Detailed Wildlife Habitat Evaluation

Douglas Schools Project
21 Davis Street
Douglas, Massachusetts

Prepared for:

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Boston, MA 02110

Prepared by:

Daniel Wells, M.S.
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1. INTRODUCTION

Hyla Ecological Services, Inc. (HES) conducted a Detailed Wildlife Habitat Evaluation at the site of the proposed Douglas Schools Project at 21 Davis Street in Douglas, MA (Figure 1). The evaluation was conducted in accordance with the “Massachusetts Wildlife Habitat Protection Guidelines for Inland Wetlands” manual produced by the Mass Department of Environmental Protection (DEP), hereafter the “DEP manual.” By following the DEP manual’s guidelines, HES determined that “Appendix B – Detailed Wildlife Habitat Evaluation” was the appropriate evaluation method for this project due to the proposed alteration of a small amount of “Vernal Pool Habitat” wetland resource area. By definition, areas that are located within 100 feet of a Certified or documented Vernal Pool within the limits of a Wetland Resource Area are considered “Vernal Pool Habitat.” (310 CMR 10.04). The proposed alteration to Vernal Pool Habitat is within portions of the “Series 1 Wetland” BVW surrounding a Vernal Pool which was documented by HES in April 2011 as having egg masses of wood frogs (Rana sylvatica) and spotted salamanders (Ambystoma maculatum), both “obligate breeding” vernal pool indicator amphibians.

The project requires the alteration of a total of 1,641 s.f. of Vernal Pool Habitat between two adjacent “Impact Areas.” According to Section III.-F. of the DEP manual: “In all resource areas, any direct alteration associated with certified or documented vernal pool habitat requires a detailed wildlife habitat evaluation (Appendix B).” Alterations are proposed for two additional types of wetland resource areas which are subject to the jurisdiction of the MA Wetlands Protection Act Regulations (310 CMR 10.00): Bordering Vegetated Wetland (BVW) (3,664 s.f.) and Riverfront Area (1,750 s.f.), however alteration amounts in these areas do not trigger thresholds which require an Appendix B evaluation according to the DEP manual. The proposed alteration to BVW is less than 5,000 s.f. The proposed alteration to Riverfront Area is only a temporary disturbance; is less than 5,000 s.f.; and will take place in previously disturbed habitat, thus Appendix B is not required.

2. PROJECT DESCRIPTION

The proposed Douglas Schools Project encompasses approximately 16 acres of a 155-acre site owned by the Town of Douglas. The site presently contains Douglas Elementary and Intermediate Schools, and adjacent play fields, driveways, and parking lots. The site is bordered to the south by undeveloped woodlands, with a network of cross-country running trails. The project will include the construction of a new elementary school, repair/conversion of the existing Intermediate School to a middle school, and the construction of a track and field complex.

The wetland resource areas within the site provide habitat for numerous mammalian, avian, reptile and amphibian species. Contiguous upland forest is present to the south of the project area, and may provide habitat for wildlife species that utilize both wetland and upland habitats for parts of their life cycle, including vernal pool-breeding amphibians.
3. METHODS

Daniel Wells of HES visited the site August 17, 2011. I walked throughout the project area, and conducted detailed inspections of the proposed wetland impact and wetland replication areas. I also took note of important wildlife habitat features in the vicinity of the impact areas. The locations and square footage of proposed alterations are based on information provided by Schofield Brothers of New England, including the “Notice of Intent,” dated July 29, 2011, the “Wetland Replication Area Exhibit Plan,” dated August 8, 2011 and by direct communication. Schofield Brothers also provided a CAD version of the site plan, which was used to create maps of the wetland boundaries and Impact Areas in this report.

4. IMPACT AREAS (see Attachment A; Figure 2)

Two small areas of Vernal Pool Habitat will be altered for the construction of the project, collectively totaling 1,641 s.f. (Table 1). Appendix B Summary Sheet and Field Data Forms are provided in Attachment A. Figure 2 shows a detailed plan of the location of the impact areas, along with the proposed limits-of-work and wetland lines.

