APPENDIX B WILDLIFE HABITAT EVALUATION REPORT FOR CULVERT 4

Bruce Freeman Rail Trail, Sudbury, Massachusetts

February 4, 2022

Prepared for:
Massachusetts Department of Transportation

Prepared by:
Stantec Consulting Services Inc.

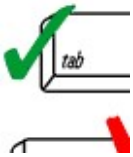
Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 1. Summary Sheet

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



Bruce Freeman Rail Trail -Massachusetts Department of Transportation
Project Name

Sudbury and Concord
Location

Bank 115 LF (100 SF Perm. & 15 Temp. for work in stream) — January 12, 2022
Size of Area Being Impacted — Date

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

Name	Waterbody/ Waterway	Wetland	Upland*	Total Area
1. Stream-LUWW	Intermittent Stream	410 P; 141 T	N/A	410 P; 141 T
2. Stream-Bank	Intermittent Stream	115 LF	N/A	115 LF
3.				
4.				
5.				
6.				
7.				

*Riverfront Area/BLSF

Attach Sketch map and/or photos of the Impact Areas

Narrative Description of Site (attach separate page if necessary)

Culvert 4 is located along the railroad tracks south of the intersection of the rail trail with Hudson Road and Peakham Road at approximately Station 167+20. There is an intermittent stream, an unnamed tributary to Hop Brook, and it is designated by the Massachusetts Division of Fisheries and Wildlife as a Coldwater Fisheries Resource. The stream flows west and southwest in this location. The right Bank (west) is bounded by residential development along Peakham Street, while there is mature upland immediately on the west and south sides of the stream. A wooded swamp lies to the northeast of the Culvert 4 work area and is part of a more extensive wetlands complex in this area.

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.

Michele Simoneaux — Michele Simoneaux
Signature of Wildlife Specialist (per 310 CMR 10.60 (1) (b)) — Typed or Printed Name

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1 Introduction

On behalf of the Massachusetts Department of Transportation (MassDOT), Stantec Consulting Services Inc. (Stantec) performed a detailed Appendix B Wildlife Habitat Evaluation for the proposed work area associated with the Culvert 4 replacement on the proposed Bruce Freeman Rail Trial (BFRT; Project) located in Sudbury, Massachusetts, between the intersection of Hudson Road and Peakham Road to the Concord town line (Figure 1; Photo 1). The culvert is located approximately at Station 167+20 at the BF#30 flag series (Photo 2 and Photo 3).

The Appendix B Wildlife Habitat Evaluation herein described was conducted on January 12, 2022 by Michele Simoneaux, Professional Wetland Scientist (PWS #2461) of Stantec Consulting, qualified to conduct evaluations per the requirements in 310 CMR 10.60. The evaluation considered the recently proposed impacts per the 100% Submittal Permitting Plan Set included with the Fuss & O'Neill Notice of Intent application package dated December 22, 2021. The assessed temporary and permanent impacts to wetland resource areas proposed in the Plan Set are subject to the Massachusetts Wetlands Protection Act regulations (310 CMR; WPA) and are relative to the guidance of the *2006 Massachusetts Wildlife Habitat Protection Guidance for Inland Wetlands* (Guidance)[1] developed by the Massachusetts Department of Environmental Protection (MassDEP).

The right of way (ROW) is currently owned by MassDOT. The ROW is approximately 65 feet wide for most of its length and is predominantly a wooded corridor passing through multiple wetland areas, including vegetated wetlands, perennial/intermittent streams, and associated floodplain. The Town of Sudbury (Town) is considering rehabilitation of the ROW in Sudbury to interconnect with trails in adjacent towns (Fay, Spofford, and Thorndike 2006). In April 2020, Stantec performed a General Wildlife Habitat Evaluation for the 25% design phase of the approximately 4.6-mile-long trail that is proposed along the former Lowell Secondary Track of the Old Colony Rail Road that operated between Lowell and Framingham, Massachusetts. Based on the preliminary wetland resource area impact calculations prepared by VHB, the Appendix A forms were used as the field data form when evaluating wetland resource areas where impact was proposed based on the 25% Design Submittal. Appendix A evaluations were deemed applicable based on the localized nature of proposed impacts based on the 25% Design Submittal. The design submittal is now at 100% and impacts have been further evaluated. The need for a detailed Appendix B Wildlife Habitat Evaluation has been identified for the work associated with the Culvert 4 replacement because the impacts are twice the threshold of 50 LF of Bank alteration.

