

NOTICE OF INTENT

75 Pinehurst Drive
Boxford, Massachusetts

September 17, 2020

Applicant:

Nancy Bender
75 Pinehurst Drive
Boxford, MA 01921

Prepared By:

Williams & Sparages LLC
189 North Main Street, Suite 101
Middleton, MA 01949
Ph: 978-539-8088
Fax: 978-539-8200
www.wsengineers.com

W&S Project No:

BOXF-0085





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
Boxford
City/Town

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



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

A. General Information

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

<u>75 Pinehurst Drive</u>	<u>Boxford</u>	<u>01921</u>
a. Street Address	b. City/Town	c. Zip Code
Latitude and Longitude:		
<u>42.65627 N</u>	<u>70.98241 W</u>	
d. Latitude	e. Longitude	
<u>Map 33</u>	<u>Block 3, Parcel 12</u>	
f. Assessors Map/Plat Number	g. Parcel /Lot Number	

2. Applicant:

<u>Nancy</u>	<u>Bender</u>	
a. First Name	b. Last Name	
c. Organization		
<u>75 Pinehurst Drive</u>		
d. Street Address		
<u>Boxford</u>	<u>MA</u>	<u>01921</u>
e. City/Town	f. State	g. Zip Code
<u>617-543-2237</u>	<u>nancy@benderhatch.com</u>	
h. Phone Number	i. Fax Number	j. Email Address

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

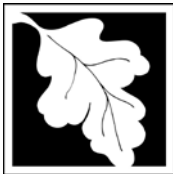
<u></u>	<u></u>	
a. First Name	b. Last Name	
c. Organization		
<u></u>		
d. Street Address		
<u></u>	<u></u>	<u></u>
e. City/Town	f. State	g. Zip Code
<u></u>	<u></u>	<u></u>
h. Phone Number	i. Fax Number	j. Email address

4. Representative (if any):

<u>Gregory J.</u>	<u>Hochmuth</u>	
a. First Name	b. Last Name	
<u>Williams & Sparages LLC</u>		
c. Company		
<u>189 North Main Street, Suite 101</u>		
d. Street Address		
<u>Middleton</u>	<u>MA</u>	<u>01949</u>
e. City/Town	f. State	g. Zip Code
<u>978-539-8088</u>	<u>978-539-8200</u>	<u>ghochmuth@wsengineers.com</u>
h. Phone Number	i. Fax Number	j. Email address

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

<u>\$110.00</u>	<u>\$42.50</u>	<u>\$67.50</u>
a. Total Fee Paid	b. State Fee Paid	c. City/Town Fee Paid



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A. General Information (continued)

6. General Project Description:

To restore portions of the 100 foot buffer zone that were cleared without proper permitting.

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 CMR10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

Essex South

a. County

10140

c. Book

b. Certificate # (if registered land)

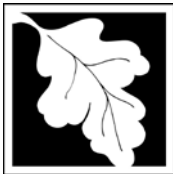
23

d. Page Number

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

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

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



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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.

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

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

4. Proposed alteration of the Riverfront Area:

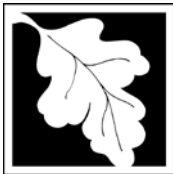
a. total square feet _____ b. square feet within 100 ft. _____ c. square feet between 100 ft. and 200 ft. _____

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

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

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

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



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

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

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

<u>Resource Area</u>	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
a. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. <input type="checkbox"/> Land Under the Ocean	1. square feet 2. cubic yards dredged	
c. <input type="checkbox"/> Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. <input type="checkbox"/> Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. <input type="checkbox"/> Coastal Dunes	1. square feet	2. cubic yards dune nourishment

	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
f. <input type="checkbox"/> Coastal Banks	1. linear feet	
g. <input type="checkbox"/> Rocky Intertidal Shores	1. square feet	
h. <input type="checkbox"/> Salt Marshes	1. square feet	2. sq ft restoration, rehab., creation
i. <input type="checkbox"/> Land Under Salt Ponds	1. square feet 2. cubic yards dredged	
j. <input type="checkbox"/> Land Containing Shellfish	1. square feet	
k. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above 1. cubic yards dredged	
l. <input type="checkbox"/> Land Subject to Coastal Storm Flowage	1. square feet	

4. Restoration/Enhancement
If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.

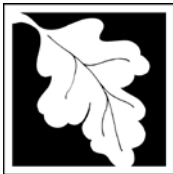
a. square feet of BVW

b. square feet of Salt Marsh

5. Project Involves Stream Crossings

a. number of new stream crossings

b. number of replacement stream crossings



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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**

- 8/2017
b. Date of map

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

- c. Submit Supplemental Information for Endangered Species Review*

1. Percentage/acreage of property to be altered:
 - (a) within wetland Resource Area _____ percentage/acreage
 - (b) outside Resource Area _____ percentage/acreage
2. Assessor's Map or right-of-way plan of site

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

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/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 http://www.mass.gov/dfwele/dfw/nhosp/regulatory_review/mesa/mesa_fee_schedule.htm). 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, http://www.mass.gov/dfwele/dfw/nhosp/regulatory_review/mesa/mesa_exemptions.htm; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)
 2. Separate MESA review ongoing. _____ a. NHESP Tracking # _____ b. Date submitted to NHESP
 3. Separate MESA review completed.
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.
3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?
- a. Not applicable – project is in inland resource area only b. Yes No

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

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

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: DMF.EnvReview-South@state.ma.us

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: DMF.EnvReview-North@state.ma.us

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.