<table>
<thead>
<tr>
<th>Impact Area</th>
<th>Type of Resource Area</th>
<th>Size of Impact (s.f.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact Area 1</td>
<td>Vernal Pool Habitat</td>
<td>418</td>
</tr>
<tr>
<td>Impact Area 2</td>
<td>Vernal Pool Habitat</td>
<td>1,223</td>
</tr>
<tr>
<td><strong>TOTAL VERNAL POOL HABITAT</strong></td>
<td></td>
<td><strong>1,641</strong></td>
</tr>
</tbody>
</table>

Impact Area 1

This small section of red maple swamp habitat is located within the western portion of the Series 1 BVW, north of wetland flag BVW 63 and south of the fill pile at flags FPH and FPG (Photos 1 & 2). There is a dense tree canopy comprised of red maple (*Acer rubrum*) and black birch (*Betula lenta*), with a few white pines (*Pinus strobus*). Prominent shrub species include sweet pepperbush (*Clethra alnifolia*), witch hazel (*Hamamelis virginiana*), highbush blueberry (*Vaccinium corymbosum*) and arrowwood (*Viburnum dentatum*). Herbaceous species present include cinnamon fern (*Osmunda cinnamomea*), poison ivy (*Toxicodendron radicans*), with some moss covering rocks and hummocks.

There were some small pockets of open, mucky-soiled basins, a few areas of which contained shallow standing water, less than one inch deep, and evidence that the water may get as deep as three to four inches upon maximum flooding stage. When viewed in April 2011, this area did not contain enough standing water to provide amphibian breeding habitat. Beyond the pockets of dried basins and shallow puddles of standing water, the remainder of the area contains moist soil with a dense leaf litter and scattered small coarse woody debris and small rocks. The northern edge of the impact area abuts the fill pile, which contains large rocks with numerous crevices.
The wildlife habitat here consists of moist to seasonally-flooded soils, shaded by a mature tree and shrub canopy and with dense leaf litter and small cover objects. When flooded, this small patch of wetland may provide foraging and sheltering habitat for amphibians such as wood and green frogs (*Rana clamitans*). The moist leaf litter and cover objects may provide foraging and sheltering habitat for spotted salamanders and redback salamanders (*Plethodon cinereus*), and garter snakes (*Thamnophis sirtalis*). Small
mammals likely make use of the scattered woody debris and small rock piles, and especially the large boulders on the fill pile.

There is a large dead, standing hardwood tree (Photo 3), the base of which is located just outside of the impact area however because its uppermost branches extend over the impact area it is considered to be located in the impact area (see note on Appendix B field form). Although no large cavities were observed, this habitat feature is clearly valuable as an insect food source to woodpeckers, and a cavity and perching source to small birds and mammals. Two living white pines are present with DBH greater than 30 inches. These may provide nesting habitat for pine warblers (*Dendroica pinus*).

Poison ivy, arrowwood and highbush blueberry may provide a source of berries for birds and small mammals. Witch hazel nuts and oak acorns present from adjacent uplands provide a valuable nut food source.

**Impact Area 2**

Impact Area 2, referred to as the “Drain Swale Area” by Schofield Brothers in the Notice of Intent, is a unique, man-made section of the Series 1 Wetland BVW (Photo 4). The artificial fill pile apparently blocked the original wetland discharge point which created a small wet meadow between the fill pile and the existing athletic fields.
The habitat in Impact Area 2 is dominated by wet meadow habitat, which surrounds the fill pile from between flags FPA to FPE and BVW56 to BVW52. The habitat present on August 17 consisted of a dense patch of flowering herbaceous plants, dominated by Joe-pye weed (*Eupatorium sp.*)) and goldenrod (*Solidago sp.*). Wetland indicator sedges and rush noted in the Notice of Intent were obscured by the 4-to-5-foot tall wildflowers. No open bare ground or mucky basins were present, nor were there any established shrubs or trees.

The wildflowers were actively utilized by butterflies including Eastern tiger swallowtail (*Papilio glaucus*) and viceroy (*Limenitis archippus*), and a variety of bees and other insects. The wet meadow may provide temporary sheltering habitat for frogs and snakes but its main wildlife habitat value is for nectar-feeding insects or seed-eating small mammals.

Along the southern edge of Impact Area 2 there is a narrow sliver of red maple swamp habitat south of the existing stone wall and extending from flags FPG and FPF northeast to flag BVW 51 (Photo 5). This habitat is similar to that described in Impact Area 1, and contains leaf cover from small black birch trees and witch hazel, and scattered highbush blueberry, poison ivy and sweet pepperbush. The wildlife habitat here consists of rocks from the stone wall, with crevices large enough to provide cover for small mammals and snakes; berries from blueberry and poison ivy and the nuts provided by witch hazel. This thin strip of swamp habitat along the edge of the Impact Area will not be altered, only the northern side of the stone wall (Fred King of Schofield Brothers, pers comm.).
As noted on the Appendix B field form, a large dead hardwood tree is located just outside of the Impact Area, south of flag FPF (visible in Photo 4, the middle of three visible dead trees). Unlike the large dead tree in Impact Area 1, this dead tree technically is not located inside the Impact Area, however it is nearby enough to warrant mention. It provides woodpecker foraging habitat, and potential cavity shelter for small birds and mammals.

