east and south of the site that discharge into the Westfield River that drains to the Connecticut River which is a tributary that flows into Long Island Sound. Since the wetland listed above (Wetland E) discharge into coastal waters, it is considered as contiguous to a tributary to "waters of the U.S.", and regulated by the U.S. Army Corps of Engineers under the Clean Water Act.

5.2.3 Local Regulations and Bylaws

The Town of Agawam, MA, doesn't have any wetlands bylaw, regulations or policies.

6.0 Rare Species and Other Environmental Resources

This evaluation also included a review of the MA Natural Heritage Atlas, 2021, 15th edition, published by MA Natural Heritage and Endangered Species Program, Division of Fisheries and Wildlife, Westborough, MA. Based on review of the Springfield South Quadrangle, the site property is **not** within Priority or Estimated Habitats of Rare Species (refer to Attachment 3, Environmental Resources Map) Based on review of the Weymouth Quadrangle, the site is **not** within an area designated as Priority/Estimated Habitat of Rare Wildlife or within any Certified Vernal Pools. Mass/GIS data layers, including Priority/Estimated Habitat of rare species (updated August, 2021), certified vernal pools (updated continually), and potential vernal pools (July 2013) have been layered on an ortho-photo of the site that has been included as Attachment 3.

Attachment 1

Site Plant List

Attachment 1

List of Plants Observed in Field

The following species were observed growing on site. They are listed classified relative to their affinity for wetland habitats. Classifications are based upon the U.S. Army Corps of Engineers, NWPL-National Wetland Plant List, Northcentral and Northeast 2020 Regional Wetland Plant List. This publication does not list all plants that grow in New England. "NL" which represents "not listed" or listed as "NA" which indicates "no agreement" indicates species not listed in the publication. Plant species listed as "NL" or "NA" below should be considered upland (UPL) plants since they are not included in the 2020 National Wetland Plant List for the Northcentral and Northeast Region.

In certain cases, plants may have been identified only on the family or genus level. In these cases, the indicator status, SESW (wetland) or SESU (upland), is listed by the most typical status of the genus or based upon characteristics of the plant as observed in the field.

Notwithstanding classifications, it must be emphasized that individual plants of almost any species may be found in almost any habitat. It is not uncommon to find individual plants of OBL species growing in uplands or individual plants of UPL species growing in wetlands. For this reason, the total vegetation best serves as an indicator of wetlands rather than any individual species.

INDICATOR CATEGORIES AS DEFINED BY THE U.S. Army Corps of Engineers:

OBL: Obligate Wetland (OBL). Occur almost always (estimated probability > 99%) under natural conditions in wetlands.

FACW: Facultative Wetland (FACW). Usually occur in wetlands (estimated probability 67%-99%) but occasionally found in non-wetlands.

FAC: Facultative (FAC). Equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%).

FACU: Facultative Upland (FACU). Usually occur in non-wetlands (estimated probability 67%-99%), but occasionally found in wetlands (estimated probability 1%-33%).

UPL: Obligate Upland (UPL). Occur in wetlands in another region, but occur almost always (estimated probability >99%) under natural conditions in non-wetlands in the region specified.

HABIT: The plant characteristics and life forms assigned to each species.

A: Annual
B: Biennial
C: Clubmoss
E: Emergent
@: Epiphytic
F: Forb
/: Floating
F3: Fern
G: Grass

GL: Grasslike
H: Partly woody
HS: Half shrub
H2: Horsetail
I: Introduced
N: Native
P: Perennial
+: Parasitic
P3: Pepperwort

Q: Quillwort
S: Shrub
- : Saprophytic
Z: Submerged
\$: Succulent
T: Tree
V: Herbaceous Vine
W: Waterfern
WV: Woody Vine

Plant List for 365 Main Street in Agawam, MA

Scientific Name	Common Name	MA Ind	Habit
<i>Acer negundo</i>	BOX-ELDER OR ASH-LEAF MAPLE	FAC	NT
<i>Acer platanoides</i>	MAPLE, NORWAY	UPL	IT
<i>Acer rubrum</i>	MAPLE, RED	FAC	NT
<i>Achillea millefolium</i>	YARROW, COMMON	FACU	PNF
<i>Agrostis penennans</i>	UPLAND BENT GRASS	FACU	PIG
<i>Ailanthus altissima</i>	TREE-OF-HEAVEN	UPL	IT
<i>Alliaria petiolata</i>	MUSTARD, GARLIC	FACU	BIF
<i>Allium canadense</i>	ONION, MEADOW GARLIC OR	FACU	PNF
<i>Alnus incana</i>	ALDER, SPECKLED	FACW	NS
<i>Ambrosia artemisiifolia</i>	RAGWEED, ANNUAL	FACU	ANF
<i>Artemisia vulgaris</i>	MUGWORT, COMMON	FACU	ANF
<i>Betula alleghaniensis</i>	BIRCH, YELLOW	FAC	NT
<i>Betula papyrifera</i>	BIRCH, PAPER	FAC	NTS
<i>Betula populifolia</i>	BIRCH, GRAY	FAC	NT
<i>Bidens frondosa</i>	BEGGAR-TICK, DEVIL'S	FACW	ANF
<i>Brassica rapa</i>	MUSTARD, FIELD OR RAPE	UPL	ANF
<i>Carex flava</i>	SEDGE, YELLOW-GREEN	OBL	PNGL
<i>Carex blanda</i>	SEDGE, EASTERN WOODLAND	FAC	PNGL
<i>Carex crinita</i>	SEDGE, FRINGED	OBL	PNEGL
<i>Carex digitalis</i>	SEDGE, SLENDER WOOD	UPL	PNGL
<i>Carex flava</i>	SEDGE, YELLOW-GREEN	OBL	PNGL
<i>Carex leptoneura</i>	SEDGE, NERVELESS WOOD	FAC	PNGL
<i>Carex lupulina</i>	SEDGE, HOP	OBL	PNEGL
<i>Carex lurida</i>	SEDGE, SHALLOW	OBL	PNEGL
<i>Carex novae-angliae</i>	SEDGE, NEW ENGLAND	FACU	PNGL
<i>Carex scoparia</i>	SEDGE, POINTED BROOM	FACW	PNGL
<i>Carex stricta</i>	SEDGE, UPTIGHT OR TUSsock	OBL	PNEGL
<i>Carex sylvatica</i>	SEDGE, EUROPEAN WOODLAND	FACU	PNEGL
<i>Carex vulpinoidea</i>	SEDGE, COMMON FOX	OBL	PNEGL
<i>Catalpa speciosa</i>	CATALPA, NORTHERN	FACU	NT
<i>Celastrus orbiculata</i>	BITTER-SWEET ORIENTAL OR ASIAN	UPL*	IWV
<i>Comptonia peregrina</i>	FERN, SWEET	NL	NS
<i>Cornus amomum</i>	DOGWOOD, SILKY	FACW	NS
<i>Daucus carota</i>	QUEEN ANNE'S LACE	UPL	F
<i>Dennstaedtia punctilobula</i>	FERN, HAYSCENTED	UPL	F3

Scientific Name	Common Name	MA Ind	Habit
Dichanthelium clandestinum	GRASS, DEER-TONGUE ROSETTE	FACW	PNG
Dryopteris carthusiana	FERN, SPINULOSE WOOD	FACW	F3
Echinochloa crusgalli	GRASS, BARNYARD, LARGE	FAC	AIG
Elaeagnus umbellata	AUTUMN OLIVE	NL	
Eurybia divaricata	ASTER, WHITE WOOD	NL	PNF
Frangula alnus	BUCKTHORN, FALSE GLOSSY	FAC	IS
Gramineae (Hydrophilic)	GRASSES, HYDROPHILIC	SESW	G
Gramineae (Upland)	GRASSES, UPLAND	SESU	G
Hamamelis virginiana	WITCH-HAZEL, COMMON OR AMERICAN	FACU	NST
Hypericum perforatum	ST. JOHN'S-WORT, COMMON	UPL	PNF
Ilex verticillata	WINTERBERRY, COMMON	FACW	NST
Impatiens capensis	TOUCH-ME-KNOT, SPOTTED	FACW	ANF
Lepidium virginicum	PEPPER-WORT, POORMAN'S	FACU	ABNF
Lespedeza capitata	BUSH-CLOVER, ROUND-HEAD	FACU	PNF
Ligustrum sinense	PRIVET, CHINESE	FACU	NS
Linaria vulgaris	BUTTER & EGGS	NL	IP
Lindera benzoin	SPICEBUSH, NORTHERN	FACW	NST
Lonicera tatarica	HONEYSUCKLE, TWINSISTERS OR TARTARIAN	FACU*	IS
Lythrum salicaria	LOOSESTRIFE, PURPLE	OBL	PIF
Maianthemum canadense	LILY-OF-THE-VALLEY, WILD-OR FALSE	FACU	PNF
Melilotus alba	SWEETCLOVER, WHITE	FACU	ABIF
Medicago lupulina	MEDIC, BLACK	FACU	AIF
Musci	MOSSES	NL	
Nyssa sylvatica	TUPELO, BLACK	FAC	NT
Oenothera parviflora	EVENING-PRIMROSE, NORTHERN	FACU	BIF
Onoclea sensibilis	FERN, SENSITIVE	FACW	PNEF3
Osmundastrum cinnamomeum	FERN, CINNAMON	FACW	PNEF3
Osmunda claytoniana	FERN, INTERRUPTED	FAC	PNEF3
Osmunda spectabilis	FERN, ROYAL	OBL	PNF3
Oxalis stricta	WOODSORREL, UPRIGHT YELLOW	FACU	PIF
Parthenocissus quinquefolia	CREEPER, VIRGINIA	FACU	NWV
Plantago lanceolata	PLANTAIN, ENGLISH	FACU	ABPIF
Plantago major	PLANTAIN, COMMON OR GREAT	FACU	PIF
Pinus strobus	PINE, EASTERN WHITE	FACU	NT
Polygonum pensylvanicum	SMARTWEED, PENNSYLVANIA	FACW	ANEF
Populus grandidentata	ASPEN, BIG-TOOTH	FACU	NT
Populus tremula	ASPEN, QUAKING	FACU	IT
Potentilla simplex	CINQUEFOIL, OLD FIELD	FACU	PNF

Scientific Name	Common Name	MA Ind	Habit
<i>Prunus serotina</i>	CHERRY, BLACK	FACU	NT
<i>Pteridium aquilinum</i>	FERN, BRACKEN	FACU	PNF3
<i>Pyrus malus</i>	APPLE	NL	IT
<i>Quercus alba</i>	OAK, NORTHERN WHITE	FACU-	NT
<i>Quercus palustris</i>	OAK, PIN	FACW	NT
<i>Quercus rubra</i>	OAK, NORTHERN RED	FACU	NT
<i>Rhamnus cathartica</i>	BUCKTHORN, COMMON OR ALDERLEAF	UPL	IT
<i>Rhexia virginica</i>	MEADOW-BEAUTY OR HANSOME-HARRY	OBL	PNF
<i>Robinia pseudoacacia</i>	LOCUST, BLACK	FACU	NT
<i>Rosa multiflora</i>	ROSE, MULTIFLORA OR RAMBLER	FACU	IS
<i>Rudbeckia hirta</i>	SUSAN, BLACK-EYED	FACU	BPNF
<i>Rubus allegheniensis</i>	BLACKBERRY, ALLEGHENY	FACU	NS
<i>Rubus alumnus</i>	BLACKBERRY, OLD FEILD	FACU	NS
<i>Rubus flagellaris</i>	DEWBERRY, WHIPLASH	FACU	NS
<i>Rubus hispidus</i>	DEWBERRY, BRISTLY	FACW	NS
<i>Rubus semisetosus</i>	BLACKBERRY, NEW ENGLAND	FAC	NS
<i>Rumex crispus</i>	DOCK, CURLY	FAC	PIF
<i>Salix bebbiana</i>	WILLOW, BEBB OR GREY	FACW	NS
<i>Salix daphnoides</i>	WILLOW, VIOLET	FAC	IT
<i>Salix discolor</i>	WILLOW, PUSSY	FACW	NS
<i>Salix nigra</i>	WILLOW, BLACK	OBL	NT
<i>Sambucus nigra</i>	ELDER, BLACK	FACW	NS
<i>Saxifraga virginiana</i>	SAXIFRAGE, VIRGINIA	FAC	PNF
<i>Smilax rotundifolia</i>	GREENBRIER, COMMON OR HORSE	FAC	NWV
<i>Solanum dulcamara</i>	NIGHTSHADE, CLIMBING	FAC	PIF
<i>Solidago altissima</i>	GOLDENROD, TALL	FACU	PNF
<i>Solidago canadensis</i>	GOLDEN-ROD, CANADIAN	FACU	PNF
<i>Solidago gigantea</i>	GOLDEN-ROD, GIANT OR LATE	FACW	PNF
<i>Solidago rugosa</i>	GOLDEN-ROD, WRINKLED-LEAF	FAC	PNF
<i>Sparganium americanum</i>	BURREED, AMERICAN	OBL	PNEF
<i>Spiraea alba</i>	MEADOW-SWEET, WHITE	FACW	NS
<i>Symphyotrichum ericoides</i>	ASTER, WHITE HEATH AMERICAN	FACU	PNF
<i>Symphyotrichum laevis</i>	ASTER, SMOOTH BLUE	NL	PNF
<i>Taraxacum officinale</i>	DANDELION, COMMON	FACU	PIF
<i>Toxicodendron radicans</i>	IVY, EASTERN POISON	FAC	NWVS
<i>Trientalis borealis</i>	STARFLOWER, MAYSTAR OR AMERICAN	FAC	PNF
<i>Trifolium pratense</i>	CLOVER, RED	FACU	BPIF
<i>Trifolium repens</i>	CLOVER, WHITE	FACU	PIF

Scientific Name	Common Name	MA Ind	Habit
<i>Ulmus americana</i>	ELM, AMERICAN	FACW	NT
<i>Ulmus rubra</i>	ELM, SLIPPERY	FAC	NT
<i>Urtica dioica</i>	NETTLE, STINGING	FAC	PIF
<i>Vaccinium corymbosum</i>	BLUEBERRY, HIGHBUSH	FACW	NS
<i>Verbascum thapsus</i>	MULLEIN, COMMON OR GREAT	UPL	F
<i>Viburnum dentatum</i>	ARROW-WOOD, SOUTHERN	FAC	NTS
<i>Viburnum lentago</i>	NANNY-BERRY OR WILD RASIN	FAC	NTS
<i>Viola septentrionalis</i>	VIOLET, NORTHERN WOODLAND	FACU	PNF
<i>Viola papilionacea</i>	VIOLET, COMMON	FAC	PNF
<i>Vitis labrusca</i>	GRAPE, FOX	FACU	NWV
<i>Vitis riparia</i>	GRAPE, RIVER-BANK	FAC	NWV

Attachment 2

DEP Bordering Vegetated Wetland Delineation Field Data Forms

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 365 Main Street City/County: Agawam Sampling Date: 8/23/23
 Applicant/Owner: Joseph O'Malley State: MA Sampling Point: A-4, Wet
 Investigator(s): Garrett M. Tunison Section, Township, Range: Agawam
 Landform (hillslope, terrace, etc.): Gental slope 0-3% Local relief (concave, convex, none): concaved Slope (%): 0-3%
 Subregion (LRR or MLRA): _____ Lat: 42 5.006 N Long: -72 36.704 W Datum: NAD83
 Soil Map Unit Name: Hadley fine sandy loam, 0 to 3 percent slopes NWI classification: Partial FEW*

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

Remarks: (Explain alternative procedures here or in a separate report.)
 * A portion of the site contains an NWI wetland identified as a Freshwater Emergent Wetland. The northwestern corner of this wetland appears to be in the edge of the cut area where some shrubs and herbs were cut. The site has previously been disturbed for agriculture and the western and northern portions of the site have been used as a dump and a paintball and airsoft playing field.