2 Purpose and Need

Based on information in the Fuss & O'Neill NOI (December 22, 2021), we understand that Culvert 4, a mortared stone box culvert with clay pipes has collapsed and the outlet is buried. As a result, the

[1] MassDEP. 2006 *Massachusetts Wildlife Habitat Protection Guidance for Inland Wetlands* is available at: http://umasscaps.org/pdf/wldhab.pdf.

unnamed tributary to Hop Brook has cut around the collapsed culvert and washed through the existing rail embankment (Photo 7). The culvert will be removed and replaced with 48" diameter reinforced concrete pipe buried 2' with a natural stream channel bottom. The stream alignment will be restored to the former culvert location. There are an estimated 100 LF of permanent impact and 15 LF of temporary impact to Inland Bank associated with this work. The Appendix B Wildlife Habitat Evaluation was performed because the impact to Inland Bank at Culvert 4 is greater than 2 times the threshold for Bank (> 50 LF). The Culvert 4 replacement work is part of a larger project and, for the purposes of this WHE, only the area within 50' of the limit of work was evaluated for this effort.

See Attachment A Detailed Wildlife Habitat Evaluation Form for site description, classification, % cover, soils data and wildlife habitat features. Attachment B contains site photos taken on January 12, 2022, the day of observation associated with this report.

3 Methodology

Methodology is described below for the data review and field survey associated with the Appendix B Wildlife Habitat Evaluation at Culvert 4.

3.1 Existing Data Review

Stantec reviewed the NOI submitted by Fuss & O'Neill to understand the specific areas of proposed impacts to jurisdictional areas, the Abbreviated Notice of Resource Area Delineation (ANRAD) dated July 2016 by VHB and the Amended ORAD filed by MassDOT and VHB, dated June 15, 2020. MassMapper https://maps.massgis.digital.mass.gov/MassMapper/MassMapper.html, and Google Earth (desktop version) were also used to develop an understanding of landscape context and review connectivity of the impact resources to other wetlands systems. USGS WebSoilSurvey (https://websoilsurvey.sc.egov.usda.gov) was used to identify the soil type of the general study area in order to address the requirements for information on soils on the form. No supplemental soil evaluations were completed in the field, as the resources being impacted are Inland Bank and Land Under Waterbodies and Waterways.

3.2 Field Assessment

Following the completion of the existing data review, Stantec performed the wildlife habitat evaluation field assessment along the railroad at the Culvert 4 in Sudbury to specifically evaluate potential impacts to wildlife habitat associated with the proposed culvert replacement. For the purposes of the Appendix B Wildlife Habitat Evaluation, the "study area" was identified as the area of proposed temporary and permanent impacts to Inland Bank and Land Under Waterbodies and Waterways, as well as the area within approximately 50' feet radius from the culvert replacement limit of work, which included upland and wetland habitat. The temperature was approximately 31° F and there was 3-5' of snow on the ground. The subject stream was partially ice-covered and the substrate type and conditions could not be fully observed. Herbaceous vegetation was also not able to be assessed due to the time of year and snow cover.

The Detailed Wildlife Habitat Evaluation Form was completed by hand during the January 12, 2022 observation session and the information transcribed by the PWS to the attached electronic version of the field form (Attachment A). There was a focus on Important Habitat Characteristics that are present and might need to be replaced or restored after the project is complete.

4 Summary of Evaluation Observations

The results of the existing data review and field assessment at the Culvert 4 study area are presented below.

4.1 Field Assessment Results

Portions of the ROW leading to Culvert 4 are somewhat overgrown with dense shrubbery and vines. Overall, invasive species are common throughout, including: glossy buckthorn (*Frangula alnus*), Oriental bittersweet (*Celastrus orbiculatus*), and honeysuckle (*Lonicera* spp.), with occasional occurrences of winged euonymus (*Euonymus alatus*) and Japanese barberry (*Berberis thunbergii*).