5. DISCUSSION

Impact Area 1

Given its small size (approximately 418 s.f.) and scarcity of “Important Habitat Characteristics” from the Appendix B field form, the proposed alteration of Impact Area 1 will not substantially reduce the site’s capacity to provide important wildlife habitat functions. With the exception of the large standing dead tree, the types of wildlife habitat to be altered will be abundant elsewhere within undeveloped portions of the site after construction. Although classified as “Vernal Pool Habitat,” the habitat in Impact Area 1 is not suitable for breeding by wood frogs or spotted salamanders, or other vernal pool
breeding wildlife. The habitat value to wood frogs and spotted salamanders includes foraging and sheltering habitat in the form of moist, shaded soils with a thick leaf litter and scattered rocks and woody debris cover objects. This type of habitat is present throughout the remainder of the Series 1 Wetland BVW and will remain abundant in the unaltered portions of the wetland, particularly the areas immediately adjacent to the vernal pool. Additionally, this type of habitat function will be created in Wetland Replication Area 1, thus there will be a net increase in Vernal Pool Habitat upon project completion.

The removal of a large dead hardwood tree is the lone wildlife habitat impact of significance. Two additional large dead trees (visible in Photo 4) are outside of the limits-of-work and therefore will remain following construction of the project, therefore the habitat function of this large tree will be present in the two nearby dead trees. If possible, I recommend that large pieces of the cut tree be placed laying on the ground within either the undisturbed Vernal Pool Habitat or within Wetland Replication Area 1, so that it may continue to provide wildlife habitat albeit in a slightly different form. Decaying logs will provide insects o birds and mammals, and the logs will provide cover for salamanders.

Impact Area 2

Given its artificial nature and lack of “Important Habitat Characteristics,” the proposed alteration to Impact Area 2 will not substantially reduce the site’s capacity to provide important wildlife habitat functions. Although technically classified as Vernal Pool Habitat, the wet meadow habitat which dominates the Impact Area provides limited habitat value to wetland wildlife, including no breeding habitat and very limited foraging and sheltering habitat to wood frogs or spotted salamanders. Its main habitat functions include nectaring habitat to common butterflies and other insects and foraging and sheltering habitat to small mammals. The thin strip of red maple swamp habitat along the Impact Area’s southern edge will not be altered.

Alteration to Impact Area 2 will be mitigated by the restoration of wet meadow habitat within Wetland Replication Area 2. This will allow for the persistence of butterflies, bees and small mammals which presently utilize the habitat.

Wetland Replication Area 1

I also inspected the habitat within the proposed “Wetland Replication Area 1.” The plan to leave existing mature red oaks is an excellent idea. This will maintain a majority of the existing shade for the Vernal Pool, and thus will minimize any changes to its hydrology during construction of the replication area. I would recommend that this replication area contain numerous small woody debris objects and possibly large logs from the large cut dead tree, similar to that present within the undisturbed portions of the Series 1 wetland.
6. CONCLUSIONS

The collective alteration of Vernal Pool Habitat is 1,641 s.f. in extent. The wildlife habitat functions of these impact areas collectively will be restored and/or replicated to the extent that the site’s capacity to provide the wildlife habitat functions will not be reduced substantially. The few existing “Important Habitat Features” present (as listed in the DEP manual) such as hard mast and berry producing plants, standing dead trees, mammal burrows, woody debris, stone walls and dense herbaceous cover will remain present in abundance throughout the site outside of the LOW following construction. A total of 5,505 s.f. of Wetland Replication Area will be restored in a manner that provides wildlife habitat functions similar to those altered. The existing Vernal Pool will not be impacted.

I therefore conclude that the Douglas Schools Project has been designed to avoid, minimize and mitigate adverse effects on wildlife habitat, and that it will not, following two growing seasons of project completion and thereafter, substantially reduce its capacity to provide important wildlife habitat functions.
FIGURE 1
Legend

- IMPACT AREA 1
- IMPACT AREA 2
- Limits-of-Work

Figure 1 - Orthophoto View of Wildlife Habitat Evaluation Location
Douglas Schools Project

GIS Data Source: "Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs"
Engineering Data: Schofield Brothers of New England, Inc.

Date: 8/22/2011

HYLAecological
(978) 505-0923
www.hyla-ecological.com
FIGURE 2
Figure 2 - Detailed Wildlife Habitat Assessment Plan
Douglas Schools Project, Douglas, MA

Prepared for:
DiNisco Design Partnership

Engineering Data Source:
Schofield Bros. of New England

Prepared by:
Hyla Ecological Services, Inc.

