

**STATE OF NEW HAMPSHIRE**  
**INTER-DEPARTMENT COMMUNICATION**

  
**FROM:** Matt Urban  
Wetlands Program Manager

**DATE:** July 6, 2018

**AT (OFFICE):** Department of  
Transportation

**SUBJECT** Dredge & Fill Application  
Haverhill, 41297

Bureau of  
Environment

**TO** Gino Infascelli, Public Works Permitting Officer  
New Hampshire Wetlands Bureau  
29 Hazen Drive, P.O. Box 95  
Concord, NH 03302-0095

Forwarded herewith is the application package prepared by NH DOT Bureau of Bridge Design for the subject Major impact project. This project is classified as Major per Env-Wt 303.02(p). The project is located on NH Route 25 over the Oliverian Brook in the Town of Haverhill, NH. The proposed work consists of preservation and maintenance activities including partial and full depth deck repairs which will require temporary impacts to jurisdictional areas to facilitate the work.

This project was reviewed at the Natural Resource Agency Coordination Meeting on April 18<sup>th</sup> 2018. A copy of the minutes has been included with this application package. A copy of this application and plans can be accessed on the Departments website via the following link:  
<http://www.nh.gov/dot/org/projectdevelopment/environment/units/program-management/wetland-applications.htm>

Mitigation is not anticipated for this project since all the impacts are temporary.

A payment voucher has been processed for this application (Voucher #535539) in the amount of \$1,129.60.

The lead people to contact for this project are Robert Landry, Administrator, Bureau of Bridge Maintenance (271-2731 or robert.landry@dot.nh.gov) or Matt Urban, Wetlands Program Manager, Bureau of Environment (271-3226 or matt.urban@dot.nh.gov).

If and when this application meets with the approval of the Bureau, please send the permit directly to Matt Urban, Wetlands Program Manager, Bureau of Environment.

MRU:mru  
Enclosures

cc:  
BOE Original  
Town of Haverhill (4 copies via certified mail)  
David Trubey, NH Division of Historic Resources (Cultural Review Within)  
Bureau of Construction  
Carol Henderson, NH Fish & Game (via electronic notification)  
Maria Tur, US Fish & Wildlife (via electronic notification)  
Mark Kern, US Environmental Protection Agency (via electronic notification)  
Michael Hicks, US Army Corp of Engineers (via electronic notification)  
Kevin Nyhan, BOE (via electronic notification)



# WETLANDS PERMIT APPLICATION

Water Division/ Wetlands Bureau  
Land Resources Management



Check the status of your application: [www.des.nh.gov/onestop](http://www.des.nh.gov/onestop)

RSA/Rule: RSA 482-A/ Env-Wt 100-900

<i>Administrative Use Only</i>	<i>Administrative Use Only</i>	<i>Administrative Use Only</i>	File No.:
			Check No.:
			Amount:
			Initials:

**1. REVIEW TIME:** Indicate your Review Time below. To determine review time, refer to Guidance Document A for instructions.

Standard Review (Minimum, Minor or Major Impact)  Expedited Review (Minimum Impact only)

**2. MITIGATION REQUIREMENT:**

If mitigation is required a Mitigation-Pre Application meeting must occur prior to submitting this Wetlands Permit Application. To determine if Mitigation is Required, please refer to the Determine if Mitigation is Required Frequently Asked Question.

Mitigation Pre-Application Meeting Date: Month:     Day:     Year:    

N/A - Mitigation is not required

**3. PROJECT LOCATION:**

Separate wetland permit applications must be submitted for each municipality that wetland impacts occur within.

ADDRESS: <b>NH Rte. 25 over Oliverian Brook</b>			TOWN/CITY: <b>Haverhill</b>
TAX MAP:	BLOCK:	LOT:	UNIT:
USGS TOPO MAP WATERBODY NAME: <b>Oliverian Brook</b>		<input type="checkbox"/> NA	STREAM WATERSHED SIZE: <b>32.1 sq. mile</b> <input type="checkbox"/> NA
LOCATION COORDINATES (If known): <b>44.03 N, 72.01 W</b>			<input checked="" type="checkbox"/> Latitude/Longitude <input type="checkbox"/> UTM <input type="checkbox"/>

**4. PROJECT DESCRIPTION:**

Provide a brief description of the project outlining the scope of work. Attach additional sheets as needed to provide a detailed explanation of your project. DO NOT reply "See Attached" in the space provided below.

**Br # 067/092, Preservation and Maintenance activities including but not limited to the following: partial and full depth deck repairs, permanent removal of bridge and approach sidewalk, replacement of coping and approach and bridge rail, construction of slope break in superelevated shoulder where sidewalk used to be, substructure repairs which will require a water diversion system, and construction of stub wall on existing approach slab.**

**5. SHORELINE FRONTAGE:**

NA This does not have shoreline frontage. SHORELINE FRONTAGE:

Shoreline frontage is calculated by determining the average of the distances of the actual natural navigable shoreline frontage and a straight line drawn between the property lines, both of which are measured at the normal high water line.

**6. RELATED NHDES LAND RESOURCES MANAGEMENT PERMIT APPLICATIONS ASSOCIATED WITH THIS PROJECT:**

Please indicate if any of the following permit applications are required and, if required, the status of the application. To determine if other Land Resources Management Permits are required, refer to the Land Resources Management Web Page.

Permit Type	Permit Required	File Number	Permit Application Status
Alteration of Terrain Permit Per RSA 485-A:17	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	_____	<input type="checkbox"/> APPROVED <input type="checkbox"/> PENDING <input type="checkbox"/> DENIED
Individual Sewerage Disposal per RSA 485-A:2	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	_____	<input type="checkbox"/> APPROVED <input type="checkbox"/> PENDING <input type="checkbox"/> DENIED
Subdivision Approval Per RSA 485-A	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	_____	<input type="checkbox"/> APPROVED <input type="checkbox"/> PENDING <input type="checkbox"/> DENIED
Shoreland Permit Per RSA 483-B	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	_____	<input type="checkbox"/> APPROVED <input type="checkbox"/> PENDING <input type="checkbox"/> DENIED

**7. NATURAL HERITAGE BUREAU & DESIGNATED RIVERS:**

See the Instructions & Required Attachments document for instructions to complete a & b below.

- a. Natural Heritage Bureau File ID: **NHB 18 - 1838**
- b.  Designated River the project is in  $\frac{1}{4}$  miles of: \_\_\_\_\_; and  
date a copy of the application was sent to the Local River Management Advisory Committee: Month:     Day:     Year:
- N/A

**8. APPLICANT INFORMATION (Desired permit holder)**

LAST NAME, FIRST NAME, M.I.: **Scott, David**

TRUST / COMPANY NAME: **NHDOT, Bridge Design** MAILING ADDRESS: **7 Hazen Drive**

TOWN/CITY: **Concord** STATE: **NH** ZIP CODE: **03302**

EMAIL or FAX: **David.Scott@dot.nh.gov** PHONE: **603-271-1613**

ELECTRONIC COMMUNICATION: By initialing here: DS, I hereby authorize NHDES to communicate all matters relative to this application electronically.

**9. PROPERTY OWNER INFORMATION (If different than applicant)**

LAST NAME, FIRST NAME, M.I.:

TRUST / COMPANY NAME: MAILING ADDRESS:

TOWN/CITY: STATE: ZIP CODE:

EMAIL or FAX: PHONE:

ELECTRONIC COMMUNICATION: By initialing here \_\_\_\_\_, I hereby authorize NHDES to communicate all matters relative to this application electronically.

**10. AUTHORIZED AGENT INFORMATION**

LAST NAME, FIRST NAME, M.I.: **Hozza, Jacqueline** COMPANY NAME: **NHDOT**

MAILING ADDRESS: **7 Hazen Drive**

TOWN/CITY: **Concord** STATE: **NH** ZIP CODE: **03302**

EMAIL or FAX: **jacqueline.hozza@dot.nh.gov** PHONE: **603-271-8768**

ELECTRONIC COMMUNICATION: By initialing here JEH, I hereby authorize NHDES to communicate all matters relative to this application electronically.

