

## APPENDIX B

## Exhibit 1

# Memo



NH NATURAL HERITAGE BUREAU  
NHB DATACHECK RESULTS LETTER

**To:** Christine Perron, McFarland Johnson  
53 Regional Drive  
Concord, NH 03301

**From:** Amy Lamb, NH Natural Heritage Bureau  
**Date:** 4/16/2018 (valid for one year from this date)

**Re:** Review by NH Natural Heritage Bureau  
NHB File ID: NHB18-1058

Town: Bow, Concord

Location: I-93 Improvement Project from Bow (beginning south of the I-93/I-89 interchange) to Concord (ending north of Exit 15 prior to crossing Merrimack River), approximately 4.5 miles in length. NHDOT #13742.

**Description:** I-93 through Bow and Concord is a four-lane divided urban principal arterial highway with limited access, meaning access is provided only at interchanges. South of the project limits, I-93 is a six-lane divided urban arterial highway. The basic purpose of the project is to improve transportation efficiency and reduce safety problems within this approximately 4.5-mile segment of highway.

**cc:** Kim Tuttle

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

**Comments: Please note: Common Nighthawk and Bald Eagle were included in this review, but were not included in the previous NHB review for this project (NHB16-1357). Please also note that the *sugar maple - silver maple - white ash floodplain forest* included in the previous review was recently re-evaluated and determined to not be exemplary. This site is within an area flagged for possible impacts on the state-listed *Alasmidonta varicosa* (brook floater) in the Merrimack River. Please contact the NH Fish & Game Department.**

## Invertebrate Species

Brook Floater (*Alasmidonta varicosa*)

State <sup>1</sup>	Federal	Notes
E	--	Contact the NH Fish & Game Dept (see below).

## Natural Community

Silver maple - false nettle - sensitive fern floodplain forest

State <sup>1</sup>	Federal	Notes
--	--	Threats are primarily changes to the hydrology of the river, land conversion and fragmentation, introduction of invasive species, and increased input of nutrients and pollutants.

## Vertebrate species

State <sup>1</sup>	Federal	Notes
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## Memo



NH NATURAL HERITAGE BUREAU  
NHB DATACHECK RESULTS LETTER

American Eel ( <i>Anguilla rostrata</i> )	SC	--	Contact the NH Fish & Game Dept (see below).
Bald Eagle ( <i>Haliaeetus leucocephalus</i> )	SC	--	Contact the NH Fish & Game Dept (see below).
Common Nighthawk ( <i>Chordeiles minor</i> )	E	--	Contact the NH Fish & Game Dept (see below).
Northern Leopard Frog ( <i>Lithobates pipiens</i> )	SC	--	Contact the NH Fish & Game Dept (see below).
Spotted Turtle ( <i>Clemmys guttata</i> )	T	--	Contact the NH Fish & Game Dept (see below).
Wood Turtle ( <i>Glyptemys insculpta</i> )	SC	--	Contact the NH Fish & Game Dept (see below).

<sup>1</sup>Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list. An asterisk (\*) indicates that the most recent report for that occurrence was more than 20 years ago.

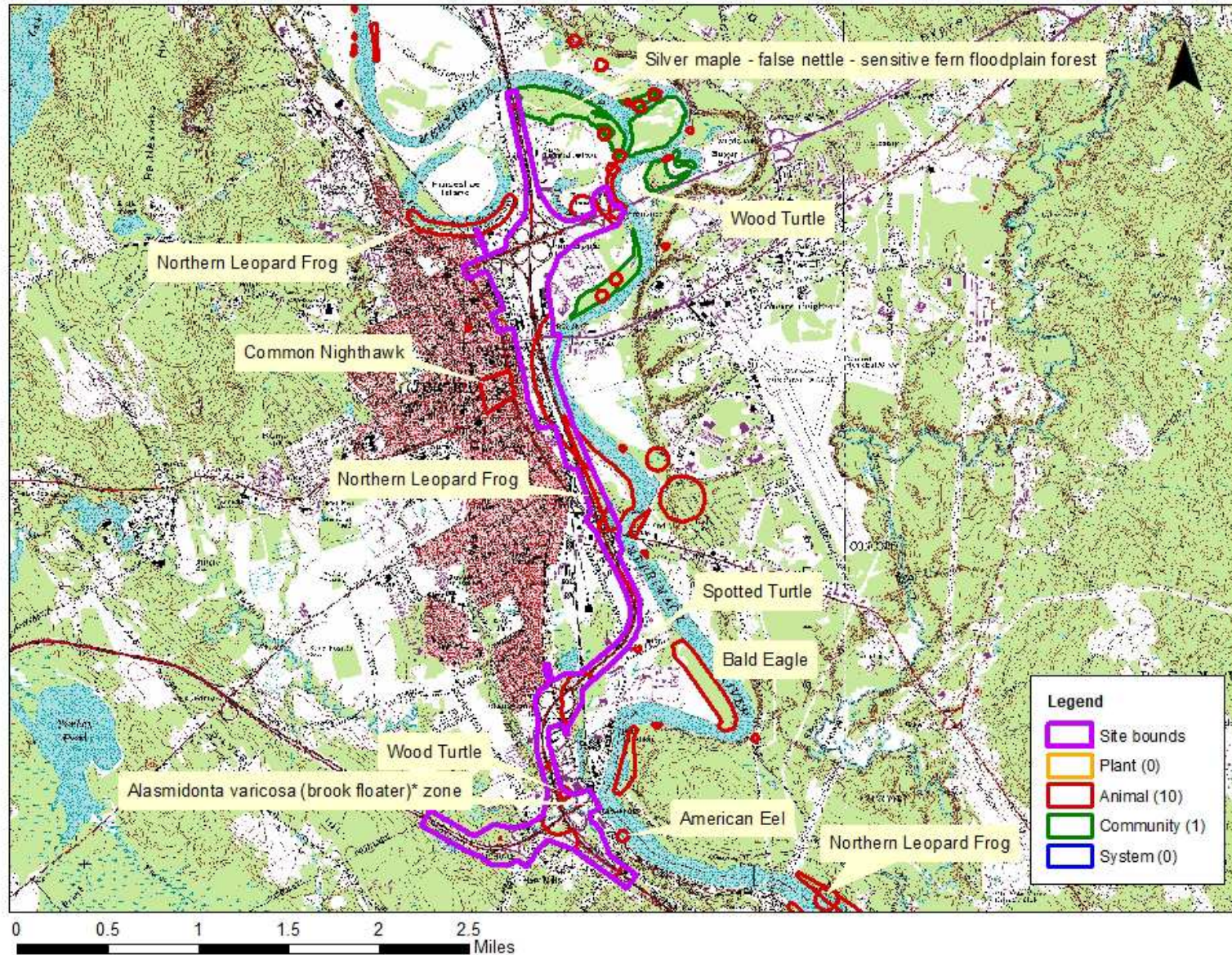
Contact for all animal reviews: Kim Tuttle, NH F&G, (603) 271-6544.

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A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.



# NHB18-1058





## New Hampshire Natural Heritage Bureau - Community Record

### Silver maple - false nettle - sensitive fern floodplain forest

#### Legal Status

Federal: Not listed  
State: Not listed

#### Conservation Status

Global: Not ranked (need more information)  
State: Imperiled due to rarity or vulnerability

#### Description at this Location

Conservation Rank: Excellent quality, condition and landscape context ('A' on a scale of A-D).  
Comments on Rank:

Detailed Description: 2009: Area 2: Mature silver maple forest, with overstory trees ranging from 16-36 inches diameter in interior areas (smaller diameters on trees around the margins of the island). While the interior portions of the island have vegetation that is typical for this community, a ~50m wide band of floodplain forest around the periphery of the island (presently included as part of this community type) exhibits floristic and ecological differences that warrant consideration of it as a separate type [an *ad hoc* name for such a separate type would be *silver maple grassy levee floodplain forest*]. This association occurs on sandy levees, and is characterized by sand or sandy loam soils (coarser than interior areas), an absence of ferns, and an abundance of grasses, such as *Cinna arundinacea* (common woodreed), *Elymus* spp. (wheatgrass), and *Calamagrostis canadensis* (robust bluejoint). There is a remarkably low abundance of invasive species here compared to other portions of the occurrence and other sites. Nonetheless, invasives are present, and apparently best established at the southwest end of the island. Species include *Celastrus orbiculatus* (Asian bittersweet), *Berberis thunbergii* (Japanese barberry), including *Alliaria petiolata* (garlic mustard), *Lysimachia nummularia* (moneywort), and *Lonicera morrowii* (Morrow's honeysuckle). There is almost no *Toxicodendron radicans* (climbing poison ivy). 2006: Observed and photographed at Areas 1, 2, and 3. Major flooding in May left distinct bleaching lines high up on many of the silver maples. 2003: SPNHF patch nearest the river (Area 1) is **silver maple - false nettle - sensitive fern floodplain forest**, with a nearly pure canopy of silver maple and a sparse canopy of understory ferns. 2001: SPNHF patch (Area 1) observed and photographed. 1997: Four forest patches were observed. Tech Island (Area 2): *Acer saccharinum* (silver maple) dominated the canopy cover with some *Populus deltoides* (eastern cottonwood) within the levee. *Boehmeria cylindrica* (false nettle) and *Onoclea sensibilis* (sensitive fern) shared herb dominance with various graminoids. The entire island is a complex of large, old silver maple floodplain forest with a variety of canopy species, and various, patchy floodplain herbs and grasses. Concord Dump (Area 4): The *Acer saccharinum* (silver maple) dominant canopy overhung a fairly species poor herb layer with little to no subcanopy coverage. Sandy soils and flood debris were deposited throughout the floodplain, with grass and *B. cylindrica* (false nettle) patches scattered throughout. NHTI (Area 3): This site had a closed silver maple canopy with little to no subcanopy or shrub layer. *Boehmeria cylindrica* (false nettle), *Matteuccia struthiopteris* var. *pensylvanica* (ostrich fern), and *Onoclea sensibilis* (sensitive fern) dominate the understory, with lesser coverage of *Arisaema stewardsonii* [*triphillum*] (Jack-in-the-pulpit), *Impatiens capensis* (spotted touch-me-not), *Cinna arundinacea* (common woodreed), and other herbs and graminoids. SPNHF (Area 1): *Acer saccharinum* (silver maple) floodplain forest patches of medium-low size and quality, due to the heavy trail use and extensive edges. *Carya ovata* (shagbark hickory), *Quercus rubra* (red oak), and *Fraxinus pennsylvanica* (green ash) share canopy space with silver maple, with *Toxicodendron radicans* (climbing poison ivy), *Celastrus orbiculatus* (Asian bittersweet), and *Berberis vulgaris* (European barberry) in the subcanopy/shrub layer, and *Onoclea sensibilis* (sensitive fern), *Matteuccia struthiopteris* [var. *pensylvanica*] (ostrich fern), *Boehmeria cylindrica* (false nettle), *Dactylis glomerata* (orchard grass), *Carex gynandra* (perfect-awned sedge), and *Eupatorium maculatum* (spotted Joe-Pye weed) in the understory.

General Area: 1997: Tech Island (Area 2): Good levee and slough channel development created a range of microtopographic variation. Soils ranged from coarse sand on levees to silty very fine sandy

loams in floodplain terraces. Huge piles of flood debris, with dead trunks and railroad ties, sit in low areas, indicating periodic flood deposition. Concord Dump (Area 4): The upstream end of this forest is framed by an old landfill. Old road beds, as well as the slopes framing the floodplain had considerable old dumping. Access points have considerable garbage. Edges were characterized by grassy openings, *Toxicodendron radicans* (poison ivy), and a recently used homeless structure near the upstream end. This floodplain had 1-4' deep slough channels throughout with a moderate size, stagnant pool in the deepest channel. Silty and very fine sandy loams had mottling throughout the soil column, with varying root depths. NHTI (Area 3): This floodplain complex is framed by parking lots of the Technical Institute, and a trail invites hiking travel through the center of the floodplain. Disturbance seems to be encouraging the growth of vines and invasive species near the edge of the floodplain patch. A shallow emergent marsh with associated standing-water vernal pool at the downstream end of the patch adds to the diversity of this floodplain complex. Soils indicate very active deposition periodically (yearly?): silty, sandy soils, distinct layering of buried organic material, extensive mottling, no soil horizon development. SPNHF (Area 1): A steep forested bluff frames the land side of this floodplain/marsh complex, with extensive trails, old fields, and some timber plantation areas within and around the floodplain as well. ***Rich sugar maple - oak - hickory terrace forest*** occurs on this terrace.