Date: 8/22/2011

LEGEND
- IMPACT AREA 1
- IMPACT AREA 2
- BVW (SERIES 1 WETLAND)
- VERNAL POOL
- WETLAND REPLICATION AREA
- 100-FOOT BUFFER FROM VERNAL POOL
- LIMITS-OF-WORK

IMPACT AREA 1
(418 s.f.)

IMPACT AREA 2
(1,223 s.f.)

WETLAND REPLICATION AREA 1

Vernal Pool
Series 1 Wetland

100-FOOT BUFFER
ATTACHMENT A
APPENDIX A
Simplified Wildlife Habitat Evaluation

IMPORTANT HABITAT FEATURES: Direct alterations to the following important habitat features in resource areas may be permitted only if they will have no adverse effect (Refer to Section V)

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

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

- stream bed riffle zones (e.g. in eastern MA)
- springs
- gravel stream bottoms (trout and salmon nesting substrate)
- plunge pools (deep holes) in rivers or streams
- medium to large, flat rock substrates in streams

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

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

Part 1: Summary Sheet

Project Name: Douglas Schools Project

Location: 21 Davis St, Douglas, MA

Date: 8/17/11

Size of Area Being Impacted: 1,641 s.f.

Impact Areas (linear feet, square feet, or acres for each of the impact areas within the site)

<table>
<thead>
<tr>
<th>Name</th>
<th>Waterbody/Waterway</th>
<th>Wetland</th>
<th>Upland*</th>
<th>Total Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Impact Area 1</td>
<td></td>
<td>Series 1 BW</td>
<td></td>
<td>418 s.f.</td>
</tr>
<tr>
<td>2. Impact Area 2</td>
<td></td>
<td>Series 1 BW</td>
<td></td>
<td>1,223 s.f.</td>
</tr>
<tr>
<td>3.</td>
<td></td>
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</tr>
<tr>
<td>4.</td>
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<tr>
<td>5.</td>
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<tr>
<td>6.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Riverfront Area/BLSF

Attach Sketch map and/or photos of the Impact Areas see report

Narrative Description of Site (attach separate page if necessary)

Certification

I hereby certify that this project has been designed to avoid, minimize, and mitigate adverse effects on wildlife habitat, and that it will not, following two growing seasons of project completion and thereafter, substantially reduce its capacity to provide important wildlife habitat functions.

Signature of Wildlife Specialist (per 310 CMR 10.60 (1) (b))
Appendix B: Detailed Wildlife Habitat Evaluation
Part 2: Field Data Form
(For each wetland or non-wetland resource area)

I. GENERAL INFORMATION

Project Location (from NOI page 1): Douglas Schools Project, 21 Davis St.
Impact Area (number/name): Impact Area 1
Date(s) of site visit(s) and data collection: 8/17/11
Weather Conditions During Site Visit (if snow cover, include depth): Sunny, 80°F
Date this form was completed: 8/17/11
Person completing form per 310 CMR 10.60(l)(b): Daniel Wells, M.S.

The information on this data sheet is based on my observations unless otherwise indicated

Signature: [Signature]

II. SITE DESCRIPTION (complete A or B under Classification -See instructions for full description)

A. Classification

1. For Wetland Resource Areas, complete the following:

   System: ____________________________
   Subsystem: ____________________________
   Class: ____________________________
   Subclass: ____________________________

   Hydrology/Water Regime:
   □ Permanently flooded
   □ Intermittently exposed
   □ Semi-permanently flooded
   □ Seasonally flooded
   □ Saturated
   □ Temporarily flooded
   □ Intermittently flooded
   □ Artificially flooded

2. For Riverfront or Bordering Land Subject to Flooding Resource Areas, complete the following:

   Use a terrestrial classification system such as one of the two listed below:


   Community Name ____________________________
   Vegetation Description ____________________________
   Physical Description ____________________________
B. Inventory (Plant community)

%Cover: 80 Trees (>20') 60 Shrubs (<20') 5 Woody Vines 5 Mosses 5 Herbaceous

Plant Lists (species that comprise 10% or more of the vegetative cover in each strata; "**" designates a dominant plant species for the strata):

<table>
<thead>
<tr>
<th>Strata</th>
<th>Plant Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-</td>
<td>Red Maple ** (Acer rubrum)</td>
</tr>
<tr>
<td>T-</td>
<td>Black Birch * (Betula nigra)</td>
</tr>
<tr>
<td>S-</td>
<td>Sweet Pepperbush+ (Celtis australis)</td>
</tr>
<tr>
<td>S-</td>
<td>Highbush Blueberry (Vaccinium corymbosum)</td>
</tr>
<tr>
<td>H-</td>
<td>Cinnamon Fern+ (Osmunda cinnamomea)</td>
</tr>
</tbody>
</table>