**11. PROPERTY OWNER SIGNATURE:**

See the Instructions & Required Attachments document for clarification of the below statements

By signing the application, I am certifying that:

1. I authorize the applicant and/or agent indicated on this form to act in my behalf in the processing of this application, and to furnish upon request, supplemental information in support of this permit application.
2. I have reviewed and submitted information & attachments outlined in the Instructions and Required Attachment document.
3. All abutters have been identified in accordance with RSA 482-A:3, I and Env-Wt 100-900.
4. I have read and provided the required information outlined in Env-Wt 302.04 for the applicable project type.
5. I have read and understand Env-Wt 302.03 and have chosen the least impacting alternative.
6. Any structure that I am proposing to repair/replace was either previously permitted by the Wetlands Bureau or would be considered grandfathered per Env-Wt 101.47.
7. I have submitted a Request for Project Review (RPR) Form ([www.nh.gov/nhdhr/review](http://www.nh.gov/nhdhr/review)) to the NH State Historic Preservation Officer (SHPO) at the NH Division of Historical Resources to identify the presence of historical/ archeological resources while coordinating with the lead federal agency for NHPA 106 compliance.
8. I authorize NHDES and the municipal conservation commission to inspect the site of the proposed project.
9. I have reviewed the information being submitted and that to the best of my knowledge the information is true and accurate.
10. I understand that the willful submission of falsified or misrepresented information to the New Hampshire Department of Environmental Services is a criminal act, which may result in legal action.
11. I am aware that the work I am proposing may require additional state, local or federal permits which I am responsible for obtaining.
12. The mailing addresses I have provided are up to date and appropriate for receipt of NHDES correspondence. NHDES will not forward returned mail.

 Property Owner Signature	David L Scott Print name legibly	7/16/18 Date
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## MUNICIPAL SIGNATURES

### 12. CONSERVATION COMMISSION SIGNATURE

The signature below certifies that the municipal conservation commission has reviewed this application, and:

1. Waives its right to intervene per RSA 482-A:11;
2. Believes that the application and submitted plans accurately represent the proposed project; and
3. Has no objection to permitting the proposed work.

	Print name legibly	Date
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#### **DIRECTIONS FOR CONSERVATION COMMISSION**

1. Expedited review **ONLY** requires that the conservation commission's signature is obtained in the space above.
2. Expedited review requires the Conservation Commission signature be obtained **prior** to the submittal of the original application to the Town/City Clerk for signature.
3. The Conservation Commission may refuse to sign. If the Conservation Commission does not sign this statement for any reason, the application is not eligible for expedited review and the application will be reviewed in the standard review time frame.

### 13. TOWN / CITY CLERK SIGNATURE

As required by Chapter 482-A:3 (amended 2014), I hereby certify that the applicant has filed four application forms, four detailed plans, and four USGS location maps with the town/city indicated below.

	Print name legibly	Town/City	Date
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#### **DIRECTIONS FOR TOWN/CITY CLERK:**

Per RSA 482-A:3,I

1. For applications where "Expedited Review" is checked on page 1, if the Conservation Commission signature is not present, NHDES will accept the permit application, but it will **NOT** receive the expedited review time.
2. **IMMEDIATELY** sign the original application form and four copies in the signature space provided above;
3. Return the signed original application form and attachments to the applicant so that the applicant may submit the application form and attachments to NHDES by mail or hand delivery.
4. **IMMEDIATELY** distribute a copy of the application with one complete set of attachments to each of the following bodies: the municipal Conservation Commission, the local governing body (Board of Selectmen or Town/City Council), and the Planning Board; and
5. Retain one copy of the application form and one complete set of attachments and make them reasonably accessible for public review.

#### **DIRECTIONS FOR APPLICANT:**

1. Submit the single, original permit application form bearing the signature of the Town/ City Clerk, additional materials, and the application fee to NHDES by mail or hand delivery.

**14. IMPACT AREA:**

For each jurisdictional area that will be/has been impacted, provide square feet and, if applicable, linear feet of impact

*Permanent: impacts that will remain after the project is complete.*

*Temporary: impacts not intended to remain (and will be restored to pre-construction conditions) after the project is complete.*

JURISDICTIONAL AREA	PERMANENT Sq. Ft. / Lin. Ft.	TEMPORARY Sq. Ft. / Lin. Ft.
Forested wetland	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Scrub-shrub wetland	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Emergent wetland	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Wet meadow	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Intermittent stream	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Perennial Stream / River	/ <input type="checkbox"/> ATF	4522 / 200 <input type="checkbox"/> ATF
Lake / Pond	/ <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Bank - Intermittent stream	/ <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Bank - Perennial stream / River	/ <input type="checkbox"/> ATF	1126 / 408 <input type="checkbox"/> ATF
Bank - Lake / Pond	/ <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Tidal water	/ <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Salt marsh	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Sand dune	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Prime wetland	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Prime wetland buffer	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Undeveloped Tidal Buffer Zone (TBZ)	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Previously-developed upland in TBZ	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Docking - Lake / Pond	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Docking - River	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Docking - Tidal Water	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Vernal Pool	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
<b>TOTAL</b>	<b>0 / 0</b>	<b>5648 / 608</b>

**15. APPLICATION FEE:** See the Instructions & Required Attachments document for further instruction

Minimum Impact Fee: Flat fee of \$ 200

Minor or Major Impact Fee: Calculate using the below table below

Permanent and Temporary (non-docking) 5648 sq. ft. X \$0.20 = \$ 1129.60

Temporary (seasonal) docking structure: \_\_\_\_\_ sq. ft. X \$1.00 = \$

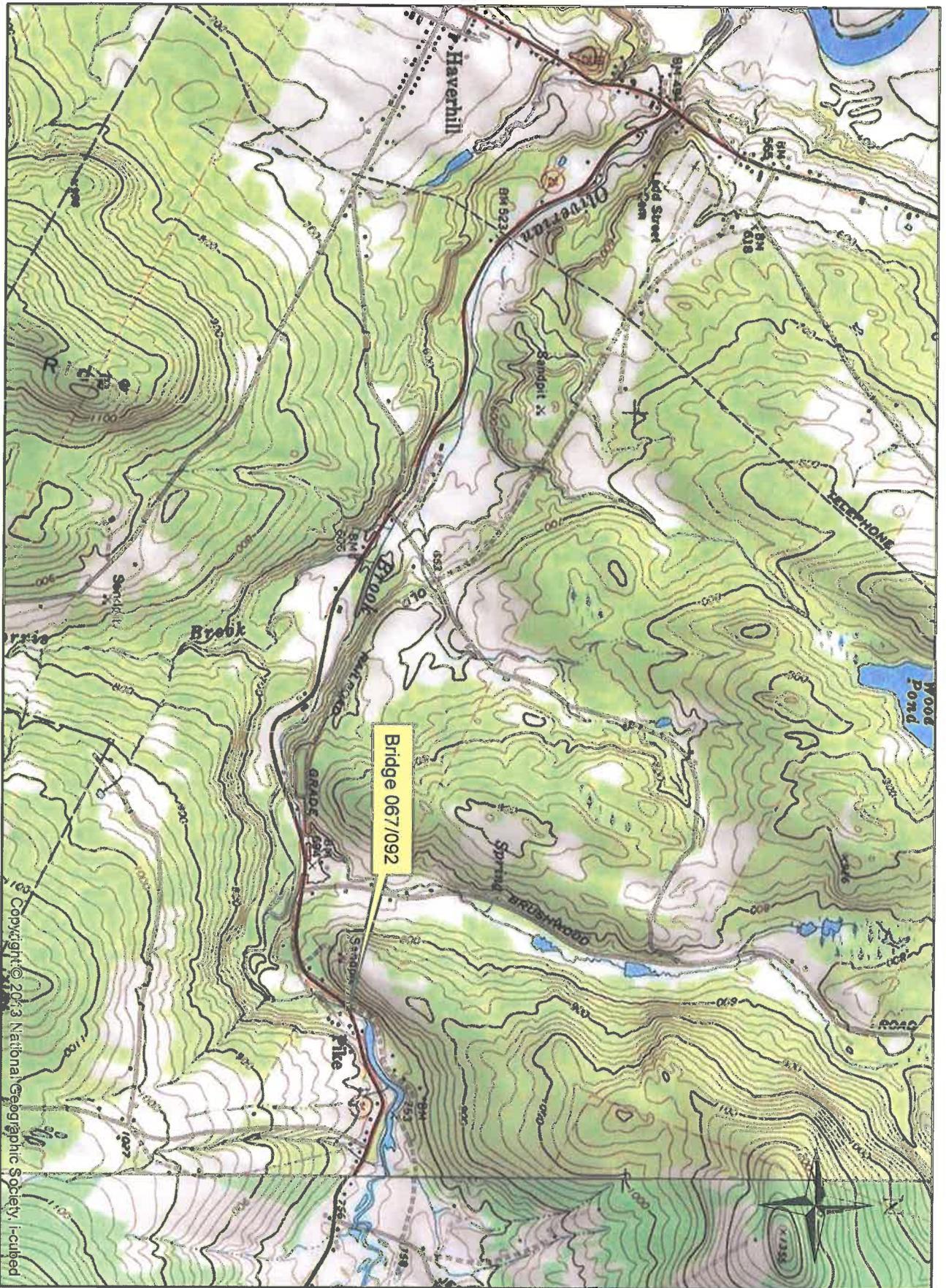
Permanent docking structure: \_\_\_\_\_ sq. ft. X \$2.00 = \$