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

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

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

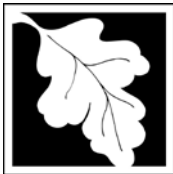
D. Additional Information

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

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

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

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



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D. Additional Information (cont'd)

3. Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

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

Plan to Accompany a Notice of Intent

a. Plan Title

Williams & Sparages LLC

Richard L. Williams, P.E.

b. Prepared By

c. Signed and Stamped by

September 17, 2020

1" = 20'

d. Final Revision Date

e. Scale

f. Additional Plan or Document Title

g. Date

5. If there is more than one property owner, please attach a list of these property owners not listed on this form.

6. Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.

7. Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.

8. Attach NOI Wetland Fee Transmittal Form

9. 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:

4779

2. Municipal Check Number

9/9/2020

3. Check date

4780

4. State Check Number

9/9/2020

5. Check date

Nancy

6. Payor name on check: First Name

Bender

7. Payor name on check: Last Name

NANCY Z BENDER

4780
53-13/10 MA
26665

9/9/20 Date

Pay to the
Order of

Comm of MASS \$42.50
Twenty-two 50/100 Dollars



BANK OF AMERICA

ACH/R/T 011000138

For

00001381: 00009402357414780

MP

NANCY Z BENDER

4779
53-13/10 MA
26665

9/9/20 Date

Pay to the
Order of

Row of Buford \$67.50
Sixty seven 50/100 Dollars



BANK OF AMERICA

ACH/R/T 011000138

For

00001381: 00009402357414779

MP

NANCY Z BENDER

4778
53-13/10 MA
26665

9/9/20 Date

Pay to the
Order of

Row of Buford \$250.00
Two hundred fifty 50/100 Dollars



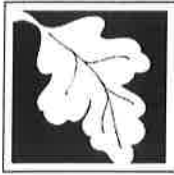
BANK OF AMERICA

ACH/R/T 011000138

For

00001381: 00009402357414778

MP



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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

9/9/20

3. Signature of Property Owner (if different)

4. Date

9/9/20

5. Signature of Representative (if any)

6. Date

9/9/2020

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.



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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:

<u>75 Pinehurst Drive</u>	<u>Boxford</u>
a. Street Address	b. City/Town
<u>4780</u>	<u>\$42.50</u>
c. Check number	d. Fee amount

2. Applicant Mailing Address:

<u>Nancy</u>	<u>Bender</u>	
a. First Name	b. Last Name	
<u></u>		
c. Organization		
<u>75 Pinehurst Drive</u>		
d. Mailing Address		
<u>Boxford</u>	<u>MA</u>	<u>01921</u>
e. City/Town	f. State	g. Zip Code
<u>617-543-2237</u>	<u>nancy@benderhatch.com</u>	
h. Phone Number	i. Fax Number	j. Email Address

3. Property Owner (if different):

<u></u>	<u></u>	
a. First Name	b. Last Name	
<u></u>		
c. Organization		
<u></u>		
d. Mailing Address		
<u></u>	<u></u>	<u></u>
e. City/Town	f. State	g. Zip Code
<u></u>	<u></u>	<u></u>
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).



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B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Category 1.a.	1	\$110.00	\$110.00
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Step 5/Total Project Fee:			\$110.00
Step 6/Fee Payments:			
Total Project Fee:			\$110.00
State share of filing Fee:			\$42.50
City/Town share of filing Fee:			\$67.50
			a. Total Fee from Step 5
			b. 1/2 Total Fee less \$12.50
			c. 1/2 Total Fee plus \$12.50

C. Submittal Requirements

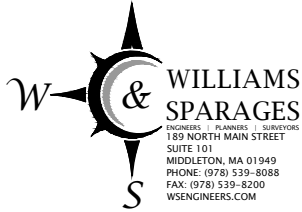
- a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
 Box 4062
 Boston, MA 02211