C. Inventory (Soils)

Soil Survey Unit: 4228 Canton fine sandy loam, 2 to 8 percent slopes, extremely stony
Drainage Class: Well drained
Texture (upper part): Frangible coarse-loamy gley soils
Depth: 18-36 inches
Depth to Water Table

III. IMPORTANT HABITAT FEATURES (Complete for all resource areas)

If the following habitat characteristics are present, describe & quantify them on a separate sheet & attach

**Wildlife Food**

Important Wetland/Aquatic Food Plants (smartweeds, pondweeds, wild rice, bulrush/wild celery)

- Abundant
- Present
- Absent

Important Upland/Wetland Food Plants (hard mast and fruit/berry producers)

- Abundant
- Present
- Absent

Shrub thickets or streambeds with abundant earthworms (American woodcock)

- Present
- Absent

Shrub and/or herbaceous vegetation suitable for veery nesting

- Present
- Absent

Number of trees (live or dead) > 30" DBH: 3 (2 white pines, 1 large dead hardwood*)

Number (or density) of Standing Dead Trees (potential for cavities and perches):

<table>
<thead>
<tr>
<th>6-12&quot; dbh</th>
<th>12-18&quot; dbh</th>
<th>18-24&quot; dbh</th>
<th>&gt;24&quot; dbh</th>
</tr>
</thead>
</table>

* Note - very large dead hardwood tree located just outside impact area by about 10 feet, but top portions overhang into impact area, therefore I consider it in the impact area.
Number of Tree Cavities in trunks or limbs of:

- 6-12" diameter (e.g., tree swallow, saw whet owl, screech owl, bluebird, other songbirds)
- 12-18" diameter (e.g., hooded merganser, wood duck, common goldeneye, mink)
- >18" diameter (e.g., hooded merganser, wood duck, common goldeneye, common merganser, barred owl, mink, raccoon, fisher)

Small mammal burrows

- Abundant
- Present (Presumed)
- Absent

Cover/Perches/Basking/Denning/Nesting Habitat

- Dense herbaceous cover (voles, small mammals, amphibians & reptiles)
- Large woody debris on the ground (small mammals, mink, amphibians & reptiles)
- Rocks, crevices, logs, tree roots or hummocks under water’s surface (turtles, snakes, frogs)
- Rocks, crevices, fallen logs, overhanging branches or hummocks at, or within 1 m above the water’s surface (turtles, snakes, frogs, wading birds, wood duck, mink, raccoon)
- Rock piles, crevices or hollow logs suitable for:
  - otter
  - mink
  - porcupine
  - bear
  - bobcat
  - turkey vulture
- Live or dead standing vegetation overhanging water or offering good visibility of open water (e.g., osprey, kingfisher, flycatchers, cedar waxwings)

Depressions that may serve as seasonal (vernal/autumnal) pools:

- Present
- Absent

Standing water present at least part of the growing season, suitable for use by:

- breeding amphibians
- non-breeding amphibians (foraging, rehydration)
- turtles
- foraging waterfowl

Sphagnum hummocks or mats, moss covered logs or saturated logs, overhanging or directly adjacent to pools of standing water in spring (four-toed salamander):

- Present
- Absent

**IMPORTANT HABITAT CHARACTERISTICS (If present, describe & quantify them on a separate sheet)**

Medium to large (> 6"), flat rocks within a stream (cover for stream salamanders and nesting habitat for spring & two-lined salamanders)

- Present
- Absent

Flat rocks and logs on banks or within exposed portions of streambeds (cover for stream salamanders and nesting habitat for dusky salamanders)

- Present
- Absent

Underwater banks of fine silt and/or clay (beaver, muskrat, otter)

- Present
- Absent

Undercut or overhanging banks (small mammals, mink, weasels)

- Present
- Absent

Vertical sandy banks (bank swallow, kingfisher)

- Present
- Absent

Areas of ice-free open water in winter

- Present
- Absent

Mud flats

- Present
- Absent

Exposed areas of well-drained, sandy soil suitable for turtle nesting

- Present
- Absent

**WILDLIFE DENS/NESTS (If present, describe & quantify them on the back of this sheet)**

Turtle nesting sites:

- Present
- Absent

Bank swallow colony:

- Present
- Absent
Nest(s) present of:  
- □ Bald Eagle  
- □ Osprey  
- □ Great Blue Heron

Den(s) present of:  
- □ Otter  
- □ Mink  
- □ Beaver

Project area is within:
- □ 100’ of beaver, mink or otter den, bank swallow colony or turtle nesting area
- □ 200’ of Great blue heron or osprey nest(s)
- □ 1400’ of a bald eagle nest

**EMERGENT WETLANDS (If present, describe & quantify them on a separate sheet)** N/A

Emergent wetland vegetation at least seasonally flooded during the growing season (wood duck, green heron, black-crowned night heron, king rail, virginia rail, coot etc.)