4.1.1 WILDLIFE CONSIDERATIONS

Direct observations of wildlife species presence within the ROW primarily included common or generalist species typical of a suburban and forested landscape such as the conditions present at the Project and those in areas of eastern Massachusetts and the region. Observations were limited to seasonal activity of species active in winter. No state-listed or federally listed species were observed within the ROW during the WHE assessment.

Mammals

Evidence of the wildlife species at the Project in part included mammals such as white-tailed deer (*Odocoileus virginianus*), coyote (*Canis latrans*) through direct observations of tracks in the snow or scat. Open portions of the ROW provide ease of travel for mammalian species, while overgrown areas provide cover or shelter in addition to functioning as a potential travel corridor.

Birds

The ROW provides an open corridor for avian travel and foraging, while overgrown areas provide increased cover, shelter, and nesting habitat, although these habitats are primarily located outside of jurisdictional areas. These types of habitats are not limited to the ROW and are expected to be abundant in the surrounding landscape.

Fisheries

Hop Brook and an unnamed tributary to Hop Brook are designated as Coldwater Fisheries Resources by MassWildlife. Attributes of Coldwater Fisheries Resources include high water quality, natural flow regimes, cold water temperatures (less than 68°F), largely intact riparian area, and watershed

connectivity. Hop Brook, the unnamed tributary to Hop Brook and additional potential perennial and intermittent streams were evaluated for the presence of fisheries and mussel habitat, including the habitat features and considerations that were identified in the 2020 Appendix A Wildlife Habitat Evaluation. Given the shallow and intermittent nature of the unnamed tributary, it is unlikely that it provides prime habitat for cold water fish species year around.

The Appendix B WHE biologist did not observe any fish during the evaluation and was unable to directly observe the majority of the stream substrate due to winter-related conditions; however, as presented in the Stantec General Wildlife Habitat Evaluation, the in-stream conditions at the existing Hop Brook crossing and nearby unnamed tributary to Hop Brook indicate a perennial condition with a sand and sparse gravel streambed with moderate shoreline and submerged aquatic vegetation. Habitat conditions are anticipated to support coldwater species where the ROW crosses these waterways. Species such as brook trout (*Salvelinus fontinalis*), dace (*Rhinichthys* spp.), and white suckers (*Catostomus commersonii*) may be present in small densities and are examples of species that would need to be documented to designate the waterway as a Coldwater Fisheries Resource by MassWildlife.

Amphibians and Reptiles

There was no evidence of turtle nesting (i.e., shell fragments or nests excavated by mammals), as winter is not a suitable time of year for turtles in eastern Massachusetts to nest; however, there were no measurable areas of suitable turtle nesting habitat with the study area or immediate vicinity observed during the 1-day assessment. The unnamed stream has potential cover and nesting areas that are suitable for some species of stream salamanders, as noted throughout the form and in this report. There are also multiple areas of large woody debris on the ground that would be suitable for small mammals, amphibians and reptiles within the study area and larger landscape.

5 Important Habitat Characteristics

A number of “Important Habitat Characteristics”, as specified within the Guidance, were identified within the limit of work or the 50’ radius study area. Please see Part 2 Table VI of the Detailed Wildlife Habitat Evaluation form for a summary and quantification of the observed wildlife habitat features.

Medium to large flat rocks within the stream: There are a number of flat rocks, greater than 6” within the limit of work that could potentially provide cover for stream salamanders and nesting habitat for spring salamander (*Gyrinophilus porphyriticus*) and northern two-lined salamanders (*Eurycea bislineata*); however, spring salamanders may not occur in eastern Massachusetts. (Photo 8).

Flat rocks and logs on Bank: The Bank in this portion of the unnamed tributary to Hop Book is steep but not high and contains both cut and fallen logs that could potentially serve as cover for stream salamanders. (Photo 7)

Undercut or Overhanging Banks with crevices: There are a number of small areas of Bank within the study area where the Banks have eroded and are undercut, providing potential habitat for small mammals. (Photo 10 and Photo 12)

Mud flats (freshwater): There is a marginal area of exposed mud within the existing stream channel that is approximately 2 feet wide by 3 feet long. It is located at the confluence of the unnamed stream to Hop Brook and the BF#30 series jurisdictional stream under the Sudbury Wetlands Bylaw at the railroad track crossing. This area is not classified as a "Freshwater Mud Flat Community" and likely only serves as marginal habitat value due to its size. (Photo 4)