General Comments:

Management

1997: Easy access for hikers may increase trampling, off-trail dumping, etc. at this site.

Comments:

**Location**

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Survey Site Name: Merrimack River

Managed By: NHTI/Concord - Island Reserve

County: Merrimack

Town(s): Concord

Size: 136.6 acres

Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: Five patches of forest along the Merrimack River in Concord. Area 1 (SPNHF): from Exit 16 on I-93, turn right (south) on Rte. 132. Take first right onto Eastman Street (as Rte. 132 turns left uphill). After ca. 0.3 mile make a sharp left turn onto Portsmouth Street. Continue ca. 0.3 mile to small dirt parking lot on the right. Area 2 (Tech Island): access by canoe. From Rte. 393 in Concord, take Exit 1 onto Fort Eddy Road. Head north to a boat ramp on the east side of the road. The south end of the island is opposite and slightly upstream of the ramp. Area 3 (Tech or NHTI): from Rte. 393 in Concord, take Exit 1 onto Fort Eddy Road. Head north, and after ca. 1 mile the forest is between this road and the river. Area 4 (Concord Dump, a.k.a. Fort Eddy Rd): from Exit 15 on Rte. 93N in Concord, go straight at the exit ramp stop sign onto Fort Eddy Rd. The forest is on the bank of the river to the east of the road. Area 5 (Sugar Ball): From East Side Drive just north of Rte. 393 intersection, descend east on driveway.

**Dates documented**

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First reported: 1997-07-02

Last reported: 2009-09-14

## New Hampshire Natural Heritage Bureau - Animal Record

**American Eel (*Anguilla rostrata*)****Legal Status**

Federal: Not listed  
State: Special Concern

**Conservation Status**

Global: Apparently secure but with cause for concern  
State: Rare or uncommon

**Description at this Location**

Conservation Rank: Not ranked  
Comments on Rank:

Detailed Description: 2000: Area 13215: Not enumerated.

General Area:

General Comments:

Management

Comments:

**Location**

Survey Site Name: Merrimack River Drainage  
Managed By:

County: Merrimack

Town(s): Bow

Size: 1.9 acres

Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2000: Turkey River

**Dates documented**

First reported: 2000

Last reported: 2000

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.



## New Hampshire Natural Heritage Bureau - Animal Record

### Bald Eagle (*Haliaeetus leucocephalus*)

#### Legal Status

Federal: Not listed  
State: Special Concern

#### Conservation Status

Global: Demonstrably widespread, abundant, and secure  
State: Imperiled due to rarity or vulnerability

#### Description at this Location

Conservation Rank: Not ranked  
Comments on Rank:

Detailed Description: 2002-2012: Wintering eagles regularly observed at locations along the Merrimack River, day perching and night roosts:2013: 1 eagle observed on 1/4. 1 eagle observed on 1/12. 3 eagles observed at a single location 1/29. 2 eagles observed at a single location on 2/1. 2 eagles observed at a single location on 2/15. 1 eagle observed on 2/23. 1 eagle observed on 3/4.2012: Solitary eagles observed at 3 separate locations on 1/7. 1 eagle observed on 1/12. 1 eagle observed on 1/17. 1 eagle observed on 1/19. Solitary eagles observed at 3 separate locations on 1/23. 1 eagle observed on 1/25. 1 eagle observed on 2/2. 1 eagle observed on 2/9. 1 eagle observed on 2/14. 2 eagles observed at a single location, and solitary eagles observed at 5 separate locations on 2/25. 2 eagles observed at a single location on 2/28. Solitary eagles observed at 2 separate locations on 3/6. 1 eagle observed on 12/11. 2011: 1 eagle observed on 1/5. 1 eagle observed on 1/6. 1 eagle observed on 1/8. Solitary eagles observed at 2 separate locations on 1/9. 1 eagle observed on 1/11. Solitary eagles observed at 2 separate locations on 1/13. 1 eagle observed on 1/20. 2 eagles observed at a single location on 1/31. Solitary eagles observed at 2 separate locations on 2/3. Solitary eagles observed at 2 separate locations on 2/7. 1 eagle observed on 2/9. 2 eagles observed at a single location and solitary eagles observed at 2 separate locations on 2/15. Solitary eagles observed at 2 separate locations on 2/17. 1 eagle observed on 2/22. 2 eagles observed at 2 separate locations and a solitary eagle at a separate location on 2/26. 1 eagle observed on 2/28. 1 eagle observed on 3/2. Solitary eagles observed at 2 separate locations on 3/8. 2 eagles observed at a single location, and a solitary eagle observed at a separate location on 3/15. 1 eagle observed on 12/27. 1 eagle observed on 12/29.2010: 3 eagles observed at a single location, 2 observed at a single location, and a solitary eagle observed at a separate location on 1/9. 1 eagle observed on 12/3. 1 eagle observed on 12/17. 1 eagle observed on 12/22. 2 eagles observed at a single location on 12/28. 2 eagles observed at a single location on 12/30.2009: 2 eagles observed at a single location, and a solitary eagle observed at a separate location on 1/10. 3 eagles observed at a single location on 2/28.2008: 2 eagles observed at a single location, and solitary eagles observed at 3 separate locations on 1/12. 2 eagles observed at a single location and a solitary eagle observed at a separate location on 2/23.2007: Solitary eagles observed at 2 separate locations on 1/13. 1 eagle observed on 2/24.2006: 1 eagle observed on 2/25.2005: 2 eagles observed at a single location on 1/8. 2 eagles observed at a single location and a solitary eagle observed at a separate location on 2/24. 2 eagles observed at a single location on 2/26.2004: Solitary eagles observed at 5 separate locations on 1/10. 1 eagle observed on 1/27.2003: 1 eagle observed on 1/7. 1 eagle observed on 1/9. 1 eagle observed on 2/2. Solitary eagles observed at 2 separate locations on 2/5. 1 eagle observed on 3/4.2002: 1 eagle observed on 1/12. 1 eagle observed on 12/18.1993: Sightings near Hannah Dusting parking area, but no defined roost or perch site. Perching on east side of Sewall's Falls Dam area. Perching near Horseshoe Pond. Perching on both sides from Bridge Street to Manchester Street. Perching on east side of the river near Blue Seal Feeds. No perching in last few years near Garvins Falls Dam. Bow Power Plant: On River Road on west side of river, possible roosting just north of liquor store. Perching in Hooksett on both sides of river just north of Route 3 bridge.1991: The most active locations are Sewalls Falls, wetlands near I-393, Bow Power Plant and Hooksett boat ramp. Location of eagles depends on availability of open water and other factors.

General Area:

General Comments:

Management

Comments:

**Location**

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Survey Site Name: Merrimack River at Concord

Managed By: Merrimack River State Forest

County: Merrimack

Town(s): Concord

Size: 418.7 acres

Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: Various locations along both banks of the Merrimack River, from Franklin south to Hooksett.

**Dates documented**

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First reported: 198?

Last reported: 2013-03-04

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

## New Hampshire Natural Heritage Bureau - Animal Record

### Common Nighthawk (*Chordeiles minor*)

#### Legal Status

Federal: Not listed  
State: Listed Endangered

#### Conservation Status

Global: Demonstrably widespread, abundant, and secure  
State: Not ranked (need more information)

#### Description at this Location

Conservation Rank: Not ranked  
Comments on Rank:

Detailed Description: 2011: 97 North State Street: Female with 2 eggs observed on rooftop on 6/30. Nest lost to predation on 7/1.<br />2002: 1-2, possibly 3, adults observed flying and calling (7/16 Obs\_id 142; 7/18 Obs\_id 145; 7/21 Obs\_id 129; 7/23 Obs\_id 150; 7/26 Obs\_id 153).<br />1991: 12 adult, sex unknowns (Obs\_id 943).

General Area: 2011: 97 North State Street: Rooftop in urban setting.<br />2002: Terrestrial - urban / suburban.<br />1991: Terrestrial - urban / suburban (Obs\_id 943).

General Comments: 2002: Birds flying over large area from 8:23-8:58 pm (7/16) and from 8:28-9:05 pm (7/18).<br />1991: Number above represents approximate high count for downtown Concord between 1981-2003. Numbers from 1993-2003 average only 2-3 birds. Nesting was documented in several years during the late 1980s/early 1990s (Obs\_id 943).

Management  
Comments:

#### Location

Survey Site Name: Concord, Downtown  
Managed By:

County: Merrimack  
Town(s): Concord  
Size: 18.3 acres

Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2011: 97 North State Street, Concord.<br />2002: Downtown Concord, in area bounded by Main, Pleasant, State, and Court Streets. Birds flying over Concord Public Library, State House, Bicentennial Square.<br />1991: Downtown Concord (Obs\_id 943).

#### Dates documented

First reported: 1991-07-31                      Last reported: 2011-06-30

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

## New Hampshire Natural Heritage Bureau - Animal Record

**Northern Leopard Frog (*Lithobates pipiens*)****Legal Status**

Federal: Not listed  
State: Special Concern

**Conservation Status**

Global: Demonstrably widespread, abundant, and secure  
State: Rare or uncommon

**Description at this Location**

Conservation Rank: Not ranked  
Comments on Rank:

Detailed Description: 2016:1 adult observed.<br />2004: Areas 6668A & B: 20+ seen. Adults and young.  
Area 6634: 1 seen. Adult.<br />2003: Area 1037: 1 young seen.

General Area: 2016: Area 14281: Floodplain near river bank.<br />2004: Area 6668A,B: Floodplain forest.<br />2003: Area 1036: In yard.

General Comments:  
Management  
Comments:

**Location**

Survey Site Name: Merrimack River, east of  
Managed By: West Terrill Park

County: Merrimack  
Town(s): Concord  
Size: 94.3 acres Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2004: Floodplain forest of Merrimack River, north of South End Bridge at south end of Old Turnpike Road, Concord. West of river (Area 6668A) and east of river (Area 6668B). Perennial stream channel behind corn fields on east side of Merrimack River and south of Bridge Street and the US Post Office, 43 11 57N, 71 31 12W (Area 6634).<br />2003: 7 Riverview Lane, in yard (Area 1037).

**Dates documented**

First reported: 2003-08-07 Last reported: 2016-06-24

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.



## New Hampshire Natural Heritage Bureau - Animal Record

### Northern Leopard Frog (*Lithobates pipiens*)

#### **Legal Status**

Federal: Not listed  
State: Special Concern

#### **Conservation Status**

Global: Demonstrably widespread, abundant, and secure  
State: Rare or uncommon

#### **Description at this Location**

Conservation Rank: Not ranked  
Comments on Rank:

Detailed Description: 2004: 12 seen. Adults. (Obs\_id 2004.0189).

General Area:

General Comments:

Management

Comments:

#### **Location**

Survey Site Name: Merrimack River floodplain, Garvins Falls area  
Managed By:

County: Merrimack

Town(s): Concord

Size: 7.7 acres

Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2004: [About 0.4 miles north of dam on peninsula on west side of Merrimack River.] (Obs\_id 2004.0189).

#### **Dates documented**

First reported: 2004-09-23

Last reported: 2004-09-23

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.