HYDROLOGY

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

Field Observations:		Wetland Hydrology Present? Yes ☒ No _____
Surface Water Present? Yes _____ No ☒	Depth (inches): _____	
Water Table Present? Yes _____ No ☒	Depth (inches): _____	
Saturation Present? Yes _____ No ☒ (includes capillary fringe)	Depth (inches): _____	

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

Remarks:
 The majority of the soils in Wetland A are spodosols with a 2.5 to 4.5 inch ("B2" Horizon) that is 10YR 6/2 to 10YR 6/3 with mottles and depletions as indicated in the "Soil" section below. Hydrophytic vegetation was observed to be dominant within Wetland A and hydric soils were present. It is likely that this wetland has a relatively short hydroperiod after large precepitation events as the spodosol horizon slowly infiltrates water. The soils in the wetland and surrounding floodplain were similar minus the spodosol horizon in the wetland.

VEGETATION – Use scientific names of plants.

Sampling Point: A-4, Wet

Tree Stratum (Plot size: <u>30 ft. radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Red Maple (Acer rubrum)</u>	<u>63</u>	<u>Yes</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</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>126</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>63%</u> = Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td>Total % Cover of:</td> <td>Multiply by:</td> </tr> <tr> <td>OBL species _____ x 1 = _____</td> <td></td> </tr> <tr> <td>FACW species <u>63</u> x 2 = <u>126.00</u></td> <td></td> </tr> <tr> <td>FAC species <u>63</u> x 3 = <u>189.00</u></td> <td></td> </tr> <tr> <td>FACU species <u>38</u> x 4 = <u>152.00</u></td> <td></td> </tr> <tr> <td>UPL species _____ x 5 = _____</td> <td></td> </tr> <tr> <td>Column Totals: <u>164</u> (A) <u>467</u> (B)</td> <td></td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.85</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species _____ x 1 = _____		FACW species <u>63</u> x 2 = <u>126.00</u>		FAC species <u>63</u> x 3 = <u>189.00</u>		FACU species <u>38</u> x 4 = <u>152.00</u>		UPL species _____ x 5 = _____		Column Totals: <u>164</u> (A) <u>467</u> (B)		Prevalence Index = B/A = <u>2.85</u>	
Total % Cover of:	Multiply by:																			
OBL species _____ x 1 = _____																				
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Column Totals: <u>164</u> (A) <u>467</u> (B)																				
Prevalence Index = B/A = <u>2.85</u>																				
<u>0.0%</u> = Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>15 ft. radius</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>0.0%</u> = Total Cover																				
Herb Stratum (Plot size: <u>5 ft. radius</u>)																				
1. <u>Sensitive Fern (Onoclea sensibilis)</u>	<u>63</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: ☒ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% ☒ 3 - Prevalence Index is ≤3.0 ¹ ☐ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ 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. _____	_____	_____	_____																	
<u>63%</u> = Total Cover																				
Woody Vine Stratum (Plot size: <u>30 ft. radius</u>)																				
1. <u>Eastern Poison Ivy (Toxicodendron radicans)</u>	<u>3</u>	<u>No</u>	<u>FAC</u>	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.																
2. <u>Virginia Creeper (Parthenocissus quinquefolia)</u>	<u>38</u>	<u>Yes</u>	<u>FACU</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
<u>41%</u> = Total Cover																				
Hydrophytic Vegetation Present? Yes ☒ No _____																				

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

The northwestern portion of Wetland A is mostly a mix of FACW, FAC, FACU and UPL plant species.

Sampling Point: A-4, Wet

[illegible]²Location: PL=Pore Lining, M=Matrix.

Indicators for Problematic Hydric Soils³:

- | | | |
|---|--|--|
| ☐ Histosol (A1) | ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | ☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| ☐ Histic Epipedon (A2) | ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B) | ☐ Coast Prairie Redox (A16) (LRR K, L, R) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) (LRR K, L) | ☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) | ☐ Dark Surface (S7) (LRR K, L) |
| ☐ Stratified Layers (A5) | ☒ Depleted Matrix (F3) | ☐ Polyvalue Below Surface (S8) (LRR K, L) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Redox Dark Surface (F6) | ☐ Thin Dark Surface (S9) (LRR K, L) |
| ☐ Thick Dark Surface (A12) | ☐ Depleted Dark Surface (F7) | ☐ Iron-Manganese Masses (F12) (LRR K, L, R) |
| ☐ Sandy Mucky Mineral (S1) | ☐ Redox Depressions (F8) | ☐ Piedmont Floodplain Soils (F19) (MLRA 149B) |
| ☐ Sandy Gleyed Matrix (S4) | | ☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| ☐ Sandy Redox (S5) | | ☐ Red Parent Material (F21) |
| ☐ Stripped Matrix (S6) | | ☐ Very Shallow Dark Surface (TF12) |
| ☐ Dark Surface (S7) (LRR R, MLRA 149B) | | ☐ Other (Explain in Remarks) |

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

Hydric Soil Present? Yes ☒ No ☐

Type: Spodosol

Depth (inches): 4.5

Remarks: * FSL stands for Fine Sandy Loam soils. ** The "B2" Horizon was 10YR 6/2 with 10YR 6/8 mottles (35+/-%) and 10YR 5/1 (10 +/-%) depletions. The soils are highly disturbed and missing "O" and "A" Horizons are missing in most areas. There are some areas of a 10YR 2/2 FSL "A" Horizon. The other closest surface soils to an "A" or "O" layer are a mineral soil of 10YR 4/1 FSL with an approximately 30% silt content. The delineated wetlands contained a spodosol that occurred approximately 3 to 4 in. below the soil surface and was approximately 2.5 to 4.5 in. thick. The soil below the hydric layer was typically a "B" Horizon of 10YR 6/6 to 10YR 6/8. The soils were classified as "fine sandy loam" but contained approximately 30% to 35% silt.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 365 Main Street City/County: Agawam Sampling Date: 8/23/23
 Applicant/Owner: Joseph O'Malley State: MA Sampling Point: A-4, Up
 Investigator(s): Garrett M. Tunison Section, Township, Range: Agawam
 Landform (hillslope, terrace, etc.): Gental slope 0-3% Local relief (concave, convex, none): concaved Slope (%): 0-3%
 Subregion (LRR or MLRA): _____ Lat: 42 5.006 N Long: -72 36.704 W Datum: NAD83
 Soil Map Unit Name: Hadley fine sandy loam, 0 to 3 percent slopes NWI classification: Not applicable

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation X, Soil X, 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> If yes, optional Wetland Site ID: _____
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	
Remarks: (Explain alternative procedures here or in a separate report.) * A portion of the site contains an NWI wetland identified as a Freshwater Emergent Wetland. The site has previously been disturbed for agriculture and the western and northern portions of the site have been used as a dump and a paintball and airsoft playing field.		

HYDROLOGY

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

VEGETATION – Use scientific names of plants.

 Sampling Point: A-4, Up

Tree Stratum (Plot size: <u>30 ft. radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Quaking Aspen (Populus tremula)</u>	<u>63</u>	<u>Yes</u>	<u>FACU</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</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>126</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>63%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15 ft. radius</u>)				
1. <u>Multiflora Rose (Rosa rugosa)</u>	<u>3</u>	<u>Yes</u>	<u>FACU</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = <u>126.00</u> FAC species _____ x 3 = <u>189.00</u> FACU species <u>129</u> x 4 = <u>152.00</u> UPL species _____ x 5 = _____ Column Totals: <u>129</u> (A) <u>516</u> (B) Prevalence Index = B/A = <u>4.00</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>3%</u> = Total Cover				
Herb Stratum (Plot size: <u>5 ft. radius</u>)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: ☒ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% ☒ 3 - Prevalence Index is ≤3.0 ¹ ☐ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ 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. _____	_____	_____	_____	
<u>0%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>30 ft. radius</u>)				
1. <u>Eastern Poison Ivy (Toxicodendron radicans)</u>	<u>3</u>	<u>No</u>	<u>FAC</u>	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.
2. <u>Virginia Creeper (Parthenocissus quinquefolia)</u>	<u>63</u>	<u>Yes</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>66%</u> = Total Cover				
Hydrophytic Vegetation Present? Yes _____ No <u>X</u>				
Remarks: (Include photo numbers here or on a separate sheet.) The northwestern portion of Wetland A is mostly a mix of FACW, FAC, FACU and UPL plant species.				

SOIL

Sampling Point: A-4, Up

[illegible]

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 365 Main Street City/County: Agawam Sampling Date: 8/23/23
 Applicant/Owner: Joseph O'Malley State: MA Sampling Point: A-62, Wet
 Investigator(s): Garrett M. Tunison Section, Township, Range: Agawam
 Landform (hillslope, terrace, etc.): Gental slope 0-3% Local relief (concave, convex, none): concaved Slope (%): 0-3%
 Subregion (LRR or MLRA): _____ Lat: 42 5.006 N Long: -72 36.704 W Datum: NAD83
 Soil Map Unit Name: Hadley fine sandy loam, 0 to 3 percent slopes NWI classification: Partial FEW*

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

Remarks: (Explain alternative procedures here or in a separate report.)
 * A portion of the site contains an NWI wetland identified as a Freshwater Emergent Wetland. The northwestern corner of this wetland appears to be in the edge of the cut area where some shrubs and herbs were cut. The site has previously been disturbed for agriculture and the western and northern portions of the site have been used as a dump and a paintball and airsoft playing field.

HYDROLOGY

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

Field Observations:		Wetland Hydrology Present? Yes ☒ No _____
Surface Water Present? Yes _____ No ☒	Depth (inches): _____	
Water Table Present? Yes _____ No ☒	Depth (inches): _____	
Saturation Present? Yes _____ No ☒ (includes capillary fringe)	Depth (inches): _____	

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

Remarks:
 The majority of the soils in Wetland A are spodosols with a 2.5 to 4.5 inch ("B2" Horizon) that is 10YR 6/2 to 10YR 6/3 with mottles and depletions as indicated in the "Soil" section below. Hydrophyllic vegetation was observed to be dominant within Wetland A and hydric soils were present. It is likely that this wetland has a relatively short hydroperiod after large precipitation events as the spodosol horizon slowly infiltrates water. The soils in the wetland and surrounding floodplain were similar minus the spodosol horizon in the wetland.

VEGETATION – Use scientific names of plants.

Sampling Point: A-62, Wet

Tree Stratum (Plot size: <u>30 ft. radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status															
1. <u>Big-Tooth Aspen (Populus grandidentata)</u>	<u>20.5</u>	<u>Yes</u>	<u>FACU</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</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>121.5</u> (A/B)														
2. <u>Red Maple (Acer rubrum)</u>	<u>63</u>	<u>Yes</u>	<u>FAC</u>															
3. _____																		
4. _____																		
5. _____																		
6. _____																		
7. _____																		
<u>83.5%</u> = Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15 ft. radius</u>)																		
1. _____				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species <u>38</u></td> <td>x 2 = <u>76.00</u></td> </tr> <tr> <td>FAC species <u>63</u></td> <td>x 3 = <u>189.00</u></td> </tr> <tr> <td>FACU species <u>20.5</u></td> <td>x 4 = <u>82.00</u></td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: <u>121.5</u> (A)</td> <td><u>347</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.86</u>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species <u>38</u>	x 2 = <u>76.00</u>	FAC species <u>63</u>	x 3 = <u>189.00</u>	FACU species <u>20.5</u>	x 4 = <u>82.00</u>	UPL species _____	x 5 = _____	Column Totals: <u>121.5</u> (A)	<u>347</u> (B)
Total % Cover of:	Multiply by:																	
OBL species _____	x 1 = _____																	
FACW species <u>38</u>	x 2 = <u>76.00</u>																	
FAC species <u>63</u>	x 3 = <u>189.00</u>																	
FACU species <u>20.5</u>	x 4 = <u>82.00</u>																	
UPL species _____	x 5 = _____																	
Column Totals: <u>121.5</u> (A)	<u>347</u> (B)																	
2. _____																		
3. _____																		
4. _____																		
5. _____																		
6. _____																		
7. _____																		
<u>0.0%</u> = Total Cover																		
Herb Stratum (Plot size: <u>5 ft. radius</u>)																		
1. <u>Sensitive Fern (Onoclea sensibilis)</u>	<u>38</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: ☒ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% ☒ 3 - Prevalence Index is ≤3.0 ¹ ☐ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.														
2. _____																		
3. _____																		
4. _____																		
5. _____																		
6. _____																		
7. _____																		
<u>38%</u> = Total Cover																		
Woody Vine Stratum (Plot size: <u>30 ft. radius</u>)																		
1. _____				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.														
2. _____																		
3. _____																		
4. _____																		
<u>0.0%</u> = Total Cover																		
Remarks: (Include photo numbers here or on a separate sheet.)																		

Sampling Point: A-62, Wet

[illegible]²Location: PL=Pore Lining, M=Matrix.

Indicators for Problematic Hydric Soils³:

- | | | |
|---|--|--|
| ☐ Histosol (A1) | ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | ☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| ☐ Histic Epipedon (A2) | ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B) | ☐ Coast Prairie Redox (A16) (LRR K, L, R) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) (LRR K, L) | ☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) | ☐ Dark Surface (S7) (LRR K, L) |
| ☐ Stratified Layers (A5) | ☒ Depleted Matrix (F3) | ☐ Polyvalue Below Surface (S8) (LRR K, L) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Redox Dark Surface (F6) | ☐ Thin Dark Surface (S9) (LRR K, L) |
| ☐ Thick Dark Surface (A12) | ☐ Depleted Dark Surface (F7) | ☐ Iron-Manganese Masses (F12) (LRR K, L, R) |
| ☐ Sandy Mucky Mineral (S1) | ☐ Redox Depressions (F8) | ☐ Piedmont Floodplain Soils (F19) (MLRA 149B) |
| ☐ Sandy Gleyed Matrix (S4) | | ☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| ☐ Sandy Redox (S5) | | ☐ Red Parent Material (F21) |
| ☐ Stripped Matrix (S6) | | ☐ Very Shallow Dark Surface (TF12) |
| ☐ Dark Surface (S7) (LRR R, MLRA 149B) | | ☐ Other (Explain in Remarks) |

Restrictive Layer (if observed):

Type: Spodosol

Depth (inches): 4.5

Hydric Soil Present? Yes ☒ No ☐

Remarks: * FSL stands for Fine Sandy Loam soils. ** The "B2" Horizon was 10YR 6/2 with 10YR 6/8 mottles (35+/-%) and 10YR 5/1 (10 +/-%) depletions. The soils are highly disturbed and missing "O" and "A" Horizons are missing in most areas. There are some areas of a 10YR 2/2 FSL "A" Horizon. The other closest surface soils to an "A" or "O" layer are a mineral soil of 10YR 4/1 FSL with an approximately 30% silt content. The delineated wetlands contained a spodosol that occurred approximately 3 to 4 in. below the soil surface and was approximately 2.5 to 4.5 in. thick. The soil below the hydric layer was typically a "B" Horizon of 10YR 6/6 to 10YR 6/8. The soils were classified as "fine sandy loam" but contained approximately 30% to 35% silt.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 365 Main Street City/County: Agawam Sampling Date: 8/23/23
 Applicant/Owner: Joseph O'Malley State: MA Sampling Point: A-62, Up
 Investigator(s): Garrett M. Tunison Section, Township, Range: Agawam
 Landform (hillslope, terrace, etc.): Gental slope 0-3% Local relief (concave, convex, none): concaved Slope (%): 0-3%
 Subregion (LRR or MLRA): _____ Lat: 42 4.998 N Long: -72 36.636 W Datum: NAD83
 Soil Map Unit Name: Hadley fine sandy loam, 0 to 3 percent slopes NWI classification: Not applicable

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation X, Soil X, 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> If yes, optional Wetland Site ID: _____
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	
Remarks: (Explain alternative procedures here or in a separate report.) * A portion of the site contains an NWI wetland identified as a Freshwater Emergent Wetland. The site has previously been disturbed for agriculture and the western and northern portions of the site have been used as a dump and a paintball and airsoft playing field.		

HYDROLOGY

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

VEGETATION – Use scientific names of plants.