6 Evaluation Of Adverse Effect

Pursuant to 310 CMR 10.60, the results of the data review and the results of the field survey were used to assess whether the proposed impacts at Culvert 4 will result in an adverse effect to wildlife habitat subject to the WPA. A number of Important Habitat Characteristics were observed in or adjacent to the work footprint for the culvert replacement project. None of the important habitat features identified will be permanently lost on a greater landscape scale as a result of the work associated with Culvert 4, as it is a short-duration project with a limited footprint and will improve stream quality and conditions post-construction (i.e. stabilize existing eroding banks through the railroad bed/fill while improving hydraulic capacity of existing culvert and sediment transport). Photo 2 and Photo 3.

Additionally, no other high value habitats or species particularly sensitive to the construction of a rail trail were observed. The new repaired culvert is not expected to be a barrier to wildlife usage patterns in the Project or at the landscape level, as most species would shift habitat usage patterns, as needed, to carry out their life cycles during construction and post-construction. Therefore, potential habitat impact within jurisdiction of the WPA is localized, temporary, occurring in an area impacted by a collapsed culvert in a previously disturbed area, and would occur to habitat that is not considered critical. As a result, we do not anticipate an adverse effect to wildlife habitat within wetland resource areas based on the 100% Design Submittal.

7 Additional Design Considerations and Recommendations

Some of the following additional recommendations were included with the General Habitat Evaluation conducted in 2020 and are repeated here, as they are relevant to the protection of wildlife habitat associated with the culvert 4 replacement work. The work to repair Culvert 4 will enhance wildlife habitat value and help the railroad embankment material from further erosion and washing sediment into the stream. Additionally, the project is already at 100% design and this work has been designed to meet the Massachusetts Stream Crossing Standards and appropriate BMP's are being proposed at all phases of the project.

1. Preserve larger rocks, especially flat stones from the stream and strategically place back into stream post-construction.

2. Avoid or minimize installation of physical barriers that would create impassable conditions across the trail for some smaller wildlife species.

3. Consider an invasive species management plan.

4. Beneficially reuse trees and brush cleared during on-site site preparation to create new or enhance existing brush piles near the ROW and new culvert to serve as wildlife habitat (e.g., refugia for small mammals, amphibians, and reptiles; and nesting habitat for songbirds).

8 References

Fuss & O'Neill, Notice of Intent Sudbury Bike Path Construction (Bruce Freeman Rail Trail); Massacusetts Department of Transportation Highway Division, December 22, 2021

Fuss & O'Neill, Notice of Intent Sudbury Bike Path Construction (Bruce Freeman Rail Trail); Massacusetts Department of Transportation Highway Division, December 22, 2021 (revised)

Massachusetts Office of Geographic Information. Massachusetts Online Viewer (MassMapper). Available at MassMapper