## New Hampshire Natural Heritage Bureau - Animal Record

**Spotted Turtle (*Clemmys guttata*)****Legal Status**

Federal: Not listed  
State: Listed Threatened

**Conservation Status**

Global: Demonstrably widespread, abundant, and secure  
State: Imperiled due to rarity or vulnerability

**Description at this Location**

Conservation Rank: Not ranked  
Comments on Rank:

Detailed Description: 2014: Area 14142: 1 adult male observed.  
General Area: 2014: Area 14142: Found in warehouse. Very developed area and no obvious wetlands (other than Merrimack River) in vicinity.

General Comments:  
Management  
Comments:

**Location**

Survey Site Name: Concord Sewage Treatment Plant  
Managed By:

County: Merrimack  
Town(s): Concord  
Size: .4 acres  
Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2014: Area 14142: Warehouse of Cohen Steel property on Hall Street, Concord.

**Dates documented**

First reported: 2014-07-28  
Last reported: 2014-07-28

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

## New Hampshire Natural Heritage Bureau - Animal Record

Wood Turtle (*Glyptemys insculpta*)**Legal Status**

Federal: Not listed  
State: Special Concern

**Conservation Status**

Global: Rare or uncommon  
State: Rare or uncommon

**Description at this Location**

Conservation Rank: Not ranked  
Comments on Rank:

Detailed Description: 2014: Area 14120: 1 adult male and 1 adult female observed. Area 14121M: 3 adult males observed on 4/20. 4 females observed on 5/3.<br />2013: Area 13461: 2 adult females observed. 7 adults observed, sex unknown.<br />2012: Area 13090: 1 adult female observed. Area 13100: 1 adult observed.<br />2011: Area 13134: 4 adults and 1 juvenile observed.<br />2009: Area 12307: 4 individuals observed.<br />2006: Area 11686: 1 adult seen.<br />1996: Area 6455: 1 female seen.

General Area: 2014: Area 14120: Floodplain forest; open areas with mud. Area 14121M: Oxbow marsh with buttonbush.<br />2013: Area 13461: Merrimack River.<br />2012: Area 13090: Merrimack River oxbow. Area 13100: Floodplain forest.<br />2009: Area 12307: Downed trees in river.<br />2006: Area 11686: Mostly woody, shrubby vegetation up the bank, but turtle was near an area where a wooden structure indicates a possible former dock, with a patch of grass standing out from an otherwise sparse herbaceous layer. Abundant sandy soil nearby, due to silting.<br />1996: Area 6455: Find sandy loam/silt of floodplain, supporting American elm, bittersweet, silver maple, etc. Turtle headed for the river from sandy lane between river-edge vegetation and cornfield.

## General Comments:

Management  
Comments:

**Location**

Survey Site Name: Bradley's Island  
Managed By: Merrimack River Outdoor Ed. & Consvr. Ctr.

County: Merrimack  
Town(s): Concord  
Size: 15.8 acres

Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2014: Area 14120: Floodplain behind NHTI athletic fields. Area 14121M: On SPNHF floodplain property in backwater marsh.<br />2013: Area 13461: SPNHF Conservation Center.<br />2012: Area 13100: Eastman Cove vernal area, Merrimack River.<br />2009: Area 12307: In Merrimack River just north of NHTI boat ramp.<br />2006: Area 11686: Outside bend of Merrimack River below Sugar Ball.<br />1996: Area 6455: Merrimack River. At edge of shrubs, 20' from W bank of river, behind cornfield just south of NHTI ball field.

**Dates documented**

First reported: 1996-08-29 Last reported: 2014-05-03

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

## New Hampshire Natural Heritage Bureau - Animal Record

### Wood Turtle (*Glyptemys insculpta*)

#### **Legal Status**

Federal: Not listed  
State: Special Concern

#### **Conservation Status**

Global: Rare or uncommon  
State: Rare or uncommon

#### **Description at this Location**

Conservation Rank: Not ranked  
Comments on Rank:

Detailed Description: 2010: Area 12748: 2 juveniles observed.

General Area: 2010: Area 12748: Forested swamp adjacent to Bow Brook, a perennial stream. Plants include Impatiens, sedges, skunk cabbage, sensitive fern, poison ivy, arrowwood, honeysuckle, alternate leaved dogwood, and red maple.

General Comments: 2010: Area 12748: Observation comment: Turtle 1 was ~3.5 inches long. Turtle 2 was 2.8 inches long. 'Location of the turtles seems unlikely given the physical obstacles they must have overcome. The nearest known pop is in a tributary to the Turkey River, several miles upstream. These turtles either had to cross 3A from the Merrimack River (no known pop there) or travel from the Turkey River up 2 long culverts (or over land, crossing an off ramp from I-89). This does not seem like secure or promising habitat for wood turtles.'

Management  
Comments:

#### **Location**

Survey Site Name: Bow Junction  
Managed By:

County: Merrimack  
Town(s): Bow  
Size: 1.9 acres

Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2010: Area 12748: Park behind the Pitco Fryolator building on the west side of Rte. 3A. Walk west to Bow Brook, paralleling the highway. Follow the brook south to the wetland area on the east side of the brook.

#### **Dates documented**

First reported: 2010-06-09                      Last reported: 2010-06-09

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

## Exhibit 2



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
New England Ecological Services Field Office  
70 Commercial Street, Suite 300  
Concord, NH 03301-5094  
Phone: (603) 223-2541 Fax: (603) 223-0104  
<http://www.fws.gov/newengland>

In Reply Refer To:

June 28, 2018

Consultation Code: 05E1NE00-2018-SLI-1481

Event Code: 05E1NE00-2018-E-05203

Project Name: Bow-Concord 13742

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-



## Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**New England Ecological Services Field Office**

70 Commercial Street, Suite 300

Concord, NH 03301-5094

(603) 223-2541

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## Project Summary

Consultation Code: 05E1NE00-2018-SLI-1481

Event Code: 05E1NE00-2018-E-05203

Project Name: Bow-Concord 13742

Project Type: TRANSPORTATION

**Project Description:** The project consists of a 4.5-mile section of the I-93 corridor from just south of its intersection with Interstate 89 (I-89) to just north of its intersection with Interstate 393 (I-393) at Exit 15. Exits 12, 13, 14 & 15 on I-93 are included in the project area, as well as Exit 1 on I-89 and Exit 1 on I-393.

I-93 through Bow and Concord is a four-lane divided urban principal arterial highway with limited access, meaning access is provided only at interchanges. South of the project limits, I-93 is a six-lane divided urban arterial highway. The basic purpose of the project is to improve transportation efficiency and reduce safety problems within this approximately 4.5-mile segment of highway.

### Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/43.196774147366376N71.52718115584855W>



Counties: Merrimack, NH

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## Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

### Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>	Threatened

### Flowering Plants

NAME	STATUS
Small Whorled Pogonia <i>Isotria medeoloides</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/1890">https://ecos.fws.gov/ecp/species/1890</a>	Threatened

### Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

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## Exhibit 3

## Gene W. McCarthy

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**From:** Paula Bellemore <pbellemore@lchip.org>  
**Sent:** Thursday, September 20, 2018 4:11 PM  
**To:** Jennifer L. Zorn  
**Subject:** RE: NHDOT #13742: Interstate 93 Improvements Bow to Concord

Hi Jennifer,

LCHIP assisted with the preservation of the Kimball Jenkins Estate located on North Main St., which appears to be the historic resource indicated on the project map. Beyond it does not appear that LCHIP has assisted with the protection of any natural, cultural or historic resources in the project area described.

*Paula*

---

**From:** Jennifer L. Zorn <JZorn@mjinc.com>  
**Sent:** Tuesday, September 04, 2018 12:24 PM  
**To:** Paula Bellemore <pbellemore@lchip.org>  
**Cc:** Martin, Rebecca <Rebecca.Martin@dot.nh.gov>  
**Subject:** Fw: NHDOT #13742: Interstate 93 Improvements Bow to Concord

Hi Paula,

I'm so sorry to ask you for a favor. I have misplaced your reply on this matter back from 2017. Is it possible for you to confirm (via email is fine) that there are no LCHIP properties in the study area for the I-93 Improvement project. Much of the project is located in the right-of-way of the I-89 and I-93.

Your reply is needed for the NEPA Environmental Assessment.

If you have any questions, please let me know.

Thank you,

Jennifer

---

**From:** Jennifer L. Zorn  
**Sent:** Monday, May 2, 2016 2:17 PM  
**To:** [lwcf@dred.nh.gov](mailto:lwcf@dred.nh.gov); [pbellemore@lchip.org](mailto:pbellemore@lchip.org); [steve.walker@nh.gov](mailto:steve.walker@nh.gov)  
**Subject:** NHDOT #13742: Interstate 93 Improvements Bow to Concord

Good Afternoon,

In the role as consultant, McFarland Johnson is preparing a NEPA Environmental Assessment for this NHDOT project, #13742. To complete the research phase of this work, the funding sources of public lands such as conservation lands, recreation lands, historic properties, and similar is necessary. Identification of funding sources for any 4(f), 6(f), LCHIP, CLS, LWCF properties is critical for the inventory, evaluating impacts and determining what, if any, consultation may be necessary.

Enclosed is a figure showing the 4.5 mile project corridor and study area (red line) that extends from Bow to Concord I-93. Properties of note include: Cilley State Forest, South End Marsh, and West Terrill Park.

If you need any further information from me to assist in this request, please let me know.

Thank you,  
Jennifer

Jennifer L. Zorn, AICP • Project Manager



53 Regional Drive • Concord, NH 03301  
Office: 603-225-2978 ext. 141



## Gene W. McCarthy

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**From:** Walker, Steve <Steve.Walker@nh.gov>  
**Sent:** Tuesday, May 3, 2016 7:53 AM  
**To:** Jennifer L. Zorn  
**Subject:** RE: NHDOT #13742: Interstate 93 Improvements Bow to Concord

Hi Jennifer. That might be the best project map I have received in 14 years. There are no LCIP properties in the project area. Thanks Steve

Steve Walker  
Office of Energy and Planning  
Stewardship Specialist  
603-271-6834

---

**From:** Jennifer L. Zorn [mailto:JZorn@mjinc.com]  
**Sent:** Monday, May 02, 2016 2:17 PM  
**To:** DRED: Land & Water Conservation Fund; pbellemore@lchip.org; Walker, Steve  
**Subject:** NHDOT #13742: Interstate 93 Improvements Bow to Concord

Good Afternoon,

In the role as consultant, McFarland Johnson is preparing a NEPA Environmental Assessment for this NHDOT project, #13742. To complete the research phase of this work, the funding sources of public lands such as conservation lands, recreation lands, historic properties, and similar is necessary. Identification of funding sources for any 4(f), 6(f), LCHIP, CLS, LWCF properties is critical for the inventory, evaluating impacts and determining what, if any, consultation may be necessary.

Enclosed is a figure showing the 4.5 mile project corridor and study area (red line) that extends from Bow to Concord I-93. Properties of note include: Cilley State Forest, South End Marsh, and West Terrill Park.

If you need any further information from me to assist in this request, please let me know.

Thank you,  
Jennifer

Jennifer L. Zorn, AICP • Project Manager



53 Regional Drive • Concord, NH 03301  
Office: 603-225-2978 ext. 141

## Exhibit 4



STATE OF NEW HAMPSHIRE  
DEPARTMENT of NATURAL and CULTURAL RESOURCES  
OFFICE OF THE COMMISSIONER

172 Pembroke Road Concord, New Hampshire 03301  
Phone: 271-2411 Fax: 271-2629

RECEIVED

June 22, 2018

JUN 27 2018

NHDOT  
Highway Design

Don Lyford, Project Manager  
NH Dept. of Transportation  
PO Box 483  
Concord NH 03302-0483

RE: DOT Project #13742 Bow-Concord I-93 – Impacts to Cilley State Forest

Dear Mr. Lyford,

This is in response to the Department of Transportation's (DOT) request for consultation regarding potential impacts to Cilley State Forest from the proposed Interstate 93 expansion project through Bow and Concord.