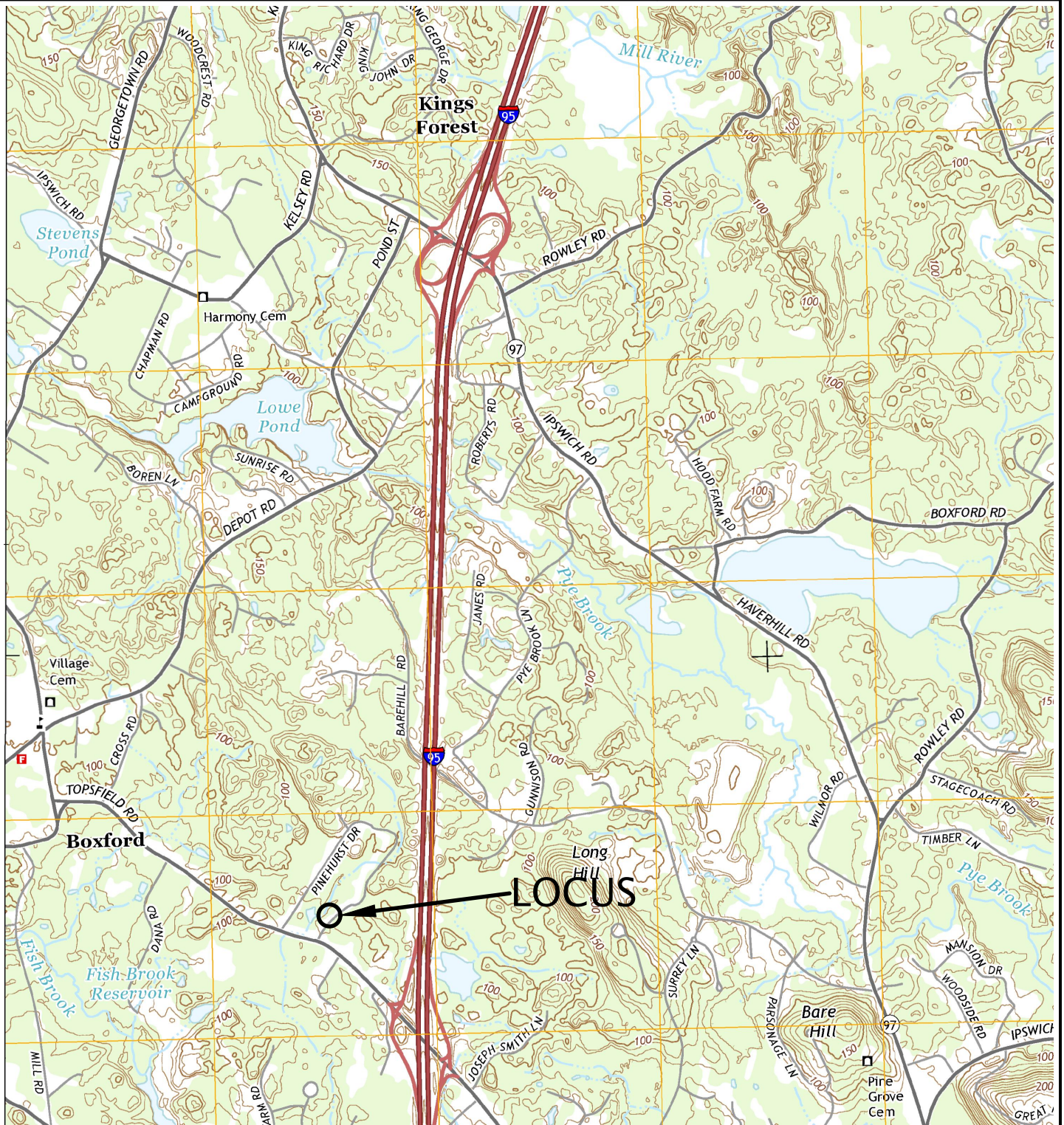
- b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

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.)

WILLIAMS & SPARGES
CIVIL ENGINEERING &
LAND SURVEYORS



189 NORTH MAIN STREET
SUITE 101
MIDDLETON, MA 01949
PHONE: (978) 539-8088
FAX: (978) 539-8200



UNITED STATES GEOLOGIC SURVEY MAP
GEORGETOWN, MASS QUAD
SCALE: 1:25,000 (metric contours)

LOCUS MAP
#75 PINEHURST DRIVE
BOXFORD, MA 01921



Introduction:

The subject property is identified as Map 33, Block 3, Lot 12 and is otherwise known as 75 Pinehurst Drive. The lot is developed with a single-family home that according to the Boxford Assessors Database was constructed in 1964. A Bordering Vegetated Wetland (BVW) exists to the rear of the existing dwelling that sheds a 100-foot buffer zone onto a large portion of the property. The BVW borders on an intermittent stream channel that runs parallel with Pinehurst Drive.

This past spring the property owner hired a tree clearing company to do some work on their property. It appears that the tree company was confused and ended up clearing areas that are within the Boxford Conservation Commission's jurisdiction without property permitting. In addition to the unauthorized clearing the tree company also cleared onto an abutting property, (85 Pinehurst Drive).

According to the NRCS Web Soil Survey, soils within the upland on the subject lot are mapped as (422B), Canton fine sandy loam, and soils within the wetland portions of the property are mapped as (420A) Canton fine sandy loam.

According to the current Division of Fisheries and Wildlife, Natural Heritage and Endangered Species Program (NHESP) Atlas, the property is not mapped as Priority Habit of Rare Species or Estimated Habitats of Rare Wildlife.

Proposed Activities:

Upon learning of the violation, the property owner discussed with the neighbor at 85 Pinehurst, hired Williams & Sparages LLC, and engaged the services of a landscape designer, Carol Robertson from Garden Imprint, LLC, to assist with the work required to bring the properties back into compliance.

The proposal is to re-vegetated the cleared area within the 100-foot buffer zone with native species that will over time create a dense vegetated buffer zone. Eastern White Pine, *Pinus strobus*, Red Cedar, *Juniperus virginiana*, Highbush Blueberry, *Vaccinium corymbosum*, Sweet Pepperbush, *Clethra alnifolia* and Wood Fern, *Dryopteris*. Following the installation of the plantings, any exposed soil shall be seeded with New England Conservation/Wildlife Mix, or equal.

The applicant would also like to try and get a handle on the invasive species that exist in the resource area on her property. Please find attached an invasive species management plan that was prepared to help manage the invasive species.

Jurisdictional Wetland Resource Areas:

Bordering Vegetated Wetlands: There is a BVW located in the rear of the existing dwelling that was delineated as the A-Series on one side and the B-Series on the other. The BVW borders on an intermittent stream channel that appears to have been mechanically dug many years ago. The BVW boundary is abrupt and is a toe of slope wetlands, (see attached wetland field data forms)

No work was done within the BVW and a row of erosion controls was installed immediately following the clearing effort to protect the BVW while the NOI was being prepared. The plan is to keep the erosion controls in place until all areas above are stabilized and permission is given to remove them from the BCC agent and/or BCC.

