

## Notice of Intent

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September 2020



**MIDDLESEX SCHOOL  
PLAYING FIELDS**

**PREPARED FOR:  
MIDDLESEX SCHOOL**

**SUBMITTED TO:  
Department of Natural Resources**

Concord-Middlesex Playing Fields  
WSE Project ENG20-0474

September 23, 2020

Concord Conservation Commission  
141 Keyes Road  
Concord, MA 01742

**Re:***NOI Filing*  
          *Middlesex Playing Field Improvements*

Dear Members of the Commission:

On behalf of the Middlesex School, Weston & Sampson Engineers, Inc. is hereby enclosing two complete copies of the Notice of Intent submittal (including plans) to fulfill the requirements of the Massachusetts Wetlands Protection Act, M.G.L. Chapter 131, Section 40 and five additional narrative and 11X17 plan set copies (including original) and one electronic version submittal requirements and the Town of Concord submittal requirements. This submittal is a formal Notice of Intent for the Middlesex Playing Fields Improvement project.

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

Appendix A: Project Description  
Appendix B: Alternative Analysis  
Appendix C: Stormwater Report  
Appendix D: Project Maps  
Appendix E: Applicable Technical Specifications  
Appendix F: Abutters Information  
Appendix G: Wetlands Memorandum  
Appendix H: Photos

If you have any questions regarding this submittal, please contact me at (860) 513-1473.

Very truly yours,

WESTON & SAMPSON



Sara Nichols  
Senior Environmental Scientist



Enter your transmittal number

X286691  
Transmittal Number

Your unique Transmittal Number can be accessed online: <http://mass.gov/dep/service/online/trasmfrm.shtml>  
**Massachusetts Department of Environmental Protection**  
**Transmittal Form for Permit Application and Payment**

1. Please type or print. A separate Transmittal Form must be completed for each permit application.

**A. Permit Information**

WPA Form 3

Notice of Intent

1. Permit Code: 4 to 7 character code from permit instructions  
improvement to existing playing fields  
3. Type of Project or Activity

2. Name of Permit Category

2. Make your check payable to the Commonwealth of Massachusetts and mail it with a copy of this form to: DEP, P.O. Box 4062, Boston, MA 02211.

**B. Applicant Information – Firm or Individual**

Middlesex School

1. Name of Firm - Or, if party needing this approval is an individual enter name below:

2. Last Name of Individual  
1400 Lowell Road

3. First Name of Individual

4. MI

5. Street Address

Concord

MA

01742

978-394-2185

6. City/Town

7. State

8. Zip Code

9. Telephone #

10. Ext. #

Matthew Crozier

mcrozier@mxschool.edu

11. Contact Person

12. e-mail address

3. Three copies of this form will be needed.

Copy 1 - the original must accompany your permit application. Copy 2 must accompany your fee payment. Copy 3 should be retained for your records

**C. Facility, Site or Individual Requiring Approval**

Middlesex School Playing fields

1. Name of Facility, Site Or Individual

1400 Lowell Road

2. Street Address

Concord

Ma

01742

3. City/Town

4. State

5. Zip Code

6. Telephone #

7. Ext. #

4. Both fee-paying and exempt applicants must mail a copy of this transmittal form to:

8. DEP Facility Number (if Known)

9. Federal I.D. Number (if Known)

10. BWSC Tracking # (if Known)

**D. Application Prepared by (if different from Section B)\***

Weston and Sampson Inc.

1. Name of Firm Or Individual

273 Dividend Road

2. Address

Rocky Hill

CT

06067

860-513-1473

3. City/Town

4. State

5. Zip Code

6. Telephone #

7. Ext. #

Sara Nichols

8. Contact Person

9. LSP Number (BWSC Permits only)

MassDEP  
P.O. Box 4062  
Boston, MA  
02211

\* Note:  
For BWSC Permits,  
enter the LSP.

**E. Permit - Project Coordination**

1. Is this project subject to MEPA review?  yes  no  
If yes, enter the project's EOE file number - assigned when an Environmental Notification Form is submitted to the MEPA unit:

EOEA File Number

**F. Amount Due**

DEP Use Only

**Special Provisions:**

1.  Fee Exempt (city, town or municipal housing authority)(state agency if fee is \$100 or less).

There are no fee exemptions for BWSC permits, regardless of applicant status.

2.  Hardship Request - payment extensions according to 310 CMR 4.04(3)(c).

3.  Alternative Schedule Project (according to 310 CMR 4.05 and 4.10).

4.  Homeowner (according to 310 CMR 4.02).

Permit No:

Rec'd Date:

Reviewer:

136784

\$237.50

9-10-20

Check Number

Dollar Amount

Date



**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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**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>1400 Lowell Road</u>	<u>Concord</u>	<u>01742</u>
a. Street Address	b. City/Town	c. Zip Code
Latitude and Longitude:	<u>42deg 29' 54 "N</u>	<u>71deg 22' 13" W</u>
	d. Latitude	e. Longitude
<u>3F</u>	<u>1533</u>	
f. Assessors Map/Plat Number	g. Parcel /Lot Number	

2. Applicant:

<u>Matthew</u>	<u>Crozier</u>	
a. First Name	b. Last Name	
<u>Middlesex School</u>		
c. Organization		
<u>1400 Lowell Road</u>		
d. Street Address		
<u>Concord</u>	<u>MA</u>	<u>01742</u>
e. City/Town	f. State	g. Zip Code
<u>978-394-2185</u>	<u>mcrozier@mxschool.edu</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	
<u></u>		
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>Sara</u>	<u>Nichols</u>	
a. First Name	b. Last Name	
<u>Weston &amp; Sampson Engineers, Inc.</u>		
c. Company		
<u>273 Dividend Road</u>		
d. Street Address		
<u>Rocky Hill</u>	<u>CT</u>	<u>06067</u>
e. City/Town	f. State	g. Zip Code
<u>860-513-1473</u>	<u>nichols.sara@wseinc.com</u>	
h. Phone Number	i. Fax Number	j. Email address

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

<u>\$500</u>	<u>\$237.50</u>	<u>\$262.50</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:

playing field improvements. See Appendix A for additional information.

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:

Southern Middlesex

a. County

11617

c. Book

b. Certificate # (if registered land)

708

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.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
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	

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

2. Width of Riverfront Area (check one):

- 25 ft. - Designated Densely Developed Areas only
- 100 ft. - New agricultural projects only
- 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: \_\_\_\_\_ square feet

4. Proposed alteration of the Riverfront Area:

a. total square feet	b. square feet within 100 ft.	c. square feet between 100 ft. and 200 ft.
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5. Has an alternatives analysis been done and is it attached to this NOI?  Yes  No

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

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

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



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

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

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

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



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Provided by MassDEP:	
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Document Transaction Number	_____
Concord	_____
City/Town	_____

## 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

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

a.  Yes  No **If yes, include proof of mailing or hand delivery of NOI to:**

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

2020 \_\_\_\_\_  
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\*

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

- 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/nhesp/regulatory\\_review/mesa/mesa\\_fee\\_schedule.htm](http://www.mass.gov/dfwele/dfw/nhesp/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/nhesp/regulatory\\_review/mesa/mesa\\_exemptions.htm](http://www.mass.gov/dfwele/dfw/nhesp/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](mailto: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](mailto: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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**C. Other Applicable Standards and Requirements (cont'd)**

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

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

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- 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.
 

Middlesex School Improvements to Playing Fields	
a. Plan Title	Cheri Ruane
Weston and Sampson	
b. Prepared By	c. Signed and Stamped by
September 23, 2020	1 in = 20 ft
d. Final Revision Date	e. Scale
Schematic Design	July 2020
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:

136810	262.50
2. Municipal Check Number	3. Check date
136784	237.50
4. State Check Number	5. Check date
Weston and Sampson	
6. Payor name on check: First Name	7. Payor name on check: Last Name



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## F. Signatures and Submittal Requirements

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

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

1. Signature of Applicant	<i>[Handwritten Signature]</i>	2. Date	9/20/20
3. Signature of Property Owner (if different)	<i>[Handwritten Signature]</i>	4. Date	9/8/20
5. Signature of Representative (if any)	<i>Sara Nichols</i>	6. Date	9-20-20

### 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:

1400 Lowell Road	Concord
a. Street Address	b. City/Town
136784	\$237.50
c. Check number	d. Fee amount

2. Applicant Mailing Address:

Matthew	Crozier	
a. First Name	b. Last Name	
Middlesex School	c. Organization	
1400 Lowell Road	d. Mailing Address	
Concord	MA	01742
e. City/Town	f. State	g. Zip Code
978-394-2185	mcrozier@mxschool.edu	
h. Phone Number	i. Fax Number	j. Email Address

3. Property Owner (if different):

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

**B. Fees**

Fee should be calculated using the following process & worksheet. **Please see Instructions before filling out worksheet.**

**Step 1/Type of Activity:** Describe each type of activity that will occur in wetland resource area and buffer zone.

**Step 2/Number of Activities:** Identify the number of each type of activity.

**Step 3/Individual Activity Fee:** Identify each activity fee from the six project categories listed in the instructions.

**Step 4/Subtotal Activity Fee:** Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

**Step 5/Total Project Fee:** Determine the total project fee by adding the subtotal amounts from Step 4.

**Step 6/Fee Payments:** To calculate the state share of the fee, divide the total fee in half and subtract \$12.50. To calculate the city/town share of the fee, divide the total fee in half and add \$12.50.

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



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

**B. Fees** (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
playing field improvements	1	500	500
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
<b>Step 5/Total Project Fee:</b>			500
<b>Step 6/Fee Payments:</b>			
Total Project Fee:			500
State share of filing Fee:			237.50
City/Town share of filing Fee:			262.50
			a. Total Fee from Step 5
			b. 1/2 Total Fee <b>less</b> \$12.50
			c. 1/2 Total Fee <b>plus</b> \$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

## PROJECT DESCRIPTION

### Background

The proposed project includes improvements to the existing sports playing fields at the Middlesex School located at 1400 Lowell Road in Concord, Massachusetts. The Middlesex School has a few athletic fields that are utilized for several recreational sports throughout the year; however, the current fields remain unusable through the month of April due to high saturation of the clay soils creating a long duration of wet field surfaces.

### Site Description

Approximately 15-acre site is bound by Lowell Road to the west, asphalt-paved parking to the north, the Middlesex School campus to the east, and wooded, wetland areas to the south. Below-grade utilities including water, electric, gas, drainage, and irrigation are present at the Site.

Existing site grades are generally flat to gently sloping, with elevations ranging from approximately El. 181 at the southwest corner to El. 194 at the north end of the site. Grades at the south playing fields are approximately 2 to 3 feet (ft.) lower in elevation than the remainder of the Site, separated from the rest of the Site by a gentle slope.

Middlesex School is located on Lowell Road in Concord north of RT 2/2A and just west of Batemans Pond. The site consists of school buildings for academic purposes along with several athletic fields for multi-purpose uses. There is a designated baseball, soccer, lacrosse, and football field existing on the project site where improvements will take place.

### Scope of Work

Proposed improvements to the Middlesex School playing fields include re-orientation of the baseball infield for playability and player safety, conversion of the relocated infield to an all-weather artificial surface, relocation of the grass football field to the north of the proposed baseball infield, and conversion of two existing multi-purpose grass fields into an all-weather sports surfacing at the south end of the Site. No work is proposed in the central area with minimal impact to the north soccer field.

The south field grades will be modified to accommodate conventional sportsfield grading for the all-weather sports field and improve player safety and playability. The modified grades will result in up to seven feet of fill. In the southwest corner of the site, a cast-in-place (CIP) concrete retaining wall with natural/native, Concord field stone veneer will be constructed to support the all-weather sports surfacing and eliminate the need for disturbance within the 25' No Disturbance Line. The 335 linear foot retaining wall will vary in height from zero feet at the end points to the north and east and 7.5ft at the southwest corner. Of the 335 feet, only 144 linear feet will be within the 50' No Build Zone. The outer limits of the proposed retaining wall are located to match the location of existing field striping.

The remainder of the all-weather sports field perimeter will be graded at 3H:1V (Horizontal: Vertical) slopes and tie into existing grades. The proposed grade changes elsewhere at the Site are generally limited to less than approximately 1.5 ft

A small portion fields are proposed within the 50' No Build Zone in order to maintain the existing field footprints, avoid disturbance of significant utility infrastructure, maintain proximity to the resident buildings, and to preserve the pastoral look of the existing athletic field area. If the proposed design of the fields were relocated outside the 50' NBZ, it would require shifting the facility 25' in a northeast direction and would exacerbate the amount of fill required and result in a 10' to 12' high retaining wall. This is due to the inability to cut grades down in the northeast corner of the field as existing utility infrastructure is currently installed with minimal cover. Due to natural Concord stone veneer retaining wall and all-weather sports surfacing placement within 50-foot No-Build Zone a waiver has been completed to justify the reasoning for this zone placement. A small portion of the project is within the 100 foot buffer of BVW but not the BVW, therefore; no wetland replication is required. There is also a small disturbance within the 25 foot buffer due to replanting of vegetative plants along the slope of the fill areas.

### **Environmental Considerations**

No work will occur within any environmental resource areas protected under the Massachusetts Wetlands Protection Act, however there will be a small amount of fill placed within the southern corner of the project site also within the 100 foot buffer zone for Bordering Vegetated Wetland (BVW) as part of this project as well as within the 50-foot No-Build Zone. A 1:1 mitigation will occur for area disturbed within the 100 foot buffer zone. The permanent retaining wall structure placed in the 50 foot No-Build zone will also trigger a mitigation process of 10:1 in which that mitigation will require natural revegetation of the area. Revegetation will be a mix seed blend for the area. There will be small disturbance of replanting vegetation within the 25 foot buffer zone. Sediment and erosion controls will be used to minimize sediment migration off the work site.

### **Town of Concord Wetland Permitting Waiver Requirements for 50 NBZ and 25 foot buffer to Wetland Resources**

The 50 foot no build will require a waiver. Required waiver information is below. The project is proposing to produce 455 sqft of disturbance in the 50 ft NBZ.