**Projects proposing shoreline structures (including docks) add \$200 = \$**

Total = \$ 1129.60

The Application Fee is the above calculated Total or \$200, whichever is greater = \$ 1129.60

# USGS Haverhill, NH Topo Map



Copyright © 2013 National Geographic Society. Included

1:24,000



**WETLANDS PERMIT APPLICATION – ATTACHMENT A  
MINOR AND MAJOR - 20 QUESTIONS**

**Land Resources Management  
Wetlands Bureau**

Check the Status of your application: [www.des.nh.gov/onestop](http://www.des.nh.gov/onestop)



RSA/ Rule: RSA 482-A, Env-Wt 100-900

**Env-Wt 302.04 Requirements for Application Evaluation - For any major or minor project, the applicant shall demonstrate by plan and example that the following factors have been considered in the project's design in assessing the impact of the proposed project to areas and environments under the department's jurisdiction. Respond with statements demonstrating:**

**1. The need for the proposed impact.**

The need for the proposed project is to perform preservation activities to extend the bridge service life before full deck replacement is needed. The proposed impact is necessary to gain access to the bridge in order to make the the proposed upgrades, such impacts are temporary.

**2. That the alternative proposed by the applicant is the one with the least impact to wetlands or surface waters on site.**

The two options for the site were as follows:

- 1. No Action - Allow bridge to continue to deteriorate and eventually lead to replacement**
- 2. Maintenance and Preservation - Preferred alternative in order to extend the service life of the structure .**

3. The type and classification of the wetlands involved.

**Bank**

**R3RB2: Riverine, upper perennial, rock bottom, rubble**

**PF01C: Palustrine, forested, boread-leaved decidious, seasonally flooded**

4. The relationship of the proposed wetlands to be impacted relative to nearby wetlands and surface waters.

**The proposed projects is located on the Oliverian Brook approximately 3.5 miles east of it's confluence with the Connecticut River.**

5. The rarity of the wetland, surface water, sand dunes, or tidal buffer zone area.

**The Oliverian Brook has not been identified as a rare surface water of the state.**

6. The surface area of the wetlands that will be impacted.

**1126 ft2 Bank (1126ft2 temporary, 0 ft2 permanent)**

**4522 ft2 Riverine (4522 ft2 temporary, 0 ft2 permanent)**

7. The impact on plants, fish and wildlife including, but not limited to:
- a. Rare, special concern species;
  - b. State and federally listed threatened and endangered species;
  - c. Species at the extremities of their ranges;
  - d. Migratory fish and wildlife;
  - e. Exemplary natural communities identified by the DRED-NHB; and
  - f. Vernal pools.

NH DOT is working with NH Fish and Game to review the presense of Northern Harrier in the project area.

According to information provided by the New Hampshire Fish and Game Department, there are not documented Northern Long-Eared Bat roost trees or hibernacula in Haverhill. The project qualifies for review in accordance with the FHWA, FRA, FTA Programmatic Consultation for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat. As the project meets the requirements for review under the Programmatic Consultation, the project may rely on the concurrence provided in the FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat to satisfy consultation requirements under Section 7 of the Endangered Species Act. Project activities will adhere to applicable avoidance and minimization measures. A bridge assessment which in part surveyed the bridge for evidence of bat utilization has been completed. All sightings of dead or sick bats shall be reported to Bureau of Environment. A copy of the project details, the bridge assessment results, and the determination of LAA IPaC decision key results will be submitted to the USFWS Regional Office.

There are no species known to be at the extremities of their ranges located in the Oliverian Brook or the surrounding area.

Migratory fish and wildlife will be protected during this project under the direction of NH Fish and Game.

There are no exemplary natural communities identified within the project area.

There were no vernal pools identified and/or delineated within the project area.

8. The impact of the proposed project on public commerce, navigation and recreation.

Traffic will be maintained throughout construction by utilizing one lane alternating two way traffic. In respect to navigation of the Oliverian Brook, there will be water diversion in place during construction which will cause limitations on waterway access. Such limitations will be temporary and the access will return to its original status once construction is complete.

9. The extent to which a project interferes with the aesthetic interests of the general public. For example, where an applicant proposes the construction of a retaining wall on the bank of a lake, the applicant shall be required to indicate the type of material to be used and the effect of the construction of the wall on the view of other users of the lake.

The projects main aesthetic change will be the upgrading of the guardrail to achieve current performance standards. Such upgrade is not anticipated to cause negative aesthetic changes to the area.

10. The extent to which a project interferes with or obstructs public rights of passage or access. For example, where the applicant proposes to construct a dock in a narrow channel, the applicant shall be required to document the extent to which the dock would block or interfere with the passage through this area.

**The project will maintain roadway traffic through out construction. No new structure or bank stabalization is being proposed which would block or interfere with the passage though the area. However, there will be water diversion in place during construction which will cause limitations on waterway access. Such limitations will be temporary and the access will return to its original status once construction is complete.**

11. The impact upon abutting owners pursuant to RSA 482-A:11, II. For example, if an applicant is proposing to rip-rap a stream, the applicant shall be required to document the effect of such work on upstream and downstream abutting properties.

**No effects on the upstream or downstream properties are expected.**

12. The benefit of a project to the health, safety, and well being of the general public.

**The project will improve health, safety, and well-being o the general public by extending the life of the existing structure and providing a guardrail system which meets current standards.**

13. The impact of a proposed project on quantity or quality of surface and ground water. For example, where an applicant proposes to fill wetlands the applicant shall be required to document the impact of the proposed fill on the amount of drainage entering the site versus the amount of drainage exiting the site and the difference in the quality of water entering and exiting the site.

**There is no filling of wetlands called for in the project. The only potential effect is sediment runoff from construction areas in to the Oliverian Brook, such impact will be managed through natural barriers and perimeter control. This impact is temporary.**

14. The potential of a proposed project to cause or increase flooding, erosion, or sedimentation.

**There are no potential permanent impacts to flooding, erosion, or sedimentation.**

15. The extent to which a project that is located in surface waters reflects or redirects current or wave energy which might cause damage or hazards.

**The current of the Oliverian Brook will be affected by the necessary water diversion structure, however there are no anticipated damage or hazards.**

16. The cumulative impact that would result if all parties owning or abutting a portion of the affected wetland or wetland complex were also permitted alterations to the wetland proportional to the extent of their property rights. For example, an applicant who owns only a portion of a wetland shall document the applicant's percentage of ownership of that wetland and the percentage of that ownership that would be impacted.

**The work consists of preservation and maintenance of an existing bridge structure. There are no similar structures in the vicinity owned by other parties that would require similar treatments.**

17. The impact of the proposed project on the values and functions of the total wetland or wetland complex.

**The project will not permanently alter the stream crossing, therefore the value and function of the wetland shall be maintained.**

18. The impact upon the value of the sites included in the latest published edition of the National Register of Natural Landmarks, or sites eligible for such publication.

**There are no sites included in, or eligible for inclusion in, the National Register of National Landmarks within the project area.**

19. The impact upon the value of areas named in acts of congress or presidential proclamations as national rivers, national wilderness areas, national lakeshores, and such areas as may be established under federal, state, or municipal laws for similar and related purposes such as estuarine and marine sanctuaries.