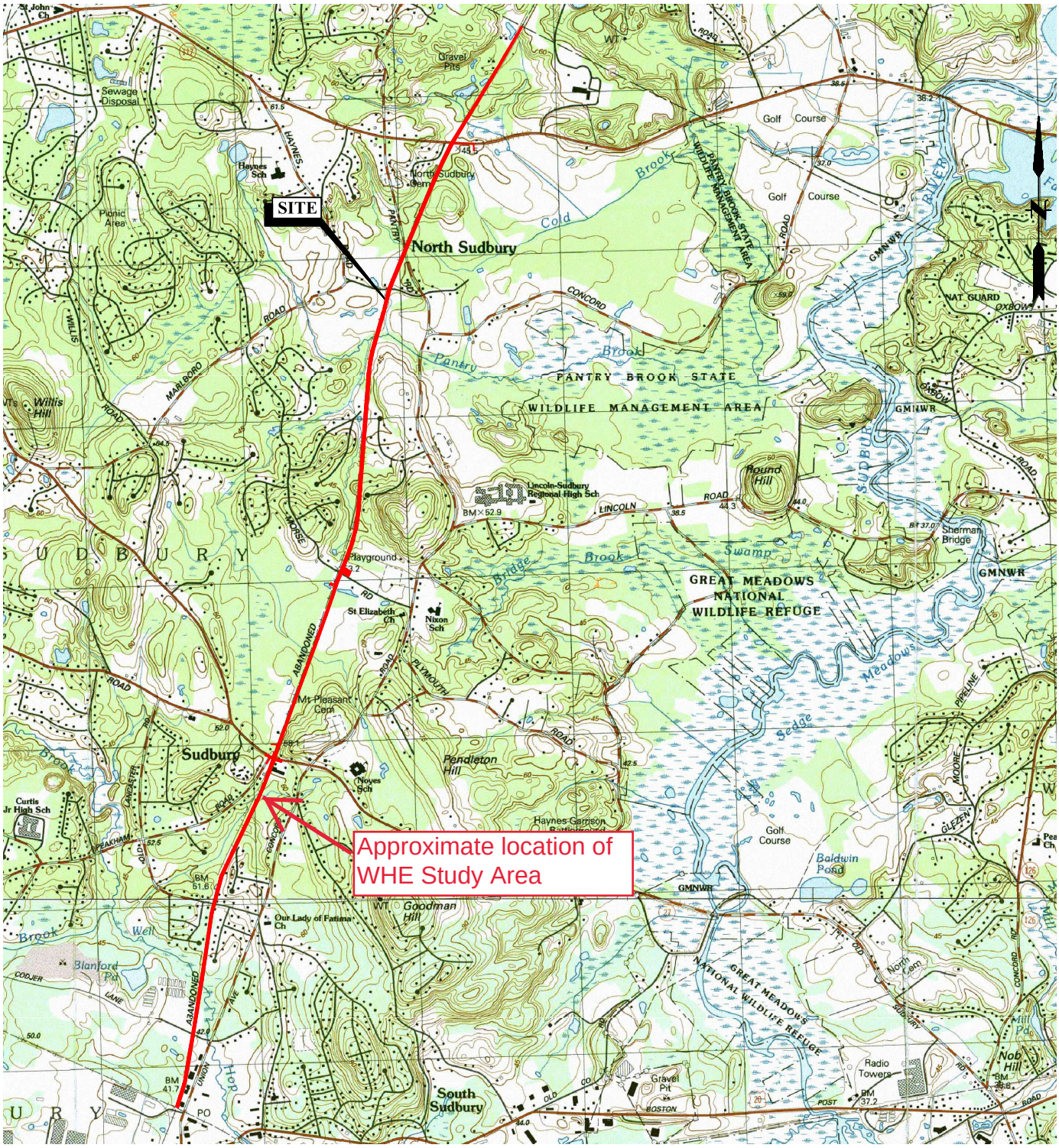
Stantec Consulting Services Inc. (Stantec). 2018. Bruce Freeman Rail Trail Vernal Pool Survey. Prepared for Massachusetts Department of Transportation. Dated May 14, 2018.

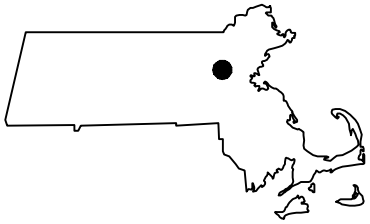
Stantec Consulting Services Inc. (Stantec). 2018. General Wildlife Habitat Assessment Report Bruce Freeman Rail Trail. Wildlife Habitat Assessment Relative to the 25% Design Submittal dated November 2016. Prepared for the Massachusetts Department of Transportation. Dated April 8, 2020.

Swain, P. 2016. Classification of the Natural Communities of Massachusetts. Version 2.0. Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries and Wildlife. Westborough, Massachusetts.

USDA WebSoilSurvey https://websoilsurvey.sc.egov.usda.gov

FIGURES





MAP REFERENCE

THIS MAP WAS PREPARED FROM THE FOLLOWING USGS TOPOGRAPHIC QUADRANGLE IMAGES: q209898, q209902, q209906, q209910, q213898, q213902, q213906 AND q213910.
QUADRANGLE IMAGES WERE PREPARED FROM MASS GIS DATA RECEIVED FROM OLIVER GIS ON 04/16/2021.
ORIGINAL MAP UNITS IN METERS.