Sampling Point: A-62, Up

Tree Stratum (Plot size: <u>30 ft. radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Red Maple (Acer rubrum)</u>	<u>20.5</u>	<u>Yes</u>	<u>FACU</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</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>126</u> (A/B)
2. <u>Quaking Aspen (Populus tremula)</u>	<u>63</u>	<u>Yes</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>83.5%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15 ft. radius</u>)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = <u>126.00</u> FAC species <u>31</u> x 3 = <u>189.00</u> FACU species <u>74</u> x 4 = <u>152.00</u> UPL species _____ x 5 = _____ Column Totals: <u>105</u> (A) <u>387</u> (B) Prevalence Index = B/A = <u>3.70</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>0.0%</u> = Total Cover				
Herb Stratum (Plot size: <u>5 ft. radius</u>)				
1. <u>Sensitive Fern (Onoclea ordiculata)</u>	<u>10.5</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: ☒ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% ☒ 3 - Prevalence Index is ≤3.0 ¹ ☐ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Oriental Bittersweet (Celastrus orbiculata)</u>	<u>10.5</u>	<u>Yes</u>	<u>UPL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
<u>21%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>30 ft. radius</u>)				
1. <u>Virginia Creeper (Parthenocissus quinquefolia)</u>	<u>10.5</u>	<u>Yes</u>	<u>FACU</u>	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.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>10.5%</u> = Total Cover				
Hydrophytic Vegetation Present? Yes _____ No <u>X</u>				
Remarks: (Include photo numbers here or on a separate sheet.)				

Sampling Point: A-62, Up

[illegible]²Location: PL=Pore Lining, M=Matrix.

Indicators for Problematic Hydric Soils³:

- | | | |
|---|--|--|
| ☐ Histosol (A1) | ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | ☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| ☐ Histic Epipedon (A2) | ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B) | ☐ Coast Prairie Redox (A16) (LRR K, L, R) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) (LRR K, L) | ☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) | ☐ Dark Surface (S7) (LRR K, L) |
| ☐ Stratified Layers (A5) | ☐ Depleted Matrix (F3) | ☐ Polyvalue Below Surface (S8) (LRR K, L) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Redox Dark Surface (F6) | ☐ Thin Dark Surface (S9) (LRR K, L) |
| ☐ Thick Dark Surface (A12) | ☐ Depleted Dark Surface (F7) | ☐ Iron-Manganese Masses (F12) (LRR K, L, R) |
| ☐ Sandy Mucky Mineral (S1) | ☐ Redox Depressions (F8) | ☐ Piedmont Floodplain Soils (F19) (MLRA 149B) |
| ☐ Sandy Gleyed Matrix (S4) | | ☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| ☐ Sandy Redox (S5) | | ☐ Red Parent Material (F21) |
| ☐ Stripped Matrix (S6) | | ☐ Very Shallow Dark Surface (TF12) |
| ☐ Dark Surface (S7) (LRR R, MLRA 149B) | | ☐ Other (Explain in Remarks) |

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

Type: None

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: * FSL stands for Fine Sandy Loam soils. ** The "B" Horizon soils were mostly 10YR 6/6 to 10YR 6/8. The soils were classified as "fine sandy loam" but contained approximately 30% to 35% silt.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 365 Main Street City/County: Agawam Sampling Date: 8/23/23
 Applicant/Owner: Joseph O'Malley State: MA Sampling Point: B-4, Wet
 Investigator(s): Garrett M. Tunison Section, Township, Range: Agawam
 Landform (hillslope, terrace, etc.): Gental slope 0-3% Local relief (concave, convex, none): concaved Slope (%): 0-3%
 Subregion (LRR or MLRA): _____ Lat: 42 4.981 N Long: -72 36.651 W Datum: NAD83
 Soil Map Unit Name: Hadley fine sandy loam, 0 to 3 percent slopes NWI classification: FEW*

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation ☒, Soil ☒, or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes _____ 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 _____	Is the Sampled Area within a Wetland? Yes ☒ No _____ If yes, optional Wetland Site ID: <u>Wetland B</u>
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks: (Explain alternative procedures here or in a separate report.) * The area is listed as a NWI wetland identified as a Freshwater Emergent Wetland. The northwestern corner of this wetland appears to be in the edge of the cut area where some shrubs and herbs were cut. The site has previously been disturbed for agriculture and the western and northern portions of the site have been used as a dump and a paintball and airsoft playing field.		

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9)	☐ Surface Soil Cracks (B6)
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)	☐ Drainage Patterns (B10)
☐ Saturation (A3)	☐ Marl Deposits (B15)	☐ Moss Trim Lines (B16)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Dry-Season Water Table (C2)
☐ Sediment Deposits (B2)	☒ Oxidized Rhizospheres on Living Roots (C3)	☐ Crayfish Burrows (C8)
☐ Drift Deposits (B3)	☒ Presence of Reduced Iron (C4)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Stunted or Stressed Plants (D1)
☐ Iron Deposits (B5)	☐ Thin Muck Surface (C7)	☒ Geomorphic Position (D2)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Other (Explain in Remarks)	☐ Shallow Aquitard (D3)
☐ Sparsely Vegetated Concave Surface (B8)		☒ Microtopographic Relief (D4)
		☐ FAC-Neutral Test (D5)
Field Observations:		
Surface Water Present? Yes _____ No ☒	Depth (inches): _____	Wetland Hydrology Present? Yes ☒ No _____
Water Table Present? Yes _____ No ☒	Depth (inches): _____	
Saturation Present? Yes _____ No ☒	Depth (inches): _____ (includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: The majority of the soils in Wetland A are spodosols with a 2.5 to 4.5 inch ("B2" Horizon) that is 10YR 6/2 to 10YR 6/3 with mottles and depletions as indicated in the "Soil" section below. Hydrophyllic vegetation was observed to be dominant within Wetland A and hydric soils were present. It is likely that this wetland has a relatively short hydroperiod after large precipitation events as the spodosol horizon slowly infiltrates water. The soils in the wetland and surrounding floodplain were similar minus the spodosol horizon in the wetland.		

VEGETATION – Use scientific names of plants.

Sampling Point: B-4, Wet

Tree Stratum (Plot size: <u>30 ft. radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Apple (Pyrus malus)</u>	<u>3.0</u>	<u>Yes</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</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>126</u> (A/B)																
2. <u>American Elm (Ulmus americana)</u>	<u>38</u>	<u>Yes</u>	<u>FAC</u>																	
3. <u>Red Maple (Acer rubrum)</u>	<u>38</u>	<u>Yes</u>	<u>FAC</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>79%</u> = Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species <u>63</u></td> <td>x 2 = <u>126</u></td> </tr> <tr> <td>FAC species <u>76</u></td> <td>x 3 = <u>228</u></td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: <u>139</u> (A)</td> <td><u>354</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.55</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species <u>63</u>	x 2 = <u>126</u>	FAC species <u>76</u>	x 3 = <u>228</u>	FACU species _____	x 4 = _____	UPL species _____	x 5 = _____	Column Totals: <u>139</u> (A)	<u>354</u> (B)	Prevalence Index = B/A = <u>2.55</u>	
Total % Cover of:	Multiply by:																			
OBL species _____	x 1 = _____																			
FACW species <u>63</u>	x 2 = <u>126</u>																			
FAC species <u>76</u>	x 3 = <u>228</u>																			
FACU species _____	x 4 = _____																			
UPL species _____	x 5 = _____																			
Column Totals: <u>139</u> (A)	<u>354</u> (B)																			
Prevalence Index = B/A = <u>2.55</u>																				
Sapling/Shrub Stratum (Plot size: <u>15 ft. radius</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>0.0%</u> = Total Cover																				
Herb Stratum (Plot size: <u>5 ft. radius</u>)																				
1. <u>Oriental Bittersweet (Celastrus orbiculata)</u>	<u>3</u>	<u>Yes</u>	<u>UPL</u>	Hydrophytic Vegetation Indicators: ☒ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% ☒ 3 - Prevalence Index is ≤3.0 ¹ ☐ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Sensitive Fern (Onoclea sensibilis)</u>	<u>63</u>	<u>Yes</u>	<u>FACW</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
<u>66%</u> = Total Cover																				
Woody Vine Stratum (Plot size: <u>30 ft. radius</u>)																				
1. <u>Eastern Poison Ivy (Toxicodendron radicans)</u>	<u>3</u>	<u>No</u>	<u>FAC</u>	Hydrophytic Vegetation Present? Yes ☒ No _____																
2. <u>Virginia Creeper (Parthenocissus quinquefolia)</u>	<u>38</u>	<u>Yes</u>	<u>FACU</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
<u>41%</u> = Total Cover																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

SOIL

Sampling Point: B-4, Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | |
|---|--|
| ☐ Histosol (A1) | ☐ Polyvalue Below Surface (S8) (LRR R, |
| ☐ Histic Epipedon (A2) | MLRA 149B) |
| ☐ Black Histic (A3) | ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Mucky Mineral (F1) (LRR K, L) |
| ☐ Stratified Layers (A5) | ☐ Loamy Gleyed Matrix (F2) |
| ☐ Depleted Below Dark Surface (A11) | ☒ Depleted Matrix (F3) |
| ☐ Thick Dark Surface (A12) | ☐ Redox Dark Surface (F6) |
| ☐ Sandy Mucky Mineral (S1) | ☐ Depleted Dark Surface (F7) |
| ☐ Sandy Gleyed Matrix (S4) | ☐ Redox Depressions (F8) |
| ☐ Sandy Redox (S5) | |
| ☐ Stripped Matrix (S6) | |
| ☐ Dark Surface (S7) (LRR R, MLRA 149B) | |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
☐ Dark Surface (S7) (**LRR K, L**)
☐ Polyvalue Below Surface (S8) (**LRR K, L**)
☐ Thin Dark Surface (S9) (**LRR K, L**)
☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
☐ Red Parent Material (F21)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Spodosol

Depth (inches): 4

Hydric Soil Present? Yes X No

Remarks: * FSL stands for Fine Sandy Loam soils. ** The "B2" Horizon was 10YR 6/2 with 10YR 6/8 mottles (35+/-%) and 10YR 5/1 (10 +/-%) depletions. The soils are highly disturbed and missing "O" and "A" Horizons are missing in most areas. There are some areas of a 10YR 2/2 FSL "A" Horizon. The other closest surface soils to an "A" or "O" layer are a mineral soil of 10YR 4/1 FSL with an approximately 30% silt content. The delineated wetlands contained a spodosol that occurred approximately 3 to 4 in. below the soil surface and was approximately 2.5 to 4.5 in. thick. The soil below the hydric layer was typically a "B" Horizon of 10YR 6/6 to 10YR 6/8. The soils were classified as "fine sandy loam" but contained approximately 30% to 35% silt.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 365 Main Street City/County: Agawam Sampling Date: 8/23/23
 Applicant/Owner: Joseph O'Malley State: MA Sampling Point: B-4, Up
 Investigator(s): Garrett M. Tunison Section, Township, Range: Agawam
 Landform (hillslope, terrace, etc.): Gental slope 0-3% Local relief (concave, convex, none): concaved Slope (%): 0-3%
 Subregion (LRR or MLRA): _____ Lat: 42 4.981 N Long: -72 36.651 W Datum: NAD83
 Soil Map Unit Name: Hadley fine sandy loam, 0 to 3 percent slopes NWI classification: Not applicable

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation X, Soil X, 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> If yes, optional Wetland Site ID: _____
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	
Remarks: (Explain alternative procedures here or in a separate report.) * A portion of the site contains an NWI wetland identified as a Freshwater Emergent Wetland. The site has previously been disturbed for agriculture and the western and northern portions of the site have been used as a dump and a paintball and airsoft playing field.		

HYDROLOGY

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

VEGETATION – Use scientific names of plants.

 Sampling Point: B-4, Up

Tree Stratum (Plot size: <u>30 ft. radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. Pin Oak (<i>Quercus palustris</i>)	3	No	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</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>126</u> (A/B)
2. Red Maple (<i>Acer rubrum</i>)	38	Yes	FAC	
3. Quaking Aspen (<i>Populus tremula</i>)	38	Yes	FACU	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = <u>126.00</u> FAC species <u>31</u> x 3 = <u>189.00</u> FACU species <u>74</u> x 4 = <u>152.00</u> UPL species _____ x 5 = _____ Column Totals: <u>105</u> (A) <u>387</u> (B) Prevalence Index = B/A = <u>3.70</u>
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>83.5%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15 ft. radius</u>)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: ☒ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% ☒ 3 - Prevalence Index is ≤3.0 ¹ ☐ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>0.0%</u> = Total Cover				
Herb Stratum (Plot size: <u>5 ft. radius</u>)				
1. Oriental Bittersweet (<i>Celastrus orbiculata</i>)	63	Yes	UPL	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.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>63%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>30 ft. radius</u>)				
1. Virginia Creeper (<i>Parthenocissus quinquefolia</i>)	10.5	Yes	FACU	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>10.5%</u> = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.) Please note, Oriental Bittersweet was included as an herb and not a woody vine as all plants were seedlings and not growing as a vine during our evaluation. We have listed this plant in the herbaceous layer on other data forms as it was also growing as an herb and not vine like during its early stages of life.				

Sampling Point: A-62, Up

[illegible]²Location: PL=Pore Lining, M=Matrix.

Indicators for Problematic Hydric Soils³:

- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Hydric Soil Present? Yes _____ No X

Remarks: * FSL stands for Fine Sandy Loam soils. ** The "B" Horizon soils were mostly 10YR 6/6 to 10YR 6/8. The soils were classified as "fine sandy loam" but contained approximately 30% to 35% silt.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 365 Main Street City/County: Agawam Sampling Date: 8/23/23
 Applicant/Owner: Joseph O'Malley State: MA Sampling Point: C-2, Wet
 Investigator(s): Garrett M. Tunison Section, Township, Range: Agawam
 Landform (hillslope, terrace, etc.): Gental slope 0-3% Local relief (concave, convex, none): concaved Slope (%): 0-3%
 Subregion (LRR or MLRA): _____ Lat: 42 5.016 N Long: -72 36.727 W Datum: NAD83
 Soil Map Unit Name: Hadley fine sandy loam, 0 to 3 percent slopes NWI classification: Partial FEW*

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation ☒, Soil ☒, or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes _____ 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 _____	Is the Sampled Area within a Wetland? Yes ☒ No _____ If yes, optional Wetland Site ID: <u>Wetland C</u>
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks: (Explain alternative procedures here or in a separate report.) * A portion of the site contains an NWI wetland identified as a Freshwater Emergent Wetland. The northwestern corner of this wetland appears to be in the edge of the cut area where some shrubs and herbs were cut. The site has previously been disturbed for agriculture and the western and northern portions of the site have been used as a dump and a paintball and airsoft playing field.		

HYDROLOGY

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

VEGETATION – Use scientific names of plants.