**There are no areas such as those described above located in the project area.**

20. The degree to which a project redirects water from one watershed to another.

**The project does not redirect water from one watershed to another.**

Additional comments

# BUREAU OF ENVIRONMENT CONFERENCE REPORT

**SUBJECT:** NHDOT Monthly Natural Resource Agency Coordination Meeting

**DATE OF CONFERENCE:** April 18, 2018

**LOCATION OF CONFERENCE:** John O. Morton Building

**ATTENDED BY:**

<p><b>NHDOT</b> Matt Urban Sarah Large Marc Laurin Keith Cota Mark Hemmerlein Chris Carucci Meli Dube Bob Landry Don Lyford Bill Saffian Trent Zanes Brian Lombard Maggie Baldwin Kevin Nyhan Bob Juliano Steve Johnson Shelly Winters</p>	<p><b>ACOE</b> Mike Hicks</p> <p><b>Federal Highway</b> Jamie Sikora</p> <p><b>EPA</b> Mark Kern</p> <p><b>US Coast Guard – Bridges</b> Jim Rousseau</p> <p><b>NHDES</b> Gino Infascelli Lori Sommer Tim Drew Chris Williams</p> <p><b>NHF&amp;G</b> Carol Henderson</p> <p><b>NH Natural Heritage Bureau</b> Amy Lamb</p> <p><b>NH Office of Energy and Planning</b> Jennifer Gilbert Samara Ebinger</p>	<p><b>NH Department of Business &amp; Economic Affairs</b> Jimmie Hinson</p> <p><b>Consultants/Public Participants</b> Chris Bean Leo Tidd Vicki Chase Pete Walker Christine Perron Jim Fougere Janusz Czyzowski Colin Lentz</p>
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*(When viewing these minutes online, click on an attendee to send an e-mail)*

**PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH:** *(minutes on subsequent pages)*

Finalization of March 21 <sup>st</sup> 2018 Natural Resource Agency Meeting Minutes.....	2
Derry- Londonderry, #13065 (IM-0931(201)) .....	2
Newington-Dover, #11238S (NHS-027-1(037)).....	5
Alexandria, #15937 (X-A1(047)).....	7
Concord-Pembroke, #41267 (X-A004(575)) .....	8
Portsmouth-Kittery, #15731 (A000(909)).....	10
Hinsdale-Brattleboro, #12210C (A004(152)) .....	11
Haverhill-Benton, #41297 (X-A004(587)).....	13
Westmoreland, #41624 (Non-Federal).....	14

*(When viewing these minutes online, click on a project to zoom to the minutes for that project)*

**Haverhill-Benton, #41297 (X-A004(587))**

This meeting presented the initial review of the project which involves bridge preservation/rehabilitation work on two bridges in Haverhill and Benton on Route 25. Both bridges cross over Oliverian Brook. This work will include the removal and replacement of bridge pavement and membrane, partial and full deck concrete deck repair, and the installation of new deck joints. In addition, the surface of the wingwalls on Bridge No. 067/092 in Haverhill will be repaired.

Bill Saffian of NHDOT presented a short discussion on these two bridge sites including the location in relation to the town lines. Both sites are similar in scope and will each be completed in two phases. Proposed work at the Benton site includes removing the existing pavement and membrane, replacing a portion of the deck, and partial and full depth repairs to the remaining portion of the deck. Proposed work at the Haverhill site includes removing the pavement and membrane, conducting partial and full depth deck repairs, replacing the coping and rail on the southerly fascia, and replacing the expansion joint. This site has parallel wing walls on the upstream side and angled wing walls on the downstream. Approximately 50% of the wing wall and abutment faces will need to be chipped out and repaired. Matt Urban asked if this was a temporary impact. Bill Saffian noted it was temporary in nature. There is no shore line to work from so it will require the construction of temporary scaffolding and water diversion during construction. Once the repairs to the wing walls and abutments have been completed there will be no change in the structure.

The time frame of the project was discussed. Bill Saffian noted that it was scheduled to be advertised this fall with work done in the 2019 construction season. Matt Urban noted that there was no need for mitigation since these projects were both temporary in nature and there is no impact at the Benton site.

Jim Rousseau if this portion of the waterway is tidal. Matt Urban said it was not. It also was discussed that DOT may have to send information to the Coast Guard about the repair project. This might be considered a navigable waterway but it would probably fall under the General Construction requirement.

Carol Henderson of NH Fish and Game noted that when doing the NEPA review Fish and Game sent a finding of no records. Amy Lamb has since had a new hit on Northern Harrier in the project area. Jim Fougere of The Smart Associates noted they would follow-up on that.

Matt Urban asked if the projects were determined to be under the Shoreland Protection Act. Jim Fougere noted that the agency coordination process has been started including the Historic review. He would double check on the Shoreland issue. Otherwise, the wetland field work will be conducted as the weather cooperates but the bridges are fairly straight forward so no unusual issues are expected.

No other comments.

*This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meetings.*

# Haverhill 41297, 067/092

Region ID:  
 Workspace ID:  
 Clicked Point (Latitude, Longitude):  
 Time:

NH  
 NH20180611182807987000  
 44.03059, -72.00881  
 2018-06-11 14:28:24 -0400



## Bridge Maintenance and Preservation

### Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	32.1	square miles
CONIF	Percentage of land surface covered by coniferous forest	16.3237	percent
PREBC0103	Mean annual precipitation of basin centroid for January 1 to March 15 winter period	5.87	inches
BSLDEM30M	Mean basin slope computed from 30 m DEM	19.788	percent
MIXFOR	Percentage of land area covered by mixed deciduous and coniferous forest	32.4818	percent
PREG_03_05	Mean precipitation at gaging station location for March 16 to May 31 spring period	7.2	inches
TEMP	Mean Annual Temperature	42.372	degrees F
TEMP_06_10	Basinwide average temperature for June to October summer period	58.894	degrees F
PREG_06_10	Mean precipitation at gaging station location for June to October summer period	18.1	inches
ELEVMAX	Maximum basin elevation	4677.507	feet

### Seasonal Flow Statistics Parameters [Low Flow Statewide]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	32.1	square miles	3.26	689
CONIF	Percent Coniferous Forest	16.3237	percent	3.07	56.2
PREBC0103	Jan to Mar Basin Centroid Precip	5.87	inches	5.79	15.1
BSLDEM30M	Mean Basin Slope from 30m DEM	19.788	percent	3.19	38.1
MIXFOR	Percent Mixed Forest	32.4818	percent	6.21	46.1
PREG_03_05	Mar to May Gage Precipitation	7.2	inches	6.83	11.5
TEMP	Mean Annual Temperature	42.372	degrees F	36	48.7
TEMP_06_10	Jun to Oct Mean Basinwide Temp	58.894	degrees F	52.9	64.4
PREG_06_10	Jun to Oct Gage Precipitation	18.1	inches	16.5	23.1
ELEVMAX	Maximum Basin Elevation	4677.507	feet	260	6290

**NH Department of Transportation  
Bridge Design  
Haverhill, 41297  
Env-Wt 904.09 Alternative Design  
TECHNICAL REPORT**

**Env-Wt 904.09(a) - If the applicant believes that installing the structure specified in the applicable rule is not practicable, the applicant may propose an alternative design in accordance with this section.**

Please explain why the structure specified in the applicable rule is not practicable (Env-Wt 101.69 defines practicable as *available and capable of being done after taking into consideration costs, existing technology, and logistics in light of overall project purposes.*)

The Department is proposing preservation and maintenance of this structure rather than a replacement with a fully compliant design because it would not be feasibly prudent to replace the bridge with an 83' open span with a cost over 1 million to construct, when the same longevity can be achieved through maintenance at a far lesser cost.

**The proposed alternative meets the specific design criteria for Tier 2 and Tier 3 crossings to the *maximum extent practicable*, as specified below.**

**Env-Wt 904.05 Design Criteria for Tier 2 and Tier 3 Stream Crossings** – New Tier 2 stream crossings, replacement Tier 2 crossings that do not meet the requirements of Env-Wt 904.07, and new and replacement Tier 3 crossings shall be designed and constructed:

(a) In accordance with the NH Stream Crossing Guidelines.

The existing crossing measured on a skew to the stream has a span of approximately 75'. While the proposed work will not increase this span it also will not diminish the opening.

(b) With bed forms and streambed characteristics necessary to cause water depths and velocities within the crossing structure at a variety of flows to be comparable to those found in the natural channel upstream and downstream of the stream crossing.

There will be no permanent impacts to the bed of the stream. As such, the streambed characteristics will remain the same.

(c) To provide a vegetated bank on both sides of the watercourse to allow for wildlife passage.

The banks on both sides of the crossing will remain vegetation after construction.

(d) To preserve the natural alignment and gradient of the stream channel, so as to accommodate natural flow regimes and the functioning of the natural floodplain.

The proposed work will not alter the natural alignment or gradient of the stream.

(e) To accommodate the 100-year frequency flood, to ensure that (1) there is no increase in flood stages on abutting properties; and (2) flow and sediment transport characteristics will not be affected in a manner which could adversely affect channel stability.