The Department of Natural and Cultural Resources (DNCR) understands that DOT's preferred alternative proposes to impact approximately 0.7 acres along the edge of Cilley State Forest and that mitigation has been proposed to replace this acreage with other abutting lands that are of reasonably equivalent size and usefulness. The proposed impact and mitigation areas have been reviewed in the field by Division of Forests and Lands staff and DNCR concurs with the assessment of proposed impacts and the mitigation proposal as presented.

We appreciate DOT's efforts to minimize harm to the forest and its willingness to involve DNCR early in the project planning process. We look forward to continued consultation with DOT through final design as it relates to the Cilley State Forest property and associated mitigation.

Please contact Tracey Boisvert, Division of Forests and Lands, Land Management Bureau Administrator, with any questions or for additional project consultation. She may be reached via email at [tracey.boisvert@dn-cr.nh.gov](mailto:tracey.boisvert@dn-cr.nh.gov) or by phone at 603-271-3457.

Sincerely,

A handwritten signature in black ink, appearing to read "Sarah L. Stewart".

Sarah L. Stewart  
Commissioner

cc: Brad Simpkins, Director Division of Forests and Lands  
Tracey Boisvert, Division of Forests and Lands

## Exhibit 5

## Christine J. Perron

---

**From:** Lamb, Amy <Amy.Lamb@dncr.nh.gov>  
**Sent:** Wednesday, July 11, 2018 10:16 AM  
**To:** Christine J. Perron  
**Cc:** Jennifer L. Zorn; Bowman, Peter; Stanwood, Sabrina; Martin, Rebecca  
**Subject:** RE: Bow-Concord 13742 - small whorled pogonia  
**Attachments:** Bow-Concord\_surveymap.JPG

Apologies, I forgot to include the attachment, and incorrectly referred to Exit 1 instead of Exit 2 (corrected below).

Amy Lamb  
Ecological Information Specialist  
(603) 271-2834  
[amy.lamb@dncr.nh.gov](mailto:amy.lamb@dncr.nh.gov)

NH Natural Heritage Bureau  
DNCR - Forests & Lands  
172 Pembroke Rd  
Concord, NH 03301

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**From:** Lamb, Amy  
**Sent:** Wednesday, July 11, 2018 10:13 AM  
**To:** 'Christine J. Perron'  
**Cc:** Jennifer L. Zorn; Bowman, Peter; Stanwood, Sabrina; Martin, Rebecca  
**Subject:** RE: Bow-Concord 13742 - small whorled pogonia

Hi Christine,

NHB staff member Pete Bowman and I surveyed the area of Cilley State Forest adjacent to I-89 for small whorled pogonia (*Isotria medeoloides*) on 6/13/2018.

We entered the State Forest from Iron Works Road in Concord, and followed existing trails to the southeastern edge of the corn fields, where we entered the woods. We then headed south until reaching I-89, and conducted a meandering search through the woods in proximity of the highway to the Exit 2 onramp, then headed north and west along the Turkey River and back through the State Forest to the corn fields. (Refer to attached map with GPS track.)

While walking along I-89, several ephemeral / seasonal drainages were crossed which contain wetlands vegetation including skunk cabbage (*Symplocarpus foetidus*), cinnamon fern (*Osmundastrum cinnamomeum*), sensitive fern (*Onoclea sensibilis*), and jewelweed (*Impatiens capensis*). The vegetation community was documented in the vicinity of the roadway expansion, at waypoint 61 shown on the attached map. The forest type was dry upland woods with red oak, white oak, white pine, and red maple in the overstory, and witch hazel (*Hamamelis virginiana*) frequent in the understory. Other species documented at this location include: bracken fern (*Pteridium aquilinum* ssp. *latiusculum*), wild sarsaparilla (*Aralia nudicaulis*), eastern spicy-wintergreen (*Gaultheria procumbens*), lowbush blueberry (*Vaccinium angustifolium*), sessile-leaved bellwort (*Uvularia sessilifolia*), and maple-leaved viburnum (*Viburnum acerifolium*).

Although the area in the vicinity of the waypoint/highway expansion consisted of mixed hardwood/pine forest and contained species commonly found in small whorled pogonia habitat (such as witch hazel), we did not observe seasonal drainages containing the necessary hydrology to support small whorled pogonia in this area. Throughout the full surveyed area, conditions were variably too dry, too wet, or contained too much understory vegetation to provide good

small whorled pogonia habitat. We did not find any small whorled pogonia plants during our search, and we do not feel that any additional survey work is necessary in Cilley State Forest.

Thank you, and please let me know if you need additional information.

Amy

Amy Lamb  
Ecological Information Specialist  
**(603) 271-2834**  
[amy.lamb@dncr.nh.gov](mailto:amy.lamb@dncr.nh.gov)

NH Natural Heritage Bureau  
**DNCR** - Forests & Lands  
172 Pembroke Rd  
Concord, NH 03301

---

**From:** Christine J. Perron [mailto:CPerron@mjinc.com]  
**Sent:** Wednesday, April 25, 2018 12:26 PM  
**To:** Lamb, Amy  
**Cc:** Jennifer L. Zorn; Bowman, Peter; Stanwood, Sabrina; Martin, Rebecca  
**Subject:** RE: Bow-Concord 13742 - small whorled pogonia

Hi Amy,

Rebecca coordinated with the USFWS to confirm that the Environmental Assessment can be completed this spring with a commitment to complete a survey for SWP in the vicinity of Cilley State Forest in June. Further consultation with FWS will occur if NHB's survey finds SWP in the project area.

Let us know if you need anything before the survey.

Thanks,  
Christine

---

**From:** Lamb, Amy [mailto:Amy.Lamb@dncr.nh.gov]  
**Sent:** Tuesday, April 17, 2018 3:07 PM  
**To:** Christine J. Perron <CPerron@mjinc.com>  
**Cc:** Jennifer L. Zorn <JZorn@mjinc.com>; Bowman, Peter <Peter.Bowman@dncr.nh.gov>; Stanwood, Sabrina <Sabrina.Stanwood@dncr.nh.gov>  
**Subject:** RE: Bow-Concord 13742 - small whorled pogonia

Hi Christine,

Thank you for sending this over. Since the area with the greatest potential for small whorled pogonia habitat is in the vicinity of Cilley State Forest, we would be happy to search this area in mid-June of this year. Although you noted that the area has been visited previously and no SWP were found, and there is a fair amount of shrub cover in this area, we would like to do a quick field review to be certain since it is DNCR property. We can include the properties to the west as well if we have permission; the total area would be less than 10 acres and it would not be a problem for us to review it.

Let me know if this would work for DOT.



Best,  
Amy

Amy Lamb  
Ecological Information Specialist  
**(603) 271-2834**  
[amy.lamb@dncr.nh.gov](mailto:amy.lamb@dncr.nh.gov)

NH Natural Heritage Bureau  
**DNCR** - Forests & Lands  
172 Pembroke Rd  
Concord, NH 03301

---

**From:** Christine J. Perron [<mailto:CPerron@mjinc.com>]  
**Sent:** Monday, April 16, 2018 1:41 PM  
**To:** Lamb, Amy  
**Cc:** Jennifer L. Zorn  
**Subject:** Bow-Concord 13742 - small whorled pogonia

Hi Amy,

We have put together the attached information on small whorled pogonia in the Bow-Concord study area. Before we coordinate with USFWS, we wanted your input on any potential concerns or recommendations you may have.

Conceptual plans showing the preferred alternative for each project segment can be viewed at the website below under 'Public Information Meeting 2.'

<http://www.i93bowconcord.com/Study-Documents.html>

Thanks,  
Christine

**Christine Perron, CWS**  
Project Manager • Senior Environmental Analyst  
McFarland Johnson  
53 Regional Drive • Concord, NH 03301  
OFFICE: 603-225-2978 ext. 128  
[www.mjinc.com](http://www.mjinc.com)



Concord

Bow

081

## Gene W. McCarthy

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**From:** Martin, Rebecca <Rebecca.Martin@dot.nh.gov>  
**Sent:** Wednesday, October 10, 2018 11:38 AM  
**To:** 'David Simmons'  
**Cc:** 'Maria Tur'; 'Sikora, Jamie (FHWA)'  
**Subject:** RE: [EXTERNAL] Bow-Concord 13742 - Small Whorled Pogonia  
**Attachments:** RE: Bow-Concord 13742 - small whorled pogonia

Hello David,

This past summer Amy Lamb and her colleague, Pete Bowman, from the NH Natural Heritage Bureau surveyed the area of Cilley State Forest adjacent to I-89 for small whorled pogonia on 6/13/2018 (details attached). They reviewed the area that would be impacted by the Bow-Concord 13742 preferred alternative and found it to be a mixed hardwood/pine forest that contained species commonly found in small whorled pogonia habitat. However, they did not observe seasonal drainages containing the necessary hydrology to support small whorled pogonia in the area. Amy Lamb indicated that 'Throughout the full surveyed area, conditions were variably too dry, too wet, or contained too much understory vegetation to provide good small whorled pogonia habitat. We did not find any small whorled pogonia plants during our search, and we do not feel that any additional survey work is necessary in Cilley State Forest.'

Since the NHB database does not include any records of small whorled pogonia in or near the proposed project area, the Natural Heritage Bureau had indicated that the only potentially suitable habitat in the project area is in the vicinity of Cilley State Forest and the survey had a negative result, we feel that the no effect determination that we communicated about previously is appropriate. Please let me know if you have any questions or comments.

Thank you,

Rebecca Martin  
Senior Environmental Manager  
NH DOT Bureau of Environment  
7 Hazen Drive  
Concord, NH 03302  
(603)271-6781  
[Rebecca.Martin@dot.nh.gov](mailto:Rebecca.Martin@dot.nh.gov)

---

**From:** David Simmons [mailto:[David\\_Simmons@fws.gov](mailto:David_Simmons@fws.gov)]  
**Sent:** Wednesday, April 25, 2018 12:10 PM  
**To:** Martin, Rebecca  
**Cc:** Maria Tur; Sikora, Jamie (FHWA)  
**Subject:** RE: [EXTERNAL] Bow-Concord 13742 - Small Whorled Pogonia

Hi Rebecca,

Thank you for contacting me about this project. Your effects determination and survey proposal are reasonable given the proposed project footprint(s) and what we know about the species in the project area. Please keep me posted on the surveys; we can discuss potential consultation if surveys are positive and you/FHWA think the project may affect the species. Regards,  
David

---

**From:** Martin, Rebecca [mailto:[Rebecca.Martin@dot.nh.gov](mailto:Rebecca.Martin@dot.nh.gov)]  
**Sent:** Wednesday, April 25, 2018 7:52 AM  
**To:** 'David Simmons'



**Cc:** Maria Tur ([maria\\_tur@fws.gov](mailto:maria_tur@fws.gov)); Sikora, Jamie (FHWA)  
**Subject:** [EXTERNAL] Bow-Concord 13742 - Small Whorled Pogonia  
Good morning David,

Can you please refer me to the appropriate person to coordinate with regarding small whorled pogonia for DOT's Bow-Concord 13742 project? The Bow-Concord section of Interstate 93 (from the I-89/I-93 interchange to the I-93/I-393 interchange) serves as a critical link for statewide travel to the White Mountains and the Lakes Region, as well as an important local route within Concord. The Project's conceptual plans showing the preferred alternative for each project segment can be viewed at this website under 'Public Information Meeting 2.' <http://www.i93bowconcord.com/Study-Documents.html>

Our consultant is drafting an Environmental Assessment for the project. A public hearing for the project is scheduled for July of this year, so the EA will need to be completed soon to allow adequate time for review by FHWA and the public. I had previously coordinated with Susi von Oettingen regarding the Northern Long-eared Bat for the project. Our consultant has coordinated with the Natural Heritage Bureau (see email below). The NHB Ecological Information Specialist, Amy Lamb, has informed us that the NHB database does not include any records of small whorled pogonia in or near the proposed project area. In Amy's opinion, the potential suitable habitat in the project area is in the vicinity of Cilley State Forest. Amy suggests that NHB could survey this area this summer. We are hoping that USFWS will concur that a no effect finding is appropriate with a commitment to survey potential habitat later this summer and coordinate with USFWS. I look forward to discussing this project and the small whorled pogonia with someone in your office.