Sampling Point: C-2, Wet

Tree Stratum (Plot size: <u>30 ft. radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status															
1. <u>Red Maple (Acer rubrum)</u>	<u>38</u>	<u>Yes</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
<u>38%</u> = Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species <u>104</u></td> <td>x 2 = <u>208.00</u></td> </tr> <tr> <td>FAC species <u>38</u></td> <td>x 3 = <u>114.00</u></td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = <u>00.00</u></td> </tr> <tr> <td>UPL species <u>11</u></td> <td>x 5 = <u>52.50</u></td> </tr> <tr> <td>Column Totals: <u>152.5</u></td> <td>(A) <u>347.5</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.46</u>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species <u>104</u>	x 2 = <u>208.00</u>	FAC species <u>38</u>	x 3 = <u>114.00</u>	FACU species _____	x 4 = <u>00.00</u>	UPL species <u>11</u>	x 5 = <u>52.50</u>	Column Totals: <u>152.5</u>	(A) <u>347.5</u> (B)
Total % Cover of:	Multiply by:																	
OBL species _____	x 1 = _____																	
FACW species <u>104</u>	x 2 = <u>208.00</u>																	
FAC species <u>38</u>	x 3 = <u>114.00</u>																	
FACU species _____	x 4 = <u>00.00</u>																	
UPL species <u>11</u>	x 5 = <u>52.50</u>																	
Column Totals: <u>152.5</u>	(A) <u>347.5</u> (B)																	
<u>83.5%</u> = Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15 ft. radius</u>)																		
1. <u>Grey Willow (Salix bebbiana)</u>	<u>20.5</u>	<u>Yes</u>	<u>FACW</u>															
2. <u>Silky Dogwood (Cornus amomum)</u>	<u>63</u>	<u>Yes</u>	<u>FACW</u>															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
<u>83.5%</u> = Total Cover																		
Herb Stratum (Plot size: <u>5 ft. radius</u>)																		
1. <u>Sensitive Fern (Onoclea sensibilis)</u>	<u>20.5</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: ☒ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% ☒ 3 - Prevalence Index is ≤3.0 ¹ ☐ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ 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. _____	_____	_____	_____															
<u>38%</u> = Total Cover																		
Woody Vine Stratum (Plot size: <u>30 ft. radius</u>)																		
1. <u>Oriental Bittersweet (Celastrus orbiculata)</u>	<u>10.5</u>	<u>Yes</u>	<u>UPL</u>	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.														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
<u>10.5%</u> = Total Cover																		
Hydrophytic Vegetation Present? Yes ☒ No _____																		

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

SOIL

Sampling Point: C-2, Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | |
|---|--|
| ☐ Histosol (A1) | ☐ Polyvalue Below Surface (S8) (LRR R, |
| ☐ Histic Epipedon (A2) | MLRA 149B) |
| ☐ Black Histic (A3) | ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Mucky Mineral (F1) (LRR K, L) |
| ☐ Stratified Layers (A5) | ☐ Loamy Gleyed Matrix (F2) |
| ☐ Depleted Below Dark Surface (A11) | ☒ Depleted Matrix (F3) |
| ☐ Thick Dark Surface (A12) | ☐ Redox Dark Surface (F6) |
| ☐ Sandy Mucky Mineral (S1) | ☐ Depleted Dark Surface (F7) |
| ☐ Sandy Gleyed Matrix (S4) | ☐ Redox Depressions (F8) |
| ☐ Sandy Redox (S5) | |
| ☐ Stripped Matrix (S6) | |
| ☐ Dark Surface (S7) (LRR R, MLRA 149B) | |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
☐ Dark Surface (S7) (**LRR K, L**)
☐ Polyvalue Below Surface (S8) (**LRR K, L**)
☐ Thin Dark Surface (S9) (**LRR K, L**)
☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
☐ Red Parent Material (F21)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No

Remarks: * FSL stands for Fine Sandy Loam soils. The soils were classified as "fine sandy loam" but contained approximately 30% to 35% silt.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 365 Main Street City/County: Agawam Sampling Date: 8/23/23
 Applicant/Owner: Joseph O'Malley State: MA Sampling Point: C-2, Up
 Investigator(s): Garrett M. Tunison Section, Township, Range: Agawam
 Landform (hillslope, terrace, etc.): Gental slope 0-3% Local relief (concave, convex, none): concaved Slope (%): 0-3%
 Subregion (LRR or MLRA): _____ Lat: 42 5.016 N Long: -72 36.727 W Datum: NAD83
 Soil Map Unit Name: Hadley fine sandy loam, 0 to 3 percent slopes NWI classification: Not applicable

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation X, Soil X, 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> If yes, optional Wetland Site ID: _____
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	
Remarks: (Explain alternative procedures here or in a separate report.) * A portion of the site contains an NWI wetland identified as a Freshwater Emergent Wetland. The site has previously been disturbed for agriculture and the western and northern portions of the site have been used as a dump and a paintball and airsoft playing field.		

HYDROLOGY

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

VEGETATION – Use scientific names of plants.

Sampling Point: C-2, Up

Tree Stratum (Plot size: <u>30 ft. radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Red Maple (Acer rubrum)</u>	<u>38</u>	<u>Yes</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40</u> (A/B)																
2. <u>Tree-of-Heaven (Ailanthus altissima)</u>	<u>38</u>	<u>Yes</u>	<u>UPL</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>83.5%</u> = Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>15 ft. radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species <u>11</u></td> <td>x 2 = <u>21.00</u></td> </tr> <tr> <td>FAC species <u>38</u></td> <td>x 3 = <u>114.00</u></td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = <u>00.00</u></td> </tr> <tr> <td>UPL species <u>69</u></td> <td>x 5 = <u>345.00</u></td> </tr> <tr> <td>Column Totals: <u>117.5</u> (A)</td> <td><u>480</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>4.09</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species <u>11</u>	x 2 = <u>21.00</u>	FAC species <u>38</u>	x 3 = <u>114.00</u>	FACU species _____	x 4 = <u>00.00</u>	UPL species <u>69</u>	x 5 = <u>345.00</u>	Column Totals: <u>117.5</u> (A)	<u>480</u> (B)	Prevalence Index = B/A = <u>4.09</u>	
Total % Cover of:	Multiply by:																			
OBL species _____	x 1 = _____																			
FACW species <u>11</u>	x 2 = <u>21.00</u>																			
FAC species <u>38</u>	x 3 = <u>114.00</u>																			
FACU species _____	x 4 = <u>00.00</u>																			
UPL species <u>69</u>	x 5 = <u>345.00</u>																			
Column Totals: <u>117.5</u> (A)	<u>480</u> (B)																			
Prevalence Index = B/A = <u>4.09</u>																				
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>0.0%</u> = Total Cover																				
Herb Stratum (Plot size: <u>5 ft. radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Sensitive Fern (Onoclea ordiculata)</u>	<u>10.5</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: ☒ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% ☒ 3 - Prevalence Index is ≤3.0 ¹ ☐ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Oriental Bittersweet (Celastrus orbiculata)</u>	<u>20.5</u>	<u>Yes</u>	<u>UPL</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
<u>31%</u> = Total Cover																				
Woody Vine Stratum (Plot size: <u>30 ft. radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Oriental Bittersweet (Celastrus orbiculata)</u>	<u>10.5</u>	<u>Yes</u>	<u>UPL</u>	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.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
<u>10.5%</u> = Total Cover																				
Remarks: (Include photo numbers here or on a separate sheet.)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>																

Sampling Point: A-62, Up

[illegible]²Location: PL=Pore Lining, M=Matrix.

Indicators for Problematic Hydric Soils³:

- | | | |
|---|--|--|
| ☐ Histosol (A1) | ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | ☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| ☐ Histic Epipedon (A2) | ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B) | ☐ Coast Prairie Redox (A16) (LRR K, L, R) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) (LRR K, L) | ☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) | ☐ Dark Surface (S7) (LRR K, L) |
| ☐ Stratified Layers (A5) | ☐ Depleted Matrix (F3) | ☐ Polyvalue Below Surface (S8) (LRR K, L) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Redox Dark Surface (F6) | ☐ Thin Dark Surface (S9) (LRR K, L) |
| ☐ Thick Dark Surface (A12) | ☐ Depleted Dark Surface (F7) | ☐ Iron-Manganese Masses (F12) (LRR K, L, R) |
| ☐ Sandy Mucky Mineral (S1) | ☐ Redox Depressions (F8) | ☐ Piedmont Floodplain Soils (F19) (MLRA 149B) |
| ☐ Sandy Gleyed Matrix (S4) | | ☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| ☐ Sandy Redox (S5) | | ☐ Red Parent Material (F21) |
| ☐ Stripped Matrix (S6) | | ☐ Very Shallow Dark Surface (TF12) |
| ☐ Dark Surface (S7) (LRR R, MLRA 149B) | | ☐ Other (Explain in Remarks) |

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

Hydric Soil Present? Yes ☐ No ☒

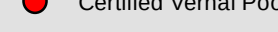
Depth (inches): _____

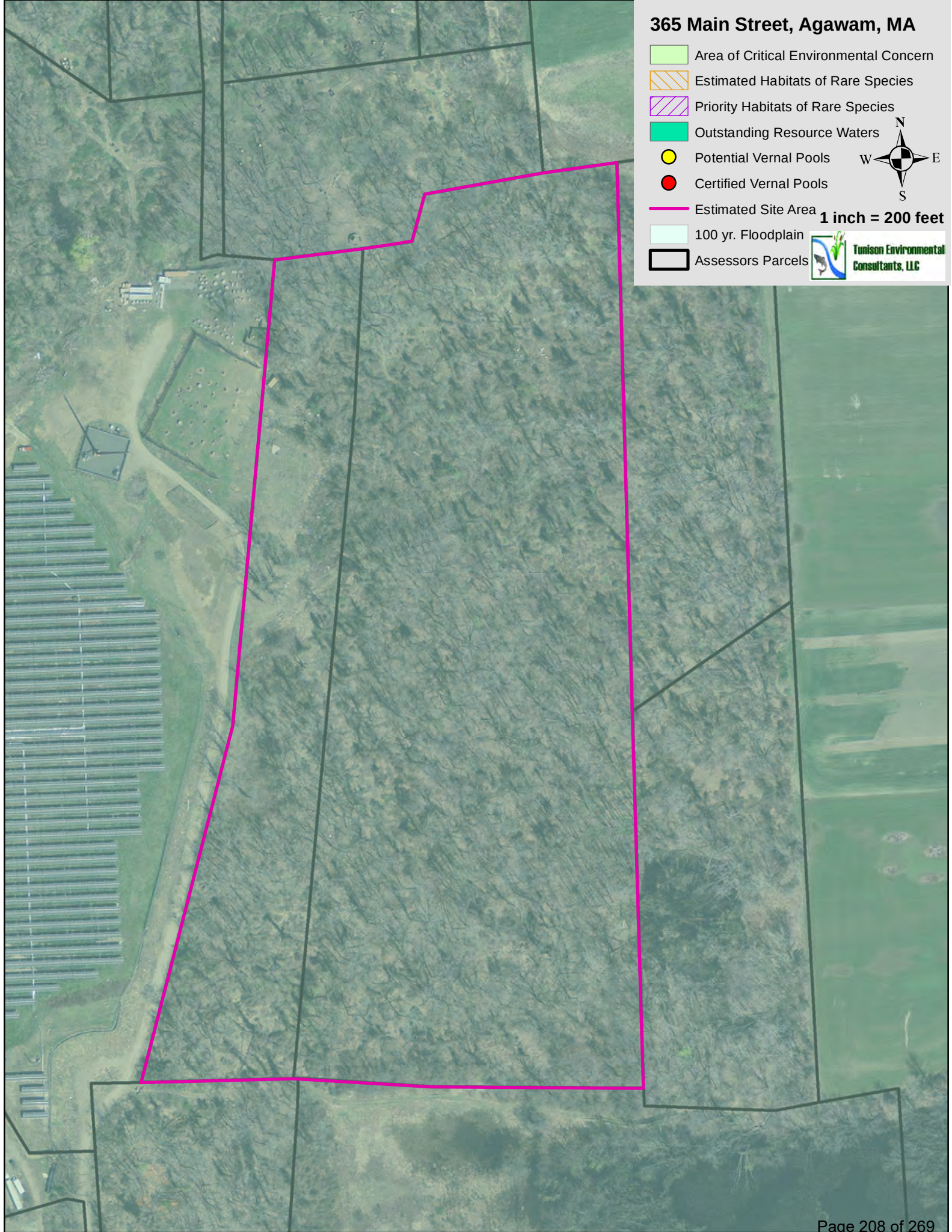
Remarks: * FSL stands for Fine Sandy Loam soils. ** The soils were classified as "fine sandy loam" but contained approximately 30% to 35% silt.

Attachment 3

Natural Heritage and Endangered Species Program Estimated Habitat of Rare Wildlife and Certified Vernal Pools, Springfield South Quadrangle Map

365 Main Street, Agawam, MA

-  Area of Critical Environmental Concern
 -  Estimated Habitats of Rare Species
 -  Priority Habitats of Rare Species
 -  Outstanding Resource Waters
 -  Potential Vernal Pools
 -  Certified Vernal Pools
 -  Estimated Site Area
 -  100 yr. Floodplain
 -  Assessors Parcels
-  **1 inch = 200 feet**
-  **Tunison Environmental Consultants, LLC**



Attachment 4

ACOE Wetland Determination Data Form – Northcentral and Northeast Region

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 365 Main Street City/County: Agawam Sampling Date: 8/23/23
 Applicant/Owner: Joseph O'Malley State: MA Sampling Point: A-4, Wet
 Investigator(s): Garrett M. Tunison Section, Township, Range: Agawam
 Landform (hillslope, terrace, etc.): Gental slope 0-3% Local relief (concave, convex, none): concaved Slope (%): 0-3%
 Subregion (LRR or MLRA): _____ Lat: 42 5.006 N Long: -72 36.704 W Datum: NAD83
 Soil Map Unit Name: Hadley fine sandy loam, 0 to 3 percent slopes NWI classification: Partial FEW*

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation X, Soil X, or Hydrology X 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____ If yes, optional Wetland Site ID: <u>Wetland A (northeastern lobe)</u>
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

* A portion of the site contains an NWI wetland identified as a Freshwater Emergent Wetland. The northwestern corner of this wetland appears to be in the edge of the cut area where some shrubs and herbs were cut. The site has previously been disturbed for agriculture and the western and northern portions of the site have been used as a dump and a paintball and airsoft playing field.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

☐ Surface Water (A1)	☐ Water-Stained Leaves (B9)
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)
☐ Saturation (A3)	☐ Marl Deposits (B15)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)
☐ Sediment Deposits (B2)	☒ Oxidized Rhizospheres on Living Roots (C3)
☐ Drift Deposits (B3)	☒ Presence of Reduced Iron (C4)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Iron Deposits (B5)	☐ Thin Muck Surface (C7)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Other (Explain in Remarks)
☐ Sparsely Vegetated Concave Surface (B8)	

Secondary Indicators (minimum of two required)

☐ Surface Soil Cracks (B6)
☐ Drainage Patterns (B10)
☐ Moss Trim Lines (B16)
☐ Dry-Season Water Table (C2)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Stunted or Stressed Plants (D1)
☒ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☒ Microtopographic Relief (D4)
☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): _____
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): _____
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes X No _____

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

Remarks:

The majority of the soils in Wetland A are spodosols with a 2.5 to 4.5 inch ("B2" Horizon) that is 10YR 6/2 to 10YR 6/3 with mottles and depletions as indicated in the "Soil" section below. Hydrophyllic vegetation was observed to be dominant within Wetland A and hydric soils were present. It is likely that this wetland has a relatively short hydroperiod after large precepitation events as the spodosol horizon slowly infiltrates water. The soils in the wetland and surrounding floodplain were similar minus the spodosol horizon in the wetland.

VEGETATION – Use scientific names of plants.

Sampling Point: A-4, Wet

Tree Stratum (Plot size: <u>30 ft. radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Red Maple (Acer rubrum)</u>	<u>63</u>	<u>Yes</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</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>126</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>63%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15 ft. radius</u>)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species <u>63</u> x 2 = <u>126.00</u> FAC species <u>63</u> x 3 = <u>189.00</u> FACU species <u>38</u> x 4 = <u>152.00</u> UPL species _____ x 5 = _____ Column Totals: <u>164</u> (A) <u>467</u> (B) Prevalence Index = B/A = <u>2.85</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>0.0%</u> = Total Cover				
Herb Stratum (Plot size: <u>5 ft. radius</u>)				
1. <u>Sensitive Fern (Onoclea sensibilis)</u>	<u>63</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: ☒ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% ☒ 3 - Prevalence Index is ≤3.0 ¹ ☐ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ 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. _____	_____	_____	_____	
<u>63%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>30 ft. radius</u>)				
1. <u>Eastern Poison Ivy (Toxicodendron radicans)</u>	<u>3</u>	<u>No</u>	<u>FAC</u>	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.
2. <u>Virginia Creeper (Parthenocissus quinquefolia)</u>	<u>38</u>	<u>Yes</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>41%</u> = Total Cover				
Hydrophytic Vegetation Present? Yes ☒ No ☐				
Remarks: (Include photo numbers here or on a separate sheet.) The northwestern portion of Wetland A is mostly a mix of FACW, FAC, FACU and UPL plant species.				