The existing/proposed crossing is able to accommodate the 100 year flood. The proposed maintenance will not alter the flow or the crossings ability to transport sediment.

(f) To simulate a natural stream channel.

The proposed work will not be permanently impact the channel of the stream and therefore simulated streambed material is not needed.

(g) So as not to alter sediment transport competence.

The proposed work will not alter the crossings ability to transport sediments.

**Env-Wt 904.09(c)(3) – The alternative design must meet the general design criteria specified in Env-Wt 904.01:**

Env-Wt 904.01

(a) Not be a barrier to sediment transport;

The proposed work will not create a barrier to sediment transport. The structure dimensions will be the same after construction as they were before construction.

(b) Prevent the restriction of high flows and maintain existing low flows;

The structure dimensions will be the same after construction as they were before construction and therefore the crossing will not restrict highflows and will maintain the existing low flows.

(c) Not obstruct or otherwise substantially disrupt the movement of aquatic life indigenous to the waterbody beyond the actual duration of construction;

The proposed work will not result in a barrier to AOP.

(d) Not cause an increase in the frequency of flooding or overtopping of banks;

The proposed work will not increase the crossings potential for flooding or overtopping of banks, the dimensions of the crossing will not change as a result of the proposed work.

(e) Preserve watercourse connectivity where it currently exists;

The watercourse will not be moved and connectivity will remain intact.

(f) Restore watercourse connectivity where: (1) Connectivity previously was disrupted as a result of human activity(ies); and (2) Restoration of connectivity will benefit aquatic life upstream or downstream of the crossing, or both;

There is not connectivity restoration needed at this crossing location.

(g) Not cause erosion, aggradation, or scouring upstream or downstream of the crossing; and

The proposed work will not cause or result in erosion, aggradation or scour upstream or downstream of the crossing.

(h) Not cause water quality degradation.

This project will not result in any water quality degradation. The project will install, monitor, and maintain BMP's throughout construction until the site is stabilized.

**\*\*\*Note: An alternative design for Tier 1 stream crossings must meet the general design criteria (Env-Wt 904.01) only to the *maximum extent practicable*.**



## New Hampshire Natural Heritage Bureau

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**To:** Jacqueline Hozza  
7 Hazen Drive  
Concord, NH 03302

**Date:** 6/12/2018

**From:** NH Natural Heritage Bureau

**Re:** Review by NH Natural Heritage Bureau of request dated 6/12/2018  
NHB File ID: NHB18-1838

Applicant: David Scott

**Location:** Tax Map(s)/Lot(s):  
Haverhill

**Project Description:** Preservation and Maintenance work in order to extend the service life of the existing structure.

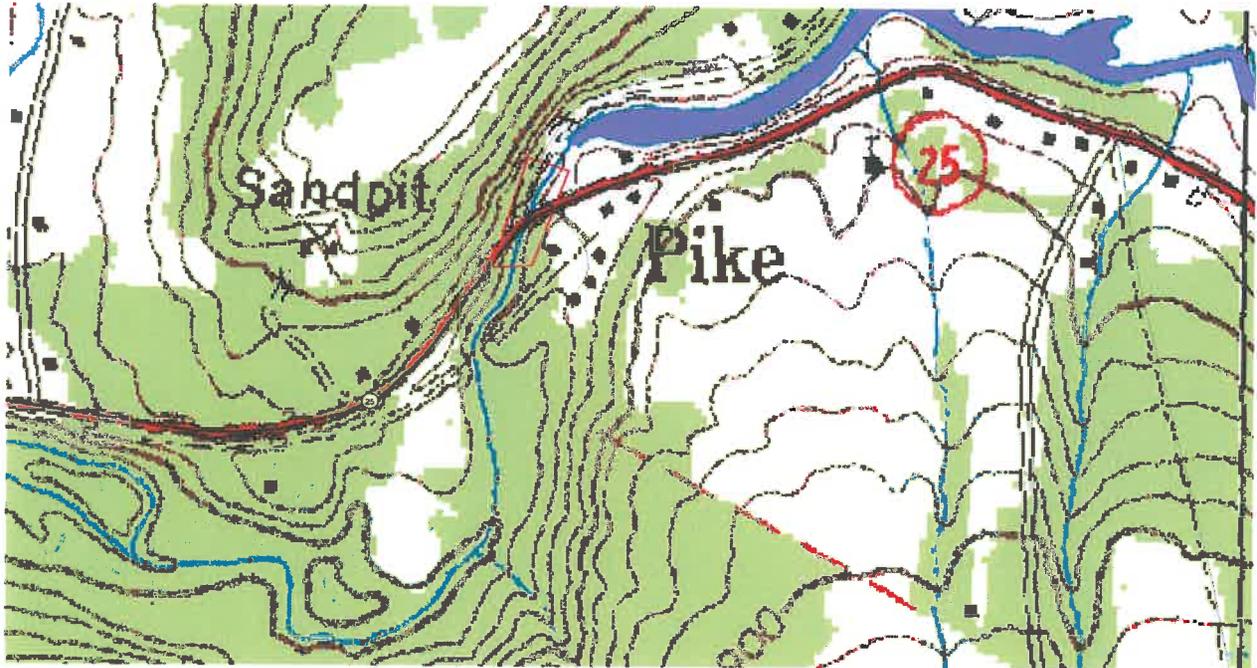
The NH Natural Heritage database has been checked for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government. We currently have no recorded occurrences for sensitive species near this project area.

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.

This report is valid through 6/11/2019.



MAP OF PROJECT BOUNDARIES FOR NHB FILE ID: NHB18-1838





## 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:

March 19, 2018

Consultation Code: 05E1NE00-2018-SLI-1333

Event Code: 05E1NE00-2018-E-03025

Project Name: Haverhill-Benton 41297 - Bridge No. 067/092 (Haverhill)

Subject: 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

## Project Summary

Consultation Code: 05E1NE00-2018-SLI-1333

Event Code: 05E1NE00-2018-E-03025

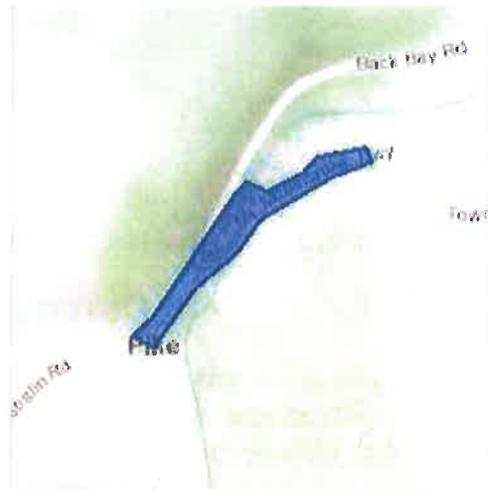
Project Name: Haverhill-Benton 41297 - Bridge No. 067/092 (Haverhill)

Project Type: BRIDGE CONSTRUCTION / MAINTENANCE

**Project Description:** The project is a bridge preservation/rehabilitation project that will involve of the removal and replacement of bridge pavement and membrane, partial and full depth concrete deck repair, and installation of new deck joints. In addition, the surface of the wingwalls will be repaired. This will require the construction of temporary scaffolding in Oliverian Brook and water diversion during construction. The project also proposes to remove the sidewalk on the north side of the bridge and along NH Route 25. The portion of the sidewalk to be removed along the road will be replaced with a gravel or paved shoulder. Bridge rail and bridge approach rail will be replaced. Both terminal units on the easterly approach will be replaced. In addition, the terminal unit on the guardrail located on the southwest side of NH Route 25, approximately 400 feet southwest of Bridge No. 067/092 will be replaced. Work will also involve minor grade changes on the bridge approach to provide a break in the slope. A catch basin may be installed northwest of the bridge to collect this runoff or, since the volumes are small, allowed to surface drain directly into the ground adjacent to the bridge in the northwest quadrant. This new catch basin, if used, would likely tie into an existing catch basin located on the southwest side of the bridge. This would not result in any overall changes in drainage since runoff from the bridge currently enters the existing catch basin. Ground disturbance during construction will include excavation behind the bridge abutments and excavation/grading within and adjacent to NH Route 25, approximately 100 feet northeast and southwest of the bridge.