SCALE:	
HORZ.:	1" = 3000'
VERT.:	
DATUM:	
HORZ.:	
VERT.:	

0 1500 3000
GRAPHIC SCALE

FUSS & O'NEILL
1550 MAIN STREET, SUITE 400
SPRINGFIELD, MA 01103
413.452.0445
www.fando.com

TOWN OF SUDBURY

SITE LOCATION MAP

BRUCE FREEMAN RAIL TRAIL

SUDBURY MASSACHUSETTS

PROJ. No.: 20200785.A10
DATE: 10/27/2021

FIG.1

File Path: J:\DWG\P2020\0785\A10\608164\DWG\Environmental Plans\20200785A10_PERM01.dwg Layout: FIG.1 Plotted: Wed, October 27, 2021 - 2:45 PM User: akeegan
Plotter: AUTOCAD PDF (GENERAL DOCUMENTATION).PC3 CTB File: FO.STB
MS VIEW: LAYER STATE:

ATTACHMENTS

ATTACHMENT A DETAILED WILDLIFE HABITAT EVALUATION FORM

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

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Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (for each wetland or non-wetland resource area)

I. General Information

Culvert Location 4 (embankment washout; along trail at Station 167 + 20)
Project Location (from NOI page 1)

1 and 2 (combined LUWW and Bank of same stream)
Impact Area (number/name)

January 12, 2022
Date(s) of Site Visit(s) and Data Collection

31 degrees F, approximately 3-5 inches of snow cover
Weather Conditions During Site Visit (if snow cover, include depth)

Michele Simoneaux, MSc., PWS, CESSWI — January 25, 2022
Person completing form per 310 CMR 10.60(1)(b) — Date this form was completed

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

Michele Simoneaux
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: Riverine — Subsystem: Intermittent

Class: Streambed — Subclass:

Hydrology/Water Regime

- ☐ Permanently flooded
- ☐ Saturated
- ☒ Intermittently exposed
- ☐ Temporarily flooded
- ☐ Semi-permanently flooded
- ☐ Intermittently flooded
- ☐ Seasonally 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:
   a. "Classification of the Natural Communities of Massachusetts (Draft)" by Patricia C. Swain and Jennifer B. Kearsley, MA DFW NHESP, Westborough, MA. July 2000. (Department of Fish & Game Website)
   b. "New England Wildlife: Habitat, Natural History, and Distribution" by Richard M. DeGraaf and Deborah D. Rudis, USDA Forest Service, Northeastern Forest Experiment Station. General Technical Report NE-108. August 1992. 491 pages.

Terrestrial-Forest/Woodland-Mixed Coniferous-Deciduous Forest/Woodland (White Pine-Oak Forest)
Community Name

Upland: White Pine and Northern Red Oak (majority) (only to east of RT; west residential
Vegetation Description

Mature White Pine and mixed oak community with large downed woody debris
Physical Description

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Part 2. Field Data Form (continued)

B. Inventory (Plant community)

% Cover:	90	60	10	Can't assess	Can't assess
	Trees (> 20')	Shrubs (< 20')	Woody vines	Mosses	Herbaceous

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

Strata	Plant Species	Strata	Plant Species
Tree	Quercus rubra		
Tree	Pinus strobus		
Shrub	Lonicera spp.		
Shrub	Rosa multiflora		

C. Inventory (Soils)

Deerfield 256A	Moderately well-drained
Soil Survey Unit	Drainage Class
Loamy fine sand	up to 60 inches
Texture (upper part)	Depth
15-37 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

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Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

Number of trees (live or dead) > 30" DBH: 2

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

12-18" dbh	18-24" dbh	> 24" dbh
1 (outside impact area)		1 outside impact area

Number of Tree Cavities in trunks or limbs of:

None identified high enough in tree for suitability for these species
6-12" diameter (e.g., tree swallow, saw whet owl, screech owl, bluebird, other songbirds)

None identified close enough to water for suitability for these species
12-18" diameter (e.g., hooded merganser, wood duck, common goldeneye, mink)

None identified suitable for these species
>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

☐ 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, re-hydration)

☒ Turtles ☐ Foraging waterfowl

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

☐ Present ☒ Absent

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Part 2. Field Data Form (continued)

Important habitat characteristics (if present, describe and 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

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Part 2. Field Data Form (continued)

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[1]

Emergent Wetlands (if present, describe & quantify them on a separate sheet)

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 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	1.0 acre in size?	☐ Yes	☒ No
(marsh and waterbirds)	2.0 acres in size?	☐ Yes	☒ No
	5.0 acres in size?	☐ Yes	☒ No
	10.0 acres in size?	☐ Yes	☒ No

[1] 1400 feet is the distance used by NHESP 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.