- a) Degree, date of, and scale of past alterations in the buffer zone- **the subject area was previously open farm fields per 1957 aerial photography with grass sports fields visible in 1963 aerial photographs at [historicalaerials.com](http://historicalaerials.com).**
- b) Slope of the buffer zone-**The slope of the buffer zone is 2.2% directly south of the all weathering surface field but becomes significantly steeper, about 13% at the southwest corner**

- c) Species composition of vegetation in the 25-foot and 50-foot buffer zones- **Common grass covers the composition of the vegetation.**
- d) Ecological integrity of the adjacent wetlands-**Undisturbed wetland ecosystem is located to the south to the limit of work. This appears to be a fully functioning successful wetlands system.**
- e) Importance of the buffer zone to wildlife utilizing the wetland-**While buffer zone protection is important in protecting or providing wildlife food and shelter, the buffer zone within the limit of work has been previously altered for many years and maintained as sportsfield grass.**
- f) Any ecological benefits arising from proposed mitigation, such as removal of invasive vegetation or creation of enhanced wildlife habitat- **If invasive species are present in the mitigation area they will be removed, and native plantings will be established.**
- g) Any public benefits arising from the proposed activity- **Currently the fields are often unusable by the Middlesex student body. The proposed improvements will allow the fields to be utilized as originally intended by the school and support their sports programs. Due to recent increase in storm frequency and intensity sporting events have been cancelled up to 25% of the time.**
- h) Photographs of the area to be disturbed; **See attached Appendix H**

**Within 25 Feet of regulated wetland area (No disturb line) -Limit of work will be within the 25 foot no disturb line as native buffer plantings will occur within this limit to support wildlife species including pollinators.**

- a) the Commission finds in writing, after said public hearing that there are no reasonable conditions or alternatives that would allow the proposed activity to proceed in compliance with said Regulation;
- b) avoidance, minimization, and mitigation have been employed to the maximum extent feasible; and either, - **See attached memorandum written by Middlesex School dated September 18, 2020, entitled "Middlesex School – Alternate Site Analysis (All weathering surface Fields). Also see Alternatives Analysis and alternative schematic grading plans.**
- c) the project, considered in its entirety would result in a net benefit of resource area values; or

**N/A**

- d) the waiver is necessary to accommodate an overriding public interest or to avoid a decision that so restricts the use of the property as to constitute an unconstitutional taking without compensation. **This project does provide what is considered an overriding student interest. The interest includes recreational use of the exiting athletic fields. As noted above the athletic fields currently are often unusable due to saturated soils . This project will greatly improve student use.**

<\\wse03.local\WSE\Projects\MA\Concord\Middlesex\PlayingFields\Permitting\NOI\Appendix A - Project Description>

## APPENDIX B

## Alternatives Analysis

### **Basis for Alternatives Analysis**

The following is a presentation of alternatives for addressing needed improvements on the Middlesex School athletic fields in Concord. The primary objective is to convert two grass playing fields into all-weather playing field surfacing. Fill material and a retaining wall will be necessary to achieve the desired improvements.

### **Alternative Analysis**

The Middlesex School playing fields are located at 1400 Lowell Road in Concord. These fields are multiple-purpose sports fields and are utilized by soccer and lacrosse programs. Many game and practice events are cancelled during the season due to inclement weather and the ability of the fields to drain. Based on the far northeast climate and timing of spring sports, fields are not able to be utilized until mid to late April without causing significant and sometimes irreparable damage to the soil structure of the rootzone. Underlying soils of the existing fields are high in silt and clay content and do not support the demands of playing field drainage, even with existing tile field underdrainage.

The following alternatives were considered in the development of the design:

#### **No Action**

This alternative was rejected because it will not address the loss of time and inability to sustain a competitive athletics program. (See Middlesex School memorandum)

#### **Field Improvements:**

Several design alternatives were considered prior to the proposed improvements shown as part of this application.

### Field Layout Alternatives

#### *Option 1*

Originally the school desired a more robust field program with a footprint that included two full-sized multi-purpose fields with field dimensions of 360'x225' resulting in an overall footprint of 390'x540' or 194,400 SF. This option pushed the area of disturbance well into the wetlands and within 10' of an existing building at the southeast corner of the fields. A safe zone from the middle field was also compromised, not leaving enough separation to the lower fields.

#### *Option 2*

Field sizes were reduced to 360'x200' with a resulting footprint of 390'x445' or 173,550 SF. This resulting field footprint was located at the 25' No Disturb Zone to the west, within the 50' No Build Zone to the south, within 15' of the existing building at the southeast corner, and minimal separation distance to middle field to the north.

### ***Option 3 (Preferred)***

Field sizes were further reduced to a size that would not allow the school to host a state tournament as desired. The fields sizes are 330'x180' with a resulting footprint of 360'x420' or 151,200 SF, or 43,200 SF (+/- 1AC) less than their original desired field program in *Option 1*. Recognizing the recognizing the reduced footprint will result in significantly less environmental disturbance the school proceeded with **Option 3**.

### Grading Alternatives

Once Layout Option 3 was decided upon, several grading alternatives were explored. The overall arching goal of the grading was to maintain the pastoral feel of the campus by maintaining elevation relationships between the North, Middle and South fields, while minimizing impact to the adjacent natural resource area. One of the main existing utility corridors on campus runs through the northern portion of the south fields. This had significant impact to the grading schemes as the utility lines were constructed with the minimum allowable cover and does not allow any cut over the pipes. The northeast corner of the field was the starting pint of all grading schemes.

#### *Alternate 1*

The field was located outside of the 50' No Build Zone with grading impacts up to the 25' No Disturb Zone. To locate the field outside the No Disturb Zone the field had to be pushed 25 ft to the east, comprising separation from the residential building to the southeast corner and raising the field 5' in elevation over the existing utility pipes. The northeast corner starting elevation was 195.0 resulting in over 10' of fill in the southwest corner adjacent to the wetland and a 7' retaining wall. Additionally, the field elevation was raised 5' above the adjacent field to the north, eliminating the pastoral feel to the property.

#### ***Alternate 2 (Preferred)***

The field was shifted 25' to the west towards the 25' No Disturb Area and within the 50' no build line. The northeast corner starting elevation is 192.5 or 2.5' less than *Alternate 1*. This resulted in a 6.9' retaining wall and 6.9 ft of fill in the southwest corner. The elevation of the proposed all-weather field is now equal to the adjacent field to the north maintaining the pastoral feel to the campus. Most significantly is that 2.5' less in elevation resulted in +/- 14,000 CY less fill across the field area and a reduction in the carbon footprint to construct the proposed improvements.

### **Advantages**

The preferred layout and grading alternatives propose a modest improvement project that fits within the context of the existing campus while maintaining its pastoral feel. The reasonable improvement plan reduces the overall footprint of development by almost an acre, reduces the amount earthwork and fill material by +/-14,000 CY, and minimizes the construction timeline. Other advantages of installing an all-weather playing field adjacent to the wetlands is that it eliminates the need for potentially harmful pesticides and fertilizers and conserves water as the need for irrigation of the fields is eliminated which is crucial during times of drought. The hard edge of the proposed field will provide a permanent delineation to the natural buffer area to the

south and west. Finally, the school will be able to run their programming on campus in a safer manner than transporting student athletes to offsite locations for practice and games.

### **Disadvantages**

This alternative will provide a small temporary and permanent disadvantage to the area of the project. There will be some temporary and permanent disturbance within the 25 foot wetland not to disturb, 50 foot No Build Zone and within the 100 foot BVW buffer with the placement of a natural Concord Field stone veneer retaining wall.

### **Proposed Activity in a Different Location**

There is an option for a field location across the street but due to the high volume of students that need to cross the street it become a safety concern with the high vehicular traffic levels within the road.

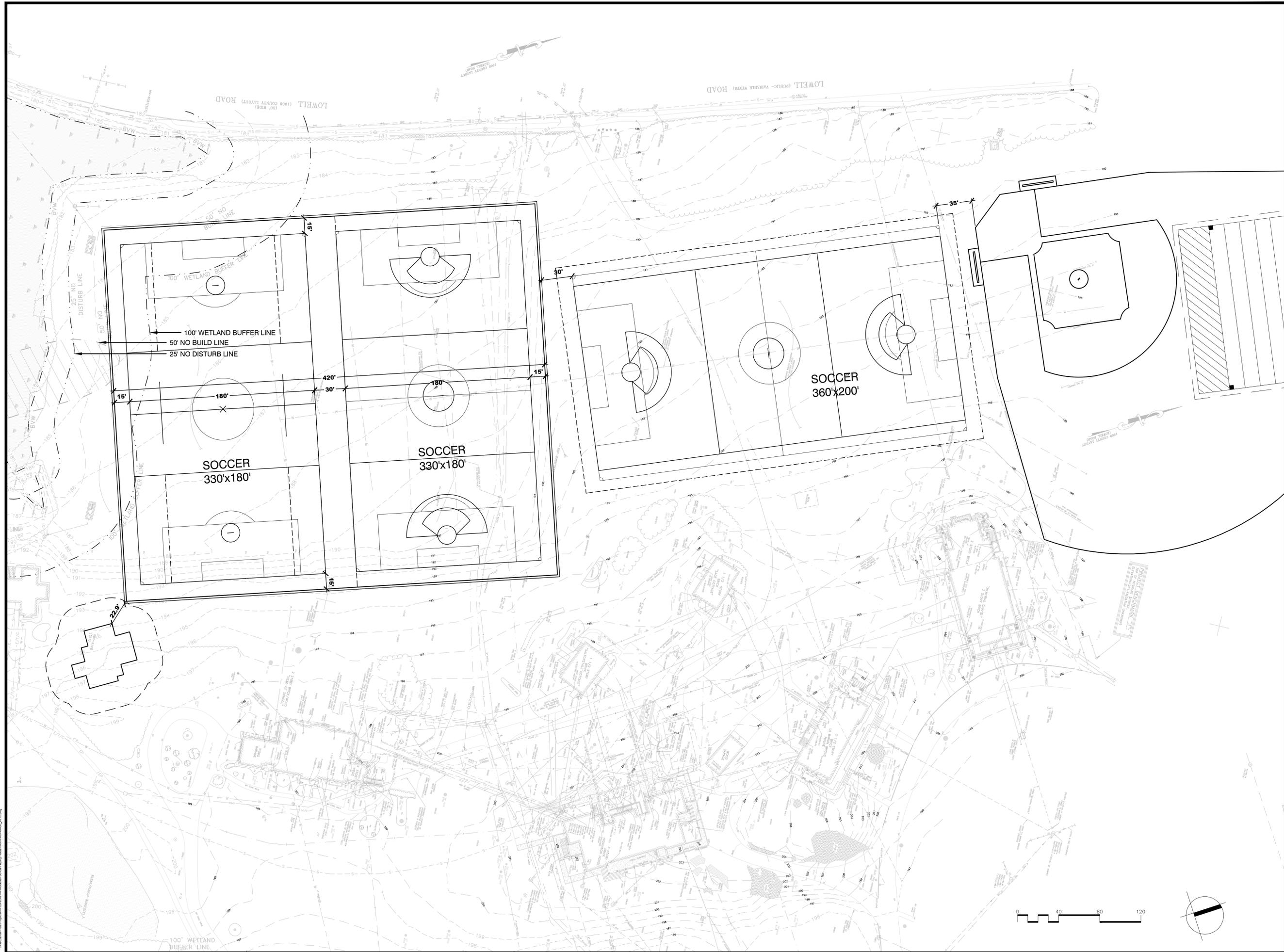
The grading alternate narrative describe the impacts of shifting the developed area outside off the buffer areas including increased area of disturbance as well as significant amounts of additional fill.

### **Conclusion**

The preferred layout and grading alternatives propose a modest improvement project that fits within the context of the existing campus while maintaining its pastoral feel. The reasonable improvement plan reduces the overall footprint of development by almost an acre and reduces the amount earthwork and fill material by +/-14,000 CY. This proposed project was designed with a view toward utilizing the most efficient alternative for fulfilling the project objectives. This proposed alternative has been shown to be the most feasible alternative because it addresses the project needs and minimal adverse impacts within the 100 foot BVW buffer zone.







Consultants:

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Revisions:

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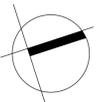
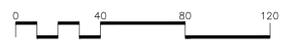
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 W&S File No.:

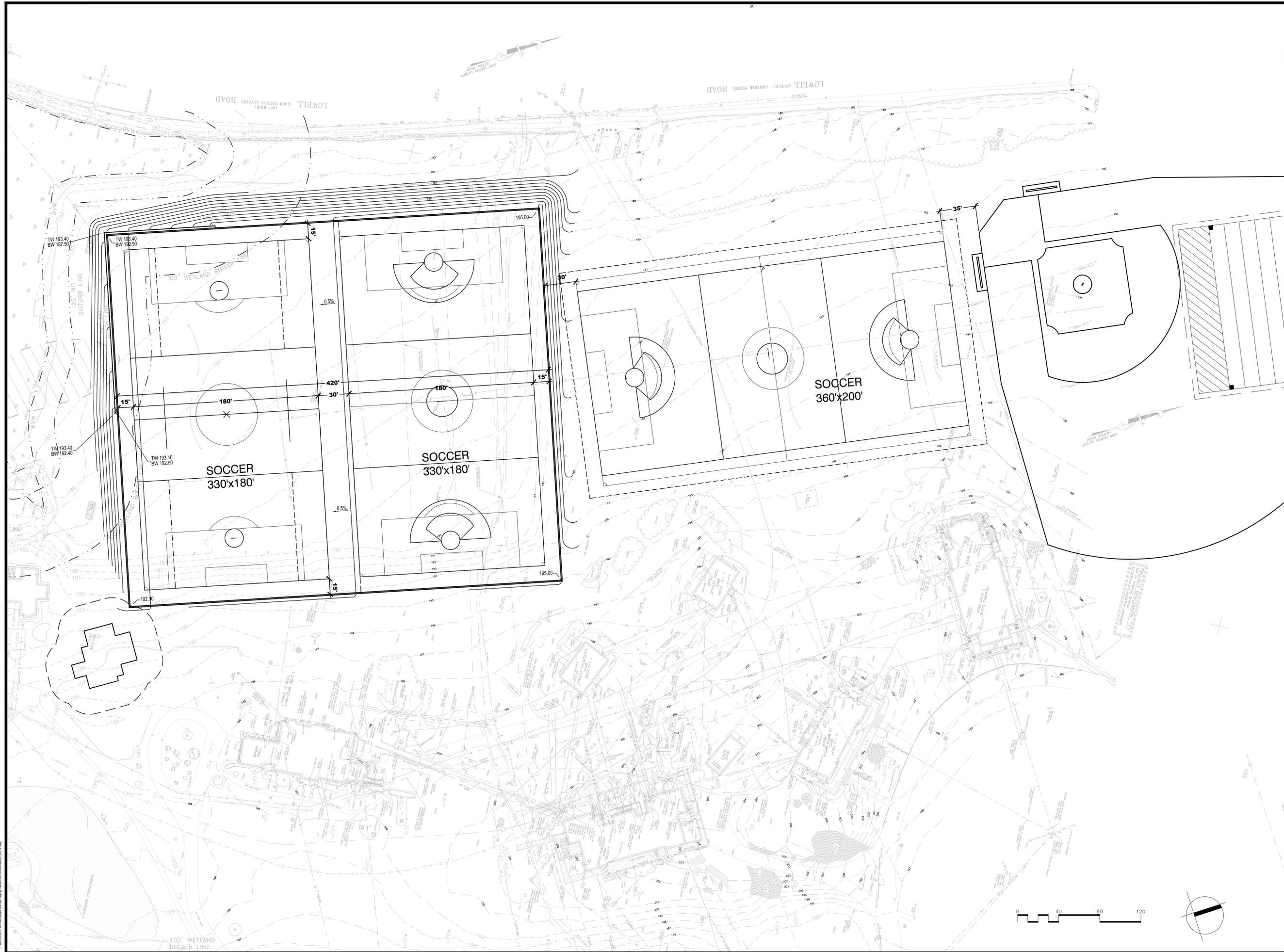
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Sheet Number:



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Rev: 1.8 Date: 06/25/2020



Consultants:

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Revisions:

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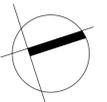
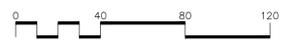
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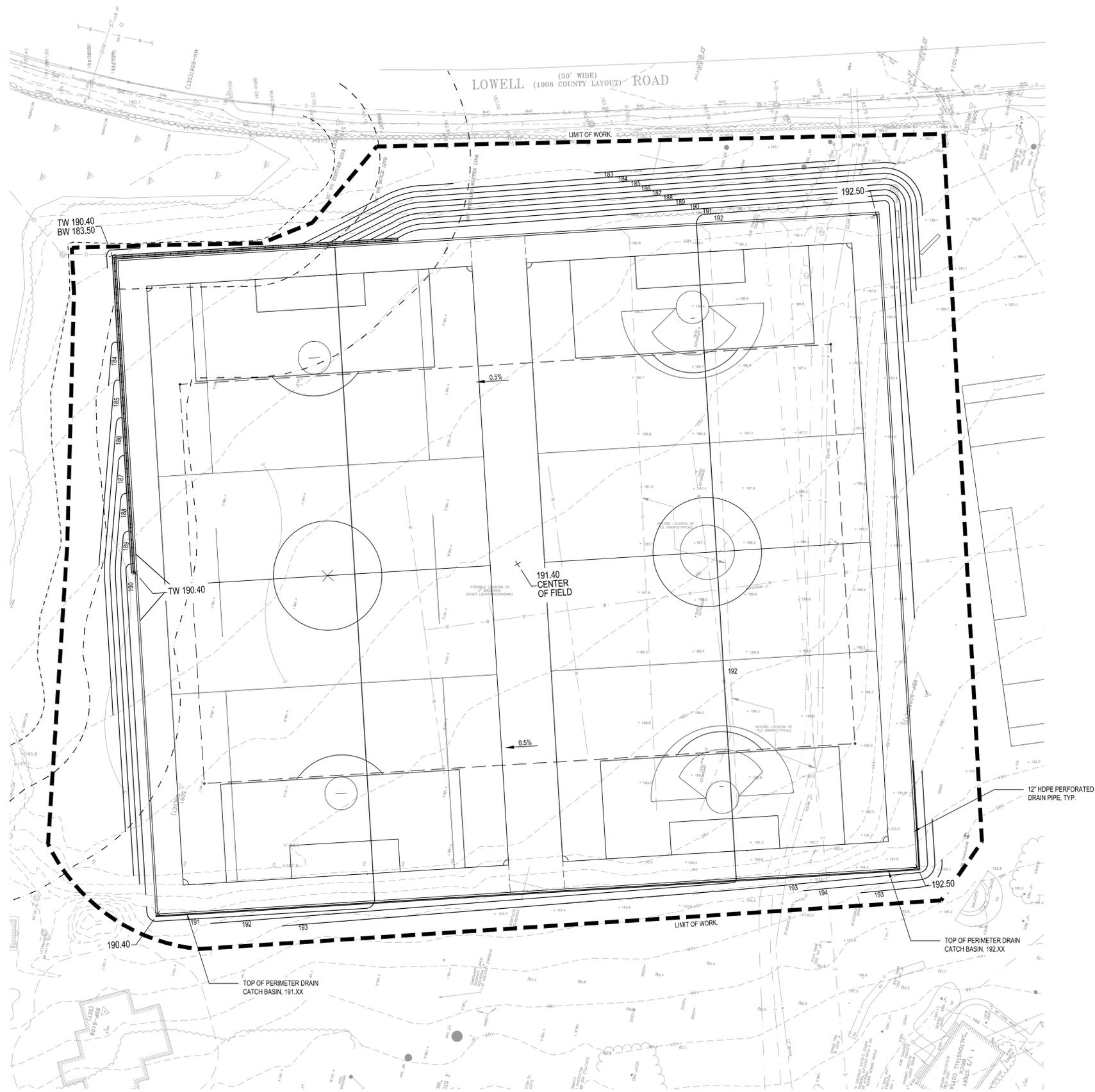
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 Drawn By: TZ  
 Reviewed By: RC  
 Approved By: RC  
 W&S Project No.: ENG20-0404  
 W&S File No.:

Drawing Title:  
**GRADING  
 ALT 1**

Sheet Number:





**LEGEND**

- — — — — LIMIT OF WORK (L.O.W.)
- - - - - 25-FT NO DISTURB ZONE
- - - - - 50-FT NO BUILD ZONE
- - - - - 100-FT WETLAND BUFFER
- ⊕ EXISTING DRAINAGE STRUCTURE, SEE UTILITIES PLAN
- 191 — EXISTING CONTOURS
- + 186.7 EXISTING SPOT ELEVATION
- 14 PROPOSED CONTOURS, 1'
- 15 PROPOSED CONTOURS, 5'
- 1.5% PROPOSED SLOPE
- X 192.50 PROPOSED SPOT GRADE
- CATCH BASIN
- ⊕ AREA DRAIN
- CO CLEAN OUT
- DRAINAGE MAN HOLE
- S SEWER MAN HOLE
- MONITORING WELL
- - - - - GRADE BREAK
- HP HIGH POINT
- LP LOW POINT
- TW TOP OF WALL
- BW BOTTOM OF WALL
- TS TOP OF STEP
- BS BOTTOM OF STEP
- SUB SUBGRADE
- TC TOP OF CURB
- BC BOTTOM OF CURB
- INV INVERT
- (VIF) VERIFY IN FIELD

Project:  
**MIDDLESEX SCHOOL**  
  
**PLAYING FIELDS CONSTRUCTION PROJECT**  
 1400 LOWELL RD.  
 CONCORD, MA. 01742

**Weston & Sampson**  
 WESTON & SAMPSON ENGINEERS, INC.  
 85 DEVONSHIRE STREET, 3RD FLOOR  
 BOSTON, MA 02109  
 617-412-4480  
 www.westonandsampson.com

Consultants:

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Revisions:

No.	Date	Description

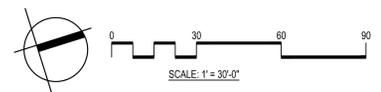
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 Drawn By: SG, JC, CC  
 Reviewed By: RC  
 Approved By: RC

W&S Project No.: ENG20-0474  
 W&S File No.:

Drawing Title:  
**GRADING ALT 2**

Sheet Number:  
**L140**



WESTON & SAMPSON ENGINEERS, INC. 85 DEVONSHIRE STREET, 3RD FLOOR BOSTON, MA 02109 617-412-4480 www.westonandsampson.com

Rev: 1.0 Date: 10/24/2019

## APPENDIX C

# Stormwater Report

Concord, Massachusetts

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## Middlesex School Playing Fields Construction Project

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September 16, 2020

JOB NO: ENG20-0474



Weston & Sampson  
55 Walkers Brook Drive, Suite 100  
Reading, MA 01867

[www.westonandsampson.com](http://www.westonandsampson.com)  
Tel: 978-532-1900 Fax: 978-977-0100

## Table of Contents

- 1) DEP Stormwater Report Checklist
- 2) Stormwater Report Narrative
- 3) CPPESCP – Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan
- 4) Checklist for CPPESCP

**Attachment 1 - DEP Stormwater Report Checklist**



# Checklist for Stormwater Report

## A. Introduction

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



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.<sup>1</sup> This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8<sup>2</sup>
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

<sup>1</sup> The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

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



# Checklist for Stormwater Report

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## B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

*Note:* Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

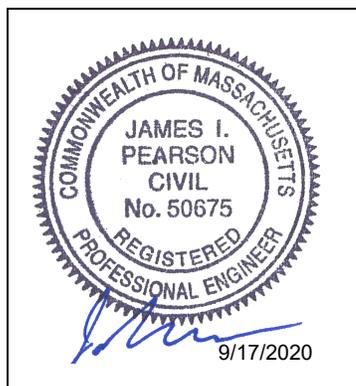
A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

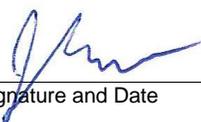
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### Registered Professional Engineer's Certification

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

Registered Professional Engineer Block and Signature



  
Signature and Date

9/17/2020

---

## Checklist

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

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



# Checklist for Stormwater Report

---

## Checklist (continued)

**LID Measures:** Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- No disturbance to any Wetland Resource Areas
- Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- Reduced Impervious Area (Redevelopment Only)
- Minimizing disturbance to existing trees and shrubs
- LID Site Design Credit Requested:
  - Credit 1
  - Credit 2
  - Credit 3
- Use of “country drainage” versus curb and gutter conveyance and pipe
- Bioretention Cells (includes Rain Gardens)
- Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- Treebox Filter
- Water Quality Swale
- Grass Channel
- Green Roof
- Other (describe): \_\_\_\_\_

### Standard 1: No New Untreated Discharges

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



# Checklist for Stormwater Report

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## Checklist (continued)

### Standard 2: Peak Rate Attenuation

- Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

### Standard 3: Recharge

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

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



# Checklist for Stormwater Report

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## Checklist (continued)

### Standard 3: Recharge (continued)

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

### Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
  - Provisions for storing materials and waste products inside or under cover;
  - Vehicle washing controls;
  - Requirements for routine inspections and maintenance of stormwater BMPs;
  - Spill prevention and response plans;
  - Provisions for maintenance of lawns, gardens, and other landscaped areas;
  - Requirements for storage and use of fertilizers, herbicides, and pesticides;
  - Pet waste management provisions;
  - Provisions for operation and management of septic systems;
  - Provisions for solid waste management;
  - Snow disposal and plowing plans relative to Wetland Resource Areas;
  - Winter Road Salt and/or Sand Use and Storage restrictions;
  - Street sweeping schedules;
  - Provisions for prevention of illicit discharges to the stormwater management system;
  - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
  - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
  - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
  - Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
    - is within the Zone II or Interim Wellhead Protection Area
    - is near or to other critical areas
    - is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
    - involves runoff from land uses with higher potential pollutant loads.
  - The Required Water Quality Volume is reduced through use of the LID site Design Credits.
  - Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



# Checklist for Stormwater Report

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## Checklist (continued)

### Standard 4: Water Quality (continued)

- The BMP is sized (and calculations provided) based on:
  - The ½" or 1" Water Quality Volume or
  - The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

### Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior to** the discharge of stormwater to the post-construction stormwater BMPs.
- The NPDES Multi-Sector General Permit does **not** cover the land use.
- LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- All exposure has been eliminated.
- All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

### Standard 6: Critical Areas

- The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- Critical areas and BMPs are identified in the Stormwater Report.



# Checklist for Stormwater Report

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## Checklist (continued)

### Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
  - Limited Project
  - Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
  - Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
  - Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
  - Bike Path and/or Foot Path
- Redevelopment Project
  - Redevelopment portion of mix of new and redevelopment.
- Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

### Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
  - Construction Period Operation and Maintenance Plan;
  - Names of Persons or Entity Responsible for Plan Compliance;
  - Construction Period Pollution Prevention Measures;
  - Erosion and Sedimentation Control Plan Drawings;
  - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
  - Vegetation Planning;
  - Site Development Plan;
  - Construction Sequencing Plan;
  - Sequencing of Erosion and Sedimentation Controls;
  - Operation and Maintenance of Erosion and Sedimentation Controls;
  - Inspection Schedule;
  - Maintenance Schedule;
  - Inspection and Maintenance Log Form.
- A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



# Checklist for Stormwater Report

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## Checklist (continued)

### Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- The project is **not** covered by a NPDES Construction General Permit.
- The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

### Standard 9: Operation and Maintenance Plan

- The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
  - Name of the stormwater management system owners;
  - Party responsible for operation and maintenance;
  - Schedule for implementation of routine and non-routine maintenance tasks;
  - Plan showing the location of all stormwater BMPs maintenance access areas;
  - Description and delineation of public safety features;
  - Estimated operation and maintenance budget; and
  - Operation and Maintenance Log Form.
- The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
  - A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
  - A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

### Standard 10: Prohibition of Illicit Discharges

- The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- An Illicit Discharge Compliance Statement is attached;
- NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

## **Attachment 2 - Stormwater Report Narrative**

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

Applicant/Project Name: Middlesex School Playing Fields Construction Project

Project Address: 1400 Lowell Rd., Concord, MA

Application Prepared by:

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

Below is an explanation concerning Standards 1-10 as they apply to the Middlesex School Playing Fields Construction Project.

**General:**

The parcels 3268, 3269, 3270, 3271, and 3272 for the Middlesex School Playing Fields Construction Project is 15 acres containing existing athletic fields used for sports teams of the Middlesex School. The parcels are located at 1400 Lowell Road, Concord, MA, and are bordered by Lowell Road to the west, asphalt-paved parking to the north, the Middlesex School Campus to the east, and wooded, wetland areas to the south. Below grade existing utilities include water, electric, gas, drainage, and irrigation. Existing site grades range from approximately EL. 181 at the southwest corner to EL. 194 at the north end of the site. Grades at the south playing fields are approximately 2 to 3 feet lower in elevation than the remainder of the site, separate from the rest of the site by a gentle slope. The purpose of the project is to redevelop and improve the existing sports fields.

The applicant proposes constructing a new natural turf football field, a new natural turf baseball field with artificial turf infield and basepaths at the north end of the site, and two 330 ft. by 180 ft. artificial soccer fields at the south end of the site. No work is proposed in the central area of the site.

**Standard 1: No New Untreated Discharges**

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

**Standard 2: Peak Rate Attenuation**

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

To ensure that the work incorporates the performance standards recommended in the DEP's Stormwater Management Policy, necessary erosion and sedimentation control measures will be utilized during construction. These measures are further described under Standard 8.

### **Standard 3: Recharge**

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

### **Standard 4: Water Quality**

The proposed work will not change water quality at the site. There will be no increase in impervious area, and the design for solar panel arrays will not increase soil erosion. During the project, appropriate BMPs will be used to minimize sedimentation and soil erosion.