**Project Location:**

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/44.030452017347145N72.00906993682165W>



Counties: Grafton, NH

## Endangered Species Act Species

There is a total of 1 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

## Critical habitats

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



## 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>



IPaC Record Locator: 837-12451779

May 14, 2018

**Subject:** Consistency letter for the 'Haverhill-Benton 41297 - Bridge No. 067/092 (Haverhill)' project (TAILS 05E1NE00-2018-R-1333) 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 **Haverhill-Benton 41297 - Bridge No. 067/092 (Haverhill)** (Proposed Action) may rely on 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 (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 will have no effect on the endangered Indiana bat (*Myotis sodalis*) or the threatened Northern long-eared bat (*Myotis septentrionalis*). If the Proposed Action is not modified, **no consultation is required for these two species.**

**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 may affect any other federally-listed or proposed species and/or designated critical habitat, additional consultation between the lead Federal action agency and this Service Office 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 advise the lead Federal action agency for the Proposed Action accordingly.

## Project Description

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

### Name

Haverhill-Benton 41297 - Bridge No. 067/092 (Haverhill)

### Description

The project is a bridge preservation/rehabilitation project that will involve of the removal and replacement of bridge pavement and membrane, partial and full depth concrete deck repair, and installation of new deck joints. In addition, the surface of the wingwalls will be repaired. This will require the construction of temporary scaffolding in Oliverian Brook and water diversion during construction. The project also proposes to remove the sidewalk on the north side of the bridge and along NH Route 25. The portion of the sidewalk to be removed along the road will be replaced with a gravel or paved shoulder. Bridge rail and bridge approach rail will be replaced. Both terminal units on the easterly approach will be replaced. In addition, the terminal unit on the guardrail located on the southwest side of NH Route 25, approximately 400 feet southwest of Bridge No. 067/092 will be replaced. Work will also involve minor grade changes on the bridge approach to provide a break in the slope. A catch basin may be installed northwest of the bridge to collect this runoff or, since the volumes are small, allowed to surface drain directly into the ground adjacent to the bridge in the northwest quadrant. This new catch basin, if used, would likely tie into an existing catch basin located on the southwest side of the bridge. This would not result in any overall changes in drainage since runoff from the bridge currently enters the existing catch basin. Ground disturbance during construction will include excavation behind the bridge abutments and excavation/grading within and adjacent to NH Route 25, approximately 100 feet northeast and southwest of the bridge.

## Determination Key Result

Based on the information you provided, you have determined that the Proposed Action will have no effect on the endangered Indiana bat and/or the threatened Northern long-eared bat. Therefore, no 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 for these two species.

## 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.

*No*

10. 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*



Victoria F. Sheehan  
Commissioner

THE STATE OF NEW HAMPSHIRE  
DEPARTMENT OF TRANSPORTATION



William Cass, P.E.  
Assistant Commissioner

HAVERHILL-BENTON  
X-A004(587)  
41297  
RPR 9563

**No Historic Properties Affected Memo**

Pursuant to a Cultural Resources Coordination meeting on April 12, 2018 and for the purpose of compliance with regulations of the National Historic Preservation Act and the Advisory Council on Historic Preservation's *Procedures for the Protection of Historic Properties* (36 CFR 800), the NH Division of Historical Resources (NHDHR) and the NH Division of the Federal Highway Administration (FHWA) have coordinated the identification and evaluation of historical and archaeological resources with plans to conduct preservation work on the following two bridges: NH Route 25 over Oliverian Brook (Bridge No. 067/092), located in the Town of Haverhill; and NH Route 25 over Oliverian Brook (Bridge No. 058/052), located in the Town of Benton.

Project Description

The intent of this project is to conduct preservation work to extend the life of the bridges. Work on the Haverhill Bridge (Bridge No. 067/092) will consist of the removal and replacement of bridge pavement and membrane, partial and full depth concrete deck repair, and installation of new deck joints. In addition, the surface of the wingwalls will be repaired. Bridge rail and bridge approach rail will also be replaced in areas. Ground disturbance during construction will include excavation behind the bridge abutments and excavation/grading within and adjacent to NH Route 25, approximately 100 feet northeast and southwest of the bridge.

Work on the Benton Bridge (Bridge No. 058/052) will be similar to the Haverhill bridge, except that the guardrail will not be replaced and there will be no work on the abutments/wingwalls. No excavation is proposed.

Both bridges will remain open during construction and traffic will be shifted on the existing bridges.

Analysis

Based on a review pursuant to 36 CFR 800.4 of the architectural and/or archaeological significance of resources in the APE, we agree on the following:

- A Phase IA Investigation was undertaken for the Haverhill Bridge (Bridge No. 067/092) and identified archaeologically sensitive areas adjacent to the bridge. Since all project impacts will be located within the existing bridge/roadway footprint and not within archaeologically sensitive areas, no further survey was recommended.
- No excavation is proposed for the Benton Bridge (Bridge No. 058/052) so no impacts to archaeological resources are anticipated at this location.
- The Haverhill Bridge (Bridge No. 067/092) was built in 1975 and is not individually subject to Section 106 review; however this bridge is located within Pike Village, which is a potential historic district. The proposed undertaking will not impact any of the features that could contribute to the eligibility of

Pike Village, as the impacts are limited to the bridge. Should the project scope change, and additional impacts be proposed, historic evaluation of Pike Village may be necessary.

- The Benton Bridge (Bridge No. 058/052) was built in 1960 and meets the criteria for review under the Program Comment for Common Post-1945 Concrete and Steel Bridges. This bridge is not located within a potential historic district.

Public Consultation

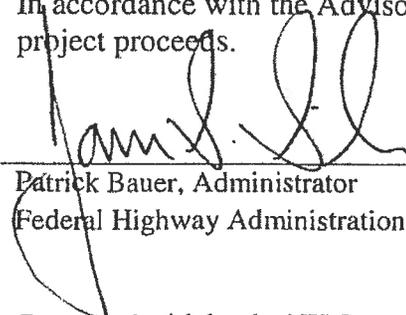
The project design was reviewed at public information meetings on April 2, 2018 and April 30, 2018. Participants included members of the Haverhill and Benton Select Boards and residents that own properties adjacent to the project area. The Haverhill Heritage Commission and the Haverhill Historical Society were also contacted via letter. No consulting parties have been identified.

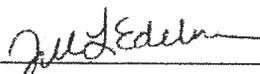
Determination of Effect

Based on a review pursuant to 36 CFR 800.4, we agree that the proposed undertaking will not impact historic resources and that no above ground survey is necessary. Following a recommendation in the Archaeological Phase IA study, no impacts to archaeologically sensitive areas are proposed and no further archaeological survey is required. The current proposed undertaking will result in a No Historic Properties Affected finding.

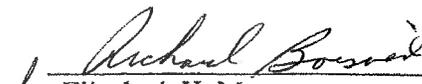
Section 4(f) (to be completed by FHWA)	There Will Be:	<input checked="" type="checkbox"/> No 4(f);	<input type="checkbox"/> Programmatic 4(f);	<input type="checkbox"/> Full 4 (f); or
	<input type="checkbox"/> A finding of <i>de minimis</i> 4(f) impact as stated: In addition, with NHDHR concurrence of 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, we will continue to consult, as appropriate, as this project proceeds.

*for*  Patrick Bauer, Administrator  
Federal Highway Administration  
Date: 5/20/18

 Jill Edelmann  
Cultural Resources Manager  
Date: 5/15/2018

Concurred with by the NH State Historic Preservation Officer:

*for*  Elizabeth H. Muzzey  
State Historic Preservation Officer  
NH Division of Historical Resources  
Date: 5-22-18



US Army Corps  
of Engineers <sup>®</sup>  
New England District

**U.S. Army Corps of Engineers**  
**New Hampshire Programmatic General Permit (PGP)**  
**Appendix B - Corps Secondary Impacts Checklist**  
**(for inland wetland/waterway fill projects in New Hampshire)**

1. Attach any explanations to this checklist. Lack of information could delay a Corps permit determination.
2. All references to “work” include all work associated with the project construction and operation. Work includes filling, clearing, flooding, draining, excavation, dozing, stumping, etc.
3. See PGP, GC 5 regarding single and complete projects.
4. Contact the Corps at (978) 318-8832 with any questions.