Other than the removal of invasive species, no work is proposed within the BVW.



MassDEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Nancy Bender Prepared by: Greg Hochmuth Project location: 75 Pinehurst Drive, Boxford MA DEP File #: _____

Check all that apply:

- Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- Method other than dominance test used (attach additional information)

Section I.

Vegetation	Observation Plot Number: WFA-13 Up		Transect Number: WFA-5 Upland	Date of Delineation: 7/25/2020
A. Sample Layer & Plant Species (by common/scientific name)	B. Percent Cover (or basal Area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees				
Red Oak – <i>Quercus rubra</i>	30%	30%	YES	FACU-
Red Maple - <i>Acer rubrum</i>	50%	50%	YES	FAC*
White Pine – <i>Pinus strobus</i>	20%	20%	YES	FACU
Shrubs				
Pepper-bush - <i>Clethra alnifolia</i>	40%	47%	YES	FAC+*
HighBush Blueberry – <i>Vaccinium corymbosum</i>	30%	35%	YES	FACW-*
Hemlock – <i>Tsuga canadensis</i>	15%	20%	YES	FACU
Ground Cover				
Partridgeberry – <i>Mitchella repens</i>	20%	57%	YES	FACU
Canada Mayflower – <i>Mainathemum canadense</i>	15%	42%	YES	FAC-

* Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c. 131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 3

Number of dominant non-wetland indicator plants: 5

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? Yes

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? Yes
 title/date: NRCS Web Soil Survey
 map number: -
 soil type mapped: 420A – Canton fine sandy loam
 hydric soil inclusions: Yes, 5%

Are field observations consistent with soil survey? Yes
 Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	0-10	10YR3/2	-
Bw	10-18	7.5YR5/6	

Remarks:

3. Other:

Conclusion: Is soil hydric? No

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

- Site Inundated: _____
- Depth to free water in observation hole: _____
- Depth to soil saturation in observation hole: _____
- Water marks: _____
- Drift lines: _____
- Sediment Deposits: _____
- Drainage patterns in BVW: _____
- Oxidized rhizospheres: _____
- Water-stained leaves: _____
- Recorded Data (streams, lake, or tidal gauge; aerial photo; other):

- Other: _____

Vegetation and Hydrology Conclusion

	Yes	No
Number of wetland indicator plants ≥ # of non-wetland indicator plants	—	_X_
Wetland hydrology present:		
Hydric soil present	—	_X_
Other indicators of hydrology present	—	_X_
Sample location is in a BVW	—	_X_

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

MassDEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Nancy Bender Prepared by: Greg Hochmuth Project location: 75 Pinehurst Drive, Boxford MA DEP File #: _____

Check all that apply:

- Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- Method other than dominance test used (attach additional information)

Section I.

Vegetation	Observation Plot Number: WFA-5 Wet		Transect Number: WFA-5 Wet	Date of Delineation: 7/25/2020
A. Sample Layer & Plant Species (by common/scientific name)	B. Percent Cover (or basal Area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees				
Red Oak – <i>Quercus rubra</i>	30%	30%	YES	FACU-
Red Maple - <i>Acer rubrum</i>	50%	50%	YES	FAC*
White Pine – <i>Pinus strobus</i>	20%	20%	YES	FACU
Shrubs				
Pepper-bush - <i>Clethra alnifolia</i>	40%	47%	YES	FAC+*
HighBush Blueberry – <i>Vaccinium corymbosum</i>	30%	35%	YES	FACW-*
Hemlock – <i>Tsuga canadensis</i>	15%	20%	YES	FACU
Ground Cover				
Sensitive Fern – <i>Onoclea sensibilis</i>	40%	100%	YES	FACW*

* Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c. 131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 4

Number of dominant non-wetland indicator plants: 3

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? Yes

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? Yes
 title/date: NRCS Web Soil Survey
 map number: -
 soil type mapped: 420A – Canton fine sandy loam
 hydric soil inclusions: Yes, 5%

Are field observations consistent with soil survey? Yes
 Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	0-8	2.5Y2.5/1	-
Bw	8-18	5Y5/2	7.5YR5/8

Remarks:

3. Other:

Conclusion: Is soil hydric? Yes

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

- Site Inundated: _____
- Depth to free water in observation hole: _____ 10" _____
- Depth to soil saturation in observation hole: _____ 6" _____
- Water marks: _____
- Drift lines: _____
- Sediment Deposits: _____
- Drainage patterns in BVW: _____
- Oxidized rhizospheres: _____
- Water-stained leaves: _____
- Recorded Data (streams, lake, or tidal gauge; aerial photo; other):

- Other: _____

Vegetation and Hydrology Conclusion

Yes No

Number of wetland indicator plants
 ≥ # of non-wetland indicator plants

X

Wetland hydrology present:

Hydric soil present

X

Other indicators of hydrology present

X

Sample location is in a BVW

X

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

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)

I, Gregory J. Hochmuth, hereby certify under the pains and penalties of perjury that on September 17, 2020 I gave notification to abutters in compliance with the second paragraph of Massachusetts General Law Chapter 131, Section 40, and the DEP Guide to Abutter Notification dated April 8, 1994, in connection with the following matter:

A Notice of Intent filed under Massachusetts Wetlands Protection Act and Boxford Wetlands Protection Bylaw by Nancy Bender with the Boxford Conservation Commission on September 17, 2020 for property located at 75 Pinehurst Drive

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

9/17/2020
Date



TOWN OF BOXFORD
 ABUTTER LIST

PARCEL # 33-03-12 - 75 PINEHURST DRIVE - CONSERVATION COMMISSION 250'

PARCEL ID	PARCEL ADDRESS	OWNER 1	OWNER 2	MAILING ADDRESS	CITY/TOWN	STATE	ZIP CODE
33-03-01	5 PINEHURST DR	CAMPBELL RICHARD A J	JOAN M CAMPBELL	5 PINEHURST DR	BOXFORD	MA	01921
33-03-10	63 PINEHURST DR	PARKS RICHARD B	MAGUIRE KAREN E	63 PINEHURST DR	BOXFORD	MA	01921
33-03-11	73 PINEHURST DR	RAMI QUINN C		73 PINEHURST DR	BOXFORD	MA	01921
33-03-12	75 PINEHURST DR	BENDER NANCY Z		75 PINEHURST DR	BOXFORD	MA	01921
33-03-13	85 PINEHURST DR	RYAN NIKITAS	KRISTEN BURKE	85 PINEHURST DR	BOXFORD	MA	01921
33-03-02	13 PINEHURST DR	OTTAVIANO LOUIS V TE	VILMA D OTTAVIANO	13 PINEHURST DR	BOXFORD	MA	01921
33-03-03	17 PINEHURST DR	VOTZE JANET C		17 PINEHURST DR	BOXFORD	MA	01921
33-03-04	21 PINEHURST DR	SHERMAN WILLIAM A TE	JOAN J SHERMAN	21 PINEHURST DR	BOXFORD	MA	01921
33-04-02	80 PINEHURST DR	TSOUKALAS SCOTT TE	TSOUKALAS RENE	80 PINEHURST DR	BOXFORD	MA	01921
33-04-03	74 PINEHURST DR	FOSHAGE AUDREY J TR	FOSHAGE REALTY TRUST	74 PINEHURST DR	BOXFORD	MA	01921
33-04-04	72 PINEHURST DR	BOLEN ROBERT W JR TR	BOLEN SHARON D TR	72 PINEHURST DR	BOXFORD	MA	01921
33-04-05	68 PINEHURST DR	KNUDSEN CHRISTOPHER R		68 PINEHURST DR	BOXFORD	MA	01921

CERTIFIED COPY



JULY 27, 2020

CAMPBELL RICHARD A J
JOAN M CAMPBELL
5 PINEHURST DR
BOXFORD, MA 01921

SHERMAN WILLIAM A TE
JOAN J SHERMAN
21 PINEHURST DR
BOXFORD, MA 01921

PARKS RICHARD B
MAGUIRE KAREN E
63 PINEHURST DR
BOXFORD, MA 01921

KNUDSEN CHRISTOPHER R
68 PINEHURST DR
BOXFORD, MA 01921

TSOUKALAS SCOTT TE
TSOUKALAS RENE
80 PINEHURST DR
BOXFORD, MA 01921

VOTZE JANET C
17 PINEHURST DR
BOXFORD, MA 01921

RAMI QUINN C
73 PINEHURST DR
BOXFORD, MA 01921

FOSHAGE AUDREY J TR
FOSHAGE REALTY TRUST
74 PINEHURST DR
BOXFORD, MA 01921

OTTAVIANO LOUIS V
TE
VILMA D OTTAVIANO
13 PINEHURST DR
BOXFORD, MA 01921

RYAN NIKITAS
KRISTEN BURKE
85 PINEHURST DR
BOXFORD, MA 01921

BENDER NANCY Z
75 PINEHURST DR
BOXFORD, MA 01921

BOLEN ROBERT W JR
TR
BOLEN SHARON D TR
72 PINEHURST DR
BOXFORD, MA 01921

Invasive Species Management Plan

75 Pinehurst Drive
Boxford, Massachusetts

September 17, 2020



Applicant:

Nancy Bender
75 Pinehurst Drive
Boxford, MA 01921

Prepared By:

Williams & Sparages LLC
189 North Main Street, Suite 101
Middleton, MA 01949
Ph: 978-539-8088
Fax: 978-539-8200
www.wsengineers.com

W&S Project No:

BOXF-0085



1. Initial Inventory of Material to be Removed

- 1.1 The first task to be completed within the treatment areas will be to inventory the existing conditions of the treatment areas and assess what invasive species are scheduled to be removed from the site. A professional wetland scientist will mark each shrub to be removed with orange surveyors tape.
- 1.2 Invasive species of concern at 75 Pinehurst Drive:
 - 1.2.1 Asiatic Bittersweet (*Celastrus orbiculatus*)
 - 1.2.2 Glossy Buckthorn (*Franqula alnus*)
- 1.3 Information sheets for each species attached.

2. Removal of Invasive Plant Material From Treatment Area

- 2.1 Use whole plant removal techniques for both species, the entire plant will be removed from the ground by hand pulling. Material will be cut, bagged and removed from site or removed for composting and or burning.
- 2.2 Roots of wood plants are to be removed carefully, and with slow, extraction methods, using hand tools.
- 2.3 Once roots are removed, hand tools are used to remove any broken roots by hand by a thorough inspection of the treated area is made to insure the maximum removal of broken roots and twig material is advanced.