SOIL

Sampling Point: A-4, Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | |
|---|--|
| ☐ Histosol (A1) | ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B) |
| ☐ Histic Epipedon (A2) | ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) (LRR K, L) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) |
| ☐ Stratified Layers (A5) | ☒ Depleted Matrix (F3) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Redox Dark Surface (F6) |
| ☐ Thick Dark Surface (A12) | ☐ Depleted Dark Surface (F7) |
| ☐ Sandy Mucky Mineral (S1) | ☐ Redox Depressions (F8) |
| ☐ Sandy Gleyed Matrix (S4) | |
| ☐ Sandy Redox (S5) | |
| ☐ Stripped Matrix (S6) | |
| ☐ Dark Surface (S7) (LRR R, MLRA 149B) | |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
☐ Dark Surface (S7) (**LRR K, L**)
☐ Polyvalue Below Surface (S8) (**LRR K, L**)
☐ Thin Dark Surface (S9) (**LRR K, L**)
☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
☐ Red Parent Material (F21)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Spodosol

Depth (inches): 4.5

Hydric Soil Present? Yes X No

Remarks: * FSL stands for Fine Sandy Loam soils. ** The "B2" Horizon was 10YR 6/2 with 10YR 6/8 mottles (35+/-%) and 10YR 5/1 (10 +/-%) depletions. The soils are highly disturbed and missing "O" and "A" Horizons are missing in most areas. There are some areas of a 10YR 2/2 FSL "A" Horizon. The other closest surface soils to an "A" or "O" layer are a mineral soil of 10YR 4/1 FSL with an approximately 30% silt content. The delineated wetlands contained a spodosol that occurred approximately 3 to 4 in. below the soil surface and was approximately 2.5 to 4.5 in. thick. The soil below the hydric layer was typically a "B" Horizon of 10YR 6/6 to 10YR 6/8. The soils were classified as "fine sandy loam" but contained approximately 30% to 35% silt.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 365 Main Street City/County: Agawam Sampling Date: 8/23/23
 Applicant/Owner: Joseph O'Malley State: MA Sampling Point: A-4, Up
 Investigator(s): Garrett M. Tunison Section, Township, Range: Agawam
 Landform (hillslope, terrace, etc.): Gental slope 0-3% Local relief (concave, convex, none): concaved Slope (%): 0-3%
 Subregion (LRR or MLRA): _____ Lat: 42 5.006 N Long: -72 36.704 W Datum: NAD83
 Soil Map Unit Name: Hadley fine sandy loam, 0 to 3 percent slopes NWI classification: Not applicable

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation X, Soil X, 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

* A portion of the site contains an NWI wetland identified as a Freshwater Emergent Wetland. The site has previously been disturbed for agriculture and the western and northern portions of the site have been used as a dump and a paintball and airsoft playing field.

HYDROLOGY

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

Field Observations:		Wetland Hydrology Present? Yes _____ No <u>X</u>
Surface Water Present? Yes _____ No <u>X</u>	Depth (inches): _____	
Water Table Present? Yes _____ No <u>X</u>	Depth (inches): _____	
Saturation Present? Yes _____ No <u>X</u>	Depth (inches): _____	

(includes capillary fringe)

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: A-4, Up

Tree Stratum (Plot size: <u>30 ft. radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Quaking Aspen (Populus tremula)</u>	<u>63</u>	<u>Yes</u>	<u>FACU</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</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>126</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>63%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15 ft. radius</u>)				
1. <u>Multiflora Rose (Rosa rugosa)</u>	<u>3</u>	<u>Yes</u>	<u>FACU</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = <u>126.00</u> FAC species _____ x 3 = <u>189.00</u> FACU species <u>129</u> x 4 = <u>152.00</u> UPL species _____ x 5 = _____ Column Totals: <u>129</u> (A) <u>516</u> (B) Prevalence Index = B/A = <u>4.00</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>3%</u> = Total Cover				
Herb Stratum (Plot size: <u>5 ft. radius</u>)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: ☒ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% ☒ 3 - Prevalence Index is ≤3.0 ¹ ☐ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ 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. _____	_____	_____	_____	
<u>0%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>30 ft. radius</u>)				
1. <u>Eastern Poison Ivy (Toxicodendron radicans)</u>	<u>3</u>	<u>No</u>	<u>FAC</u>	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.
2. <u>Virginia Creeper (Parthenocissus quinquefolia)</u>	<u>63</u>	<u>Yes</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>66%</u> = Total Cover				
Hydrophytic Vegetation Present? Yes _____ No <u>X</u>				
Remarks: (Include photo numbers here or on a separate sheet.) The northwestern portion of Wetland A is mostly a mix of FACW, FAC, FACU and UPL plant species.				

Sampling Point: A-4, Up

[illegible]²Location: PL=Pore Lining, M=Matrix.

Indicators for Problematic Hydric Soils³:

- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Hydric Soil Present? Yes _____ No X

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WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 365 Main Street City/County: Agawam Sampling Date: 8/23/23
 Applicant/Owner: Joseph O'Malley State: MA Sampling Point: A-62, Wet
 Investigator(s): Garrett M. Tunison Section, Township, Range: Agawam
 Landform (hillslope, terrace, etc.): Gental slope 0-3% Local relief (concave, convex, none): concaved Slope (%): 0-3%
 Subregion (LRR or MLRA): _____ Lat: 42 5.006 N Long: -72 36.704 W Datum: NAD83
 Soil Map Unit Name: Hadley fine sandy loam, 0 to 3 percent slopes NWI classification: Partial FEW*

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation X, Soil X, or Hydrology X 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	If yes, optional Wetland Site ID: <u>Wetland A</u>
Wetland Hydrology Present? Yes <u>X</u> No _____	

Remarks: (Explain alternative procedures here or in a separate report.)
 * A portion of the site contains an NWI wetland identified as a Freshwater Emergent Wetland. The northwestern corner of this wetland appears to be in the edge of the cut area where some shrubs and herbs were cut. The site has previously been disturbed for agriculture and the western and northern portions of the site have been used as a dump and a paintball and airsoft playing field.

HYDROLOGY

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

Field Observations:		Wetland Hydrology Present? Yes <u>X</u> No _____
Surface Water Present? Yes _____ No <u>X</u>	Depth (inches): _____	
Water Table Present? Yes _____ No <u>X</u>	Depth (inches): _____	
Saturation Present? Yes _____ No <u>X</u>	Depth (inches): _____	

(includes capillary fringe)

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

Remarks:
 The majority of the soils in Wetland A are spodosols with a 2.5 to 4.5 inch ("B2" Horizon) that is 10YR 6/2 to 10YR 6/3 with mottles and depletions as indicated in the "Soil" section below. Hydrophyllic vegetation was observed to be dominant within Wetland A and hydric soils were present. It is likely that this wetland has a relatively short hydroperiod after large precipitation events as the spodosol horizon slowly infiltrates water. The soils in the wetland and surrounding floodplain were similar minus the spodosol horizon in the wetland.

VEGETATION – Use scientific names of plants.

Sampling Point: A-62, Wet

Tree Stratum (Plot size: <u>30 ft. radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status															
1. <u>Big-Tooth Aspen (Populus grandidentata)</u>	<u>20.5</u>	<u>Yes</u>	<u>FACU</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</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>121.5</u> (A/B)														
2. <u>Red Maple (Acer rubrum)</u>	<u>63</u>	<u>Yes</u>	<u>FAC</u>															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
<u>83.5%</u> = Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15 ft. radius</u>)																		
1. _____	_____	_____	_____	Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species <u>38</u></td> <td>x 2 = <u>76.00</u></td> </tr> <tr> <td>FAC species <u>63</u></td> <td>x 3 = <u>189.00</u></td> </tr> <tr> <td>FACU species <u>20.5</u></td> <td>x 4 = <u>82.00</u></td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: <u>121.5</u> (A)</td> <td><u>347</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.86</u>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species <u>38</u>	x 2 = <u>76.00</u>	FAC species <u>63</u>	x 3 = <u>189.00</u>	FACU species <u>20.5</u>	x 4 = <u>82.00</u>	UPL species _____	x 5 = _____	Column Totals: <u>121.5</u> (A)	<u>347</u> (B)
Total % Cover of:	Multiply by:																	
OBL species _____	x 1 = _____																	
FACW species <u>38</u>	x 2 = <u>76.00</u>																	
FAC species <u>63</u>	x 3 = <u>189.00</u>																	
FACU species <u>20.5</u>	x 4 = <u>82.00</u>																	
UPL species _____	x 5 = _____																	
Column Totals: <u>121.5</u> (A)	<u>347</u> (B)																	
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
<u>0.0%</u> = Total Cover																		
Herb Stratum (Plot size: <u>5 ft. radius</u>)																		
1. <u>Sensitive Fern (Onoclea sensibilis)</u>	<u>38</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: ☒ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% ☒ 3 - Prevalence Index is ≤3.0 ¹ ☐ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ 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. _____	_____	_____	_____															
<u>38%</u> = Total Cover																		
Woody Vine Stratum (Plot size: <u>30 ft. radius</u>)																		
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes ☒ No _____														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
<u>0.0%</u> = Total Cover																		
Remarks: (Include photo numbers here or on a separate sheet.)																		

SOIL

Sampling Point: A-62, Wet

[illegible]

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 365 Main Street City/County: Agawam Sampling Date: 8/23/23
 Applicant/Owner: Joseph O'Malley State: MA Sampling Point: A-62, Up
 Investigator(s): Garrett M. Tunison Section, Township, Range: Agawam
 Landform (hillslope, terrace, etc.): Gental slope 0-3% Local relief (concave, convex, none): concaved Slope (%): 0-3%
 Subregion (LRR or MLRA): _____ Lat: 42 4.998 N Long: -72 36.636 W Datum: NAD83
 Soil Map Unit Name: Hadley fine sandy loam, 0 to 3 percent slopes NWI classification: Not applicable

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation X, Soil X, 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> If yes, optional Wetland Site ID: _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

* A portion of the site contains an NWI wetland identified as a Freshwater Emergent Wetland. The site has previously been disturbed for agriculture and the western and northern portions of the site have been used as a dump and a paintball and airsoft playing field.

HYDROLOGY

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

Field Observations:

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

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

Remarks:

VEGETATION – Use scientific names of plants.

 Sampling Point: A-62, Up

Tree Stratum (Plot size: <u>30 ft. radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status															
1. <u>Red Maple (Acer rubrum)</u>	<u>20.5</u>	<u>Yes</u>	<u>FACU</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</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>126</u> (A/B)														
2. <u>Quaking Aspen (Populus tremula)</u>	<u>63</u>	<u>Yes</u>	<u>FACU</u>															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
<u>83.5%</u> = Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15 ft. radius</u>)																		
1. _____	_____	_____	_____	Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = <u>126.00</u></td> </tr> <tr> <td>FAC species <u>31</u></td> <td>x 3 = <u>189.00</u></td> </tr> <tr> <td>FACU species <u>74</u></td> <td>x 4 = <u>152.00</u></td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: <u>105</u> (A)</td> <td><u>387</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>3.70</u>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species _____	x 2 = <u>126.00</u>	FAC species <u>31</u>	x 3 = <u>189.00</u>	FACU species <u>74</u>	x 4 = <u>152.00</u>	UPL species _____	x 5 = _____	Column Totals: <u>105</u> (A)	<u>387</u> (B)
Total % Cover of:	Multiply by:																	
OBL species _____	x 1 = _____																	
FACW species _____	x 2 = <u>126.00</u>																	
FAC species <u>31</u>	x 3 = <u>189.00</u>																	
FACU species <u>74</u>	x 4 = <u>152.00</u>																	
UPL species _____	x 5 = _____																	
Column Totals: <u>105</u> (A)	<u>387</u> (B)																	
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
<u>0.0%</u> = Total Cover																		
Herb Stratum (Plot size: <u>5 ft. radius</u>)																		
1. <u>Sensitive Fern (Onoclea ordiculata)</u>	<u>10.5</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: ☒ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% ☒ 3 - Prevalence Index is ≤3.0 ¹ ☐ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain)														
2. <u>Oriental Bittersweet (Celastrus orbiculata)</u>	<u>10.5</u>	<u>Yes</u>	<u>UPL</u>															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
9. _____	_____	_____	_____															
10. _____	_____	_____	_____															
11. _____	_____	_____	_____															
12. _____	_____	_____	_____															
<u>21%</u> = Total Cover																		
Woody Vine Stratum (Plot size: <u>30 ft. radius</u>)																		
1. <u>Virginia Creeper (Parthenocissus quinquefolia)</u>	<u>10.5</u>	<u>Yes</u>	<u>FACU</u>	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.														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
<u>10.5%</u> = Total Cover																		
<table style="width: 100%;"> <tr> <td style="width: 60%;"> Hydrophytic Vegetation Present? </td> <td style="width: 40%;"> Yes _____ No ☒ </td> </tr> </table>					Hydrophytic Vegetation Present?	Yes _____ No ☒												
Hydrophytic Vegetation Present?	Yes _____ No ☒																	

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

SOIL

Sampling Point: A-62, Up

[illegible]

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 365 Main Street City/County: Agawam Sampling Date: 8/23/23
 Applicant/Owner: Joseph O'Malley State: MA Sampling Point: B-4, Wet
 Investigator(s): Garrett M. Tunison Section, Township, Range: Agawam
 Landform (hillslope, terrace, etc.): Gental slope 0-3% Local relief (concave, convex, none): concaved Slope (%): 0-3%
 Subregion (LRR or MLRA): _____ Lat: 42 4.981 N Long: -72 36.651 W Datum: NAD83
 Soil Map Unit Name: Hadley fine sandy loam, 0 to 3 percent slopes NWI classification: FEW*

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

Remarks: (Explain alternative procedures here or in a separate report.)
 * The area is listed as a NWI wetland identified as a Freshwater Emergent Wetland. The northwestern corner of this wetland appears to be in the edge of the cut area where some shrubs and herbs were cut. The site has previously been disturbed for agriculture and the western and northern portions of the site have been used as a dump and a paintball and airsoft playing field.

HYDROLOGY

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

Field Observations:		Wetland Hydrology Present? Yes ☒ No _____
Surface Water Present? Yes _____ No ☒	Depth (inches): _____	
Water Table Present? Yes _____ No ☒	Depth (inches): _____	
Saturation Present? Yes _____ No ☒ (includes capillary fringe)	Depth (inches): _____	

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

Remarks:
 The majority of the soils in Wetland A are spodosols with a 2.5 to 4.5 inch ("B2" Horizon) that is 10YR 6/2 to 10YR 6/3 with mottles and depletions as indicated in the "Soil" section below. Hydrophyllic vegetation was observed to be dominant within Wetland A and hydric soils were present. It is likely that this wetland has a relatively short hydroperiod after large precipitation events as the spodosol horizon slowly infiltrates water. The soils in the wetland and surrounding floodplain were similar minus the spodosol horizon in the wetland.

VEGETATION – Use scientific names of plants.

Sampling Point: B-4, Wet

Tree Stratum (Plot size: <u>30 ft. radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status															
1. <u>Apple (Pyrus malus)</u>	<u>3.0</u>	<u>Yes</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</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>126</u> (A/B)														
2. <u>American Elm (Ulmus americana)</u>	<u>38</u>	<u>Yes</u>	<u>FAC</u>															
3. <u>Red Maple (Acer rubrum)</u>	<u>38</u>	<u>Yes</u>	<u>FAC</u>															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
<u>79%</u> = Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species <u>63</u></td> <td>x 2 = <u>126</u></td> </tr> <tr> <td>FAC species <u>76</u></td> <td>x 3 = <u>228</u></td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: <u>139</u> (A)</td> <td><u>354</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.55</u>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species <u>63</u>	x 2 = <u>126</u>	FAC species <u>76</u>	x 3 = <u>228</u>	FACU species _____	x 4 = _____	UPL species _____	x 5 = _____	Column Totals: <u>139</u> (A)	<u>354</u> (B)
Total % Cover of:	Multiply by:																	
OBL species _____	x 1 = _____																	
FACW species <u>63</u>	x 2 = <u>126</u>																	
FAC species <u>76</u>	x 3 = <u>228</u>																	
FACU species _____	x 4 = _____																	
UPL species _____	x 5 = _____																	
Column Totals: <u>139</u> (A)	<u>354</u> (B)																	
Sapling/Shrub Stratum (Plot size: <u>15 ft. radius</u>)																		
1. _____	_____	_____	_____															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
<u>0.0%</u> = Total Cover																		
Herb Stratum (Plot size: <u>5 ft. radius</u>)																		
1. <u>Oriental Bittersweet (Celastrus orbiculata)</u>	<u>3</u>	<u>Yes</u>	<u>UPL</u>	Hydrophytic Vegetation Indicators: ☒ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% ☒ 3 - Prevalence Index is ≤3.0 ¹ ☐ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.														
2. <u>Sensitive Fern (Onoclea sensibilis)</u>	<u>63</u>	<u>Yes</u>	<u>FACW</u>															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
9. _____	_____	_____	_____															
10. _____	_____	_____	_____															
11. _____	_____	_____	_____															
12. _____	_____	_____	_____															
<u>66%</u> = Total Cover																		
Woody Vine Stratum (Plot size: <u>30 ft. radius</u>)																		
1. <u>Eastern Poison Ivy (Toxicodendron radicans)</u>	<u>3</u>	<u>No</u>	<u>FAC</u>	Hydrophytic Vegetation Present? Yes ☒ No _____														
2. <u>Virginia Creeper (Parthenocissus quinquefolia)</u>	<u>38</u>	<u>Yes</u>	<u>FACU</u>															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
<u>41%</u> = Total Cover																		
Remarks: (Include photo numbers here or on a separate sheet.)																		