### **Standard 5: Land Uses with Higher Potential Pollutant Loads (LUHPPLs)**

Not Applicable. There are no LUHPPLs in the work area.

### **Standard 6: Critical Areas**

There will be no new discharge to critical areas.

### **Standard 7: Redevelopments and Other Projects Subject to the Standards Only to the Maximum Extent Practicable**

This is a re-development and limited project which will minimize disturbance to existing trees and shrubs.

### **Standard 8: Construction Period Pollution Prevention and Erosion and Sediment Control**

A detailed Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan is included. To ensure that the work incorporates the performance standards recommended in the DEP's Stormwater Management Policy, necessary erosion and sedimentation control measures will be utilized during construction. These measures will include continuous compost filter tube along the limits of construction, catch basin inlet protection in the form of silt sacks, and use of two stabilized construction entrances with one to the North of the existing baseball field at the Middlesex School Parking Lot and a second near the existing soccer fields bordering Lowell Road.

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

An operations and maintenance plan is not needed since there will not be any new stormwater management systems put in place in the project work area. Existing onsite stormwater BMPs related to landfill will continue to be operated and maintained by the Town of Newbury in accordance with existing O&M plans.

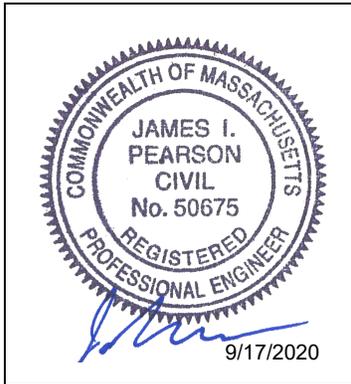
**Standard 10: Prohibition of Illicit Discharges**

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

**Registered Professional Engineer's Certification**

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

Registered Professional Engineer Block and Signature



 9/17/2020  
\_\_\_\_\_  
Signature and Date

**Attachment 3 - CPPESCP - Construction Period Pollution  
Prevention and Erosion and Sedimentation  
Control Plan**

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

### SECTION 1: Introduction

The parcels 3268, 3269, 3270, 3271, and 3272 for the Middlesex School Playing Fields Construction Project is 15 acres containing existing athletic fields used for sports teams of the Middlesex School. The parcels are located at 1400 Lowell Road, Concord, MA, and are bordered by Lowell Road to the west, asphalt-paved parking to the north, the Middlesex School Campus to the east, and wooded, wetland areas to the south. Below grade existing utilities include water, electric, gas, drainage, and irrigation. Existing site grades range from approximately EL. 181 at the southwest corner to EL. 194 at the north end of the site. Grades at the south playing fields are approximately 2 to 3 feet lower in elevation than the remainder of the site, separate from the rest of the site by a gentle slope. The purpose of the project is to redevelop and improve the existing sports fields.

The applicant proposes constructing a new natural turf football field, a new natural turf baseball field with artificial turf infield and basepaths at the north end of the site, and two 330 ft. by 180 ft. artificial soccer fields at the south end of the site. No work is proposed in the central area of the site.

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

### SECTION 2: Construction Period Pollution Prevention Measures

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

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

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

limits and do not extend their work into the undisturbed areas. The protective measures are described in more detail in the following sections.

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

The limit of work for the project will be lined with continuous compost filter tube to prevent erosion and keep soil from spilling into the areas beyond the limit of work. Inlet protection on drainage infrastructure will be installed prior to construction on catch basins located in and near to the limits of work.

## **2.3 Stabilize Soils**

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

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

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

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

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

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

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

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

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

## **2.6 Storm Drain Inlet Protection**

The contractor will protect existing drain catch basin inlets within and surrounding the limits of work by installing siltation filter sacks prior to the start of any construction activities.

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

The Contractor will be responsible to monitor erosion control measures. Whenever necessary, the Contractor will clear sediment from the compost filter tube and catch basin filter sacks that have been silted up during construction. Daily monitoring should be conducted using the attached Monitoring Form.

The following good housekeeping practices will be followed on-site during the construction project:

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

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

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

## **2.9 Designated Washout Areas**

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

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

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

## **2.11 Equipment/Vehicle Washing**

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

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

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

### **3.1 Spill Control Equipment**

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

### **3.2 Notification**

Workers will be directed to inform the on-site supervisor of a spill event. The supervisor will assess the incident and initiate proper containment and response procedures immediately upon notification. Workers should avoid direct contact with spilled materials during the containment procedures. Primary notification of a spill should be made to the local Fire Department and Police Departments. Secondary Notification will be to the certified cleanup contractor if deemed necessary by Fire and/or Police personnel. The third level of notification (within 1 hour) is to the DEP or municipality's Licensed Site Professional (LSP). The specific cleanup contractor to be used will be identified by the Contractor prior to commencement of construction activities.

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

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

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

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

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

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

**Owner/Operator:**

Mike Cataldo  
Vice President  
M.J. Cataldo, Inc.  
PO BOX 1343  
Littleton, MA 01460

**Engineer:**

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

**Site Inspector:**

TBD

**Contractor:**

TBD

#### SECTION 5: Erosion and Sedimentation Control

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

#### SECTION 6: Site Development Plan

The Site Development Plan is included in the attached plans.

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

The erosion control measures will be installed as detailed in the technical specification **01570 Environmental Protection**. If there is a failure to the controls the Contractor, under the supervision of the Engineer, will be required to stop work until the failure is repaired.

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

#### SECTION 8: Inspection Schedule

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

**Attachment 4 - Checklist for CPPESCP**

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

Middlesex School Playing Field Construction Project

Inspection Form

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

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

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

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Other Comments:

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

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

## APPENDIX D

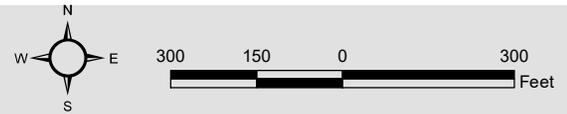


**Legend**

- Work Area
- Perennial Stream
- Intermittent Stream
- Marsh/Bog
- Wooded marsh
- Cranberry Bog
- Salt Marsh
- Open Water
- Reservoir (with PWSID)
- Tidal Flats
- Beach/Dune
- ACECs**
- ACECs
- NHESP Habitats**
- NHESP Estimated Habitats of Rare Wildlife
- NHESP Priority Habitats of Rare Species
- \* NHESP Certified Vernal Pools
- \* NHESP Potential Vernal Pools
- FEMA National Flood Hazard Layer**
- Flood Zone Designations**
- A: 1% Annual Chance of Flooding, no BFE
- AE: 1% Annual Chance of Flooding, with BFE
- AE: Regulatory Floodway
- AH: 1% Annual Chance of 1-3ft Ponding, with BFE
- AO: 1% Annual Chance of 1-3ft Sheet Flow Flooding, with Depth
- VE: High Risk Coastal Area
- D: Possible But Undetermined Hazard
- X: 0.2% Annual Chance of Flooding
- X: Reduced Flood Risk due to Levee
- Area Not Included
- Area with no DFIRM - Paper FIRMs in Effect

EH 1111 PH 1597

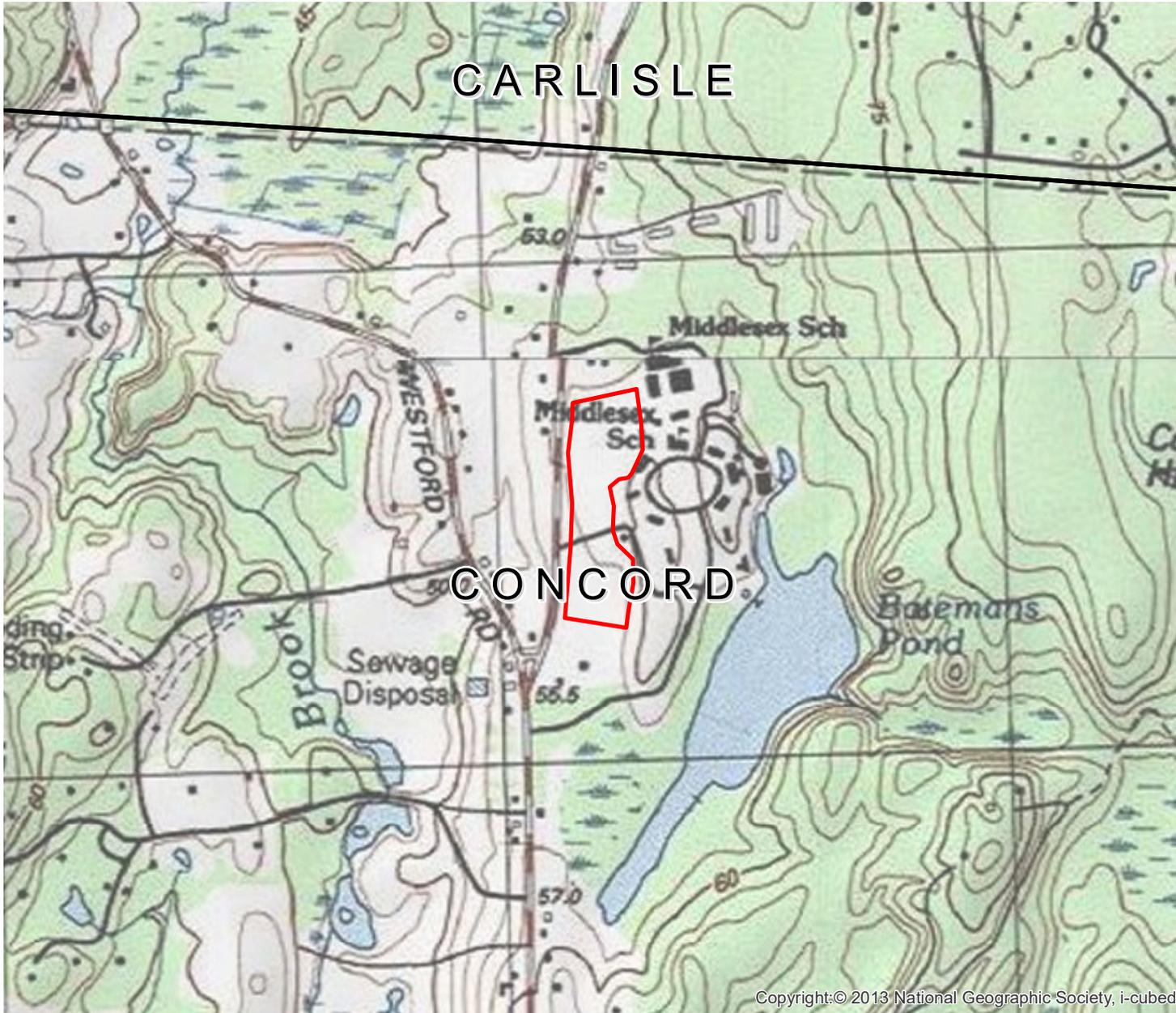
USGS, MassGIS



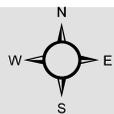
Data Source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs

**FIGURE 2**  
Middlesex School  
Concord, MA  
  
Environmental  
Resource Map





Copyright:© 2013 National Geographic Society, i-cubed



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

### Legend

-  Work Area
-  MA Towns

### FIGURE 1

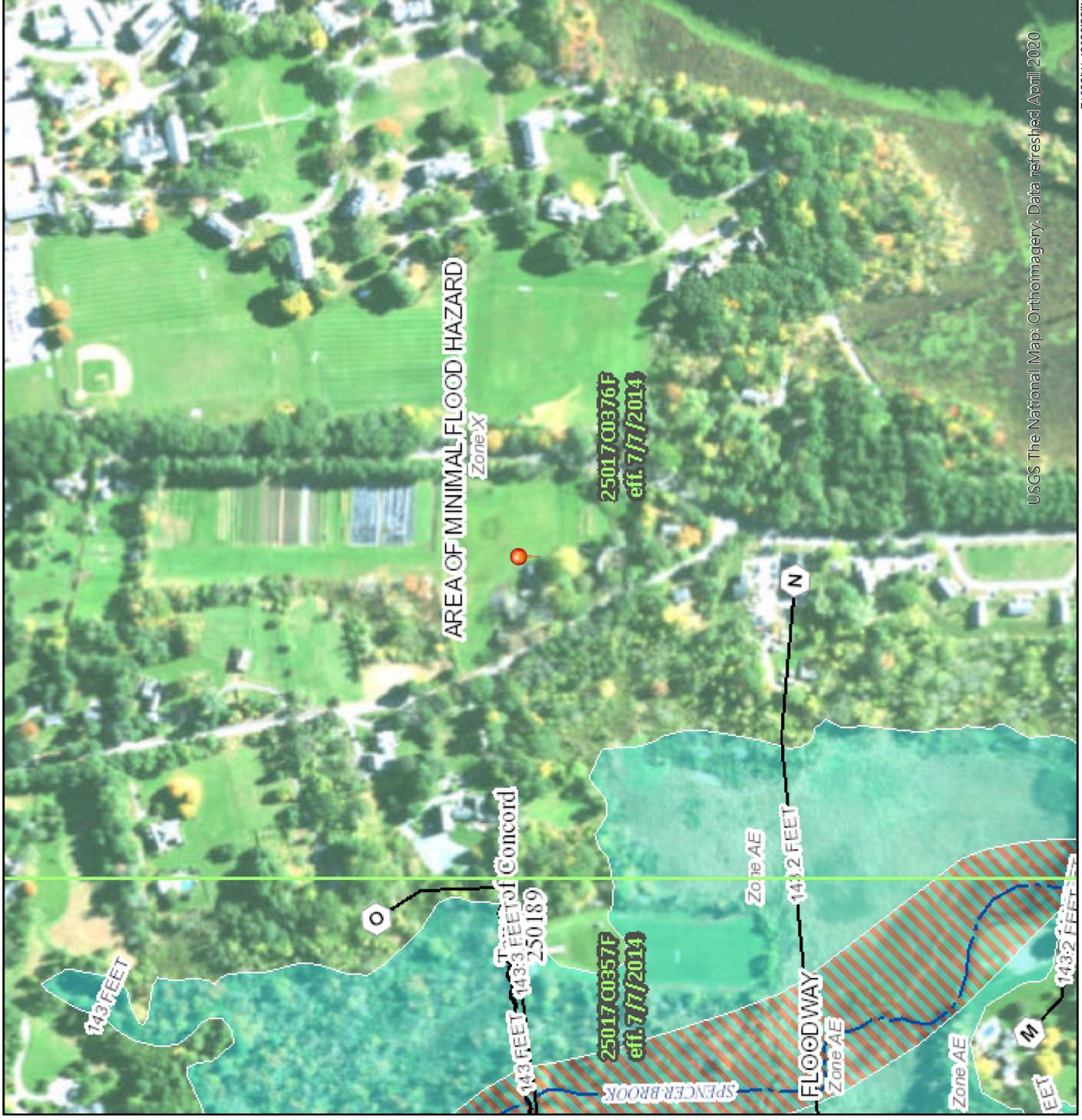
Middlesex School  
Concord, MA

Locus Map

# National Flood Hazard Layer FIRMette



71°22'38"W 42°29'59"N



USGS The National Map: Orthoimagery. Data refreshed April 2020

71°22'W 42°29'32"N

## Legend

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

**SPECIAL FLOOD HAZARD AREAS**

- Without Base Flood Elevation (BFE)  
*Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

**OTHER AREAS OF FLOOD HAZARD**

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

**OTHER AREAS**

- NO SCREEN
- Area of Minimal Flood Hazard *Zone X*
- Effective LOMRS
- Area of Undetermined Flood Hazard *Zone D*

**GENERAL STRUCTURES**

- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

**OTHER FEATURES**

- 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 9/18/2020 at 9:14 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

## APPENDIX E

SECTION 01562

DUST CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION:

This section of the specification covers the control of dust via water, complete.