<b>1. Impaired Waters</b>	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See <a href="http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm">http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm</a> to determine if there is an impaired water in the vicinity of your work area.*	X	
<b>2. Wetlands</b>	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	X	
2.2 Are there proposed impacts to SAS, shellfish beds, special wetlands and vernal pools (see PGP, GC 26 and Appendix A)? Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) website, <a href="http://www.nhnaturalheritage.org">www.nhnaturalheritage.org</a> , specifically the book <u>Natural Community Systems of New Hampshire</u> .		X
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	X	
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)		X
2.5 The overall project site is more than 40 acres.		X
2.6 What is the size of the existing impervious surface area?	0.169 acre	
2.7 What is the size of the proposed impervious surface area?	0.169 acre (no change)	
2.8 What is the % of the impervious area (new and existing) to the overall project site?		
<b>3. Wildlife</b>	Yes	No
3.1 Has the NHB determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require a NHB determination.)		X
3.2 Would work occur in any area identified as either “Highest Ranked Habitat in N.H.” or “Highest Ranked Habitat in Ecological Region”? (These areas are colored magenta and green, respectively, on NH Fish and Game’s map, “2010 Highest Ranked Wildlife Habitat by Ecological Condition.”) Map information can be found at: <ul style="list-style-type: none"> <li>• PDF: <a href="http://www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm">www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm</a>.</li> <li>• Data Mapper: <a href="http://www.granit.unh.edu">www.granit.unh.edu</a>.</li> <li>• GIS: <a href="http://www.granit.unh.edu/data/downloadfreedata/category/databycategory.html">www.granit.unh.edu/data/downloadfreedata/category/databycategory.html</a>.</li> </ul>		X
3.3 Would the project impact more than 20 acres of an undeveloped land block (upland, wetland/waterway) on the entire project site and/or on an adjoining property(s)?		X
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?		X
3.5 Are stream crossings designed in accordance with the PGP, GC 21?	X	

4. Flooding/Floodplain Values	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?		X
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?	-	-
5. Historic/Archaeological Resources		
If a minor or major impact project, has a copy of the Request for Project Review (RPR) Form ( <a href="http://www.nh.gov/nhdhr/review">www.nh.gov/nhdhr/review</a> ) been sent to the NH Division of Historical Resources as required on Page 5 of the PGP? **	X	

\*Although this checklist utilizes state information, its submittal to the Corps is a Federal requirement.

\*\* If project is not within Federal jurisdiction, coordination with NH DHR is not required under Federal law.

June 18, 2018

Mr. Christopher J. Bisignano, Commander  
First Coast Guard District  
One South Street  
Battery Park Building, RM 301  
New York, New York 10004-1466

Subject: Haverhill  
NHDOT Project 41297  
Bridge Maintenance and Preservation Project

Dear Mr. Bisignano:

The New Hampshire Department of Transportation is planning for the maintenance and preservation of the bridge (Br. No. 067/092) that carries NH 25 over Oliverian Brook.

In accordance with 23 CFR 650.805(d) we are hereby notifying you that FHWA has determined that a USCG permit is not required for the subject federal-aid bridge preservation project. Our determination is based upon the following information:

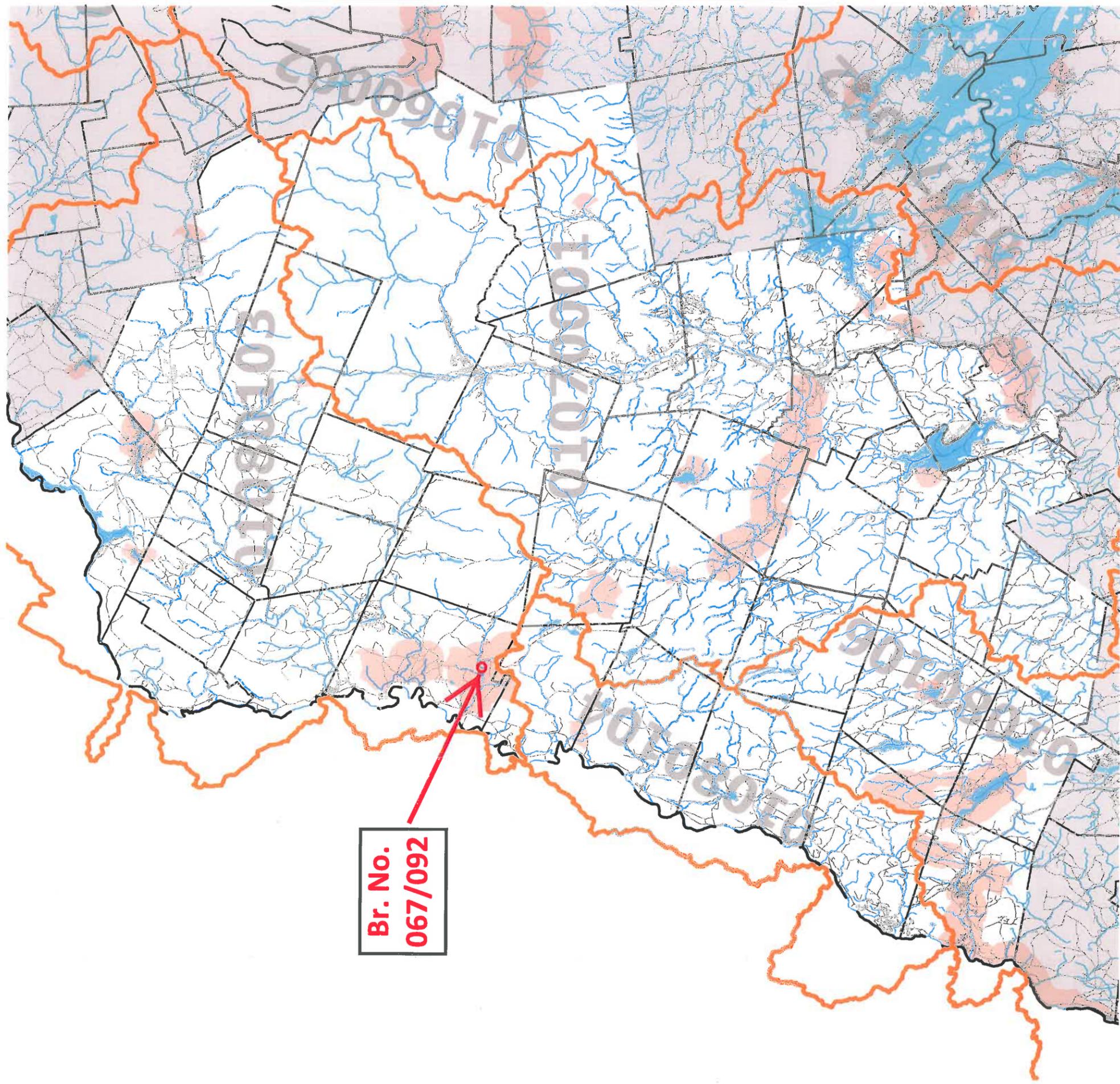
1. Oliverian Brook in the vicinity of the bridge is not tidal and is not used, or susceptible to use with reasonable improvement, as a means to transport interstate or foreign commerce.
2. Although the subject water way is navigable, it is only utilized by small recreational boating.

Should you have any questions or require additional information please contact me at (603) 410-4870 or [Jamie.Sikora@dot.gov](mailto:Jamie.Sikora@dot.gov).

Sincerely,

Jamison S. Sikora  
Environmental Programs Manager

# Grafton County: Impaired Waters Vicinity\* for which No Additional Loading Criteria Applies



**Br. No.  
067/092**

\*Vicinity based upon a 1 mile buffer of Assessment Units impaired in the 2006 SWQA for one or more of the following;

- Invertebrates,
- Cadmium,
- Chlorophyll *a*,
- Copper,
- Cyanobacteria,
- Dissolved Oxygen (% Sat or mg/L),
- Enterococcus,
- *E. coli*,
- Algal Growth,
- Fecal Coliform,
- Lead,
- Total Phosphorus,
- Sedimentation & Siltation,
- Zinc.

For more information on the 2006 Surface Water Quality Assessments see:

<http://des.nh.gov/wmb/swqa/>

0 1 2 4 6 8 10



Miles



- Major Divides (HUC8)
- Roads(NHDOT)
- State Boundary
- County Boundary
- Town Boundary
- 2006 Assessment Unit ID Lines (1:100k NHD)
- 2006 Assessment Unit ID Polygons(1:100k NHD)
- One Mile Buffer on No Additional Loading AUDs

This map is intended solely as a screening tool to assist you in identifying areas within 1 mile upstream in the watershed of an impaired waterbody.

This map is not intended to show analytical results regarding pollutant loading or any other information related to sections 305(b) or 401 of the Clean Water Act or any other State or federal laws.

The coverages presented in this program are under constant revision as new sites or facilities are added. They may not contain all of the potential or existing sites or facilities. The Department is not responsible for the use or interpretation of this information, nor for any inaccuracies.