SOIL

Sampling Point: B-4, Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | |
|---|--|
| ☐ Histosol (A1) | ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B) |
| ☐ Histic Epipedon (A2) | ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) (LRR K, L) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) |
| ☐ Stratified Layers (A5) | ☒ Depleted Matrix (F3) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Redox Dark Surface (F6) |
| ☐ Thick Dark Surface (A12) | ☐ Depleted Dark Surface (F7) |
| ☐ Sandy Mucky Mineral (S1) | ☐ Redox Depressions (F8) |
| ☐ Sandy Gleyed Matrix (S4) | |
| ☐ Sandy Redox (S5) | |
| ☐ Stripped Matrix (S6) | |
| ☐ Dark Surface (S7) (LRR R, MLRA 149B) | |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
☐ Dark Surface (S7) (**LRR K, L**)
☐ Polyvalue Below Surface (S8) (**LRR K, L**)
☐ Thin Dark Surface (S9) (**LRR K, L**)
☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
☐ Red Parent Material (F21)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Spodosol

Depth (inches): 4

Hydric Soil Present? Yes X No

Remarks: * FSL stands for Fine Sandy Loam soils. ** The "B2" Horizon was 10YR 6/2 with 10YR 6/8 mottles (35+/-%) and 10YR 5/1 (10 +/-%) depletions. The soils are highly disturbed and missing "O" and "A" Horizons are missing in most areas. There are some areas of a 10YR 2/2 FSL "A" Horizon. The other closest surface soils to an "A" or "O" layer are a mineral soil of 10YR 4/1 FSL with an approximately 30% silt content. The delineated wetlands contained a spodosol that occurred approximately 3 to 4 in. below the soil surface and was approximately 2.5 to 4.5 in. thick. The soil below the hydric layer was typically a "B" Horizon of 10YR 6/6 to 10YR 6/8. The soils were classified as "fine sandy loam" but contained approximately 30% to 35% silt.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 365 Main Street City/County: Agawam Sampling Date: 8/23/23
 Applicant/Owner: Joseph O'Malley State: MA Sampling Point: B-4, Up
 Investigator(s): Garrett M. Tunison Section, Township, Range: Agawam
 Landform (hillslope, terrace, etc.): Gental slope 0-3% Local relief (concave, convex, none): concaved Slope (%): 0-3%
 Subregion (LRR or MLRA): _____ Lat: 42 4.981 N Long: -72 36.651 W Datum: NAD83
 Soil Map Unit Name: Hadley fine sandy loam, 0 to 3 percent slopes NWI classification: Not applicable

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation ☒, Soil ☒, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ 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 _____	Is the Sampled Area within a Wetland? Yes _____ No ☒ If yes, optional Wetland Site ID: _____
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks: (Explain alternative procedures here or in a separate report.) * A portion of the site contains an NWI wetland identified as a Freshwater Emergent Wetland. The site has previously been disturbed for agriculture and the western and northern portions of the site have been used as a dump and a paintball and airsoft playing field.		

HYDROLOGY

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

VEGETATION – Use scientific names of plants.

 Sampling Point: B-4, Up

Tree Stratum (Plot size: <u>30 ft. radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. Pin Oak (<i>Quercus palustris</i>)	3	No	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</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>126</u> (A/B)
2. Red Maple (<i>Acer rubrum</i>)	38	Yes	FAC	
3. Quaking Aspen (<i>Populus tremula</i>)	38	Yes	FACU	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = <u>126.00</u> FAC species <u>31</u> x 3 = <u>189.00</u> FACU species <u>74</u> x 4 = <u>152.00</u> UPL species _____ x 5 = _____ Column Totals: <u>105</u> (A) <u>387</u> (B) Prevalence Index = B/A = <u>3.70</u>
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>83.5%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15 ft. radius</u>)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: ☒ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% ☒ 3 - Prevalence Index is ≤3.0 ¹ ☐ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>0.0%</u> = Total Cover				
Herb Stratum (Plot size: <u>5 ft. radius</u>)				
1. Oriental Bittersweet (<i>Celastrus orbiculata</i>)	63	Yes	UPL	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.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No ☒
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>63%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>30 ft. radius</u>)				
1. Virginia Creeper (<i>Parthenocissus quinquefolia</i>)	10.5	Yes	FACU	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>10.5%</u> = Total Cover				

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

Please note, Oriental Bittersweet was included as an herb and not a woody vine as all plants were seedlings and not growing as a vine during our evaluation. We have listed this plant in the herbaceous layer on other data forms as it was also growing as an herb and not vine like during its early stages of life.

SOIL

Sampling Point: A-62, Up

[illegible]

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 365 Main Street City/County: Agawam Sampling Date: 8/23/23
 Applicant/Owner: Joseph O'Malley State: MA Sampling Point: C-2, Wet
 Investigator(s): Garrett M. Tunison Section, Township, Range: Agawam
 Landform (hillslope, terrace, etc.): Gental slope 0-3% Local relief (concave, convex, none): concaved Slope (%): 0-3%
 Subregion (LRR or MLRA): _____ Lat: 42 5.016 N Long: -72 36.727 W Datum: NAD83
 Soil Map Unit Name: Hadley fine sandy loam, 0 to 3 percent slopes NWI classification: Partial FEW*

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation X, Soil X, or Hydrology X 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	If yes, optional Wetland Site ID: <u>Wetland C</u>
Wetland Hydrology Present? Yes <u>X</u> No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

* A portion of the site contains an NWI wetland identified as a Freshwater Emergent Wetland. The northwestern corner of this wetland appears to be in the edge of the cut area where some shrubs and herbs were cut. The site has previously been disturbed for agriculture and the western and northern portions of the site have been used as a dump and a paintball and airsoft playing field.

HYDROLOGY

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

 Sampling Point: C-2, Wet

Tree Stratum (Plot size: <u>30 ft. radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status															
1. <u>Red Maple (Acer rubrum)</u>	<u>38</u>	<u>Yes</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
<u>38%</u> = Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species <u>104</u></td> <td>x 2 = <u>208.00</u></td> </tr> <tr> <td>FAC species <u>38</u></td> <td>x 3 = <u>114.00</u></td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = <u>00.00</u></td> </tr> <tr> <td>UPL species <u>11</u></td> <td>x 5 = <u>52.50</u></td> </tr> <tr> <td>Column Totals: <u>152.5</u> (A)</td> <td><u>347.5</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.46</u>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species <u>104</u>	x 2 = <u>208.00</u>	FAC species <u>38</u>	x 3 = <u>114.00</u>	FACU species _____	x 4 = <u>00.00</u>	UPL species <u>11</u>	x 5 = <u>52.50</u>	Column Totals: <u>152.5</u> (A)	<u>347.5</u> (B)
Total % Cover of:	Multiply by:																	
OBL species _____	x 1 = _____																	
FACW species <u>104</u>	x 2 = <u>208.00</u>																	
FAC species <u>38</u>	x 3 = <u>114.00</u>																	
FACU species _____	x 4 = <u>00.00</u>																	
UPL species <u>11</u>	x 5 = <u>52.50</u>																	
Column Totals: <u>152.5</u> (A)	<u>347.5</u> (B)																	
<u>83.5%</u> = Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15 ft. radius</u>)																		
1. <u>Grey Willow (Salix bebbiana)</u>	<u>20.5</u>	<u>Yes</u>	<u>FACW</u>															
2. <u>Silky Dogwood (Cornus amomum)</u>	<u>63</u>	<u>Yes</u>	<u>FACW</u>															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
<u>83.5%</u> = Total Cover																		
Herb Stratum (Plot size: <u>5 ft. radius</u>)																		
1. <u>Sensitive Fern (Onoclea sensibilis)</u>	<u>20.5</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: ☒ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% ☒ 3 - Prevalence Index is ≤3.0 ¹ ☐ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ 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. _____	_____	_____	_____															
<u>38%</u> = Total Cover																		
Woody Vine Stratum (Plot size: <u>30 ft. radius</u>)																		
1. <u>Oriental Bittersweet (Celastrus orbiculata)</u>	<u>10.5</u>	<u>Yes</u>	<u>UPL</u>	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.														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
<u>10.5%</u> = Total Cover																		
Hydrophytic Vegetation Present? Yes ☒ No _____																		

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

Sampling Point: C-2, Wet

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WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 365 Main Street City/County: Agawam Sampling Date: 8/23/23
 Applicant/Owner: Joseph O'Malley State: MA Sampling Point: C-2, Up
 Investigator(s): Garrett M. Tunison Section, Township, Range: Agawam
 Landform (hillslope, terrace, etc.): Gental slope 0-3% Local relief (concave, convex, none): concaved Slope (%): 0-3%
 Subregion (LRR or MLRA): _____ Lat: 42 5.016 N Long: -72 36.727 W Datum: NAD83
 Soil Map Unit Name: Hadley fine sandy loam, 0 to 3 percent slopes NWI classification: Not applicable

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation ☒, Soil ☒, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ 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 _____	Is the Sampled Area within a Wetland? Yes _____ No ☒ If yes, optional Wetland Site ID: _____
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks: (Explain alternative procedures here or in a separate report.) * A portion of the site contains an NWI wetland identified as a Freshwater Emergent Wetland. The site has previously been disturbed for agriculture and the western and northern portions of the site have been used as a dump and a paintball and airsoft playing field.		

HYDROLOGY

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

VEGETATION – Use scientific names of plants.

 Sampling Point: C-2, Up

Tree Stratum (Plot size: <u>30 ft. radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status															
1. <u>Red Maple (Acer rubrum)</u>	<u>38</u>	<u>Yes</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40</u> (A/B)														
2. <u>Tree-of-Heaven (Ailanthus altissima)</u>	<u>38</u>	<u>Yes</u>	<u>UPL</u>															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
<u>83.5%</u> = Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15 ft. radius</u>)																		
1. _____	_____	_____	_____	Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species <u>11</u></td> <td>x 2 = <u>21.00</u></td> </tr> <tr> <td>FAC species <u>38</u></td> <td>x 3 = <u>114.00</u></td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = <u>00.00</u></td> </tr> <tr> <td>UPL species <u>69</u></td> <td>x 5 = <u>345.00</u></td> </tr> <tr> <td>Column Totals: <u>117.5</u> (A)</td> <td><u>480</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>4.09</u>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species <u>11</u>	x 2 = <u>21.00</u>	FAC species <u>38</u>	x 3 = <u>114.00</u>	FACU species _____	x 4 = <u>00.00</u>	UPL species <u>69</u>	x 5 = <u>345.00</u>	Column Totals: <u>117.5</u> (A)	<u>480</u> (B)
Total % Cover of:	Multiply by:																	
OBL species _____	x 1 = _____																	
FACW species <u>11</u>	x 2 = <u>21.00</u>																	
FAC species <u>38</u>	x 3 = <u>114.00</u>																	
FACU species _____	x 4 = <u>00.00</u>																	
UPL species <u>69</u>	x 5 = <u>345.00</u>																	
Column Totals: <u>117.5</u> (A)	<u>480</u> (B)																	
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
<u>0.0%</u> = Total Cover																		
Herb Stratum (Plot size: <u>5 ft. radius</u>)																		
1. <u>Sensitive Fern (Onoclea ordiculata)</u>	<u>10.5</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: ☒ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% ☒ 3 - Prevalence Index is ≤3.0 ¹ ☐ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.														
2. <u>Oriental Bittersweet (Celastrus orbiculata)</u>	<u>20.5</u>	<u>Yes</u>	<u>UPL</u>															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
9. _____	_____	_____	_____															
10. _____	_____	_____	_____															
11. _____	_____	_____	_____															
12. _____	_____	_____	_____															
<u>31%</u> = Total Cover																		
Woody Vine Stratum (Plot size: <u>30 ft. radius</u>)																		
1. <u>Oriental Bittersweet (Celastrus orbiculata)</u>	<u>10.5</u>	<u>Yes</u>	<u>UPL</u>	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.														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
<u>10.5%</u> = Total Cover																		
Hydrophytic Vegetation Present?				Yes _____ No <u>X</u>														

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

SOIL

Sampling Point: A-62, Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | |
|--|---|
| ☐ Histosol (A1) | ☐ Polyvalue Below Surface (S8) (LRR R, |
| ☐ Histic Epipedon (A2) | ☐ MLRA 149B) |
| ☐ Black Histic (A3) | ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Mucky Mineral (F1) (LRR K, L) |
| ☐ Stratified Layers (A5) | ☐ Loamy Gleyed Matrix (F2) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Depleted Matrix (F3) |
| ☐ Thick Dark Surface (A12) | ☐ Redox Dark Surface (F6) |
| ☐ Sandy Mucky Mineral (S1) | ☐ Depleted Dark Surface (F7) |
| ☐ Sandy Gleyed Matrix (S4) | ☐ Redox Depressions (F8) |
| ☐ Sandy Redox (S5) | |
| ☐ Stripped Matrix (S6) | |
| ☐ Dark Surface (S7) (LRR R, MLRA 149B) | |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
☐ Dark Surface (S7) (**LRR K, L**)
☐ Polyvalue Below Surface (S8) (**LRR K, L**)
☐ Thin Dark Surface (S9) (**LRR K, L**)
☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
☐ Red Parent Material (F21)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

^aIndicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: * FSL stands for Fine Sandy Loam soils. ** The soils were classified as "fine sandy loam" but contained approximately 30% to 35% silt.

Attachment 5

NRCS Soil Report



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Hampden County, Massachusetts, Central Part**



Preface

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).

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

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

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

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 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 1:15,800.

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: Hampden County, Massachusetts, Central Part
Survey Area Data: Version 17, Sep 10, 2023

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

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

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

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
8A	Limerick silt loam, 0 to 3 percent slopes, frequently flooded	2.2	4.3%
95A	Podunk fine sandy loam, 0 to 3 percent slopes, occasionally flooded	0.3	0.6%
96A	Hadley very fine sandy loam, 0 to 3 percent slopes	23.3	46.4%
98A	Winooski silt loam, 0 to 3 percent slopes, occasionally flooded	12.0	23.9%
602	Urban land	8.8	17.5%
718A	Saco Variant silt loam, frequently ponded, 0 to 2 percent slopes, frequently flooded	3.7	7.3%
Totals for Area of Interest		50.1	100.0%

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.

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.