- Flooded > 5 cm  
- □ present  
- □ absent
- Flooded > 25 cm (pied-billed grebe)  
- □ present  
- □ absent

Persistent emergent wetland vegetation at least seasonally flooded during the growing season (mallard, American bittern, sora, common snipe, red-winged blackbird, swamp sparrow, marsh wren)

- Flooded > 5 cm  
- □ present  
- □ absent
- Flooded > 25 cm (least bittern, common moorhen)  
- □ present  
- □ absent

Cattail emergent wetland vegetation at least seasonally flooded during the growing season

- Flooded > 5 cm (marsh wren)  
- □ present  
- □ absent
- Flooded > 25 cm (least bittern, common moorhen)  
- □ present  
- □ absent

Fine-leaved emergent wetland vegetation (grasses and sedges) at least seasonally flooded during the growing season (common snipe, spotted sandpiper, sedge wren)

- Flooded > 5 cm  
- □ present  
- □ absent
- Flooded > 25 cm (least bittern, common moorhen)  
- □ present  
- □ absent

**IV. LANDSCAPE CONTEXT**

**A. Habitat Continuity (If present, describe the landscape context on a separate sheet and its importance for area-sensitive species)**

Is the impact area part of an emergent marsh at least (marsh and waterbirds) N/A

- 1.0 acre in size?  
- □ yes  
- □ no
- 2.0 acres in size?  
- □ yes  
- □ no
- 5.0 acres in size?  
- □ yes  
- □ no
- 10.0 acres in size?  
- □ yes  
- □ no

Is the impact area part of a wetland complex at least (turtles, frogs, waterfowl, mammals)

- 2.5 acres in size?  
- □ yes  
- □ no
- 5.0 acres in size?  
- □ yes  
- □ no
- 10.0 acres in size?  
- □ yes  
- □ no
- 25.0 acres in size?  
- □ yes  
- □ no

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6) 1400 feet is the distance used by NIEESP for evaluating potential disturbance impacts on eagle nests under MESA. Keep in mind, however, that this doesn’t give jurisdiction within 1400’ of an eagle’s nest; it only identifies it on the checklist so that adverse effects can be avoided if work in a resource area is within 1400 feet.
For upland resource areas is the impact area part of contiguous forested habitat at least $\frac{V}{A}$?

(Forrest interior nesting birds) 50 acres in size? □ yes □ no 100 acres in size? □ yes □ no 250 acres in size? □ yes □ no 500 acres in size? □ yes □ no

(Grassland nesting birds) > 1 acre is size? □ yes □ no

(special habitat such as gallery floodplain forest, alder thicket, etc.) > 1 acre is size? □ yes □ no

B. Connectivity with adjoining natural habitats

□ No direct connections to adjacent areas of wildlife habitat (little connectivity function)

□ Connectors numerous or impact area is imbedded in a large area of natural habitat (limited connectivity function)

☑ Impact area contributes to a limited number of connectors to adjacent areas of habitat (somewhat important for connectivity function)

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V. HABITAT DEGRADATION (Describe degradation and wildlife habitat impacts on back of the sheet)

□ Evidence of significant chemical contamination

□ Evidence of significant levels of dumping

□ Evidence of significant erosion or sedimentation problems

□ Significant invasion of exotic plants (e.g. purple loosestrife, Phragmites, glossy buckthorn)

□ Disturbance from roads or highways

□ Is the site the only resource area in the vicinity of an otherwise developed area

□ Other human disturbance

Note: These are not the only important habitat features that may be observed on a site. If the wildlife specialist identifies other features they should be noted in the application.
VI. QUANTIFICATION TABLE FOR IMPORTANT HABITAT CHARACTERISTICS

(For each important habitat characteristic identified within the impact area, describe amount/extent and distribution of that characteristic under current and post-construction conditions)

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<tr>
<th>Habitat Characteristic</th>
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<tbody>
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<td>Example: Standing dead trees 6-12&quot; dbh</td>
<td>4</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Standing dead tree</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Wildlife Habitat Protection Guidance
Appendix B: Detailed Wildlife Habitat Evaluation
Part 2: Field Data Form
(For each wetland or non-wetland resource area)

I. GENERAL INFORMATION
Project Location (from NOI page 1): Douglas Schools Project, 21 Davis St.
Impact Area (number/name): Impact Area 2
Date(s) of site visit(s) and data collection: 8/17/11
Weather Conditions During Site Visit (if snow cover, include depth): Sunny, 80°F
Date this form was completed: 8/17/11
Person completing form per 310 CMR 10.60(l)(b): Daniel Wells, M.S.
The information on this data sheet is based on my observations unless otherwise indicated