Thank you,  
Rebecca Martin  
Senior Environmental Manager  
NH DOT Bureau of Environment  
7 Hazen Drive  
Concord, NH 03302  
(603)271-6781  
[Rebecca.Martin@dot.nh.gov](mailto:Rebecca.Martin@dot.nh.gov)

---

**From:** Lamb, Amy [<mailto:Amy.Lamb@dncr.nh.gov>]  
**Sent:** Tuesday, April 17, 2018 3:07 PM  
**To:** Christine J. Perron <[CPerron@mjinc.com](mailto:CPerron@mjinc.com)>  
**Cc:** Jennifer L. Zorn <[JZorn@mjinc.com](mailto:JZorn@mjinc.com)>; Bowman, Peter <[Peter.Bowman@dncr.nh.gov](mailto:Peter.Bowman@dncr.nh.gov)>; Stanwood, Sabrina <[Sabrina.Stanwood@dncr.nh.gov](mailto:Sabrina.Stanwood@dncr.nh.gov)>  
**Subject:** RE: Bow-Concord 13742 - small whorled pogonia

Hi Christine,  
Thank you for sending this over. Since the area with the greatest potential for small whorled pogonia habitat is in the vicinity of Cilley State Forest, we would be happy to search this area in mid-June of this year. Although you noted that the area has been visited previously and no SWP were found, and there is a fair amount of shrub cover in this area, we would like to do a quick field review to be certain since it is DNCR property. We can include the properties to the west as well if we have permission; the total area would be less than 10 acres and it would not be a problem for us to review it. Let me know if this would work for DOT.

Best,  
Amy  
Amy Lamb  
Ecological Information Specialist  
(603) 271-2834  
[amy.lamb@dncr.nh.gov](mailto:amy.lamb@dncr.nh.gov)

NH Natural Heritage Bureau  
DNCR - Forests & Lands  
172 Pembroke Rd  
Concord, NH 03301

---

**From:** Christine J. Perron [<mailto:CPerron@mjinc.com>]

**Sent:** Monday, April 16, 2018 1:41 PM

**To:** Lamb, Amy

**Cc:** Jennifer L. Zorn

**Subject:** Bow-Concord 13742 - small whorled pogonia

Hi Amy,

We have put together the attached information on small whorled pogonia in the Bow-Concord study area. Before we coordinate with USFWS, we wanted your input on any potential concerns or recommendations you may have.

Conceptual plans showing the preferred alternative for each project segment can be viewed at the website below under 'Public Information Meeting 2.'

<http://www.i93bowconcord.com/Study-Documents.html>

Thanks,

Christine

**Christine Perron, CWS**

Project Manager • Senior Environmental Analyst

McFarland Johnson

53 Regional Drive • Concord, NH 03301

OFFICE: 603-225-2978 ext. 128

[www.mjinc.com](http://www.mjinc.com)

## Exhibit 6

## Christine J. Perron

---

**From:** Lamb, Amy <Amy.Lamb@dncr.nh.gov>  
**Sent:** Monday, June 04, 2018 11:32 AM  
**To:** Christine J. Perron  
**Subject:** RE: NHB review: NHB18-1058

Thanks Christine! And a happy Monday to you.

Amy Lamb  
Ecological Information Specialist  
(603) 271-2834  
[amy.lamb@dncr.nh.gov](mailto:amy.lamb@dncr.nh.gov)

NH Natural Heritage Bureau  
DNCR - Forests & Lands  
172 Pembroke Rd  
Concord, NH 03301

---

**From:** Christine J. Perron [mailto:CPerron@mjinc.com]  
**Sent:** Monday, June 04, 2018 11:22 AM  
**To:** Lamb, Amy  
**Subject:** RE: NHB review: NHB18-1058

Hi Amy,

Yes, the tree clearing will be parallel to the roadway.  
No, the bike path will not be impacted by the project. Grading will be near the path, but there will be no impact.

Happy Monday!  
Christine

---

**From:** Lamb, Amy [mailto:Amy.Lamb@dncr.nh.gov]  
**Sent:** Friday, June 01, 2018 2:27 PM  
**To:** Christine J. Perron <CPerron@mjinc.com>  
**Subject:** RE: NHB review: NHB18-1058

Hi Christine,

Thank you for the information. 1,500 square feet seems reasonable, especially given that it would be a narrow strip, presumably paralleling the roadway? Out of curiosity, is the bike path being relocated in this general area?

Thanks,  
Amy

Amy Lamb  
Ecological Information Specialist  
(603) 271-2834  
[amy.lamb@dncr.nh.gov](mailto:amy.lamb@dncr.nh.gov)

NH Natural Heritage Bureau  
DNCR - Forests & Lands  
172 Pembroke Rd  
Concord, NH 03301

---

**From:** Christine J. Perron [<mailto:CPerron@mjinc.com>]  
**Sent:** Thursday, May 24, 2018 9:49 AM  
**To:** Lamb, Amy  
**Subject:** RE: NHB review: NHB18-1058

Hi Amy,

There are two areas of tree clearing on the east side of I-93 at the north end of the project. These areas are located to the north and south of an open area adjacent to the bike path and I-93. Google street view provides a good view of these areas:

<https://goo.gl/maps/jpY241hvQBC2>

South of the open area:  
600 LF x 10' wide = 6,000 sq ft

North of the open area:  
150 LF x 10' wide = 1,500 sq ft

The clearing in these locations is not located within delineated wetlands. These areas are based on preliminary design and could change somewhat once final design and permitting gets underway in 2020.

Let me know if you need anything else!  
Christine

---

**From:** Lamb, Amy [<mailto:Amy.Lamb@dncr.nh.gov>]  
**Sent:** Friday, May 18, 2018 12:39 PM  
**To:** Christine J. Perron <[CPerron@mjinc.com](mailto:CPerron@mjinc.com)>  
**Subject:** RE: NHB review: NHB18-1058

Hi Christine,

I am so sorry I missed your email. Do you have any information about the limited clearing that will occur here (approx. area/number of trees)?

Thank you,  
Amy

Amy Lamb  
Ecological Information Specialist  
(603) 271-2834  
[amy.lamb@dncr.nh.gov](mailto:amy.lamb@dncr.nh.gov)

NH Natural Heritage Bureau  
DNCR - Forests & Lands



172 Pembroke Rd  
Concord, NH 03301

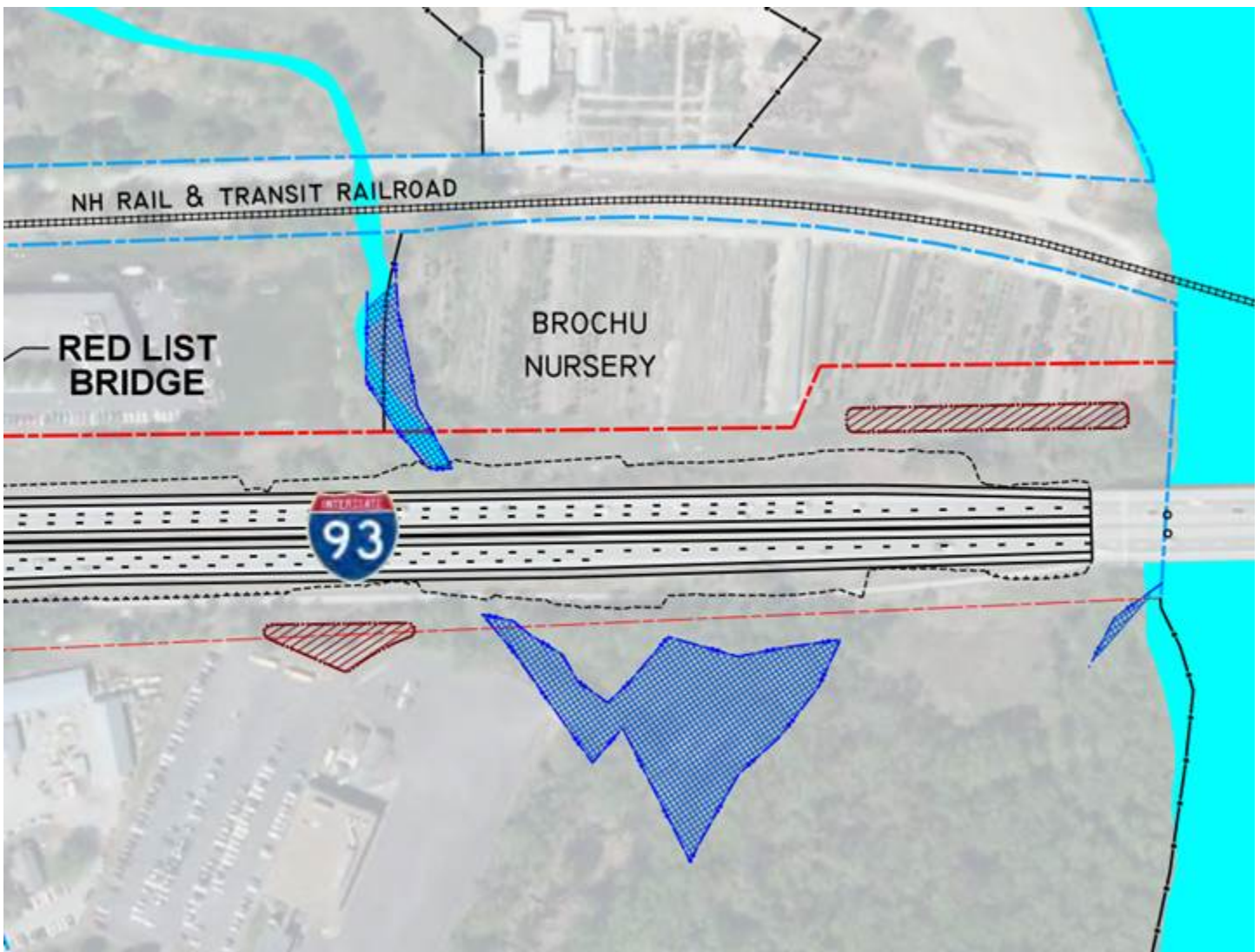
**From:** Christine J. Perron [<mailto:CPerron@mjinc.com>]  
**Sent:** Monday, April 16, 2018 4:39 PM  
**To:** Lamb, Amy  
**Subject:** RE: NHB review: NHB18-1058

Thank you Amy.

Regarding the exemplary natural community, I'm pasting a snapshot of the concept plan for the northern end of the project (<http://www.i93bowconcord.com/Documents/PIM%20February%202018/Exit%202014-15%20Concept%20F2.pdf>):

The proposed slope line (black dashed line) will be located within existing ROW in this location. There may be a small amount of clearing at the new toe of slope, but the clearing will also remain within the ROW. The drainage design will not be completed until final design, at which time impacts will be refined and discussed prior to permitting. Would you like any additional information for the proposed work in this area?

Thanks,  
Christine



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**From:** Lamb, Amy [<mailto:Amy.Lamb@dncr.nh.gov>]  
**Sent:** Monday, April 16, 2018 4:17 PM  
**To:** Christine J. Perron <[CPerron@mjinc.com](mailto:CPerron@mjinc.com)>  
**Cc:** Tuttle, Kim <[Kim.Tuttle@wildlife.nh.gov](mailto:Kim.Tuttle@wildlife.nh.gov)>  
**Subject:** NHB review: NHB18-1058

Attached, please find the review we have completed. If your review memo includes potential impacts to plants or natural communities please contact me for further information. If your project had potential impacts to wildlife, please contact NH Fish and Game at the phone number listed on the review.