3. Stabilization of Treatment Area

- 3.1 The treatment area is then seeded and hay mulched immediately, if applicable, to stabilize the area from erosive forces.
- 3.2 The treatment areas should be seeded with a drought tolerate, native grass seed mix at approximately 4 to 5 times the normal application rate to insure a dominant native plant community within the disturbed area. A shade or sun tolerant seed mix should be used where conditions dictate. A mixture of all three (3) seed mixes can also be used in areas where conditions vary.
- 3.3 Salt hay should be hand cast over the area to establish protection over the newly seeded areas and to act as a velocity attenuation system to reduce rilling and erosive forces of rain and/or snow and ice melt.

4. Long Term Monitoring and Aftercare

- 4.1 Routine surveys of each of the treatment areas will occur on a monthly basis during the first six months after initial removal of the invasive species material.



- 4.2 Inspections will be focused on removal of new invasive material principally starting from seed sprouts remaining from the plant extraction process.
- 4.3 Seedlings should be handpicked and placed in plastic bags or use 5 gallon plastic buckets to contain the material. Harvested material should be either composted or burned according to local fire department rules and regulations.
- 4.4 Routine surveys and harvests of invasive species should be made on a monthly basis for the first 6 months, post removal and quarterly thereafter until such time that the environmental monitor is confident that invasive species are controlled and new invasions are limited.
- 4.5 Annual inspection should then follow for the remainder of the 5 year monitoring period following the same harvesting protocol as in the initial inspection process.





American and Oriental Bittersweet Identification

Invasive species are one of the greatest threats to native ecosystems. They can crowd out native species and change the natural nutrient cycling processes that take place in ecosystems.



Oriental bittersweet

One of the best ways to combat invasive species is by identifying small infestations and removing them.

One invader threatening midwestern ecosystems is oriental bittersweet (*Celastrus orbiculatus*). This woody vine was introduced to the eastern United States in the mid-1800s. It has spread from the east to the south and west and is now moving into midwestern natural areas. Oriental bittersweet can be found in a variety of habitats, from roadsides to interior forests and sand dunes. It has the ability to girdle and overtop adjacent vegetation – often to the detriment of native species. To halt the spread of oriental bittersweet, significant control measures are needed.

However, a native bittersweet species, American bittersweet (*Celastrus scandens*), can be mistaken for oriental bittersweet. Although American bittersweet is also a



American bittersweet

vine and climbs on nearby vegetation, it does not appear to grow as rapidly or as large as oriental bittersweet. In the northeastern United States, American bittersweet is declining because of habitat change and possible hybridization, while in the Midwest, it is still common.

Because the two bittersweet species look so similar, there can be difficulty knowing

which plants to target for control. Using fruit and leaf characters, the two species can be discriminated from each other. However, certain traits are more reliable for correct identification than others. Classically, the position of the fruit and flowers on the stems has been cited as the most definitive means of discriminating between the species.

Oriental bittersweet has fruit and flowers located in the leaf axils along the length of the stem. American bittersweet, however, only has fruit and flowers in terminal clusters. There is also a difference in the color of the capsules surrounding the ripened fruit in the fall. Oriental bittersweet has yellow capsules, while those of American bittersweet are orange. Another difference in color is the pollen color of the male flowers. The pollen of oriental bittersweet is white while that of American bittersweet is yellow.

Some less definitive fruit traits for discrimination are size of the fruits and number of seeds per fruit. American bittersweet has generally larger fruit than oriental bittersweet. If fruits have a volume of greater than 250 mm³, there is a 90% probability of a plant being American bittersweet, while if the fruit has a volume of 115 mm³ or less; it has a 90% chance of being oriental bittersweet. Values in between these numbers overlap to some extent between the species. Similarly, if the fruit has one or fewer seeds, it is 90% likely to be American bittersweet, while five or more seeds have a 90% chance of being oriental bittersweet. The greater number of seeds of oriental bittersweet gives it a reproductive advantage over the native species.