Signature: [Signature]

II. SITE DESCRIPTION (complete A or B under Classification -See instructions for full description)
A. Classification
1. For Wetland Resource Areas, complete the following:
   System: ____________________________
   Subsystem: __________________________
   Class: _______________________________
   Subclass: ____________________________
   Hydrology/Water Regime:
   [ ] Permanently flooded
   [ ] Intermittently exposed
   [ ] Semi-permanently flooded
   [ ] Seasonally flooded
   [ ] Saturated
   [ ] Temporarily flooded
   [ ] Intermittently flooded
   [ ] Artificially flooded

2. For Riverfront or Bordering Land Subject to Flooding Resource Areas, complete the following:
   Use a terrestrial classification system such as one of the two listed below:

Community Name ____________________________
Vegetation Description ____________________________
Physical Description ____________________________
B. Inventory (Plant community)

%Cover: 15 Trees (>20') 15 Shrubs (<20') 45 Woody Vines 45 Mosses

50 Herbaceous

Plant Lists (species that comprise 10% or more of the vegetative cover in each strata; "*" designates a dominant plant species for the strata):

<table>
<thead>
<tr>
<th>Strata</th>
<th>Plant Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>T- Black Birch *</td>
<td></td>
</tr>
<tr>
<td>S- Witch Hazel * (Hamamelis virginiana)</td>
<td></td>
</tr>
<tr>
<td>H- Joe Pye Weed * (Eupatorium sp.)</td>
<td></td>
</tr>
<tr>
<td>H- Goldenrod * (Solidago sp.)</td>
<td></td>
</tr>
</tbody>
</table>

C. Inventory (Soils)

Soil Survey Unit: 422B - Canton fine sandy loam, 3 to 8 percent slopes, extremely stony
Drainage Class: well drained
Texture (upper part): friable coarse-loamy silty clays
Depth: 18'-36''
Depth to Water Table

III. IMPORTANT HABITAT FEATURES (Complete for all resource areas)

If the following habitat characteristics are present, describe & quantify them on a separate sheet & attach

Wildlife Food

Important Wetland/Aquatic Food Plants (smartweeds, pondweeds, wild rice, bulrush, wild celery)
- □ Abundant □ Present  □ Absent

Important Upland/Wetland Food Plants (hard mast and fruit/berry producers)
- □ Abundant □ Present  □ Absent

Shrub thickets or streambeds with abundant earthworms (American woodcock)
- □ Present  □ Absent

Shrub and/or herbaceous vegetation suitable for veery nesting  □ Present  □ Absent

Number of trees (live or dead) > 30'' DBH: 0

Number (or density) of Standing Dead Trees (potential for cavities and perches):
- □ 6-12'' dbh  □ 12-18'' dbh  □ 18-24'' dbh  □ >24'' dbh

*Note: 1 large standing dead hardwood just outside impact area in BWL south of flag FP-1. Does not extend into area so will not include. Its importance is noted in narrative.
Number of Tree Cavities in trunks or limbs of:  ___ U/A
    _____ 6-12" diameter (e.g., tree swallow, saw whet owl, screech owl, bluebird, other songbirds)
    _____ 12-18" diameter (e.g., hooded merganser, wood duck, common goldeneye, mink)
    _____ >18" diameter (e.g., hooded merganser, wood duck, common goldeneye, common merganser, barred owl, mink, raccoon, fisher)

Small mammal burrows [ ] Abundant [✓] Present [ ] Absent

Cover/Perches/Basking/Denning/Nesting Habitat

[✓] Dense herbaceous cover (voles, small mammals, amphibians & reptiles)
[✓] Large woody debris on the ground (small mammals, mink, amphibians & reptiles)
[ ] Rocks, crevices, logs, tree roots or hummocks under water's surface (turtles, snakes, frogs)
[✓] Rocks, crevices, fallen logs, overhanging branches or hummocks at, or within 1m above the water's surface (turtles, snakes, frogs, wading birds, wood duck, mink, raccoon)

[✓] Rock piles, crevices or hollow logs suitable for:
    [ ] otter [ ] mink [ ] porcupine [ ] bear [ ] bobcat [ ] turkey vulture

Depressions that may serve as seasonal (vern al/autumnal) pools: [ ] present [✓] absent

Standing water present at least part of the growing season, suitable for use by:
    [ ] breeding amphibians [✓] non-breeding amphibians (foraging, rehydration)
    [ ] turtles [ ] foraging waterfowl

Sphagnum hummocks or mats, moss covered logs or saturated logs, overhanging or directly adjacent to pools of standing water in spring (four-toed salamander): [ ] present [✓] absent