Hampden County, Massachusetts, Central Part

8A—Limerick silt loam, 0 to 3 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2zvdd
Elevation: 50 to 500 feet
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Limerick

Setting

Landform: Alluvial flats
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-silty alluvium

Typical profile

H1 - 0 to 12 inches: silt loam
H2 - 12 to 24 inches: silt loam
H3 - 24 to 60 inches: stratified very fine sand to very fine sandy loam to silt

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 2.00 in/hr)
Depth to water table: About 6 to 10 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very high (about 13.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Ecological site: F144AY015NY - Wet Silty Low Floodplain
Hydric soil rating: Yes

Minor Components

Winooski

Percent of map unit: 10 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear

Across-slope shape: Linear
Hydric soil rating: No

Saco variant

Percent of map unit: 5 percent
Landform: Alluvial flats
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

95A—Podunk fine sandy loam, 0 to 3 percent slopes, occasionally flooded

Map Unit Setting

National map unit symbol: 2zvdf
Elevation: 10 to 2,000 feet
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 140 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Podunk

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium

Typical profile

H1 - 0 to 9 inches: fine sandy loam
H2 - 9 to 24 inches: fine sandy loam
H3 - 24 to 60 inches: sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 6.00 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B
Ecological site: F144BY110ME - Broad Floodplain Riparian Complex
Hydric soil rating: No

Minor Components

Rumney

Percent of map unit: 10 percent
Landform: Alluvial flats
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Saco variant

Percent of map unit: 5 percent
Landform: Alluvial flats
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

96A—Hadley very fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 99p7
Elevation: 50 to 100 feet
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 140 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Hadley

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Friable coarse-silty alluvium

Typical profile

H1 - 0 to 12 inches: very fine sandy loam
H2 - 12 to 26 inches: very fine sandy loam

H3 - 26 to 66 inches: very fine sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

*Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 2.00 in/hr)*

Depth to water table: About 39 to 67 inches

Frequency of flooding: Common

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 9.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 1

Hydrologic Soil Group: B

Ecological site: F145XY001MA - Silty High Floodplain

Hydric soil rating: No

Minor Components

Winooski

Percent of map unit: 10 percent

Landform: Flood plains

Landform position (two-dimensional): Toeslope

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Suncook

Percent of map unit: 5 percent

Landform: Flood plains

Landform position (two-dimensional): Toeslope

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

98A—Winooski silt loam, 0 to 3 percent slopes, occasionally flooded

Map Unit Setting

National map unit symbol: 2zvdk

Elevation: 50 to 500 feet

Mean annual precipitation: 32 to 50 inches

Mean annual air temperature: 45 to 52 degrees F

Frost-free period: 140 to 240 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Winooski and similar soils: 80 percent

Custom Soil Resource Report

Minor components: 20 percent

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

Description of Winooski

Setting

Landform: Flood plains

Landform position (two-dimensional): Toeslope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Coarse-silty alluvium

Typical profile

H1 - 0 to 12 inches: silt loam

H2 - 12 to 21 inches: silt loam

H3 - 21 to 60 inches: stratified very fine sand to silt

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: Very low

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

Depth to water table: About 22 to 24 inches

Frequency of flooding: Occasional

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: B

Ecological site: F145XY002MA - Silty Low Floodplain

Hydric soil rating: No

Minor Components

Limerick

Percent of map unit: 10 percent

Landform: Alluvial flats

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: Yes

Hadley

Percent of map unit: 10 percent

Landform: Flood plains

Landform position (two-dimensional): Toeslope

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

602—Urban land

Map Unit Setting

National map unit symbol: 99rq

Frost-free period: 150 to 195 days

Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 100 percent

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

Description of Urban Land

Setting

Landform position (two-dimensional): Toeslope

718A—Saco Variant silt loam, frequently ponded, 0 to 2 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2zvdh

Elevation: 0 to 3,280 feet

Mean annual precipitation: 32 to 50 inches

Mean annual air temperature: 45 to 52 degrees F

Frost-free period: 140 to 240 days

Farmland classification: Not prime farmland

Map Unit Composition

Saco variant and similar soils: 85 percent

Minor components: 15 percent

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

Description of Saco Variant

Setting

Landform: Alluvial flats

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Coarse-silty alluvium

Typical profile

H1 - 0 to 10 inches: silt loam

H2 - 10 to 22 inches: silt loam

H3 - 22 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 2.00 in/hr)

Depth to water table: About 0 to 2 inches

Frequency of flooding: Frequent

Frequency of ponding: Frequent

Available water supply, 0 to 60 inches: Very high (about 13.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6w

Hydrologic Soil Group: B/D

Ecological site: F144AY016MA - Very Wet Low Floodplain

Hydric soil rating: Yes

Minor Components

Swansea

Percent of map unit: 10 percent

Landform: Bogs

Down-slope shape: Linear

Across-slope shape: Concave

Hydric soil rating: Yes

Limerick

Percent of map unit: 5 percent

Landform: Alluvial flats

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: Yes

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Attachment 6

Wetland Plan

Titled: Wetland Filing Plan

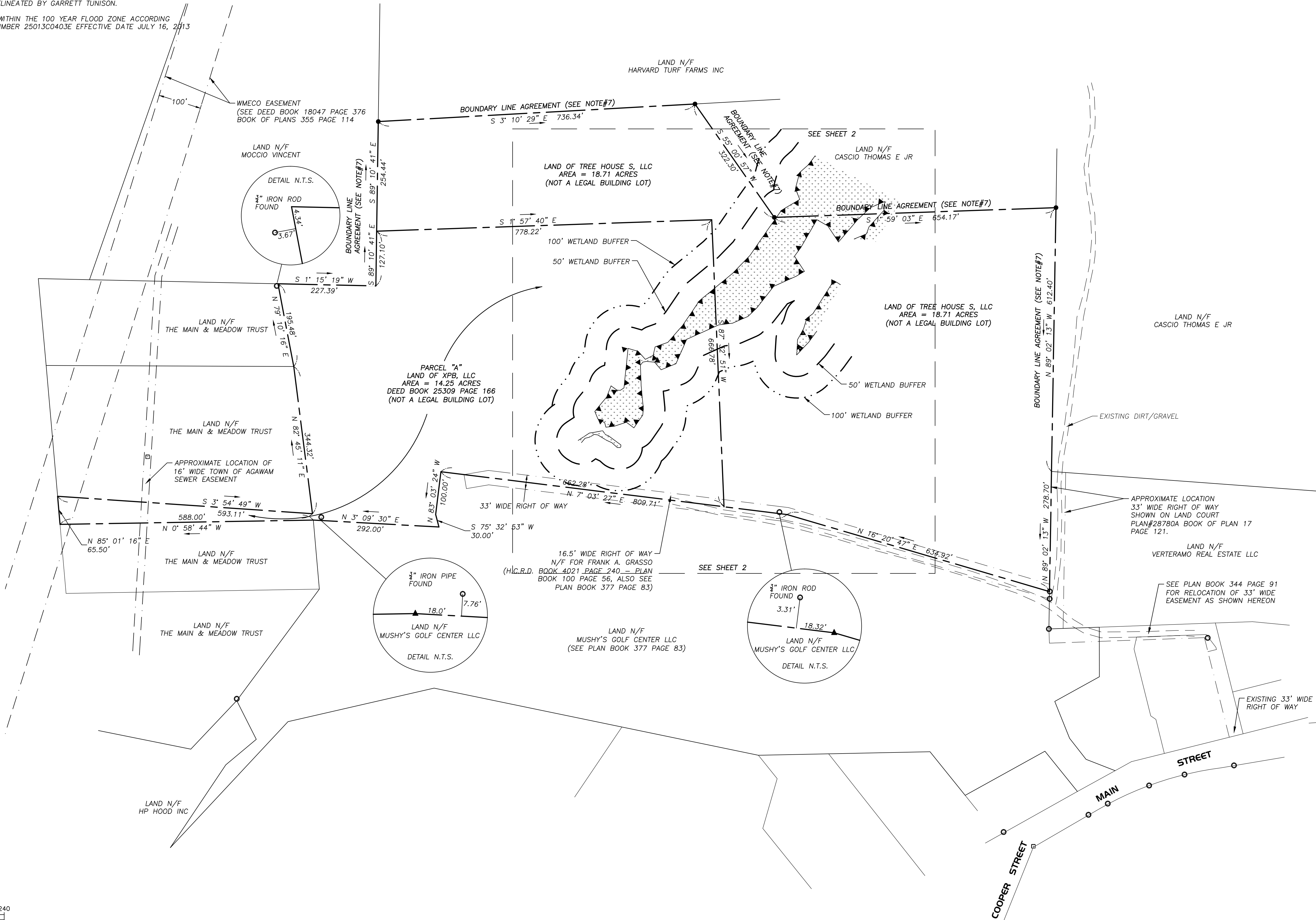
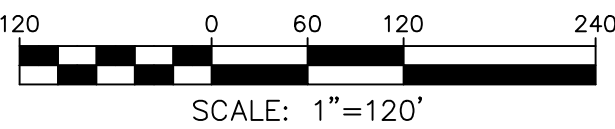
Prepared by: R Levesque Associates Inc.

Dated: February 20, 2024

S:\Projects\2023\230818 - O'Malley - Northerly of Main Street - Agawam\05 Civil 3D\230818 - Wetland Filing Plan plan.dwg

NOTES

1. THE RECORD OWNERS OF THE SUBJECT PARCEL ARE TREE HOUSE S, LLC. AND XPB, LLC SEE HAMPDEN COUNTY REGISTRY OF DEEDS BOOK 24430 PAGE 259 ALSO BOOK 25309 PAGE 166.
2. BOUNDARY SURVEY PREPARED BY THIS OFFICE AND RECORDED IN PLAN BOOK 399 PAGE 102.
3. THE SUBJECT PROPERTIES SHOWN HEREON MAY BE SUBJECT TO RIGHTS AND EASEMENTS AS CONTAINED IN THE VARIOUS DEEDS OF RECORD DESCRIBING SAID PROPERTIES. THE LOCATION AND EXTENT OF ANY SUCH RIGHTS AND EASEMENTS IS NOT THE SUBJECT OF THIS PLAN.
4. ADJACENT PROPERTY LINES AND ABUTTERS SHOWN HEREON ARE REFERENCED FROM THE TOWN OF AGAWAM GIS MAPPING.
7. BOUNDARY LINE AGREEMENT IS RECOMMENDED ALONG THESE LINE DUE TO LACK OF PHYSICAL EVIDENCE
8. THIS PLAN IS PREPARED FOR CONSERVATION FILING ONLY SHALL NOT BE USED FOR CONVEYANCE.
9. WETLAND RESOURCE AREAS WERE DELINEATED BY GARRETT TUNISON.
9. THE SUBJECT PARCEL IS LOCATED WITHIN THE 100 YEAR FLOOD ZONE ACCORDING TO FLOOD INSURANCE RATE MAP NUMBER 25013C0403E EFFECTIVE DATE JULY 16, 2013 100 YEAR FLOOD ELEVATION 60.0.



DRAFT

SHEET 1 OF 2

WETLAND FILING PLAN

Northerly of Main Street
Agawam, MA

PREPARED FOR:

Mr. Joseph O'Malley

Xtreme Paintball
351 Main Street
Agawam, MA 01001

ISSUANCE DATE: 02-20-2024

REVISIONS:	DATE:

DRAFTED BY: t.o.

UNAUTHORIZED ALTERATION OF
THIS DOCUMENT IS A VIOLATION
OF MASSACHUSETTS STATE LAW

SCALE: As Noted

RLA PROJ. NUMBER: 230818

DRAWING#	REV.
W-1	-



RLA

R LEVESQUE ASSOCIATES INC.

Landscape Architects
Civil Engineers - Land Surveyors
Environmental Consultants

ph: 413.568.0985 fax: 413.568.0986

40 School Street
Westfield, MA 01085
rlaland.com

NOTES

1. THE RECORD OWNERS OF THE SUBJECT PARCEL ARE TREE HOUSE S, LLC. AND XPB, LLC SEE HAMPDEN COUNTY REGISTRY OF DEEDS BOOK 24430 PAGE 259 ALSO BOOK 25309 PAGE 166.
2. BOUNDARY SURVEY PREPARED BY THIS OFFICE AND RECORDED IN PLAN BOOK 399 PAGE 102.
3. THE SUBJECT PROPERTIES SHOWN HEREON MAY BE SUBJECT TO RIGHTS AND EASEMENTS AS CONTAINED IN THE VARIOUS DEEDS OF RECORD DESCRIBING SAID PROPERTIES. THE LOCATION AND EXTENT OF ANY SUCH RIGHTS AND EASEMENTS IS NOT THE SUBJECT OF THIS PLAN.
4. ADJACENT PROPERTY LINES AND ABUTTERS SHOWN HEREON ARE REFERENCED FROM THE TOWN OF AGAWAM GIS MAPPING.
7. BOUNDARY LINE AGREEMENT IS RECOMMENDED ALONG THESE LINE DUE TO LACK OF PHYSICAL EVIDENCE
8. THIS PLAN IS PREPARED FOR CONSERVATION FILING ONLY SHALL NOT BE USED FOR CONVEYANCE.
9. WETLAND RESOURCE AREAS WERE DELINEATED BY GARRETT TUNISON.
9. THE SUBJECT PARCEL IS LOCATED WITHIN THE 100 YEAR FLOOD ZONE ACCORDING TO FLOOD INSURANCE RATE MAP NUMBER 25013C0403E EFFECTIVE DATE JULY 16, 2013 100 YEAR FLOOD ELEVATION 60.0.

LAND OF TREE HOUSE S, LLC
AREA = 18.71 ACRES
(NOT A LEGAL BUILDING LOT)

PARCEL "A"
LAND OF XPB, LLC
AREA = 14.25 ACRES
DEED BOOK 25309 PAGE 166
(NOT A LEGAL BUILDING LOT)

LAND OF TREE HOUSE S, LLC
AREA = 18.71 ACRES
(NOT A LEGAL BUILDING LOT)

100' WETLAND BUFFER

50' WETLAND BUFFER

50' WETLAND BUFFER

100' WETLAND BUFFER



DRAFT

SHEET 2 OF 2

WETLAND FILING PLAN

Northerly of Main Street
Agawam, MA

PREPARED FOR:

Mr. Joseph O'Malley

Xtreme Paintball
351 Main Street
Agawam, MA 01001

ISSUANCE DATE: 02-20-2024

REVISIONS:	DATE:

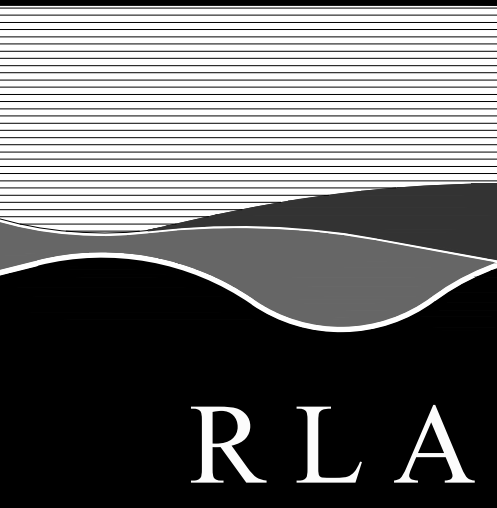
DRAFTED BY: t.o.

UNAUTHORIZED ALTERATION OF
THIS DOCUMENT IS A VIOLATION
OF MASSACHUSETTS STATE LAW

SCALE: As Noted

RLA PROJ. NUMBER: 230818

DRAWING#	REV.
W-2	-



RLA

R LEVESQUE ASSOCIATES INC.

Landscape Architects
Civil Engineers - Land Surveyors
Environmental Consultants

ph: 413.568.0985 fax: 413.568.0986

40 School Street
Westfield, MA 01085
rlaland.com

Attachment 4

Restoration Planting Plan

Base Plan Titled:
Wetland Filing Plan – Draft (Sheet 2 of 2)

Base Plan Prepared by:
R Levesque Associates Inc.