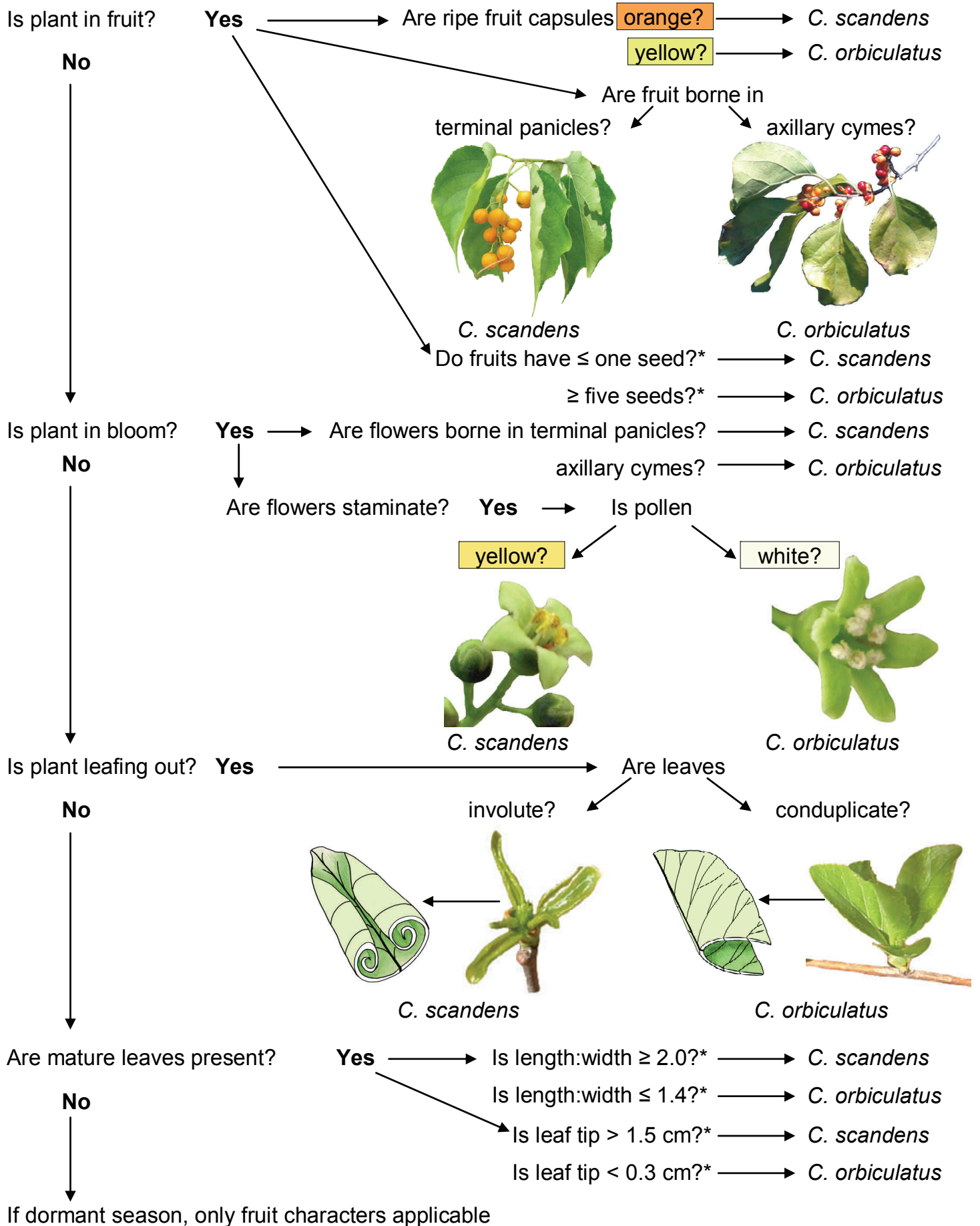
The problem with using fruit and flower traits for discriminating between the two species is that, for fruits, only mature

female plants have this character available for identification. In terms of flowers, only mature male and female plants have these present, and only for a brief time of the year during the spring.

Vegetative traits apply to plants regardless of their sex or maturity. The most definitive vegetative trait is the posture of the leaves at leaf out of the first buds in the spring. The leaves of oriental bittersweet are conduplicate (two sides of the leaf folded against each other) and tightly packed in the bud when they emerge in the spring. The leaves of American bittersweet are involute (leaf margins rolled in like a scroll) and not as tightly packed in the bud.

Other leaf traits are not as reliable as the leaf-out posture. Although the ratio of length-to-width (length:width) of the leaves is generally greater for American bittersweet, this trait is quite variable. If the length:width of the leaf is greater than or equal to 2, there is a 90% chance of the plant being American bittersweet, while if the ratio is less than or equal to 1.4, there is a 90% chance of it being oriental bittersweet. The tips of the leaves of American bittersweet are also generally longer than those of oriental bittersweet. Plants with leaf tips of 1.5 cm or greater have a 90% chance of being American bittersweet, while plants with leaf tips of 0.3 cm or less have a 90% chance of being oriental bittersweet.

By using these traits, plants could be marked at the appropriate time of year (spring or fall) for control at a later point. In this manner the invasive species can be targeted without harming the native. The key on the next page summarizes the key traits for discrimination of these two species in the field.



* Indicates a 90% probability of correct identification based on the data collected for this study. Colors in text boxes are to be used as a guide only, actual colors seen in the field may differ.

Pest Management – Invasive Plant Control

Buckthorns – *Rhamnus cathartica* & *Frangula alnus*

Conservation Practice Job Sheet

NH-595



Common Buckthorn (*Rhamnus cathartica* L.)



Glossy Buckthorn (*Frangula alnus* Mill.)

Buckthorns

The buckthorns are native to Eurasia. They were probably introduced to the US before 1800 but did not become widespread until the early 1900s. They are now found throughout much of the central and northern United States and into Canada.

Common and glossy buckthorns are shrubs or small trees that readily invade natural areas, establishing dense, even-aged thickets which crowd or shade out native plants. The buckthorns reproduce sexually by seed and vegetatively through root suckering. Both buckthorns produce fruits that are readily eaten, and thus seeds are spread by wildlife.

Buckthorns generally leaf-out earlier and retain their leaves longer than many native shrubs. This trait, shared by many invasive shrubs, gives them a competitive advantage over native plants but also allows landowners to easily locate the invasive shrubs and determine their extent on a property.

Description

Both buckthorns have lenticels (raised corky areas) on the bark and the inner bark is yellow.

Common buckthorn has dull green, minutely toothed, oblong leaves that are opposite or nearly so on the stem. Leaves have 3-4 pairs of veins which curve

upward toward the tip. Branch stems end in small thorns that appear between the last pair of buds. Fragrant flowers with four greenish-yellow petals develop into black fruit (3-4 seeds) that may persist well into winter.