IMPORTANT HABITAT CHARACTERISTICS (If present, describe & quantify them on a separate sheet)

Medium to large (> 6"), flat rocks within a stream (cover for stream salamanders and nesting habitat for spring & two-lined salamanders) [ ] present [✓] absent

Flat rocks and logs on banks or within exposed portions of streambeds (cover for stream salamanders and nesting habitat for dusky salamanders) [ ] present [✓] absent

Underwater banks of fine silt and/or clay (beaver, muskrat, otter) [ ] present [✓] absent

Undercut or overhanging banks (small mammals, mink, weasels) [ ] present [✓] absent

Vertical sandy banks (bank swallow, kingfisher) [ ] present [✓] absent

Areas of ice-free open water in winter [ ] present [✓] absent

Mud flats [ ] present [✓] absent

Exposed areas of well-drained, sandy soil suitable for turtle nesting [ ] present [✓] absent

WILDLIFE DENS/NESTS (If present, describe & quantify them on the back of this sheet)

Turtle nesting sites: [ ] present [✓] absent

Bank swallow colony: [ ] present [✓] absent
Nest(s) present of:  
- □ Bald Eagle
- □ Osprey
- □ Great Blue Heron

Den(s) present of:  
- □ Otter
- □ Mink
- □ Beaver

Project area is within:  
- □ 100’ of beaver, mink or otter den, bank swallow colony or turtle nesting area
- □ 200’ of Great blue heron or osprey nest(s)
- □ 1400’ of a bald eagle nest

**EMERGENT WETLANDS (If present, describe & quantify them on a separate sheet)**  
N/A

Emergent wetland vegetation at least seasonally flooded during the growing season (wood duck, green heron, black-crowned night heron, king rail, virginia rail, coot etc.)
- Flooded > 5 cm  
  - □ present  
  - □ absent
- Flooded > 25 cm (pied-billed grebe)  
  - □ present  
  - □ absent

Persistent emergent wetland vegetation at least seasonally flooded during the growing season (mallard, American bittern, sora, common snipe, red-winged blackbird, swamp sparrow, marsh wren)
- Flooded > 5 cm  
  - □ present  
  - □ absent
- Flooded > 25 cm (least bittern, common moorhen)  
  - □ present  
  - □ absent

Cattail emergent wetland vegetation at least seasonally flooded during the growing season
- Flooded > 5 cm (marsh wren)  
  - □ present  
  - □ absent
- Flooded > 25 cm (least bittern, common moorhen)  
  - □ present  
  - □ absent

Fine-leafed emergent wetland vegetation (grasses and sedges) at least seasonally flooded during the growing season (common snipe, spotted sandpiper, sedge wren)
- Flooded > 5 cm  
  - □ present  
  - □ absent
- Flooded > 25 cm (least bittern, common moorhen)  
  - □ present  
  - □ absent

**IV. LANDSCAPE CONTEXT**

**A. Habitat Continuity (If present, describe the landscape context on a separate sheet and its importance for area-sensitive species)**

<table>
<thead>
<tr>
<th>Question</th>
<th>1.0 acre in size?</th>
<th>2.0 acres in size?</th>
<th>5.0 acres in size?</th>
<th>10.0 acres in size?</th>
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<tbody>
<tr>
<td>Is the impact area part of an emergent marsh at least (marsh and waterbirds)</td>
<td>N/A</td>
<td>□ yes  □ no</td>
<td>□ yes  □ no</td>
<td>□ yes  □ no</td>
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<tr>
<td>Is the impact area part of a wetland complex at least (turtles, frogs, waterfowl, mammals)</td>
<td>2.5 acres in size? □ yes □ no</td>
<td>5.0 acres in size? □ yes □ no</td>
<td>10.0 acres in size? □ yes □ no</td>
<td>25.0 acres in size? □ yes □ no</td>
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*1400 feet is the distance used by NTHSP for evaluating potential disturbance impacts on eagle nests under MESA. Keep in mind, however, that this doesn’t give jurisdiction within 1400’ of an eagle’s nest; it only identifies it on the checklist so that adverse effects can be avoided if work in a resource area is within 1400 feet.*
For upland resource areas is the impact area part of contiguous forested habitat at least

(forest interior nesting birds)

- 50 acres in size?  □ yes  □ no
- 100 acres in size?  □ yes  □ no
- 250 acres in size?  □ yes  □ no
- 500 acres in size?  □ yes  □ no

(grassland nesting birds)

- > 1 acre is size?  □ yes  □ no

(special habitat such as gallery floodplain forest, alder thicket, etc.) > 1 acre is size?  □ yes  □ no

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