PART 2 - PRODUCTS

2.01 WATER:

- A. Water shall not be brackish and shall be free from oil, acid, and injurious alkali or vegetable matter.

PART 3 - EXECUTION

3.01 APPLICATION:

- A. Water may be sprinkler applied with equipment including a tank with gauge-equipped pressure pump and a nozzle-equipped spray bar.
- B. Water shall be dispersed through the nozzle under a minimum pressure of 20 pounds per square inch, gauge pressure.

END OF SECTION

Document1291

SECTION 01570

ENVIRONMENTAL PROTECTION

PART 1 – GENERAL

1.01 DESCRIPTION:

- A. The work covered by this section of the specifications consists of furnishing all labor, materials, tools and equipment and performing all work required for the prevention of environmental pollution during and as a result of construction operations under this contract.
- B. The requirements set forth in this section of the specifications apply to construction in and adjacent to wetlands, unless otherwise specifically stated.
- C. All work under this Contract shall be in accordance with the Conservation Commissions' Orders of Conditions as well as any conditional requirements applied, all of which are attached to Section 00890, PERMITS.
- D. Prior to commencement of work, the Contractor shall meet with representatives of the Engineer to develop mutual understandings relative to compliance of the environmental protection program.

1.02 SUBMITTALS:

- A. The Contractor shall submit for approval six sets of details and literature fully describing environmental protection methods to be employed in carrying out construction activities within 100 feet of wetlands or across areas designated as wetlands.

PART 2 - PRODUCTS

2.01 SILT FENCE:

- A. The silt fence shall consist of a 3-foot wide continuous length sediment control fabric, stitched to a mesh backing, and stapled to preweathered oak posts installed as shown on the drawings. The oak posts shall be 1-1/4-inches by 1-1/4-inches (Minimum Dimension) by 48-inches and shall be tapered. The bottom edge of the silt fence shall be buried as shown on the drawings.
- B. The silt fence shall be DOT Silt Fence PPDM3611, as manufactured by U.S. Silt & Site Supply/Getsco, Concord, NH, or approved equal.
- C. Silt fence properties:

<u>Physical Properties</u>	<u>Test Method</u>	<u>Minimum Value</u>
Grab Strength, lbs.	ASTM-D-4632	124
Grab Elongation, %	ASTM-D-4632	15

Mullen burst, psi	ASTM-D-3786	300
Puncture, lbs.	ASTM-D-4833	65
Trapezoidal Tear, lbs.	ASTM-D-4833	65
UV Resistance <sup>2</sup> , % <sup>3</sup>	ASTM-D-4355	80@500 hrs.
AOS, US Sieve No.	ASTM-D-4751	30
Flow Rate, gal/min/sq ft	ASTM-D-4491	10
Permittivity, (1/sec) gal/min/sq ft	ASTM-D-4491	0.05 sec <sup>-1</sup>

## 2.02 STRAW WATTLES:

- A. Straw Wattles shall consist of a 100% biodegradable exterior jute or coir netting with 100% wheat straw interior filling as manufactured by Granite Environmental, Inc., Sebastian, Florida (Phone: 888-703-9889; website: [www.GraniteEnvironmental.com](http://www.GraniteEnvironmental.com)), or approved equal.

## 2.03 SILT CURTAIN:

- A. The silt curtain shall be a Type-1-Silt-Barrier consisting of 18-ounce vinyl fabric skirt with a 6-inch marine quality floatation device. The skirt shall be ballasted to hang vertical in the water column by a minimum 3/16-inch galvanized chain. The silt curtain shall extend into the water as shown on the drawings. If necessary, join adjacent ends of the silt curtain by connecting the reinforcing grommets and shackling ballast lines.

## 2.05 SILTATION SACKS:

- A. To trap sediment and to prevent sediment from clogging drainage systems, catch basin protection in the form of a siltation sack (Silt sack as manufactured by ACF Environmental, Inc. or approved equal) shall be provided as approved by the Engineer.

## PART 3- EXECUTION

### 3.01 NOTIFICATION AND STOPPAGE OF WORK:

- A. The Engineer will notify the Contractor in writing of any non-compliance with the provisions of the Order of Conditions. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails to act promptly, the Owner may order stoppage of all or part of the work through the Engineer until satisfactory corrective action has been taken. No claim for an extension of time or for excess costs or damage incurred by the Contractor as a result of time lost due to any stop work orders shall be made unless it was later determined that the Contractor was in compliance.

### 3.02 AREA OF CONSTRUCTION ACTIVITY:

- A. Insofar as possible, the Contractor shall confine his construction activities to those areas

defined by the plans and specifications. All land resources within the project boundaries and outside the limits of permanent work performed under this contract shall be preserved in their present condition or be restored to a condition after completion of construction at least equal to that which existed prior to work under this contract.

### 3.03 PROTECTION OF WATER RESOURCES:

- A. The Contractor shall not pollute streams, lakes or reservoirs with fuels, oils, bitumens, calcium chloride, acids or other harmful materials. It is the Contractor's responsibility to comply with all applicable Federal, State, County and Municipal laws regarding pollution of rivers and streams.
- B. Special measures should be taken to insure against spillage of any pollutants into public waters.

### 3.04 CONSTRUCTION IN AREAS DESIGNATED AS WETLANDS ON THE DRAWINGS:

- A. Insofar as possible, the Contractor shall make every effort to minimize disturbance within areas designated as wetlands or within 100-feet of wetland resource areas.
- B. The Contractor shall perform his work in such a way that these areas are left in the condition existing prior to construction.
- C. The elevations of areas designated as wetlands shall not be unduly disturbed by the Contractor's operations.

### 3.05 PROTECTING AND MINIMIZING EXPOSED AREAS:

- A. The Contractor shall limit the area of land which is exposed and free from vegetation during construction. In areas where the period of exposure will be greater than two (2) months, temporary vegetation, mulching or other protective measures shall be provided as specified.
- B. The Contractor shall take account of the conditions of the soil where temporary cover crop will be used to insure that materials used for temporary vegetation are adaptive to the sediment control. Materials to be used for temporary vegetation shall be approved by the Engineer.

### 3.06 LOCATION OF STORAGE AREAS:

- A. The location of the Contractor's storage areas for equipment and/or materials shall be upon cleared portions of the job site or areas to be cleared as a part of this project, and shall require written approval of the Engineer. Plans showing storage facilities for equipment and materials shall be submitted for approval of the Engineer.
- B. No excavated materials or materials used in backfill operations shall be deposited within a minimum distance of one hundred (100) feet of any watercourse or any drainage facility. Adequate measures for erosion and sediment control such as the placement of

baled straw or line of straw wattles or compost filter tubes around the downstream perimeter of stockpiles shall be employed to protect any downstream areas from siltation.

- C. There shall be no storage of equipment or materials in areas designated as wetlands.
- D. The Engineer may designate a particular area or areas where the Contractor may store materials used in his operations.

### 3.07 PROTECTION OF LANDSCAPE:

- A. The Contractor shall not deface, injure, or destroy trees or shrubs nor remove or cut them without written authority from the Owner. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorages unless specifically authorized by the Engineer. Excavating machinery and cranes shall be of suitable type and be operated with care to prevent injury to trees which are not to be removed, particularly overhanging branches and limbs. The Contractor shall, in any event, be responsible for any damage resulting from such use.
- B. Branches, limbs, and roots shall not be cut except by permission of the Engineer. All cutting shall be smoothly and neatly done without splitting or crushing. When there is unavoidable injury to branches, limbs and trunks of trees, the injured portions shall be neatly trimmed and covered with an application of grafting wax or tree healing paint as directed.
- C. Where, in the opinion of the Engineer, trees may possibly be defaced, bruised, injured, or otherwise damaged by the Contractor's equipment or by his blasting or other operations, the Engineer may require the Contractor to adequately protect such trees by placing boards, planks, poles or fencing around them. Any trees or landscape feature scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition at the expense of the Contractor. The Engineer will decide what method of restoration shall be used, and whether damaged trees shall be treated and healed or removed and disposed of under the provisions of Section 02230, CLEARING AND GRUBBING.
- D. Cultivated hedges, shrubs, and plants which could be injured by the Contractor's operations shall be protected by suitable means or shall be dug up, balled and temporarily replanted and maintained. After construction operations have been substantially completed, they shall be replanted in their original positions and cared for until growth is re-established. If cultivated hedges, shrubs, and plants are injured to such a degree as to affect their growth or diminish their beauty or usefulness, they shall be replaced by items of a kind and quality at least equal to that existing at the start of the work.

### 3.08 CLEARING AND GRUBBING:

- A. The Contractor shall clear and grub only on the Owner's land or the Owner's easements, and only the area required for construction operations, as approved by the Engineer. Removal of mature trees (4 inches or greater DBH) will not be allowed on temporary

easements.

- B. The Contractor shall not remove trees in the Owner's temporary easements without permission of the Engineer.

### 3.10 DUST CONTROL:

- A. During the progress of the work, the Contractor shall conduct his operations and maintain the area of his activities, including sweeping and sprinkling of streets as necessary, to minimize creation and dispersion of dust. If the Engineer decides it is necessary to use calcium chloride for more effective dust control, the Contractor shall furnish and spread the material, as directed. Calcium chloride shall be as specified under Section 01562, DUST CONTROL.
- B. Calcium Chloride shall not be used for dust control within a drainage basin or in the vicinity of any source of potable water.

END OF SECTION

## SECTION 01740

### CLEANING UP

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION:

The Contractor must employ at all times during the progress of its work adequate cleanup measures and safety precautions to prevent injuries to persons or damage to property. The Contractor shall immediately, upon request by the Engineer provide adequate material, equipment and labor to cleanup and make safe any and all areas deemed necessary by the Engineer.

##### 1.02 RELATED WORK:

- A. Section 00700 GENERAL CONDITIONS
- B. Section 01110 CONTROL OF WORK AND MATERIALS
- C. Section 01140 SPECIAL PROVISIONS
- D. Section 01570 ENVIRONMENTAL PROTECTION

#### PART 2 - PRODUCTS

Not applicable

#### PART 3 - EXECUTION

##### 3.01 DAILY CLEANUP:

- A. The Contractor shall clean up, at least daily, all refuse, rubbish, scrap and surplus material, debris and unneeded construction equipment resulting from the construction operations and sweep the area. The site of the work and the adjacent areas affected thereby shall at all times present a neat, orderly and workmanlike appearance.
- B. Upon written notification by the Engineer, the Contractor shall within 24 hours clean up those areas, which in the Engineer's opinion are in violation of this section and the above referenced sections of the specifications.
- C. If in the opinion of the Engineer, the referenced areas are not satisfactorily cleaned up, all other work on the project shall stop until the cleanup is satisfactory.

##### 3.02 MATERIAL OR DEBRIS IN DRAINAGE FACILITIES:

- A. Where material or debris has washed or flowed into or has been placed in existing watercourses, ditches, gutters, drains, pipes, structures, such material or debris shall be

entirely removed and satisfactorily disposed of during progress of the work, and the ditches, channels, drains, pipes, structures, and work shall, upon completion of the work, be left in a clean and neat condition.

3.03 REMOVAL OF TEMPORARY BUILDINGS, STRUCTURES AND EQUIPMENT:

- A. On or before completion of the work, the Contractor shall, unless otherwise specifically required or permitted in writing, tear down and remove all temporary buildings and structures it built; shall remove all temporary works, tools and machinery or other construction equipment it furnished; shall remove all rubbish from any grounds which it has occupied; shall remove silt fences and hay bales used for trapping sediment; and shall leave the roads and all parts of the property and adjacent property affected by its operations in a neat and satisfactory condition.

3.04 RESTORATION OF DAMAGED PROPERTY:

- A. The Contractor shall restore or replace, when and as required, any property damaged by its work, equipment or employees, to a condition at least equal to that existing immediately prior to the beginning of operations. To this end the Contractor shall do as required all necessary highway or driveway, walk and landscaping work. Materials, equipment, and methods for such restoration shall be as approved by the Engineer.

3.05 FINAL CLEANUP:

- A. Before acceptance by the Owner, the Contractor shall perform a final cleanup to bring the construction site to its original or specified condition. This cleanup shall include removing all trash and debris off of the premises. Before acceptance, the Engineer shall approve the condition of the site.

END OF SECTION

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## APPENDIX F

AFFIDAVIT OF SERVICE

Under the Massachusetts Wetlands Protection Act

I, Sara Nichols, hereby certify under the Pains and Penalties of Perjury that on September 23, 2020 I gave notification to abutters in compliance with the second paragraph of Massachusetts General Laws, Chapter 131, Section 40, and the DEP Guide to Abutter Notification dated, April 8, 1994, in connection with the following matter:

A Notice of Intent has been filed under the Massachusetts Wetlands Protection Act by Middlesex School within the town of Concord Conservation Commission on September 23, 2020 for property located at 1400 Lowell Road in Concord.

The completed notification and a list of the abutters to whom it was given and their addresses, are attached to this Affidavit of Service.

September 23 2020

Name: Sara Nichols  
Title: Senior Environmental Scientist  
Organization: Weston & Sampson Engineers, Inc

DATE

## **Notification to Abutters Under the Massachusetts Wetlands Protection Act and the Concord Wetlands Bylaw**

In accordance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, and Article 43 of the 2009 Annual Town Meeting, you are hereby notified of the following:

Applicant's Name: Middlesex School

The applicant has filed an Amendment Request with the Conservation Commission for the municipality of Concord seeking permission to remove, fill, dredge, or alter an area subject to protection under the Wetlands Protection Act (General Laws Chapter 131, Section 40) and the Concord Wetlands Bylaw.