Best,  
Amy

Amy Lamb  
Ecological Information Specialist

NH Natural Heritage Bureau  
DNCR - Forests & Lands  
172 Pembroke Rd  
Concord, NH 03301  
603-271-2834

## Exhibit 7

## Christine J. Perron

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**From:** vonOettingen, Susi <susi\_vonoettingen@fws.gov>  
**Sent:** Wednesday, April 04, 2018 10:45 AM  
**To:** Martin, Rebecca  
**Subject:** Re: [EXTERNAL] RE: NH DOT Bow-Concord 13742 Acoustic Survey Report

Hi,

I think it is very realistic to use P/A surveys in lieu of bridge surveys for the time being. I have yet to see anything really conclusive re: NLEB use of bridges in New England. I think Alyssa may have some info on NLEB use, but I have no reports or documentation. We have bats - big and little browns, but I'm not sure about confirmed NLEB>

Susi

\*\*\*\*\*

Susi von Oettingen  
Endangered Species Biologist  
New England Field Office  
70 Commercial Street, Suite 300  
Concord, NH 03301  
(W) 603-227-6418  
(Fax) 603-223-0104

[www.fws.gov/newengland](http://www.fws.gov/newengland)

On Wed, Apr 4, 2018 at 10:31 AM, Martin, Rebecca <[Rebecca.Martin@dot.nh.gov](mailto:Rebecca.Martin@dot.nh.gov)> wrote:

Hello Susi,

As you might recall, the Bow-Concord acoustic survey last summer resulted in probable absence of NLEB in the project area. Also, the IPaC key for the NLEB and IBat Programmatic was recently updated. Our consultant was entering information about the project into the key and came to the question about bridge assessments (which have not been completed) at that step the key asks if a P/A survey was completed within 0.25 mi of the bridge. When our consultant selects yes for that question, it asks if the Field Office has verified that the P/A survey can be used for determining NLEB absence from bridges. I know we have discussed that NH bridges are not frequently used by bats. What are your thoughts on using the result of the P/A survey for determining NLEB absence from bridges?

Thank you,

Rebecca

---

**From:** Martin, Rebecca  
**Sent:** Monday, December 11, 2017 1:56 PM

**To:** Susi vonOettingen ([Susi\\_vonOettingen@fws.gov](mailto:Susi_vonOettingen@fws.gov))

**Subject:** NH DOT Bow-Concord 13742 Acoustic Survey Report

Hello Susi,

Please find attached the acoustic survey report for the Bow-Concord 13742 project. Can you confirm receipt (large file)?

If you need any additional information, please let me know.

Happy Holidays!

Rebecca Martin

Senior Environmental Manager

NH DOT Bureau of Environment

[7 Hazen Drive](#)

[Concord, NH 03302](#)

(603)271-6781

[Rebecca.Martin@dot.nh.gov](mailto:Rebecca.Martin@dot.nh.gov)



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
New England Ecological Services Field Office  
70 Commercial Street, Suite 300  
Concord, NH 03301-5094  
Phone: (603) 223-2541 Fax: (603) 223-0104  
<http://www.fws.gov/newengland>

In Reply Refer To:  
Consultation Code: 05E1NE00-2018-I-1481  
Event Code: 05E1NE00-2019-E-00159  
Project Name: Bow-Concord 13742

October 10, 2018

Subject: Concurrence verification letter for the 'Bow-Concord 13742' project under the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

To whom it may concern:

The U.S. Fish and Wildlife Service (Service) has received your request dated to verify that the **Bow-Concord 13742** (Proposed Action) may rely on the concurrence provided in the February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat (PBO) to satisfy requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C 1531 *et seq.*).

Based on the information you provided (Project Description shown below), you have determined that the Proposed Action is within the scope and adheres to the criteria of the PBO, including the adoption of applicable avoidance and minimization measures, may affect, but is not likely to adversely affect (NLAA) the endangered Indiana bat (*Myotis sodalis*) and/or the threatened Northern long-eared bat (*Myotis septentrionalis*).

The Service has 14 calendar days to notify the lead Federal action agency or designated non-federal representative if we determine that the Proposed Action does not meet the criteria for a NLAA determination under the PBO. If we do not notify the lead Federal action agency or designated non-federal representative within that timeframe, you may proceed with the Proposed Action under the terms of the NLAA concurrence provided in the PBO. This verification period allows Service Field Offices to apply local knowledge to implementation of the PBO, as we may identify a small subset of actions having impacts that were unanticipated. In such instances, Service Field Offices may request additional information that is necessary to verify inclusion of the proposed action under the PBO.

**For Proposed Actions that include bridge/structure removal, replacement, and/or maintenance activities:** If your initial bridge/structure assessments failed to detect Indiana bats, but you later detect bats during construction, please submit the Post Assessment Discovery of Bats at Bridge/Structure Form (User Guide Appendix E) to this Service Office. In these instances, potential incidental take of Indiana bats may be exempted provided that the take is reported to the Service.

If the Proposed Action is modified, or new information reveals that it may affect the Indiana bat and/or Northern long-eared bat in a manner or to an extent not considered in the PBO, further review to conclude the requirements of ESA Section 7(a)(2) may be required. If the Proposed Action may affect any other federally-listed or proposed species, and/or any designated critical habitat, additional consultation is required. If the proposed action has the potential to take bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act may also be required. In either of these circumstances, please contact this Service Office.

The following species may occur in your project area and **are not** covered by this determination:

- Small Whorled Pogonia, *Isotria medeoloides* (Threatened)
-

## Project Description

The following project name and description was collected in IPaC as part of the endangered species review process.

### Name

Bow-Concord 13742

### Description

The project consists of a 4.5-mile section of the I-93 corridor from just south of its intersection with Interstate 89 (I-89) to just north of its intersection with Interstate 393 (I-393) at Exit 15. Exits 12, 13, 14 & 15 on I-93 are included in the project area, as well as Exit 1 on I-89 and Exit 1 on I-393.

I-93 through Bow and Concord is a four-lane divided urban principal arterial highway with limited access, meaning access is provided only at interchanges. South of the project limits, I-93 is a six-lane divided urban arterial highway. The basic purpose of the project is to improve transportation efficiency and reduce safety problems within this approximately 4.5-mile segment of highway.

---



## Determination Key Result

Based on your answers provided, this project(s) may affect, but is not likely to adversely affect the endangered Indiana bat and/or the threatened Northern long-eared bat. Therefore, consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required. However, also based on your answers provided, this project may rely on the concurrence provided in the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

## Qualification Interview

1. Is the project within the range of the Indiana bat<sup>[1]</sup>?

[1] See [Indiana bat species profile](#)

**Automatically answered**

*No*

2. Is the project within the range of the Northern long-eared bat<sup>[1]</sup>?

[1] See [Northern long-eared bat species profile](#)

**Automatically answered**

*Yes*

3. Which Federal Agency is the lead for the action?

*A) Federal Highway Administration (FHWA)*

4. Are *all* project activities limited to non-construction<sup>[1]</sup> activities only? (examples of non-construction activities include: bridge/abandoned structure assessments, surveys, planning and technical studies, property inspections, and property sales)

[1] Construction refers to activities involving ground disturbance, percussive noise, and/or lighting.

*No*

5. Does the project include *any* activities that are **greater than** 300 feet from existing road/rail surfaces<sup>[1]</sup>?

[1] Road surface is defined as the actively used [e.g. motorized vehicles] driving surface and shoulders [may be pavement, gravel, etc.] and rail surface is defined as the edge of the actively used rail ballast.

*No*

---

6. Does the project include *any* activities **within** 0.5 miles of an Indiana bat and/or NLEB hibernaculum<sup>[1]</sup>?

[1] For the purpose of this consultation, a hibernaculum is a site, most often a cave or mine, where bats hibernate during the winter (see suitable habitat), but could also include bridges and structures if bats are found to be hibernating there during the winter.

*No*

7. Is the project located **within** a karst area?

*No*

8. Is there *any* suitable<sup>[1]</sup> summer habitat for Indiana Bat or NLEB **within** the project action area<sup>[2]</sup>? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

[1] See the Service's [summer survey guidance](#) for our current definitions of suitable habitat.

[2] The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR Section 402.02). Further clarification is provided by the [national consultation FAQs](#).

*Yes*

9. Will the project remove *any* suitable summer habitat<sup>[1]</sup> and/or remove/trim any existing trees **within** suitable summer habitat?

[1] See the Service's [summer survey guidance](#) for our current definitions of suitable habitat.

*Yes*

10. Will the project clear more than 20 acres of suitable habitat per 5-mile section of road/rail?

*No*

---

11. Have presence/probable absence (P/A) summer surveys<sup>[1][2]</sup> been conducted<sup>[3][4]</sup> **within** the suitable habitat located within your project action area?

[1] See the Service's [summer survey guidance](#) for our current definitions of suitable habitat.

[2] Presence/probable absence summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernaculum (contact local Service Field Office for appropriate distance from hibernacula) that result in a negative finding requires additional consultation with the local Service Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.

[3] For projects within the range of either the Indiana bat or NLEB in which suitable habitat is present, and no bat surveys have been conducted, the transportation agency will assume presence of the appropriate species. This assumption of presence should be based upon the presence of suitable habitat and the capability of bats to occupy it because of their mobility.

[4] Negative presence/probable absence survey results obtained using the [summer survey guidance](#) are valid for a minimum of two years from the completion of the survey unless new information (e.g., other nearby surveys) suggest otherwise.

*Yes*

#### **SUBMITTED DOCUMENTS**

- *Bow-Concord 13742 Acoustic Survey Report December 2017.pdf* <https://ecos.fws.gov/ipac/project/2TNC27MCOFGN7MTIML73OIWJHE/projectDocuments/11878187>

12. Did the presence/probable absence (P/A) summer surveys detect Indiana bats and/or NLEB<sup>[1]</sup>?

[1] P/A summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernaculum (contact local Service Field Office for appropriate home range) that result in a negative finding requires additional consultation with the local Service Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.

*No*

13. Were the P/A summer surveys conducted **within** the fall swarming/spring emergence range of a documented Indiana bat hibernaculum<sup>[1]</sup>?

[1] Contact the local Service Field Office for appropriate distance from hibernacula.

*No*

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14. Does the project include activities **within documented NLEB habitat**<sup>[1][2]</sup>?

[1] Documented roosting or foraging habitat – for the purposes of this consultation, we are considering documented habitat as that where Indiana bats and/or NLEB have actually been captured and tracked using (1) radio telemetry to roosts; (2) radio telemetry biangulation/triangulation to estimate foraging areas; or (3) foraging areas with repeated use documented using acoustics. Documented roosting habitat is also considered as suitable summer habitat within 0.25 miles of documented roosts.)

[2] For the purposes of this key, we are considering documented corridors as that where Indiana bats and/or NLEB have actually been captured and tracked to using (1) radio telemetry; or (2) treed corridors located directly between documented roosting and foraging habitat.

*No*

15. Will the removal or trimming of habitat or trees occur **within** suitable but **undocumented NLEB** roosting/foraging habitat or travel corridors?

*Yes*

16. What time of year will the removal or trimming of habitat or trees **within** suitable but **undocumented NLEB** roosting/foraging habitat or travel corridors occur?

*C) During both the active and inactive seasons*

17. Will *any* tree trimming or removal occur **within** 100 feet of existing road/rail surfaces?

*Yes*

18. Will **more than** 10 trees be removed **between** 0-100 feet of the road/rail surface *during* the active season<sup>[1]</sup>?

[1] Areas containing more than 10 trees will be assessed by the local Service Field Office on a case-by-case basis with the project proponent.