NOTES

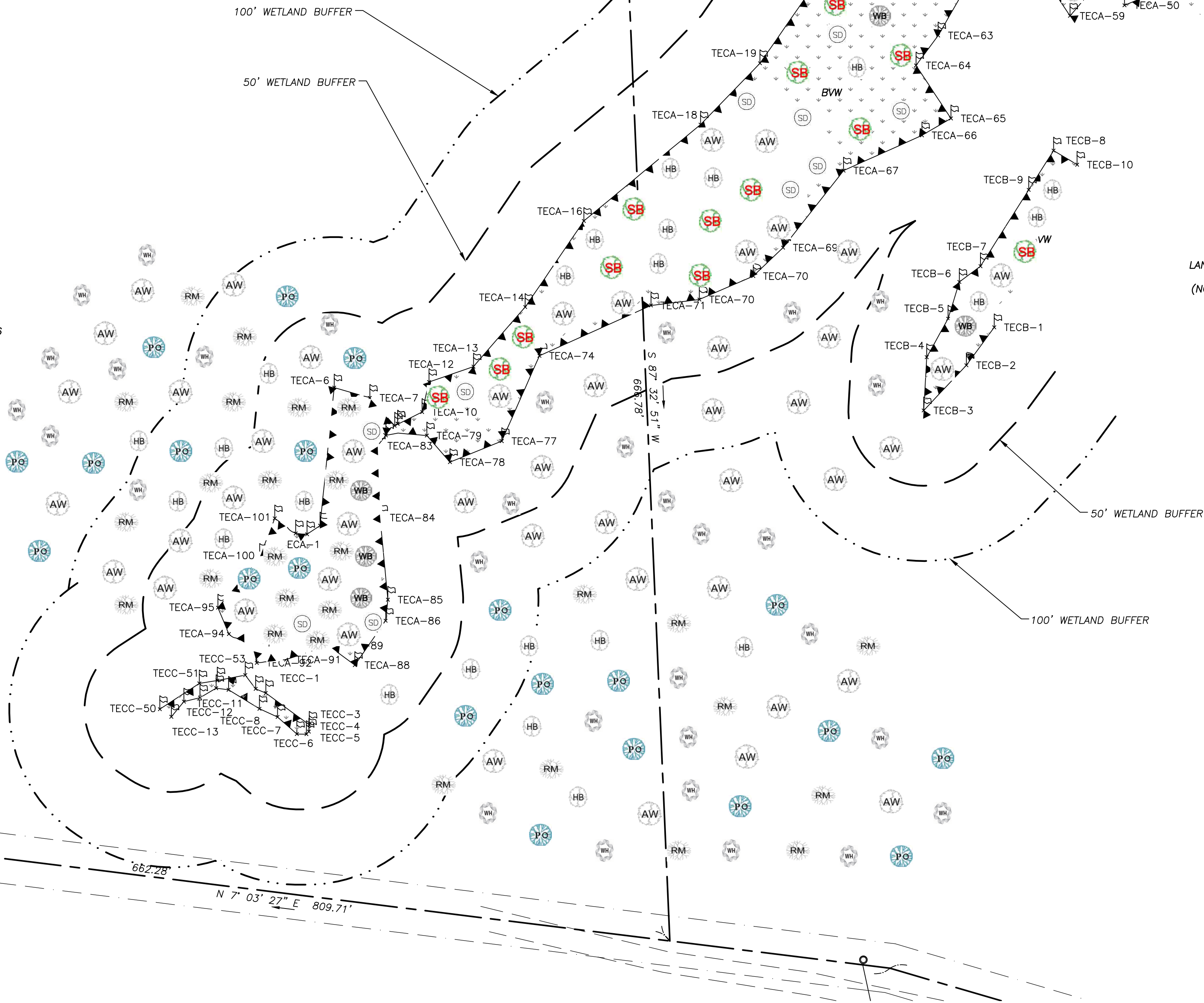
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LAND OF TREE HOUSE S, LLC
AREA = 18.71 ACRES
(NOT A LEGAL BUILDING LOT)

Wetland Restoration Area and Floodplain Planting Schedule					
Plant Symbol	Plant Species	# of Plants	Plant on Center	Plant Height	Size/Container
New England Wetmix Seed Mix application rates to bare areas of Wetland A: 1 lb./1,200 sq. ft.					
New England Conservation/Wildlife Seed Mix application rates to bare 100-yr. Floodplain areas: 1 lb./1,200 sq. ft.					
SB	Northern Spicebush (<i>Lindera benzoin</i>)	18	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container
HB	Highbush Blueberry (<i>Vaccinium corybosum</i>)	19	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container
WH	Common Witch Hazel (<i>Hamamelis virginiana</i>)	37	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container
AW	Southern Arrowwood (<i>Viburnum dentatum</i>)	46	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container
SD	Silky Dogwood (<i>Cornus amomum</i>)	13	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container
WB	Common Winterberry (<i>Ilex verticillata</i>)	7	8 – 10 ft.	18 – 24 in.	2 - 4 gal. container
PG	Pin Oaks (<i>Quercus palustris</i>)	21	10 - 15 ft.	24 -30 in.	2 - 4 gal. container
RM	Red Maple (<i>Acer rubrum</i>)	27	10 – 12 ft.	24 – 30 in.	2 - 4 gal. container

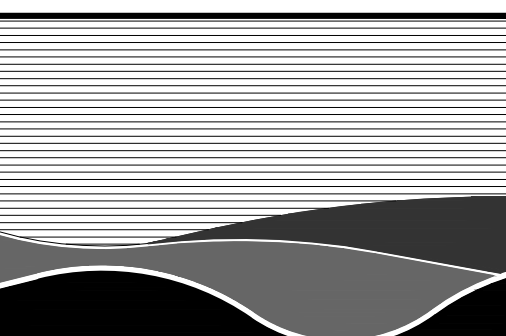
There are a total of 140 shrubs and 48 trees proposed to be planted in the restoration areas.

PARCEL "A"
LAND OF XPB, LLC
AREA = 14.25 ACRES
DEED BOOK 25309 PAGE 166
(NOT A LEGAL BUILDING LOT)



Restoration Planting Plan

DRAFT
SHEET 2 OF 2



RLA
R LEVESQUE ASSOCIATES INC.
Landscape Architects
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40 School Street
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WETLAND FILING PLAN

Northerly of Main Street
Agawam, MA

PREPARED FOR:

Mr. Joseph O'Malley

Xtreme Paintball
351 Main Street
Agawam, MA 01001

ISSUANCE DATE: 02-20-2024

REVISIONS:	DATE:

DRAFTED BY: t.a.

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SCALE: As Noted

RLA PROJ. NUMBER: 230818

DRAWING#	REV.
W-2	-

Appendix B

Abutters' Notification

Notification to Abutters

By Hand Delivery, Certified Mail (return receipt requested), or Certificates of Mailing

This is a notification required by law. You are receiving this notification because you have been identified as the owner of land abutting another parcel of land for which certain activities are proposed. Those activities require a permit under the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40).

In accordance with the second paragraph of the Massachusetts Wetlands Protection Act, and 310 CMR 10.05(4)(a) of the Wetlands Regulations, you are hereby notified that:

- A. A Notice of Intent was filed with the Milton Conservation Commission on May 6, 2026 seeking permission to remove, fill, dredge, or alter an area subject to protection under M.G.L. c. 131 §40. The following is a description of the proposed activity/activities:

An ecological restoration within a portion of Bordering Vegetated Wetland (BVW) under 310 CMR 10.55 to bank (310 CMR 10.54) of an intermittent stream and within the 100-year floodplain also known as Bordering Land Subject to Flooding (BLSF) under 310 CMR 10.57.

- B. The name of the applicant is: Joseph O'Malley.
- C. The address of the land where the activity is proposed is: 365 Main Street, Agawam, MA.
- D. Copies of the Notice of Intent may be examined or obtained at the office of the Agawam Conservation Commission, located at the Public Works and Municipal Annex, 1000 Suffield Street, Agawam, MA 01001. The regular business hours of the Commission are Monday through Friday, 7:30 a.m. to 4 p.m., and the Commission may be reached at (413) 726-9737.
- E. Copies of the Notice of Intent may be obtained from the applicant or their representative by calling Tunison Environmental Consultants, LLC at (508) 737-7104. An administrative fee may be applied for providing copies of the NOI and plans.
- F. Information regarding the date, time, and location of the public hearing regarding the Notice of Intent may be obtained from the Agawam Conservation Commission. Notice of the public hearing will be published at least five business days in advance, in the Agawam Advisor.

Notification provided pursuant to the above requirement does not automatically confer standing to the recipient to request Departmental Action for the underlying matter. See 310 CMR 10.05(7)(a)4.

Appendix C

Affidavit of Service

Affidavit of Service

Under the Massachusetts Wetlands Protection Act

(to be submitted to the Massachusetts Department of
Environmental Protection and the Conservation Commission
when filing a Notice of Intent (NOI))

I, **Garrett M. Tunison** hereby certify under the pains and penalties of perjury that on
May 67 2026 I gave notification to abutters in compliance with the second
paragraph of Massachusetts General Laws Chapter 131, Section 40, and the **DEP Guide to
Abutter Notification** dated April 8, 1994, in connection with the following matter:
**Notice of Intent (NOI) for invasive plant species eradication and wetland restoration at 365
Main Street in Agawam, Massachusetts.**

A Notice of Intent (NOI) filed under the Massachusetts Wetlands Protection Act by
Joseph O'Malley with the **Agawam** Conservation Commission on **May 7, 2025** for the
property at 365 Main Street in Agawam, Massachusetts.

The form of the notification, and a list of the abutters to whom it was given and their addresses,
are attached to this Affidavit of Service.


Name

05/07/26
Date

AGAWAM CONSERVATION COMMISSION
July 9, 2026

MEMBERS PRESENT:

Henry Kozloski, Chair
Keven Brown
Laura Fallon
Sheryl Becker
Frank Meagher
Jill Ward

MEMBERS ABSENT:

Magda Galiatsos

ALSO PRESENT:

Stefanie Kesecker

Mr. Kozloski called the meeting to order at 6:00pm.

1. Pavement Management Program 2026-Agawam Engineering Department

Mike Albro, Assistant Town Engineer was present for this agenda item. He presented the Commission with a list of streets improvements that includes, sweeping, adjustment of manhole and catch basins frames and covers application of a tack coat between layers of pavement and painting of centerlines, fog lines, and lane markings. He stated all areas that are within 100 ft. of a water body or wetland are marked on the memo, and all appropriate preventative measures will be used at stream crossings to ensure there is not illicit discharge to any stream, wetland, or water body.

Ms. Ward asked if any of the surface area would be expanded, or just the current surface replaced. Mr. Albro stated none of the roads will be widened and the impervious area will be remain the same.

Mr. Brown asked what would be done with the millings. Mr. Albro stated it will be taken offsite by a contractor, but the Town will retain some off South Westfield Street, where the Town stores materials.

Mr. Kozloski asked if the reclaimed streets are the only ones that the blacktop will be removed. Mr. Albro stated some of the milled streets will remove about 2 inches of asphalt and the reclaimed streets will be completely redone.

Motion was made by Mr. Brown and seconded by Mr. Meagher to approve the Pavement Management Program 2026.

VOTE 6-0-0

2. Request for Determination Cont.-130 South Westfield Street-Tirone

The Conservation Commission received a request to continue this agenda item to the July 23, 2026 meeting.

Motion was made by Ms. Ward and seconded by Ms. Becker to continue the Request for Determination for 130 South Westfield Street for Tirone to the July 23, 2026 meeting as requested.

VOTE 6-0-0

3. Public Hearing Cont.-Notice of Intent-365 Main Street-O'Malley

The Conservation Commission received a request to continue this agenda item to the July 23, 2026 meeting.

Motion was made by Ms. Ward and seconded by Mr. Meagher to continue the Public Hearing for the Notice of Intent for 365 Main Street for O'Malley to the July 23, 2026 meeting as requested.

VOTE 6-0-0

Motion was made by Mr. Brown and seconded by Mr. Meagher to take the agenda items out of order.

VOTE 6-0-0

6. Correspondence and Complaints

Mike Albro, Assistant Town Engineer stated the DPW was contacted regarding sinkholes at 63 Silver Lake Drive. The complainant stated the sinkholes are getting worse and his concern is the safety hazard this poses. Mr. Albro stated Engineering inspected the property and determined there is an old clay drainage outfall pipe that runs from 2 catch basins in the Silver Lake Drive, through the property at 63 Silver Lake Drive and discharges directly into Silver Lake. Mr. Albro stated Highway and Grounds attempted to clean out the pipe and determined that roots from trees and bushes near the pipe have caused breaks and clogs in the pipe. He went on to say the DPW would like to replace approximately 66ft. of the existing clay pipe with new HDPE pipe. The DPW would also need to remove the tree that is causing the problem. Mr. Albro stated there is not drainage easement where the pipe is located.

Mr. Kozloski asked if there was a danger to people. Mr. Albro stated the sinkholes are getting larger. Mr. Kozloski asked when the work would be completed. Mr. Albro stated he would speak to Highway and Grounds and that this will be completed as soon as possible, and he would inform the Commission once he had a date. Mr. Kozloski stated the Commission would need to see a plan to show where the pipe was located.

Peter McNair, 31 Richardson Place, stated he can attest the sinkholes are pretty grave and this is immediate.

Motion was made by Ms. Ward and seconded by Mr. Brown to issue an Emergency Order for 63 Silver Lake Drive for DPW once requested.

VOTE 6-0-0

4. Public Hearing Cont.-Abbreviated Notice of Resource Area Delineation-311 Shoemaker Lane-Ameresco, Inc.

David Cameron, Fleetwood Environmental Solutions, LLC., was present for this agenda item. He stated since the last public hearing an onsite was performed alongside the Conservation on Tuesday, June 30, 2026. He stated the peer review presented three options those being:

1. The W2 BVW is sufficiently accurate.
2. Determine the W2 BVW boundary is inaccurate requiring long-term assessment to accurately establish the BVW boundary.
3. Determine that based on the wetness signature shown on the 2023 aerial imagery, BVW flags W2-138 & W2-140 should be adjusted to the east-northeast to deem the W2 BVW boundary sufficiently accurate.

Mr. Cameron stated they have submitted a revised plan using option 3. Mr. Kozloski asked if the plan was stamped. Mr. Cameron stated yes. He went on to say the peer draft findings were received and he asked that the Commission add W4 to the 4th finding which states, "The Agawam Conservation Commission approves the 100-ft Buffer Zone boundary associated with Wetlands, W1, W2, and W3 depicted within the subject parcel."

Mr. Kozloski opened the meeting for public comment and there was none.

Motion was made by Ms. Ward and seconded by Mr. Meagher to close the Public Hearing for the Abbreviated Notice of Resource Area Delineation for 311 Shoemaker Lane for Ameresco.

VOTE 6-0-0

Motion was made by Mr. Brown and seconded by Ms. Becker to issue the Abbreviated Notice of Resource Area Delineation for 311 Shoemaker Lane for Ameresco, Inc., with findings.

VOTE 6-0-0

5. Approval of Minutes-June 25, 2026

Motion was made by Mr. Brown and seconded by Ms. Ward to approve the June 25, 2026 minutes as written.

VOTE 5-0-1(Ward)

6. Correspondence and Complaints

136 Parker Street-a letter was previously sent to the owner regarding tree cutting and the owner has not responded to the Commission. The Commission decided that an Enforcement Order will be sent to the owner requiring them to attend the next meeting on July 23, 2026 to discuss the violation, and a Cease and Desist. The owner will also be required to submit a restoration plan to be received on or before August 12, 2026 providing replacement for the trees cut down in the Riverfront Area and buffer zone to the BVW, to be reviewed and approved by the Commission. On or before September 30, 2026 the recipient shall ensure the restoration plantings have been planted and stabilized per the approved plan, unless a documented or unforeseen circumstance legitimately renders the deadline impossible, in which case the replacement area shall be fully planted and stabilized by a date that is approved by the Conservation Commission no later than the last day of November 2026. The restoration plantings shall also be monitored for two consecutive growing seasons beginning on the first full growing season after planting.

Motion was made by Mr. Brown and seconded by Ms. Ward to issue the Enforcement Order for 136 Parker Street, with requirements as discussed.

VOTE 6-0-0

35 Winthrop Ave-an Enforcement Order was sent to the applicant regarding draining the wetland using machinery and the owner did not seem agreeable to complying with the Enforcement Order, though he was given until July 16, 2026 to submit a plan. Mr. Kozloski stated if a plan is not submitted by July 16, 2026 the matter will be turned over to the Town Attorney.

Mr. Kozloski asked Ms. Fallon about the Jr. High Project and who would be finishing the plan. She said they have an estimate on the bridges and it was under budget. Ms. Fallon stated she is still involved with the project and will update the Commission.

Motion was made by Mr. Brown and seconded by Ms. Becker to adjourn the meeting.

VOTE 6-0-0

Meeting adjourned at 6:30pm.