Address where activity is proposed: 1400 Lowell Road

Brief description of proposed project: Improvements to the existing natural turf playing fields. New natural turf football, baseball and soccer fields will be designed with some grade increases on the south end of the site along with a small retaining wall in that area.

The Abbreviated Notice of Intent and project plans may be viewed on the Natural Resources Commission's webpage under Current Meeting Documents at <https://concordma.gov/2254/Current-Meeting-Documents>. You may also email [nr@concordma.gov](mailto:nr@concordma.gov) for more information or to obtain copies of the Abbreviated Notice of Intent.

A public hearing will be held on October 7th 2020. Due to the COVID-19 pandemic, all meetings will be conducted virtually. Information on how to participate via Zoom will be provided on the agenda at <https://concordma.gov/AgendaCenter/Natural-Resources-Commission-25>.

Notice of this public hearing will also be published at least five (5) days in advance of the meeting in the Concord Journal and posted at the Town House not less than forty-eight (48) hours in advance of the meeting.

You may also contact the Department of Environmental Protection, Northeast Region, at (978) 694-3200.

## APPENDIX G



June 25, 2020

Pamela M. Welch, PLS  
Welch Associates Land Surveyors, Inc.  
218 North Main Street  
West Bridgewater, MA 02379

Re: Summary of Wetland Re-Delineation  
Middlesex School  
June 8, 2020

Dear Pamela:

At your request, Normandeau Associates, Inc. (Normandeau) conducted a jurisdictional wetland delineation review at the Middlesex School in Concord, MA. Normandeau reviewed previously delineated wetlands that were performed by Normandeau between 2013 and 2015. Normandeau reviewed several areas located within and adjacent to the Middlesex School campus, including the "Survey for New Fields" site, the "Survey for Field House" site and the "Survey for Ware Hall Site" (collectively the "review areas") as requested via email communications. Additional details were provided by Kraig Kilpatrick of Welch Associates Land Surveyors, Inc. (Welch) via email on June 5, 2020 further indicating the specific wetland areas that needed to be reviewed. The wetland delineation review was completed by Normandeau on June 8, 2020.

A summary of the site characteristics, methodology, and the identified wetlands is included below. Photographs (Attachment 1) and MassDEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Forms (Attachment 2) are included for reference. A sketch map of the review flagging was provided to Welch on June 9, 2020 (see Attachment 3).

#### **REVIEW AREA EXISTING CONDITIONS**

The review areas encompass approximately 29.3 acres overall; however, the majority of the area is a developed boarding school which includes lawns and other landscaped areas, playing fields, roads, walking paths and numerous buildings that comprise the school campus. The surrounding areas are largely forested or residential, with a mature mix of oaks, maples, beech, and other hardwood tree species. A pond is located southeast of the campus.

The Natural Resource Conservation Service (NRCS) has mapped most the campus' soils as Woodbridge fine sandy loam, 0 to 3 percent slopes with Windsor loamy sand and Deerfield loamy fine sand in surrounding, drier locations<sup>1</sup>. The wetland areas located around the perimeter of the campus are associated with hydric soils including Whitman fine sandy loam on 0 to 3 percent slopes (extremely stony) and Ridgebury fine sandy loam on 3 to 8 percent slopes (extremely stony).

#### **METHODOLOGY**

William McCloy, a certified Professional Wetland Scientist (PWS), Sarah Allen (PWS) and Elizabeth Olliver of Normandeau reviewed the areas for wetlands and streams; including those which were previously delineated. Wetland boundaries were delineated according to the 1987 *Corps of Engineers Wetland Delineation Manual*

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<sup>1</sup> U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Web Soil Survey

and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)*, which utilize the three-parameter approach (i.e., evaluating the site for the presence of hydric soils, hydrophytic vegetation and wetland hydrology) for identifying wetlands and determining their jurisdictional limit<sup>2,3</sup>. The wetland boundaries were flagged with pink “Wetland Delineation” flagging and data plot locations were flagged with pink and blue flagging.

A sketch map and flagging details were conveyed to Welch who surveyed the flag locations at a later date; Normandeau did not GPS-locate the wetland flagging.

## **RE-DELINEATED WETLANDS**

Normandeau re-delineated six wetlands located around the periphery of the campus. No streams were located within the review areas; nor were any vernal pools or potential vernal pools.

### Wetlands S4W1 and S4W2

Wetlands S4W1 and S4W2 are located at the southern end of the “New Fields Survey Area.” Wetland S4W1 is primarily a forested wetland (PFO1) with shrubby areas located in close proximity to the developed campus and adjacent sports fields (note that not all of wetland S4W1 was re-delineated). The wetland has a forested canopy dominated by red maple (*Acer rubrum*) and green ash (*Fraxinus pennsylvanica*). Understory woody species include saplings of the overstory species, as well as buckthorn (*Rhamnus cathartica*); herbaceous vegetation includes poison-ivy (*Toxicodendron radicans*), sensitive fern (*Onoclea sensibilis*), and spotted touch-me-not (*Impatiens capensis*). Soils in the wetland were hydric and met indicator A12, Thick Dark Surface.

Wetland S4W2 is a closed depression which includes inlet and outlet pipes and rock riprap; however, wetland vegetation and soils have developed within this area. No changes to the wetland boundary or characteristics were noted compared with the original delineation.

As previously determined following the initial delineation, wetland S4W1 is classified as a Bordering Vegetated Wetland (BVW) and state and local jurisdiction include the wetland and a 100 foot buffer. Wetland S4W1 is also under the jurisdiction of the Army Corps of Engineers through Federal Clean Water Act regulations. As previously determined, wetland S4W2 is an isolated wetland that has been enhanced or was created in part to control stormwater associated with nearby areas.

### Wetlands S1W1, S1W2 & S1W3

Wetlands S1W1, S1W2 and S1W3 are located north of Pratt Lane and along the north edge of the “Survey for Field House” site. All three wetlands were previously delineated by Normandeau. Wetland S1W1 is an excavated wetland that is isolated from the adjacent wetlands; the wetland is a functioning stormwater swale/structure. No changes to the wetland boundary or characteristics were noted compared with the original delineation.

Wetland S1W2 is a palustrine forested wetland (PFO1) with an overstory dominated by red maple and green ash, and also including swamp white oak (*Quercus bicolor*) and slippery elm (*Ulmus rubra*) (note that not all of wetland S1W2 was re-delineated). Shrubs and other woody species include northern spicebush (*Lindera*

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<sup>2</sup> U.S. Army Corps of Engineers (USACE). 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiments Station.

<sup>3</sup> U.S. Army Corps of Engineers. 2011. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)*, ed. J. S. Wakeley, R. W. Lichvar, C. V. Noble, and J. F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

*benzoin*) and poison ivy. The herbaceous layer includes sensitive fern, poison ivy, and Virginia creeper (*Parthenocissus quinquefolia*). Soils in the wetland were hydric and met indicator A11, Depleted Below Dark Surface and were saturated at a depth of 7 inches. Other indicators of hydrology include water stained leaves and drainage patterns.

Wetland S1W3 is also a palustrine forested wetland (PFO1) with an overstory comprised of green ash, red maple, silver maple (*Acer saccharinum*) and slippery elm (note that not all of wetland S1W3 was re-delineated). The most common herbaceous species are wood horsetail (*Equisetum sylvaticum*), spotted touch-me-not and manna grass (*Glyceria sp.*). Soils in the wetland were hydric and met indicator A12, Thick Dark Surface and were saturated at 2 inches of depth. Other hydrology indicators include water stained leaves and drainage patterns.

As previously determined following the initial delineation, wetlands S1W2 and S1W3 are classified as a Bordering Vegetated Wetland (BVW) and state and local jurisdiction include the wetland and a 100 foot buffer.

#### Wetland S2W1

Wetland S2W1 is located east of the "Survey for Ware Hall Site" and is predominantly a palustrine forested wetland (PFO1); however some more open areas were observed away from the review area (note that not all of wetland S2W1 was re-delineated). Wetland S2W1 has an overstory dominated by green ash, red maple, and slippery elm. Shrubs included northern spicebush and Japanese barberry (*Berberis thunbergii*) and invasive species (buckthorn and honeysuckle). Herbaceous species observed include sensitive fern and skunk cabbage (*Symplocarpus foetidus*). Soils in the wetland were hydric and met indicator A12, Thick Dark Surface and were saturated at 5 inches of depth with free water observed at 11 inches. Other hydrology indicators include water stained leaves, sediment deposits (possibly from runoff from adjacent parking lots or flooding) and drainage patterns. An upland plot was not completed for this wetland because the adjacent upland is a disturbed embankment along a road and parking lot area and is not representative of natural upland areas.

As previously determined following the initial delineation, wetland S2W1 is classified as a Bordering Vegetated Wetland (BVW) and state and local jurisdiction include the wetland and a 100 foot buffer.



Attachment 1:

Photographs



**Photo 1. Wetland S4W1 PFO Area**



**Photo 2. Wetland S4W2 wetland depression; also a stormwater control feature**



**Photo 3. Wetland S1W1; stormwater control structure isolated wetland**



**Photo 4. Wetland S1W2 interior PFO1 area**



**Photo 5. Wetland S1W3 PFO1 area near plot location**



**Photo 6. Wetland S2W1 interior areas, note skunk cabbage**



**Photo 7. View to north over existing sports fields**



Attachment 2:

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

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

Applicant: Middlesex School Prepared by: Sarah Allen, Bill McCloy, and Elizabeth Olliver Project location: Concord, 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: S1W2 Up		Transect Number: 1	Date of Delineation: 6/8/20
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*
<b>Herbaceous Layer:</b>				
<i>Parthenocissus quinquefolia</i>	5%	100%	Yes	FACU
<i>Acer rubrum</i> *	T	T	No	FAC
<b>Shrub Layer:</b>				
<i>Pinus strobus</i>	T	T	Yes	FACU
<b>Tree Layer:</b>				
<i>Picea abies</i>	60%	60%	Yes	N/A
<i>Acer rubrum</i> *	25%	25%	No	FAC
<i>Acer platanoides</i>	5%	5%	No	UPL
<i>Pinus resinosa</i>	10%	10%	No	FACU

\* 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: 0

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? No

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: Middlesex County, Massachusetts  
map number: 310A  
soil type mapped: Woodbridge fine sandy loam  
hydric soil inclusions: Yes, Ridgebury and Whitman

Are field observations consistent with soil survey? Yes

Remarks:

Fine sandy loam transitioning to silty loam with depth.

#### 2. Soil Description

Horizon	Depth (in.)	Matrix Color	Mottles Color
A	0-13	10YR 2/1	
B1	13-18	10YR 4/6	
B2	18+	10YR 5/8	

Remarks:

Fine sandy/silty loam. Silt content increases with depth. No saturation at depth.

#### 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	_____	<u>X</u> _____
<b>Wetland hydrology present:</b>		
Hydric soil present	_____	<u>X</u> _____
Other indicators of hydrology present	_____	<u>X</u> _____
<b>Sample location is in a BVW</b>	_____	<u>X</u> _____

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: Middlesex School Prepared by: Sarah Allen, Bill McCloy, and Elizabeth Olliver Project location: Concord, 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: S1W2 Wet		Transect Number: 1	Date of Delineation: 6/8/20
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*
<b>Herbaceous Layer:</b>				
<i>Onoclea sensibilis</i> *	80%	88%	Yes	FACW
<i>Toxicodendron radicans</i> *	5%	6%	No	FAC
<i>Parthenocissus quinquefolia</i>	5%	6%	No	FACU
<i>Glyceria spp.</i>	1%	1%	No	N/A
<i>Galium spp.</i>	T	T	No	N/A
<b>Shrub Layer:</b>				
<i>Lindera benzoin</i> *	20%	77%	Yes	FACW
<i>Ilex verticillate</i> *	5%	19%	No	FACW
<i>Viburnum recognitum</i> *	1%	4%	No	FAC
<b>Tree Layer:</b>				
<i>Quercus bicolor</i> *	10%	12%	No	FACW
<i>Acer rubrum</i> *	40%	49%	Yes	FAC
<i>Fraxinus pennsylvanica</i> *	25%	31%	Yes	FACW
<i>Ulmus rubra</i> *	5%	6%	No	FAC
<i>Tilia americana</i>	1%	1%	No	FACU

\* 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: 0

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: Middlesex County, Massachusetts  
map number: 310A  
soil type mapped: Woodbridge fine sandy loam  
hydric soil inclusions: Yes, Ridgebury and Whitman

Are field observations consistent with soil survey? Yes

Remarks:

Fine sandy loam transitioning to silty loam with depth.

#### 2. Soil Description

Horizon	Depth (in.)	Matrix Color	Mottles Color
A	0-7	10YR 2/1	
B1	7-14	10YR 4/1	10YR 5/2
B2	14-21	10YR 6/2	10YR 6/8 concentrations 8-10%

Remarks:

Rich wetland, dark A over depleted B. Saturated at 7+ in. depth. Sandy transitioning to silty with depth.

#### 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: \_\_\_\_\_
- Depth to soil saturation in observation hole: 7 in.

- 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	<u>X</u> _____	_____
<b>Wetland hydrology present:</b>		
Hydric soil present	<u>X</u> _____	_____
Other indicators of hydrology present	<u>X</u> _____	_____
<b>Sample location is in a BVW</b>	<u>X</u> _____	_____

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: Middlesex School Prepared by: Sarah Allen, Bill McCloy, and Elizabeth Olliver Project location: Concord, 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: S1W3 Up		Transect Number: 1	Date of Delineation: 6/8/20
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*
<b>Herbaceous Layer:</b>				
<i>Celastrus orbiculatus</i>	75%	85%	Yes	UPL
<i>Ulmus davidiana</i>	10%	11%	No	N/A
<i>Impatiens capensis</i> *	3%	4%	No	FACW
<b>Shrub Layer:</b>				
<i>Ulmus davidiana</i>	5%	100%	Yes	N/A
<b>Tree Layer:</b>				
<i>Picea abies</i>	30%	32%	Yes	N/A
<i>Pinus resinosa</i>	10%	11%	No	FACU
<i>Acer platanoides</i>	40%	42%	Yes	UPL
<i>Fraxinus americana</i>	5%	5%	No	FACU
<i>Acer saccharinum</i>	10%	11%	No	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: 0

Number of dominant non-wetland indicator plants: 4

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? No

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: Middlesex County, Massachusetts  
map number: 310A  
soil type mapped: Woodbridge fine sandy loam  
hydric soil inclusions: Yes, Ridgebury and Whitman

Are field observations consistent with soil survey? Yes

Remarks:

Fine sandy loam transitioning to silty loam with depth.