*Yes*

19. Will the tree removal alter *any* **documented** Indiana bat or NLEB roosts and/or alter any surrounding summer habitat **within** 0.25 mile of a documented roost?

*No*

20. Will *any* tree trimming or removal occur **between** 100-300 feet of existing road/rail surfaces?

*Yes*

21. Are *all* trees that are being removed clearly demarcated?

*Yes*

---

22. Will the removal of habitat or the removal/trimming of trees involve the use of **temporary** lighting?

*Yes*

23. Will the removal of habitat or the removal/trimming of trees include installing new or replacing existing **permanent** lighting?

*Yes*

24. Does the project include maintenance of the surrounding landscape at existing facilities (e.g., rest areas, stormwater detention basins)?

*No*

25. Does the project include wetland or stream protection activities associated with compensatory wetland mitigation?

*No*

26. Does the project include slash pile burning?

*No*

27. Does the project include *any* bridge removal, replacement, and/or maintenance activities (e.g., any bridge repair, retrofit, maintenance, and/or rehabilitation work)?

*Yes*

28. Is there *any* suitable habitat<sup>[1]</sup> for Indiana bat or NLEB **within** 1,000 feet of the bridge? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

[1] See the Service's current [summer survey guidance](#) for our current definitions of suitable habitat.

*Yes*

29. Has a bridge assessment<sup>[1]</sup> been conducted **within** the last 24 months<sup>[2]</sup> to determine if the bridge is being used by bats?

[1] See [User Guide Appendix D](#) for bridge/structure assessment guidance

[2] Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges that meet the physical characteristics described in the Programmatic Consultation, regardless of whether assessments have been conducted in the past. Due to the transitory nature of bat use, a negative result in one year does not guarantee that bats will not use that bridge/structure in subsequent years.

*No*

---

30. Is the bridge **within** a known maternity colony's home range<sup>[1]</sup>?

[1] Contact your local FWS office for more information if you are uncertain about where the nearest known maternity colony is located.

*No*

31. Have presence/probable absence (P/A) summer surveys<sup>[1][2]</sup> been conducted for this project with at least one survey point **within** suitable habitat and **within** 0.25 miles of the bridge<sup>[3][4]</sup>?

[1] See the Service's [summer survey guidance](#) for our current definitions of suitable habitat.

[2] Presence/probable absence summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernaculum (contact local Service Field Office for appropriate distance from hibernacula) that result in a negative finding requires additional consultation with the local Service Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.

[3] For projects within the range of either the Indiana bat or NLEB in which suitable habitat is present, and no bat surveys have been conducted, the transportation agency will assume presence of the appropriate species. This assumption of presence should be based upon the presence of suitable habitat and the capability of bats to occupy it because of their mobility.

[4] Negative presence/probable absence survey results obtained using the [summer survey guidance](#) are valid for a minimum of two years from the completion of the survey unless new information (e.g., other nearby surveys) suggest otherwise.

*Yes, P/A summer surveys were conducted within 0.25 miles of the bridge*

**SUBMITTED DOCUMENTS**

- *Bow-Concord 13742 Acoustic Survey Report December 2017.pdf* <https://ecos.fws.gov/ipac/project/2TNC27MCOFGN7MTIML73OIWJHE/projectDocuments/11878187>

32. Did the presence/probable absence (P/A) summer surveys detect Indiana bats and/or NLEB<sup>[1]</sup>?

[1] P/A summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernaculum (contact local Service Field Office for appropriate home range) that result in a negative finding requires additional consultation with the local Service Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.

*No, bats were not detected during the P/A surveys*

---

33. Did the local Service Field Office verify<sup>[1]</sup> that this presence/probable absence (P/A) summer survey can be used for determining Indiana bat and/or NLEB absence from the bridge?

[1] Coordination with local US Fish and Wildlife Service Field Office regarding the applicability of P/A surveys for this use is required.

*Yes, the local FWS office confirmed that this P/A survey can be used to assume bats are absent from the bridge*

34. Will the bridge removal, replacement, and/or maintenance activities include installing new or replacing existing **permanent** lighting?

*Yes*

35. Does the project include the removal, replacement, and/or maintenance of *any* structure other than a bridge? (e.g., rest areas, offices, sheds, outbuildings, barns, parking garages, etc.)

*Yes*

36. Is there *any* suitable habitat<sup>[1]</sup> for Indiana bat or NLEB **within** 1,000 feet of the structure? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

[1] See the Service's current [summer survey guidance](#) for our current definitions of suitable habitat.

*No*

37. Will the project involve the use of *any* **temporary** lighting in addition to the lighting already indicated for habitat removal (including the removal or trimming of trees), or bridge/structure removal, replacement or maintenance activities?

*Yes*

38. Is there *any* suitable habitat **within** 1,000 feet of the location(s) where **temporary** lighting (other than the lighting already indicated for habitat removal (including the removal or trimming of trees) or bridge/structure removal, replacement or maintenance activities) will be used?

*Yes*

39. Will the project install *any* new or replace any existing **permanent** lighting in addition to the lighting already indicated for habitat removal (including the removal or trimming of trees) or bridge/structure removal, replacement or maintenance activities?

*Yes*

---

40. Is there *any* suitable habitat **within** 1,000 feet of the location(s) where **permanent** lighting (other than the lighting already indicated for habitat removal (including the removal or trimming of trees) or bridge/structure removal, replacement or maintenance activities) will be installed or replaced?

*Yes*

41. Does the project include percussives or other activities (**not including tree removal/trimming or bridge/structure work**) that will increase noise levels above existing traffic/background levels?

*Yes*

42. Will the activities that use percussives (**not including tree removal/trimming or bridge/structure work**) and/or increase noise levels above existing traffic/background levels be conducted *during* the active season<sup>[1]</sup>?

[1] Coordinate with the local Service Field Office for appropriate dates.

*Yes*

43. Will *any* activities that use percussives (**not including tree removal/trimming or bridge/structure work**) and/or increase noise levels above existing traffic/background levels be conducted *during* the inactive season<sup>[1]</sup>?

[1] Coordinate with the local Service Field Office for appropriate dates.

*Yes*

44. Are *all* project activities that are **not associated with** habitat removal, tree removal/trimming, bridge or structure removal, replacement, and/or maintenance, lighting, or use of percussives, limited to actions that DO NOT cause any stressors to the bat species, including as described in the BA/BO (i.e. activities that do not involve ground disturbance, percussive noise, temporary or permanent lighting, tree removal/trimming, nor bridge/structure activities)?

Examples: lining roadways, unlighted signage, rail road crossing signals, signal lighting, and minor road repair such as asphalt fill of potholes, etc.

*No*

45. Will the project raise the road profile **above the tree canopy**?

*No*

---



46. Are the project activities that use percussives (not including tree removal/trimming or bridge/structure work) consistent with a Not Likely to Adversely Affect determination in this key?

**Automatically answered**

*Yes, because the activities are within 300 feet of the existing road/rail surface, greater than 0.5 miles from a hibernacula, and are not within documented habitat*

47. Are the project activities that use percussives (not including tree removal/trimming or bridge/structure work) and/or increase noise levels above existing traffic/background levels consistent with a No Effect determination in this key?

**Automatically answered**

*Yes, because the activities are within 300 feet of the existing road/rail surface, greater than 0.5 miles from a hibernacula, and conducted during the inactive season*

48. Is the location of this project consistent with a Not Likely to Adversely Affect determination in this key?

**Automatically answered**

*Yes, because no bats were detected during presence/probable absence surveys conducted during the summer survey season and outside of the fall swarming/spring emergence periods. Additionally, all activities were at least 0.5 miles from any hibernaculum.*

49. Is the bridge removal, replacement, or maintenance activities portion of this project consistent with a No Effect determination in this key?

**Automatically answered**

*Yes, because the bridge has been assessed using the criteria documented in the BA and no signs of bats were detected*

50. Is the structure removal, replacement, or maintenance activities portion of this project consistent with a No Effect determination in this key?

**Automatically answered**

*Yes, because the structure is more than 1,000 feet from the nearest suitable habitat and is therefore considered unsuitable for use by bats*

51. **General AMM 1**

Will the project ensure *all* operators, employees, and contractors working in areas of known or presumed bat habitat are aware of *all* FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable Avoidance and Minimization Measures?

*Yes*

---

52. **Lighting AMM 2**

Does the lead agency use the BUG (Backlight, Uplight, and Glare) system developed by the Illuminating Engineering Society<sup>[1][2]</sup> to rate the amount of light emitted in unwanted directions?

[1] Refer to [Fundamentals of Lighting - BUG Ratings](#)

[2] Refer to [The BUG System—A New Way To Control Stray Light](#)

*No*

53. **Lighting AMM 2**

Will *all* **permanent** lighting used during removal of suitable habitat and/or the removal/trimming of trees within suitable habitat use downward-facing, full cut-off<sup>[1]</sup> lens lights (with same intensity or less for replacement lighting)?

[1] Refer to [Luminaire classification for controlling stray light](#)

*Yes*

54. **Lighting AMM 2**

Will *all* **permanent** lighting used during removal of suitable habitat and/or the removal/trimming of trees within suitable habitat be directed away from *all* areas with suitable habitat?

*Yes*

55. **Lighting AMM 1**

Will *all* **temporary** lighting (besides that indicated for tree clearing or bridge/structure removal, replacement or maintenance activities) be directed away from suitable habitat during the active season?

*Yes*

56. **Lighting AMM 2**

Does the lead agency use the BUG (Backlight, Uplight, and Glare) system developed by the Illuminating Engineering Society<sup>[1][2]</sup> to rate the amount of light emitted in unwanted directions?

[1] Refer to [Fundamentals of Lighting - BUG Ratings](#)

[2] Refer to [The BUG System—A New Way To Control Stray Light](#)

*No*

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**57. Lighting AMM 2**

Will *all* **permanent** lighting (other than any lighting already indicated for tree clearing or bridge/structure removal, replacement or maintenance activities) use downward-facing, full cut-off<sup>[1]</sup> lens lights (with same intensity or less for replacement lighting)?

[1] Refer to [Luminaire classification for controlling stray light](#)

*Yes*

**58. Lighting AMM 2**

Will the **permanent** lighting (other than any lighting already indicated for tree clearing or bridge/structure removal, replacement or maintenance activities) be directed away from *all* areas with suitable habitat?

*Yes*

## Project Questionnaire

1. Have you made a No Effect determination for *all* other species indicated on the FWS IPaC generated species list?

*Yes*

2. Have you made a May Affect determination for *any* other species on the FWS IPaC generated species list?

*No*

3. How many acres<sup>[1]</sup> of trees are proposed for removal between 0-100 feet of the existing road/rail surface?

[1] If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

*30.0*

4. Please describe the proposed bridge work:

*The project proposes to replace, rehabilitate, or widen 11 existing bridges. Additionally, 7 new bridges are proposed.*

5. Please state the timing of all proposed bridge work:

*Construction of this project has not yet been scheduled. At this time, it is assumed that bridge work could occur during the active season.*

6. Please describe the proposed structure work:

*It is anticipated that the project would require the removal of up to 5 buildings.*

---

7. Please state the timing of all proposed structure work:

*Construction of this project has not yet been scheduled. At this time, it is assumed that building removal could occur during the active season.*

## **Avoidance And Minimization Measures (AMMs)**

These measures **were accepted** as part of this determination key result:

### **GENERAL AMM 1**

Ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable AMMs.

### **LIGHTING AMM 2**

When installing new or replacing existing permanent lights, use downward-facing, full cut-off lens lights (with same intensity or less for replacement lighting); or for those transportation agencies using the BUG system developed by the Illuminating Engineering Society, be as close to 0 for all three ratings with a priority of "uplight" of 0 and "backlight" as low as practicable.