Glossy buckthorn has thin, alternate glossy leaves which are oblong to elliptical with more than 5 pairs of veins and with smooth or wavy margins. Buds are rust-colored and naked. Five parted, yellowish-green flowers ripen from red to black (2-3 seeds).

Similar Natives

The native shrub Alderleaf Buckthorn (*Rhamnus alnifolia* L'Her) has alternate leaves with 8-9 pairs of veins and toothed margins. The leaf surface is puckered (like seer sucker fabric). The buds are scaly (not naked) but lack thorn tips of common buckthorn. Chokecherry (*Prunus virginiana*) is a common native shrub of hedgerows which has egg-shaped, alternate leaves that are finely and sharply toothed. Five parted white flowers are borne on dense, cylindrical racemes.

Control

As with all invasive species, buckthorns in natural areas are most effectively controlled by recognizing their appearance early and removing isolated plants before they begin to produce seed. With large

infestations, the largest seed-producing plants should be removed first.

Manual, mechanical and chemical methods are all useful to varying degrees in controlling buckthorns. Removing or killing plants will provide increased light at the site which may lead to a surge of seedlings in the following year. Prepare to monitor and control these outbreaks.

Biological Control

There are no known biological controls of buckthorn.

Mechanical Control

Mechanical controls include grubbing or pulling seedlings and mature shrubs, and repeated clipping of shrubs. Mechanical management requires a commitment to cut or pull plants at least twice a year for a period of three to five years. Cutting alone has resulted in limited success and may lead to vigorous re-sprouting. Grubbing or pulling by hand (using a Weed Wrench or a similar tool) is appropriate for small populations or where herbicides cannot be used.

Because disturbed, open soil can support rapid re-invasion, managers must monitor their efforts at least once per year and repeat control measures as needed. Limit soil disturbance whenever possible. Winter clipping should be avoided as it encourages vigorous re-sprouting.

Prescribed Burning

Burning has met with mixed results and does not show great promise. Burns should only be used in fire-adapted plant communities. It is generally difficult to burn in dense buckthorn stands as the understory is typically well-shaded, allowing little fuel build-up.

Chemical Control

CAUTION: ALWAYS READ THE ENTIRE HERBICIDE LABEL. HERBICIDES ARE REGULATED AND MAY ONLY BE USED UNDER SPECIFIC CONDITIONS. CONTACT YOUR STATE DEPARTMENT OF AGRICULTURE FOR USE REQUIREMENTS, RESTRICTIONS OR RECOMMENDATIONS.

Chemical control methods are best done during the fall when most native plants are dormant yet buckthorns are still actively growing. This lessens the risk of affecting non-target plants. The buckthorns' green leaves will provide easy recognition and allow for a thorough treatment at this time. Winter application of chemicals has proven to be successful

as well, and further lessens the risk of damaging non-target species.

Glyphosate (brand names Roundup, and for use near waterbodies, Rodeo) is a nonselective herbicide which kills both grasses and broad-leaved plants while triclopyr (brand names Garlon, Pathfinder, and others) is a selective herbicide that kills broad-leaved plants but does little or no harm to grasses.

Cut Stump Treatments: For 'cut stump' treatments, horizontally cut the stem near the ground. Do not cut the stem at ground level. Leaving some stem will allow another cut and application if there is sprouting. Apply a 20-25% solution of glyphosate or triclopyr³ and water to the stump being sure to cover the outer, top 20% of the cut stem^{1,2}. Herbicide must be applied immediately following the cutting. This treatment is best applied late in the growing season when the plant is transporting nutrients to its root system (August-October).

Foliar Treatment: For foliar treatments a 2% solution of glyphosate and water can be used². The treatment should be applied to the foliage late in the growing season. Do not cut down treated plants for at least a full growing season.

Basal Bark Method: This method is effective throughout the year as long as snow cover does not prevent spraying to the ground level. Apply a mixture of 25% triclopyr and 75% horticultural oil to the basal parts of the shrub to a height of 12-15 inches from the ground³. This mixture is also applicable to frill applications where herbicide is applied into the cambial layer of fresh cuts on the tree trunk³. Be sure to treat entire circumference of the stem in a band at least 12 inches wide. Thorough wetting is necessary for good control; spray until run-off is noticeable at the ground line. Do not apply to bark that's wet from heavy dews and rain.

¹ – From TNC ESA – Buckthorns

² - Wisconsin DNR Control Manual

³ – Alien Plant Invaders Fact Sheets

Important Note

Mention of specific pesticide products in this document does not constitute an endorsement. These products are mentioned specifically in control literature used to create this document.

Disposal

Small, pulled shrubs should be hung in trees to prevent re-rooting. Larger, pulled shrubs may be piled or piled and burned, roots up, to prevent re-establishment. Cut stems may be piled or piled and burned. Chip once all fruit has dropped from branches. Leave resulting chips on site as buckthorns will spread by seeds.

Information and Recommendations compiled from:

- The Nature Conservancy - Element Stewardship Abstract (and references therein)
- Invasive Plant Atlas of New England (IPANE)
- Vermont Invasive Exotic Plant Fact Sheets
- CT NRCS Invasive Species ID Sheets
- Wisconsin Manual of Control Recommendations for Ecologically Invasive Plants (DNR)
- Alien Plant Invaders of Natural Areas (NPS)
- Newcomb's Wildflower Guide