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Part 2. Field Data Form (continued)

Is the impact area part of a wetland complex at least	2.5 acres in size?	☒ Yes	☐ No
(turtles, frogs, waterfowl, mammals)	5.0 acres in size?	☐ Yes	☒ No
	10.0 acres in size?	☐ Yes	☒ No
	25.0 acres in size?	☐ Yes	☒ No

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)	> 1.0 acre in size?	☐ Yes	☐ No
(special habitat such as gallery floodplain forest, alder thicket, etc.)	> 1.0 acre in 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 embedded 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)

☐ Impact area serves as *part of* a sole connector to adjacent areas of habitat (important for connectivity function)

☐ Impact area serves as *only* connector to adjacent areas of habitat (very important for connectivity function)

V. Habitat Degradation (describe degradation and wildlife impacts on the 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 ☒ Other human disturbance

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

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.

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 2. Field Data Form (continued)

VI. Quantification Table for Important Habitat Characteristics

Habitat Characteristic	Amount Impacted in Impact Area	Current (entire site)	Post-Construction (entire site)
Example: standing dead trees 6-12” dbh	4	12	8
Med. to Lg. flat rocks within stream	3	>10*	Unable to assess
Flat rocks/logs on Bank	2	>5*	Unable to assess
Undercut Banks/crevices	1	>2*	Unable to assess
Mud flats (limited area)	estimated 6 SF	estimated 6 SF*	Unable to assess
*Study area was within 50' of LOW			

ATTACHMENT B PHOTO SHEETS

APPENDIX B WILDLIFE HABITAT EVALUATION -CULVERT 4 SITE PHOTOS (JANUARY 12, 2022)

Photo 1. Existing railroad tracks leading to Culvert 4

Photo 2. Overview of railroad tracks over tributary to Hop Brook within proposed work area at Culvert 4

APPENDIX B WILDLIFE HABITAT EVALUATION -CULVERT 4 SITE PHOTOS (JANUARY 12, 2022)

Photo 3. Mortared stone box culvert (#4) near Station 167 + 20 to be replaced

Photo 4. Unnamed tributary to Hop Brook within work footprint

Photo 5. A portion of the Bank *within* limit of work is comprised of small stone and gravel and has washed into the stream

Photo 6. Rocks and boulders are common within the stream

APPENDIX B WILDLIFE HABITAT EVALUATION -CULVERT 4 SITE PHOTOS (JANUARY 12, 2022)

Photo 7. Bank below the railroad track at crossing; stream has cut around the collapsed culvert

Photo 8. Stream has a number of >6” flat stones that would be suitable cover for 2-lined salamanders

Photo 9. Coarse woody debris is present in the stream

Photo 10. A number of undercut banks and tree hollows formed by roots exist along the Bank

Photo 11. Limited cavities observed in trees near limit of work but none suitable for species such as tree swallows, saw whet owls, screech owls, bluebirds, etc., as they are not high enough in the tree

Photo 12. Patch of sand along the Bank of the intermittent stream not large enough or topographically well-positioned to offer turtle nesting habitat

Attachment C IMPORTANT HABITAT FEATURES MAP

Attachment C: Important Habitat Features Map (Sheet 7 of Fuss & O'Neill 100% Design Plans)

ENVIRONMENTAL IMPACTS LEGEND

LINETYPE	DESCRIPTION
BLSF	LIMIT OF BORDERING VEGETATED WETLAND (BVW)
	EDGE OF BORDERING LAND SUBJECT TO FLOODING
	LIMIT OF BANK
	LIMIT OF FEMA FLOODWAY
BLSF	ZONE A FLOOD LIMIT (NO BFE)
	APPROX. LIMIT OF GRADING
100'WPA BZ	100' WPA BUFFER ZONE
100'WPA BZ - SUD RA	100' WPA BUFFER ZONE/100' SUDBURY AURA
100'BZ - AURA	100' WPA BUFFER ZONE/100' SUDBURY RESOURCE AREA
100'WPA VPBZ	100' WPA VERNAL POOL BUFFER ZONE
100'WPA RA	100' WPA RESOURCE AREA
200'WPA RA	200' WPA RESOURCE AREA
100'SUD RA	100' SUDBURY RESOURCE AREA
200'SUD RA	200' SUDBURY RESOURCE AREA
100'SUD VPBZ	100' SUDBURY VERNAL POOL BUFFER ZONE
AURA	100' or 200' SUDBURY AURA