#### 2. Soil Description

Horizon	Depth (in.)	Matrix Color	Mottles Color
A	0-11	10YR 2/2	
B	11-21+	10YR 5/6	7.5 YR 5/8 (1%)

Remarks:

Fine/sandy/silty loam. Silt content increases with depth. No saturation at depth.

#### 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	_____	<u>X</u> _____
<b>Wetland hydrology present:</b>		
Hydric soil present	_____	<u>X</u> _____
Other indicators of hydrology present	_____	<u>X</u> _____
<b>Sample location is in a BVW</b>	_____	<u>X</u> _____

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: Middlesex School Prepared by: Sarah Allen, Bill McCloy, and Elizabeth Olliver Project location: Concord, 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: S1W3 wet		Transect Number: 1	Date of Delineation: 6/8/20
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*
<b>Herbaceous Layer:</b>				
<i>Equisetum sylvaticum</i> *	90%	78%	Yes	FACW
<i>Impatiens capensis</i> *	10%	9%	No	FACW
<i>Glyceria spp.</i>	10%	9%	No	N/A
<i>Aster spp.</i>	3%	3%	No	N/A
<i>Symplocarpus foetidus</i> *	1%	1%	No	OBL
<i>Toxicodendron radicans</i> *	1%	1%	No	FAC
<b>Shrub Layer:</b>				
<i>Berberis thunbergii</i>	3%	27%	Yes	FACU
<i>Rosa multiflora</i>	3%	27%	Yes	FACU
<i>Louicera spp.</i>	5%	45%	Yes	N/A
<b>Tree Layer:</b>				
<i>Acer saccharinum</i> *	20%	20%	Yes	FACW
<i>Ulmus rubra</i> *	10%	10%	No	FAC
<i>Acer rubrum</i> *	25%	25%	Yes	FAC
<i>Fraxinus pennsylvanica</i> *	30%	30%	Yes	FACW
<i>Quercus bicolor</i> *	10%	No	No	FACW
<i>Vitis labrusca</i>	1%	1%	No	FACU
<i>Celastrus orbiculatus</i>	1%	1%	No	UPL
<i>Euonymus fortunei</i>	2%	2%	No	N/A

\* 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: Middlesex County, Massachusetts  
map number: 310A  
soil type mapped: Woodbridge fine sandy loam  
hydric soil inclusions: Yes, Ridgebury and Whitman

Are field observations consistent with soil survey? Yes

Remarks:

Fine sandy loam transitioning to silty loam with depth.

**2. Soil Description**

Horizon	Depth (in.)	Matrix Color	Mottles Color
A	0-16	10YR 2/1	
B	16-20+	10YR 4/2	10YR 4/6

Remarks:

No standing water, but soil very damp. Almost saturated to surface.

**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: \_\_\_\_\_

✓ Depth to soil saturation in observation hole: ~2 in. \_\_\_\_\_

✓ Water marks: on trees \_\_\_\_\_

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 _____	_____
<b>Wetland hydrology present:</b>		
Hydric soil present	X _____	_____
Other indicators of hydrology present	X _____	_____
<b>Sample location is in a BVW</b>	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: Middlesex School Prepared by: Sarah Allen, Bill McCloy, and Elizabeth Olliver Project location: Concord, 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: S2W1 Wet		Transect Number: 1	Date of Delineation: 6/8/20
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*
<b>Herbaceous Layer:</b>				
<i>Symplocarpus foetidus</i> *	25%	27%	No	OBL
<i>Berberis thunbergii</i>	50%	54%	Yes	FACU
<i>Onoclea sensibilis</i> *	10%	11%	No	FACW
<i>Parthenocissus quinquefolia</i>	T	T	No	FACU
<i>Toxicodendron radicans</i> *	3%	3%	No	FAC
<i>Celastrus orbiculatus</i>	3%	3%	No	UPL
<i>Carex spp.</i>	1%	1%	No	N/A
<i>Circaea lutetiana</i>	1%	1%	No	N/A
<b>Shrub Layer:</b>				
<i>Berberis thunbergii</i>	10%	30%	Yes	FACU
<i>Lindera benzoin</i> *	15%	45%	Yes	FACW
<i>Ulmus rubra</i> *	5%	15%	No	FAC
<i>Ilex verticillate</i> *	3%	9%	No	FACW
<b>Tree Layer:</b>				
<i>Acer rubrum</i> *	30%	33%	Yes	FAC
<i>Ulmus rubra</i> *	30%	33%	Yes	FAC
<i>Fraxinus pennsylvanica</i> *	30%	33%	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: 2

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: Middlesex County, Massachusetts  
map number: 73B  
soil type mapped: Whitman fine sandy loam  
hydric soil inclusions: Yes, Ridgebury, Scarboro, and Swansea

Are field observations consistent with soil survey? No  
Remarks:  
Peat (Oi horizon) and gravelly fine sandy loam (Bg horizon) not observed.

**2. Soil Description**

Horizon	Depth (in.)	Matrix Color	Mottles Color
A	0-16	10YR 2/1	
B1	16-19	10YR 5/1	
B2	19+	10YR 6/1	

Remarks:  
Shallow layer/pocket of sand observed within first 3 inches of surface.  
Sandy deposit likely due to runoff from parking lot west of plot.

**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: 11 in.

- Depth to soil saturation in observation hole: 5 in.
- Water marks: \_\_\_\_\_
- Drift lines: \_\_\_\_\_
- Sediment Deposits: sandy deposits located within 3 in. of surface
- 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	<u>X</u> _____	_____
<b>Wetland hydrology present:</b>		
Hydric soil present	<u>X</u> _____	_____
Other indicators of hydrology present	<u>X</u> _____	_____
<b>Sample location is in a BVW</b>	<u>X</u> _____	_____

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: Middlesex School Prepared by: Sarah Allen, Bill McCloy, and Elizabeth Olliver Project location: Concord, 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: S4W1 Up		Transect Number: 1	Date of Delineation: 6/8/20
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*
<b>Herbaceous Layer:</b>				
<i>Malus coronaria</i>	5%	71%	Yes	N/A
<i>Parthenocissus quinquefolia</i>	T	T	No	FACU
<i>Carex spp.</i>	2%	29%	No	N/A
<i>Quercus alba</i>	T	T	No	FACU
<i>Acer platanoides</i>	T	T	No	UPL
<i>Prunus serotina</i>	T	T	No	FACU
<b>Shrub Layer:</b>				
<i>Fagus grandifolia</i>	40%	87%	Yes	FACU
<i>Quercus rubra</i>	2%	4%	No	FACU
<i>Prunus serotina</i>	2%	4%	No	FACU
<i>Vaccinium corymbosum</i>	2%	4%	No	FACW
<b>Sapling Layer:</b>				
<i>Fagus grandifolia</i>	5%	100%	Yes	FACU
<b>Tree Layer:</b>				
<i>Quercus rubra</i>	30%	32%	Yes	FACU
<i>Quercus alba</i>	40%	42%	Yes	FACU
<i>Fagus grandifolia</i>	20%	21%	Yes	FACU
<i>Acer platanoides</i>	5%	5%	Yes	UPL

\* 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: 0

Number of dominant non-wetland indicator plants: 7

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? No

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: Middlesex County, Massachusetts

map number: 71B

soil type mapped: Ridgebury fine sandy loam

hydric soil inclusions: Yes, Whitman

Are field observations consistent with soil survey? Yes

Remarks:

Fine sandy loam transitioning to silty loam with depth.

#### 2. Soil Description

Horizon	Depth (in.)	Matrix Color	Mottles Color
A	0-11	7.5 YR 2/1	
B	11-16+	10 YR 4/4	

Remarks:

Fine sandy/silty loam. Silt content increases with depth. No saturation at depth.

#### 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_____
<b>Wetland hydrology present:</b>		
Hydric soil present	_____	X_____
Other indicators of hydrology present	_____	X_____
<b>Sample location is in a BVW</b>	_____	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: Middlesex School Prepared by: Sarah Allen, Bill McCloy, and Elizabeth Olliver Project location: Concord, 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: S4W1 Wet		Transect Number: 1	Date of Delineation: 6/8/20
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*
<b>Herbaceous Layer:</b>				
<i>Impatiens capensis</i> *	75%	81%	Yes	FACW
<i>Onoclea sensibilis</i> *	5%	5%	No	FACW
<i>Aster</i> ???	3%	3%	No	N/A
<i>Toxicodendron radicans</i> *	5%	5%	No	FAC
<i>Rosa multiflora</i>	5%	5%	No	FACU
<b>Shrub Layer:</b>				
<i>Rhamnus cathartica</i> *	10%	25%	No	FAC
<i>Acer rubrum</i> *	20%	50%	Yes	FAC
<i>Fraxinus pennsylvanica</i> *	5%	13%	No	FACW
<i>Louicera</i> spp.	3%	8%	No	N/A
<i>Malus coronaria</i>	2%	5%	No	N/A
<b>Tree Layer:</b>				
<i>Acer rubrum</i> *	60%	67%	Yes	FAC
<i>Quercus rubra</i>	10%	11%	No	FACU
<i>Fraxinus pennsylvanica</i> *	20%	22%	No	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: 3

Number of dominant non-wetland indicator plants: 0

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: Middlesex County, Massachusetts  
map number: 71B  
soil type mapped: Ridgebury fine sandy loam  
hydric soil inclusions: Yes, Whitman

Are field observations consistent with soil survey? Yes

Remarks:

Fin sandy loam transitioning to silty loam with depth.

#### 2. Soil Description

Horizon	Depth (in.)	Matrix Color	Mottles Color
A	0-17+	10YR 2/1	

Remarks:

Dense gravel at 17. Damp, almost saturated despite very dry conditions.

#### 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: \_\_\_\_\_
- 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

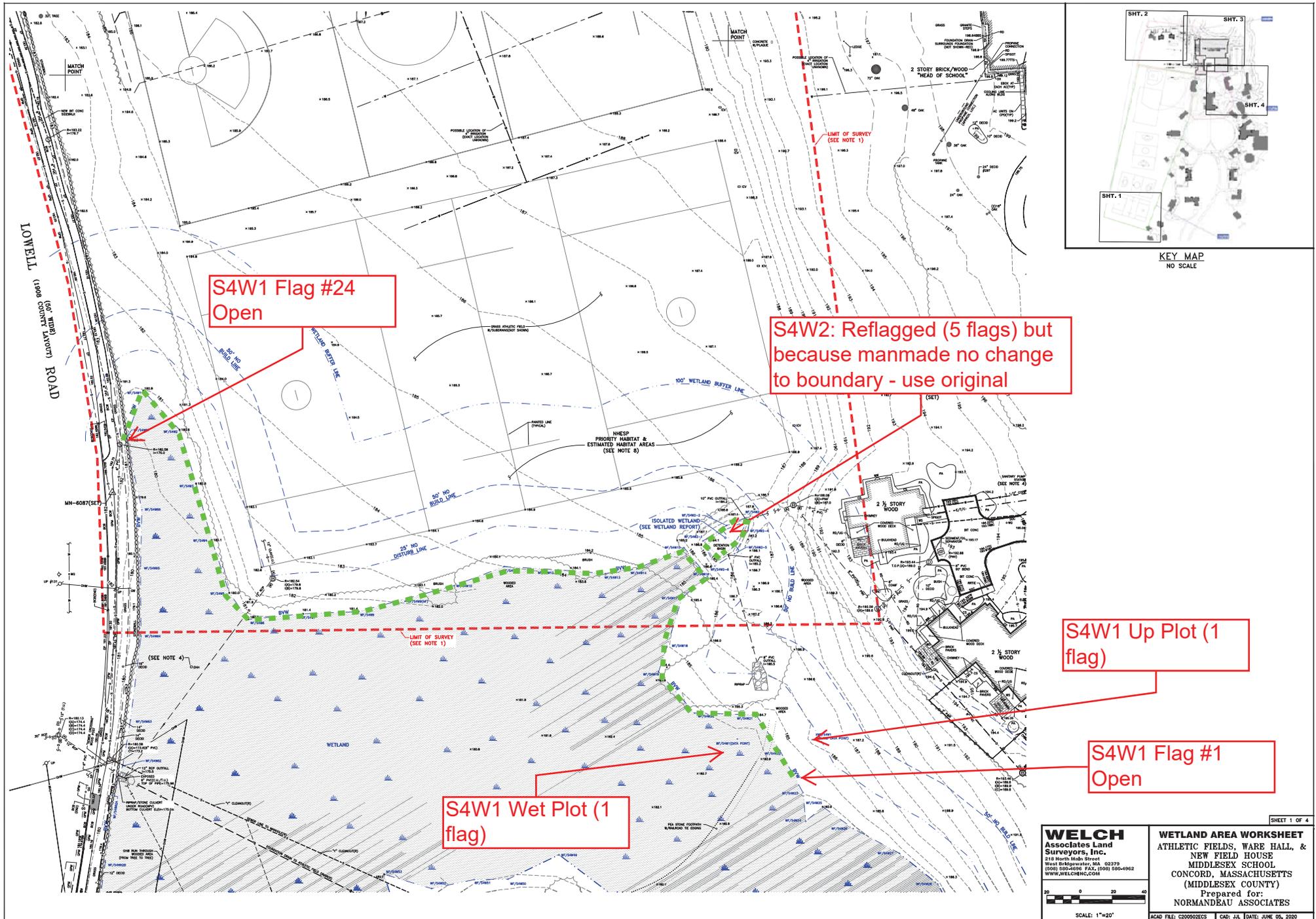
	Yes	No
Number of wetland indicator plants ≥ # of non-wetland indicator plants	X _____	_____
<b>Wetland hydrology present:</b>		
Hydric soil present	X _____	_____
Other indicators of hydrology present	X _____	_____
<b>Sample location is in a BVW</b>	X _____	_____

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



Attachment 3:

Sketch Map of Re-Delineated Wetland Areas



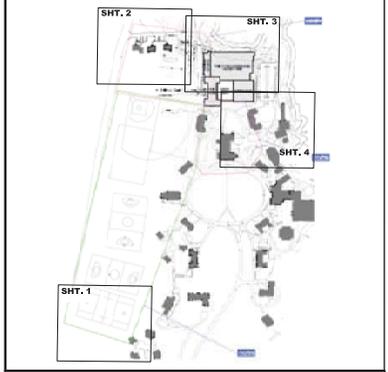
S4W1 Flag #24  
Open

S4W2: Reflagged (5 flags) but  
because manmade no change  
to boundary - use original