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## **Determination Key Description: FHWA, FRA, FTA Programmatic Consultation For Transportation Projects Affecting NLEB Or Indiana Bat**

This key was last updated in IPaC on March 16, 2018. Keys are subject to periodic revision.

This decision key is intended for projects/activities funded or authorized by the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and/or Federal Transit Administration (FTA), which require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 of the Endangered Species Act (ESA) for the endangered **Indiana bat** (*Myotis sodalis*) and the threatened **Northern long-eared bat** (NLEB) (*Myotis septentrionalis*).

This decision key should only be used to verify project applicability with the Service's [February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects](#). The programmatic biological opinion covers limited transportation activities that may affect either bat species, and addresses situations that are both likely and not likely to adversely affect either bat species. This decision key will assist in identifying the effect of a specific project/activity and applicability of the programmatic consultation. The programmatic biological opinion is not intended to cover all types of transportation actions. Activities outside the scope of the programmatic biological opinion, or that may affect ESA-listed species other than the Indiana bat or NLEB, or any designated critical habitat, may require additional ESA Section 7 consultation.

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## Exhibit 8



*Victoria F. Sheehan*  
*Commissioner*

**THE STATE OF NEW HAMPSHIRE**  
**DEPARTMENT OF TRANSPORTATION**



*William Cass, P.E.*  
*Assistant Commissioner*

**BOW-CONCORD**  
**T-A000(018)**  
**13742**  
**RPR 5623**

**Adverse Effect Memo**

Pursuant to meetings and discussions on July 11, 2002, September 3, 2004, October 1, 2009, February 10, 2011, September 13, 2012, April 3, 2014, March 12, 2018, and June 14, 2018 and for the purpose of compliance with regulations of the National Historic Preservation Act, as amended, and the Advisory Council on Historic Preservation's *Procedures for the Protection of Historic Properties* (36 CFR 800), the NH Division of the Federal Highway Administration and the NH Division of Historical Resources have coordinated the identification and evaluation of historic and archeological properties with plans to widen a 4.5-mile section of Interstate 93 from south of its intersection with Interstate 89 (I-89) in Bow to just north of its intersection with Interstate 393 (I-393) at Exit 15 in Concord, New Hampshire. Exits 12, 13, 14 & 15 on I-93 are included in the project area, as well as Exit 1 on I-89 and Exit 1 on I-393.

**Project Description:**

The project consists of widening I-93 to 3 lanes in each direction with 12' shoulders. A fourth auxiliary lane will be provided between closely spaced interchanges and deficient interchanges will be addressed. The project area was divided into four segments for the alternatives analysis:

**I-89 Area** – This segment encompasses the I-93/I-89 interchange and Exit 1 on I-89. The close proximity of the two interchanges results in a short weaving sections between the two interchanges. The preferred alternative in this area includes braided ramps between the two interchanges, a Collector-Distributor Road for southbound I-89 traffic that would accommodate traffic utilizing Exit 1 and travelling southbound on I-93, and a new directional ramp for northbound I-93 to northbound I-89 traffic.

**Exit 12 Area** – This segment begins just north of the I-89 interchange to the bridge carrying I-93 over Hall Street. Three of the Exit 12 off ramps have deficient deceleration distances. The preferred alternative in this area includes replacing the bridges over Hall Street and the Pan Am railroad. The off ramps at Exit 12 will be reconfigured to address the deficient deceleration. To help with traffic on NH Route 3A, two roundabouts are proposed at the highway entrances/exits.

**Exit 13 Area** – This segment encompasses just north of where Hall Street crosses under the highway, the Exit 13 interchange to where the Merrimack River curves toward and runs parallel to the highway. There are queuing issues at the Exit 13 northbound off-ramp and the preferred alternative will widen the off-ramp and provide a signal at the intersection with Manchester Street.

**Exit 14/15 Area** – This segment encompasses just south of the Exit 14 ramps north to the Delta Drive Bridge over I-93, it extends west along I-393 to Commercial Street and east along I-393 to just before the Merrimack River. There are weaving issues between Exits 14 and 15 and within Exit 15. There are

four red listed bridges in this study area; Delta Drive over I-93, I-393 over I-93, I-393 over Constitution Avenue, and I-393 over Fort Eddy Road/College Drive. A noise wall is proposed adjacent to the NH Technical Institute's campus, along I-93 from I-393 to the Delta Drive overpass.

Analysis:

Based on a review pursuant to 36 CFR 800.4 of the architectural and/or historical significance of resources in the project area, we agree that the following resources are eligible for listing on the National Register of Historic Places:

- 2 Valley Road, Bow, Upton House and Store – BOW0015
- 8 Logging Hill Road, Bow – BOW0023
- 521 South Street/1 Valley Road, Bow – BOW0014
- 22 Bridge Street, Concord, Ralph Pill Building/Concord Shoe Company – CON0516
- 24 Bridge Street, Concord, Concord Electric Light Station – CON0522
- 50 Storrs Street, Concord – CON0517
- 207 North Main Street, Concord – CON0512
- 244-246 North Main Street, Concord – CON0514
- 248-250 North Main Street, Concord – CON0515
- Boston, Concord & Montreal Railroad Corridor Historic District
- NH Highway Garage Complex on Stickney Avenue, Concord
- New Hampshire Technical Institute (NHTI), Concord

Detailed descriptions of the resources are on file at the New Hampshire Division of Historical Resources in Concord, New Hampshire.

A Phase IA Archaeological Sensitivity Assessment, completed by Independent Archaeological Consulting, LLC in April 2016, identified areas of moderate to high potential for undisturbed archaeological resources. In total, there are 27 potential resources within the project area, 19 in Bow and 8 in Concord. These potential resources include Native American sites ranging from Pre-Contact large base camps, small residential sites, to fishing processing sites. Potential Post-Contact Euroamerican resources range from 19<sup>th</sup> century saw and grist mills along the Turkey River, blacksmith shops, school houses, brickyards, residences to farmsteads.

During final design, Phase IB Intensive Archaeological Investigations at 16 of the 27 archaeologically sensitive locales will be conducted to establish the presence or absence of archaeological resources in the area of potential effect. The 11 locales not being investigated are outside of the project impact areas. Following the results of the Phase IB, all necessary phases of archaeology will be completed.

Public Consultation:

Coordination and meetings with stakeholders have been ongoing since 2016. Two Consulting Parties were identified, Faye Johnson, member of the Bow Heritage Commission, and Roy Schweiker, Concord resident. Public informational meetings were held on May 31, 2017, June 1, 2017, February 14 and 15, 2018 and June 7, 2018.



Determination of Effect:

Applying the criteria of effect at 36 CFR 800.5, we have determined that the project will have an adverse effect on 2 Valley Road and 521 South Street/1 Valley Road, in Bow. The roadway is shifting in that location and the property at 521 South Street/1 Valley Road will be fully acquired by the State and removed. There will be a retaining wall less than 20 feet from 2 Valley Road, greatly impacting its setting.

There will be no adverse effect to the following properties: 22 Bridge Street; 24 Bridge Street; Boston, Concord & Montreal Railroad; NH Highway Garage Complex; and NHTI, all in Concord. Impacts to these properties consist of the following:

*22 Bridge Street:* Loudon Road would be approximately 7' to 8' closer to the property but would remain within the existing Loudon Road and Bridge Street right-of-ways. Driveway modifications would extend onto the property. These modifications will not impact the character defining features of the buildings.

*24 Bridge Street:* Loudon Road would be approximately 7' to 8' closer to the property but would remain within the existing Loudon Road and Bridge Street right-of-ways. Driveway modifications would extend onto the property. These modifications will not impact the character defining features of the buildings.

*Boston, Concord & Montreal Railroad:* Impacts to the rail line and associated structures were avoided. A permanent easement will be needed for slope grading and/or utilities. This easement would be a strip easement located along 1,500 feet or less of the railroad property. The easement and any slope grading will not impact the character defining features of the railroad. Aside from the rail there are no rail features in the area of the easement.

*NH Highway Garage Complex:* Impacts to the buildings on this property were avoided. Acquisition of approximately 250 square feet will be necessary for slope grading and sidewalk relocation. The acquisition is necessary for the relocation of an existingsidewalk, and will not impact the design, workmanship, location, materials, feeling or association of the resource. The setting will be very minimally altered, but will not impact any character defining features of the Garage complex.

*NHTI:* Partial acquisition or permanent easements will be required for slope grading and a stormwater treatment area, totaling approximately 1.8 acres. All impacts will be located along the perimeter of the property and no buildings will be impacted. The proposed stormwater treatment area would be more than 1,000' from the campus buildings.

Based upon the noise studies completed to date, the State intends to install a sound wall adjacent to the NHTI campus as a noise abatement measure. It is unknown at the time of this memo if the NHTI directors will welcome the wall. The final decision on the installation and design of the sound wall will be made upon completion of the project final design and public involvement process. If the sound wall is installed it will significantly decrease the noise that is currently experienced on portions of the campus, near I-93, from 68.4 dB(A) to 62.6 dB(A) with a 16' sound wall or 59.9 dB(A) with a 25' sound wall. While it may also impact the view from the installation of a sound wall, it has been determined that the view to the highway is not a character defining feature of the campus, and therefore a sound wall would not adversely affect the eligibility of NHTI. If NHTI opposes the sound wall for aesthetic reasons, the

department may be able to work with NHTI on the design of the wall. Should NHTI elect not to have a sound wall constructed, there would be no impact to the campus other than the impacts described above. Although the noise levels would increase, as the I-93 ramps would be closer to the property, current noise analysis shows that the noise from the highway is already at a mitigatable level, per Federal noise regulations. Therefore, not installing a sound wall would slightly increase the already loud highway noise, from 68.4 dB(A) to 69.9 dB(A).

The following properties will not be affected by the undertaking: 8 Logging Hill Road in Bow, 50 Storrs Street, 207 North Main Street, 244-246 North Main Street, and 248-250 North Main Street in Concord. These properties fall outside of any direct or indirect impacts.

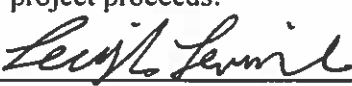

The result of identification and evaluation for the proposed Bow-Concord Interstate 93 Improvement Project is a finding of *Adverse Effect*.

**Mitigation Measures:**

Appropriate mitigation for the impacts to the two Bow properties will be recorded in a Memorandum of Agreement. The mitigation stipulation will be decided in consultation with FHWA, NHDOT, SHPO and the Consulting Parties.

Section 4(f) (to be completed by FHWA)	There Will Be:	<input type="checkbox"/> No 4(f);	<input type="checkbox"/> Programmatic 4(f);	<input checked="" type="checkbox"/> Full 4 (f); <u>or</u>
	<input type="checkbox"/> <b>A finding of <i>de minimis</i> 4(f) impact as stated:</b> In addition, with NHDHR concurrence of no adverse effect for the above undertaking, and in accordance with 23 CFR 774.3, FHWA intends to, and by signature below, does make a finding of <i>de minimis</i> impact. NHDHR's signature represents concurrence with both the no adverse effect determination and the <i>de minimis</i> findings. Parties to the Section 106 process have been consulted and their concerns have been taken into account. Therefore, the requirements of Section 4(f) have been satisfied.			

In accordance with the Advisory Council's regulations, consultation will continue, as appropriate, as this project proceeds.

<i>For:</i>	 _____ Patrick Bauer, Administrator Federal Highway Administrator	10/11/2018 _____ Date	 _____ Jill Edelmann Cultural Resources Manager	10/9/2018 _____ Date
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Concurred with by the NH State Historic Preservation Officer:

Elizabeth H. Muzzey State Historic Preservation Officer NH Division of Historical Resources	Date

c.c. Jamie Sikora, FHWA	Rebecca Martin, NHDOT	Gene McCarthy, MJ
Christine St. Louis, NHDHR	Don Lyford, NHDOT	Christine Perron, MJ