LINETYPE	DESCRIPTION
	DRIVE SAMPLE BORING LOCATION
	TEST PIT LOCATION

HATCH	DESCRIPTION
	DISTURBANCE TO 100' WPA BUFFER ZONE (100' BZ)
	DISTURBANCE TO WPA 100' RIVERFRONT AREA (100' RA)
	DISTURBANCE TO WPA 200' RIVERFRONT AREA (200' RA)
	DISTURBANCE TO BLSF
	BORDERING VEGETATED WETLAND
	LIMIT OF BANK/LAND UNDER WATER

HATCH	DESCRIPTION
	TEMPORARY DISTURBANCE TO BVW / LUW / IVW
	PERMANENT DISTURBANCE TO BVW / LUW / IVW
	DISTURBANCE TO 100' WPA VERNAL POOL BZ

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	7	316
PROJECT FILE NO.	608164		

ENVIRONMENTAL IMPACT PLANS

608164_NOI(GENERAL PLANS).DWG Plotted on 22-Dec-2021 11:03 PM

CONTINUED ON SHEET NO. 6

DISTURBANCE TO 100' BUFFER ZONE

DISTURBANCE TO 200' RIVER FRONT AREA

DISTURBANCE TO 100' RIVER FRONT AREA

LIMIT OF BANK (WPA PERENNIAL STREAM)

DISTURBANCE TO 200' RIVER FRONT AREA

N 24° 56' 30" E 675.27'

EX. BOX CULVERT (SEE DRAINAGE & UTIL PLANS)

LIMIT OF BORDERING VEGETATIVE WETLAND

LIMIT WPA 100' BZ & 100' SUD AURA

LIMIT OF 100' WPA RA

LIMIT OF 200' WPA RA

LIMIT OF 100' WPA BUFFER ZONE /100' SUD AURA

N/F
RICHARD J & CLAIRE A WOLLENSAK
60 PENNYMEADOW RD
MAP/LOT H08/0012
BK/PG 13285/445

SCALE: 1" = 20'

CONTINUED ABOVE

LIMIT OF BORDERING VEGETATIVE WETLAND

LIMIT WPA 100' BZ & 100' SUD AURA

LIMIT 100' WPA RA

LIMIT OF BANK (WPA PERENNIAL STREAM)

DISTRUBANCE TO 100' RIVER FRONT AREA

DISTURBANCE TO 200' RIVER FRONT AREA

LIMIT OF 100' WPA BUFFER ZONE / 100' SUD AURA

SCALE: 1" = 20'

IMPORTANT HABITAT FEATURES
Culvert 4 Replacement Work Area - WHE Study Area

LIMIT OF BANK (WPA INTERMITTENT STREAM)

8 LF CULVERT REPAIR TEMP IMPACT TO BANK

89 SF CULVERT REPAIR PERM IMPACT TO LUW

Coarse woody debris and logs in stream (Photo 9)

54 LF CULVERT REPAIR PERM IMPACT TO BANK

4 LF CULVERT REPAIR TEMP IMPACT TO BANK

CONTINUED ON SHEET NO. 8

Tree on Bank (roots forming crevice/cavity) (Photo 10)

Numerous flat rocks >6" were observed throughout stream within the limit of work and within study area. (Photos 6 and 8)

Photo 1 and Photo 2

Photo 5

46 LF CULVERT REPAIR PERM IMPACT TO BANK

Area of undercut Bank and Sand (Photo 12)

REPLACE 59 SF LUW

10SF CULVERT REPAIR PERM IMPACT TO LUW

Mud flat approximately 2 'x3' (Photo 4)

LIMIT OF 100' SUD AURA

LIMIT 100' SUD RA

3 LF CULVERT REPAIR TEMP IMPACT TO BANK

52 SF CULVERT REPAIR PERM IMPACT TO LUW

LIMIT OF WPA 100' BZ & 100' SUD RA

STREAM