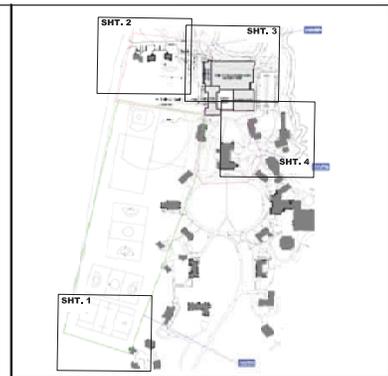
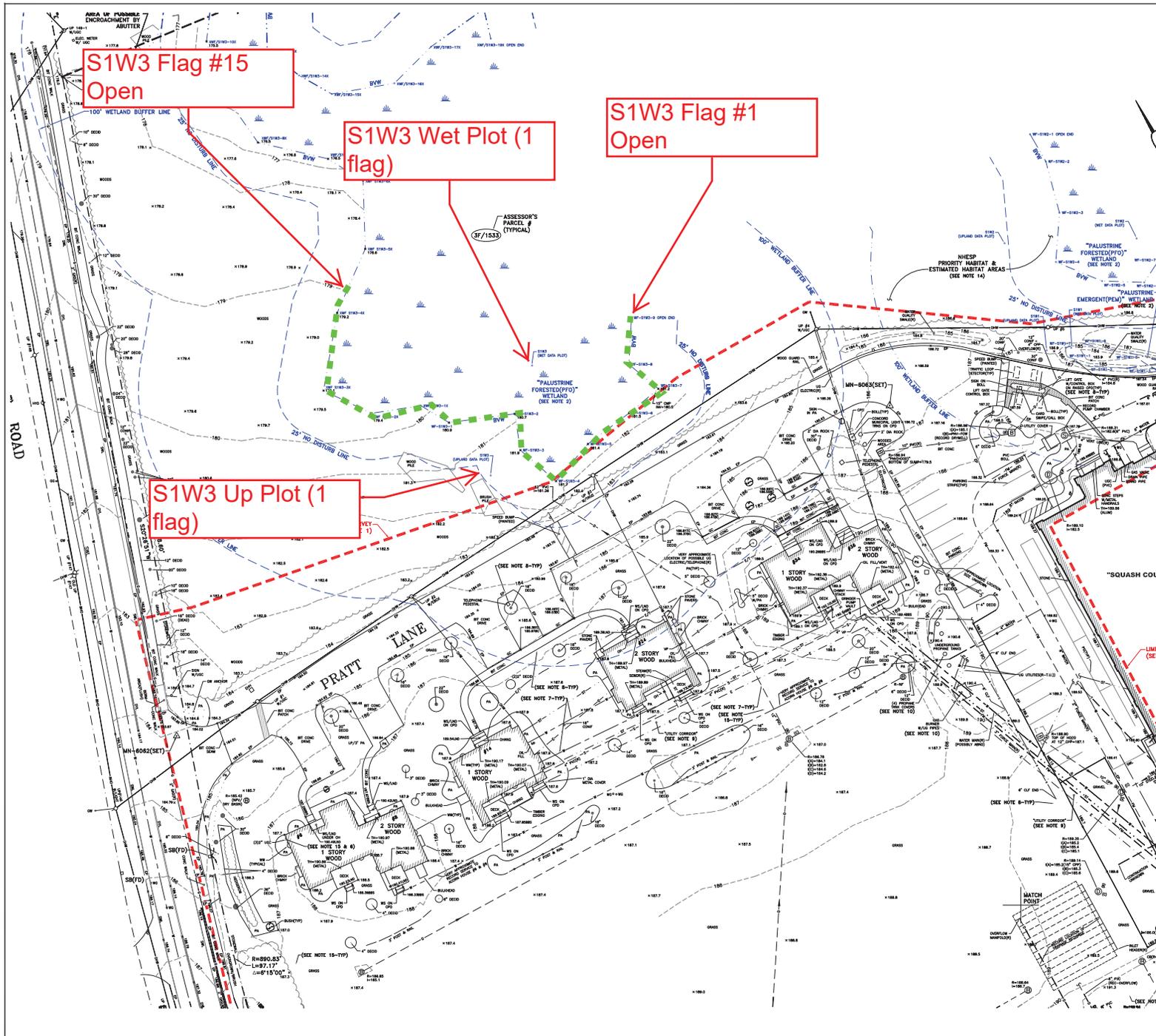
S4W1 Up Plot (1  
flag)

S4W1 Flag #1  
Open

S4W1 Wet Plot (1  
flag)



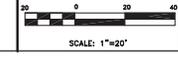
KEY MAP  
NO SCALE

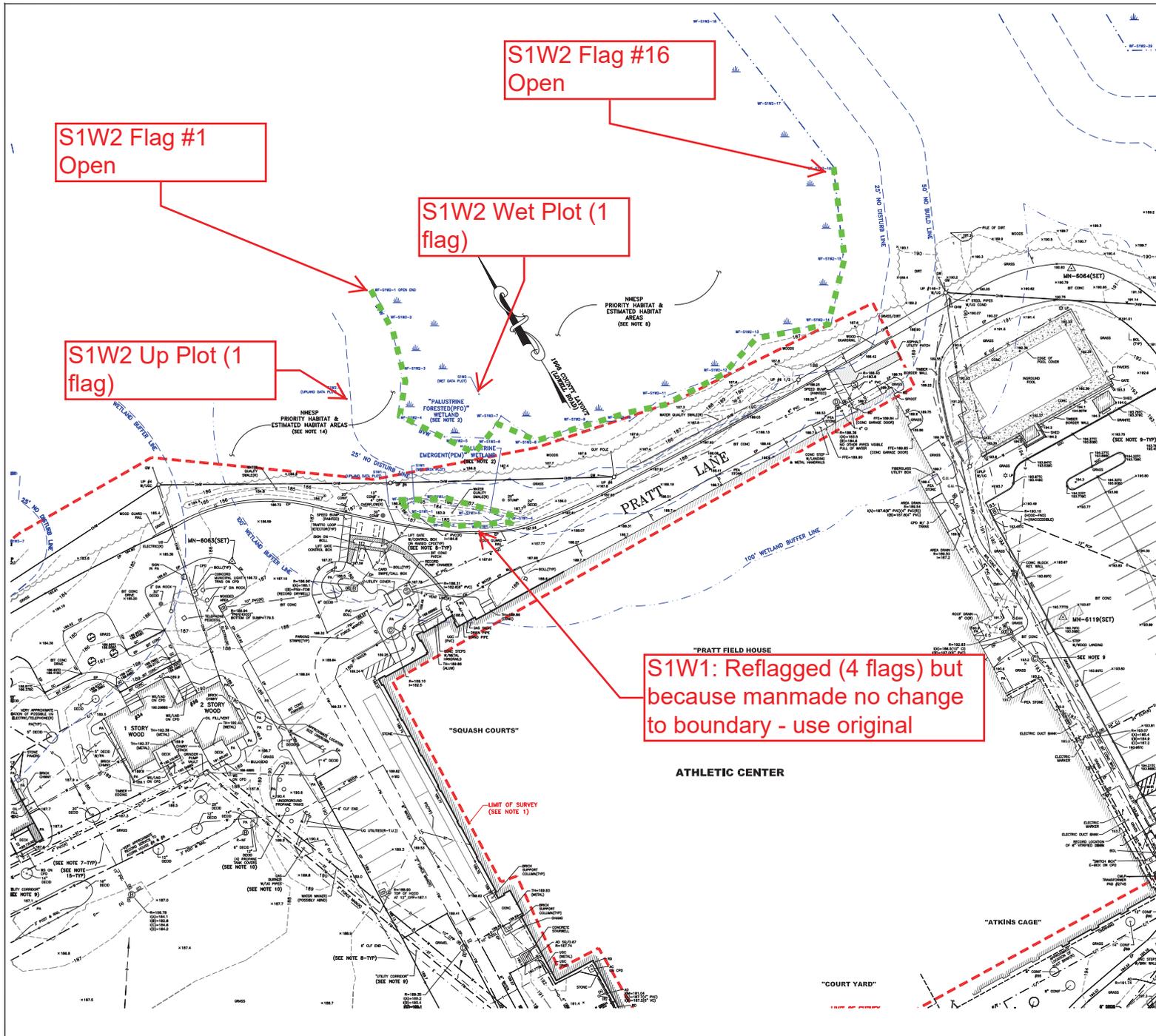


KEY MAP  
NO SCALE

**WELCH Associates Land Surveyors, Inc.**  
 218 North Main Street  
 West Brimfield, MA 02379  
 (508) 536-4496 FAX: (508) 560-4902  
 WWW.WELCHINC.COM

**WETLAND AREA WORKSHEET**  
 ATHLETIC FIELDS, WARE HALL, &  
 NEW FIELD HOUSE  
 MIDDLESEX SCHOOL  
 CONCORD, MASSACHUSETTS  
 (MIDDLESEX COUNTY)  
 Prepared for:  
 NORMANDEAU ASSOCIATES





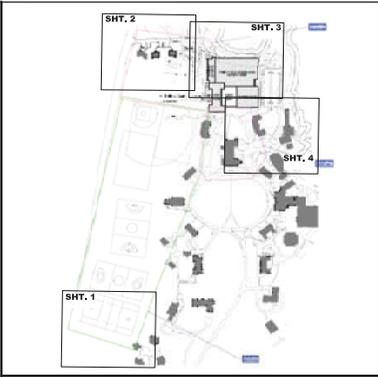
S1W2 Flag #1  
Open

S1W2 Flag #16  
Open

S1W2 Wet Plot (1  
flag)

S1W2 Up Plot (1  
flag)

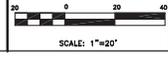
S1W1: Reflagged (4 flags) but  
because manmade no change  
to boundary - use original



KEY MAP  
NO SCALE

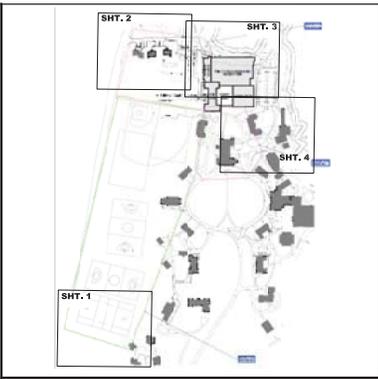
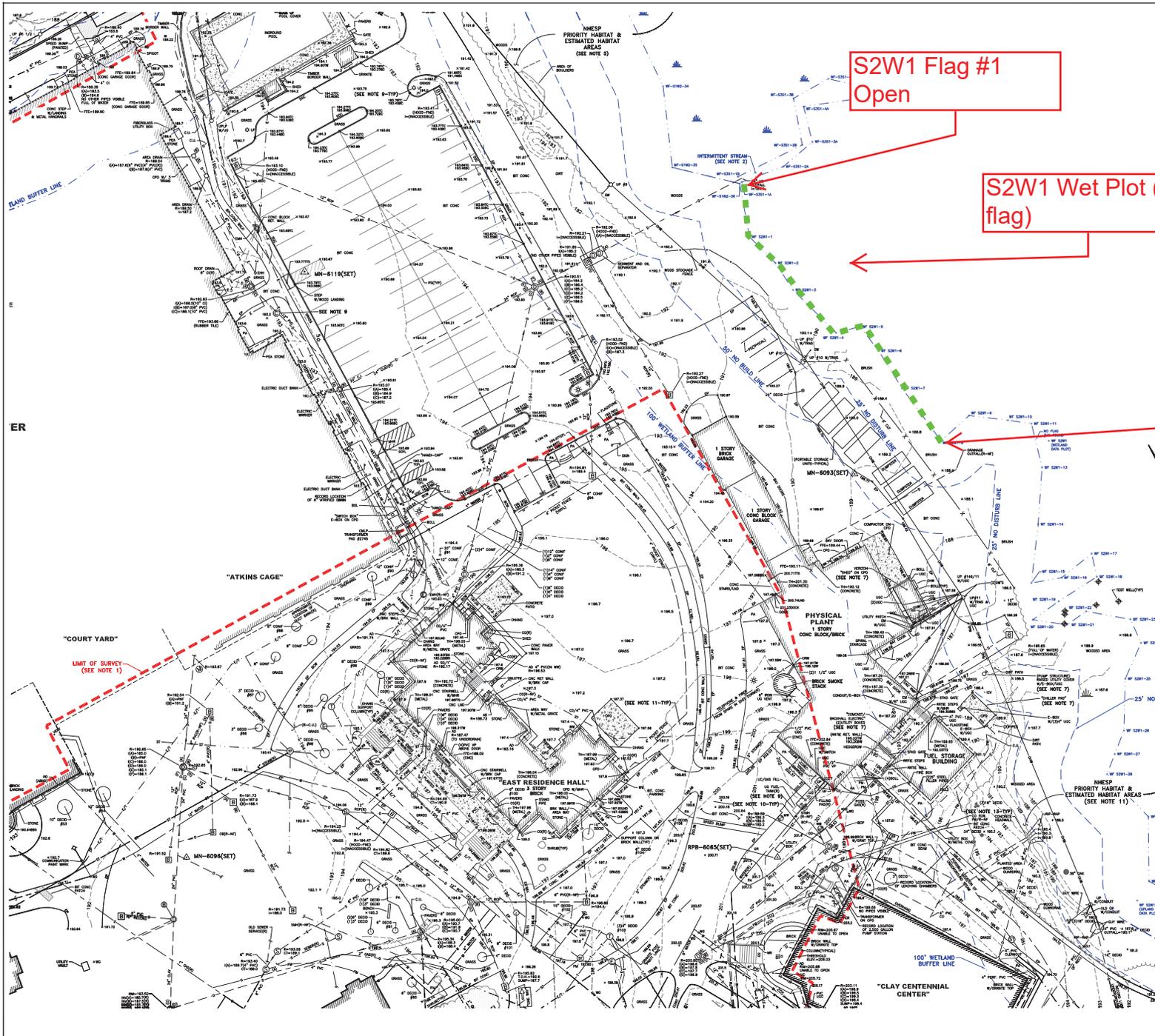
**WELCH**  
Associates Land  
Surveyors, Inc.  
218 North Main Street  
West Bridgewater, MA 02370  
(508) 558-4596 FAX: (508) 560-4902  
WWW.WELCHINC.COM

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NEW FIELD HOUSE  
MIDDLESEX SCHOOL  
CONCORD, MASSACHUSETTS  
(MIDDLESEX COUNTY)  
Prepared for:  
NORMANDEAU ASSOCIATES



SCALE: 1"=20'

ACAD FILE: C200502CS CAD: JIL DATE: JUNE 05, 2020



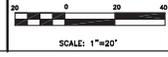
S2W1 Flag #9  
Open

S2W1 Flag #1  
Open

S2W1 Wet Plot (1  
flag)

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 CONCORD, MASSACHUSETTS  
 (MIDDLESEX COUNTY)  
 Prepared for:  
 NORMANDEAU ASSOCIATES



## APPENDIX G



**View to north over existing sports fields**