[Type text]

Haverhill, 41927, X-A004(587)  
NHDES Standard Dredge and Fill Wetland Application Photos

[Type text]



**Figure 1: View of project area, looking west from east of the bridge carrying NH 25 over the Oliverian Brook (September 14, 2017)**



**Figure 2: View of project area, looking east from west of the bridge carrying NH 25 over the Oliverian Brook (September 14, 2017)**

[Type text]

Haverhill, 41927, X-A004(587)  
NHDES Standard Dredge and Fill Wetland Application Photos

[Type text]



**Figure 3: View of northeast wingwall from west (September 14, 2017)**



**Figure 4: View of northwest wingwall from east (September 14, 2017)**

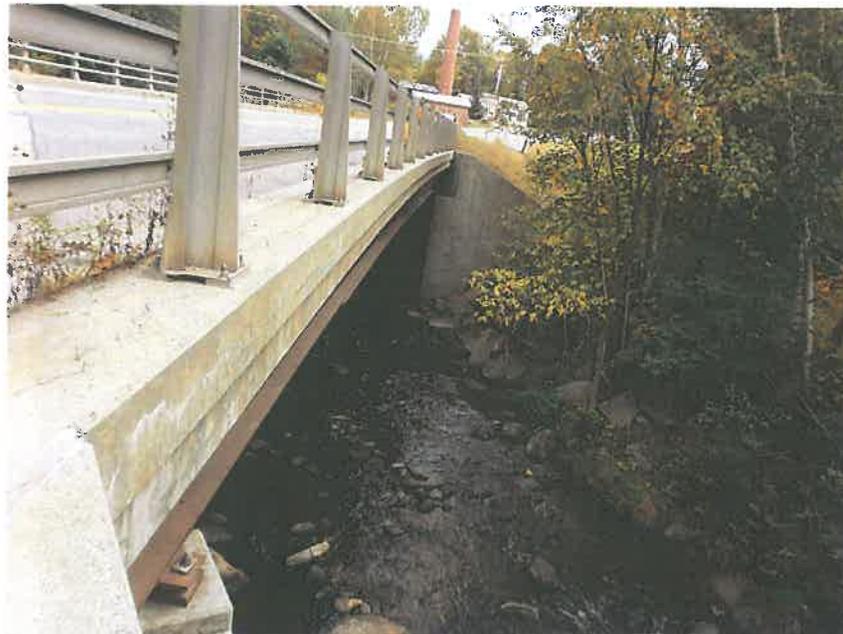
[Type text]

Haverhill, 41927, X-A004(587)  
NHDES Standard Dredge and Fill Wetland Application Photos

[Type text]



**Figure 5: View of Impact Areas B and A from the southeast wingwall looking towards the southwest bank (September 14, 2017)**



**Figure 6: View of Impact Areas B and C from the southwest wingwall looking towards the southeast bank (September 14, 2017)**

[Type text]

Haverhill, 41927, X-A004(587)  
NHDES Standard Dredge and Fill Wetland Application Photos

[Type text]



**Figure 7: View Upstream from the bridge, water diversion will be in place to allow access to the bridge substructure for concrete repairs (September 14, 2017)**



**Figure 8: View of bridge from upstream, water diversion will be in place to allow access to the bridge substructure for concrete repairs (September 14, 2017)**

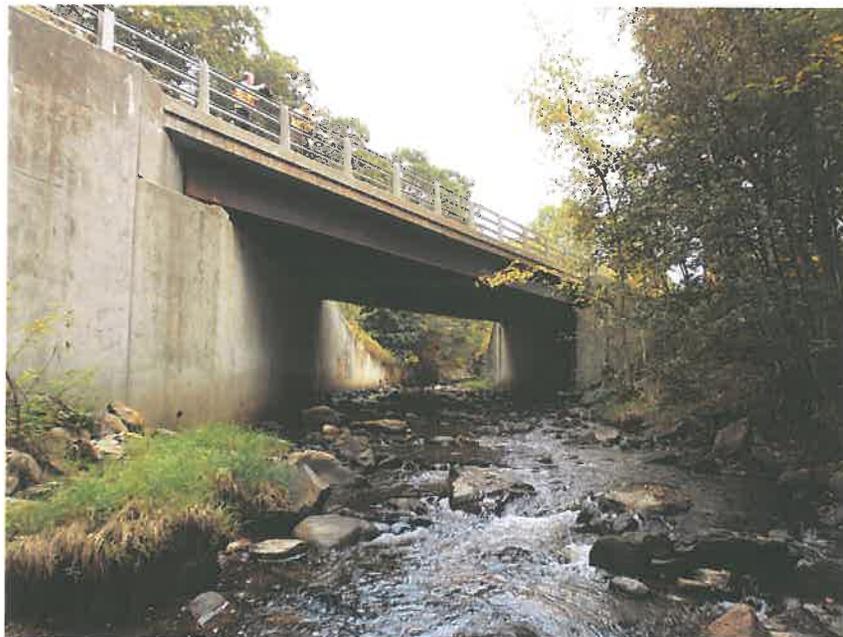
[Type text]

Haverhill, 41927, X-A004(587)  
NHDES Standard Dredge and Fill Wetland Application Photos

[Type text]



**Figure 9: View Downstream from the bridge, water will exit diversion structure and return to regular flow at some point downstream (September 14, 2017)**



**Figure 10: View of Impact Areas A, B, and C (left to right) from downstream. Water diversion will be in place to allow access to the bridge substructure for concrete repairs (September 14, 2017)**

[Type text]

Haverhill, 41927, X-A004(587)  
NHDES Standard Dredge and Fill Wetland Application Photos

[Type text]

## **CONSTRUCTION SEQUENCE**

1. Install approved erosion control measures.
2. Phase 1 of the superstructure rehabilitation completed. Traffic will be maintained through alternating two-way traffic in the opposite lane.
3. Phase 2 of the superstructure rehabilitation completed. Traffic will be maintained through alternating two-way traffic on the rehabilitated side.
4. Water Diversion structure installed in the brook to allow access to Phase 1 substructure.
5. Phase 1 of substructure rehabilitation completed, traffic will be maintained.
6. Water Diversion structure adjusted as needed to allow access to Phase 2 substructure.
7. Phase 2 of substructure rehabilitation completed, traffic will be maintained.
8. Pavement treatment applied.
9. Water Diversion structure removed and site restored to its original condition.

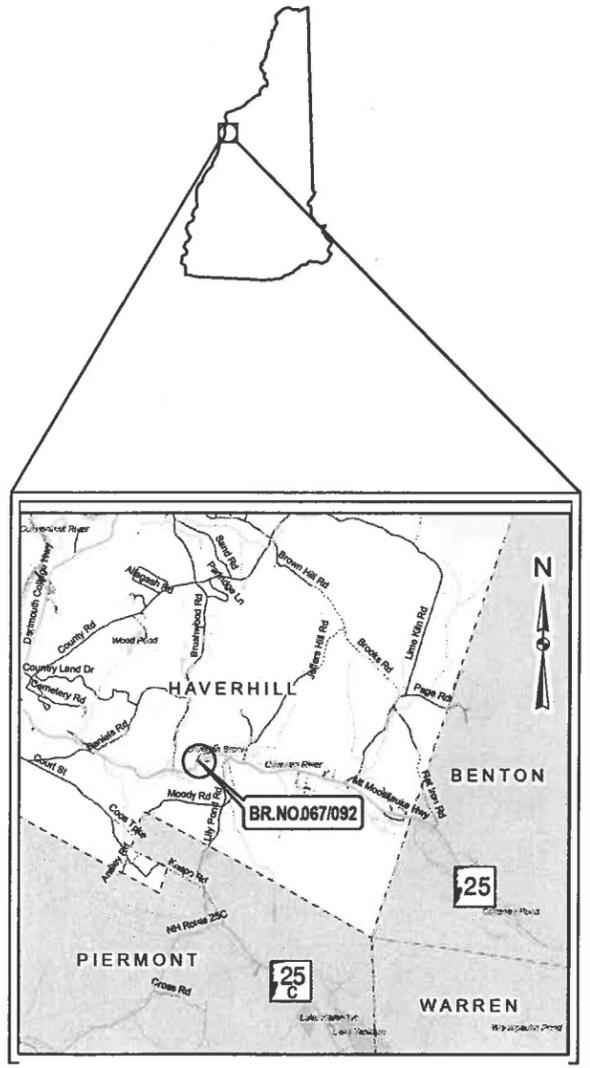
**Note:**

Project will use and maintain DES Best Management Practices at all stages of construction.

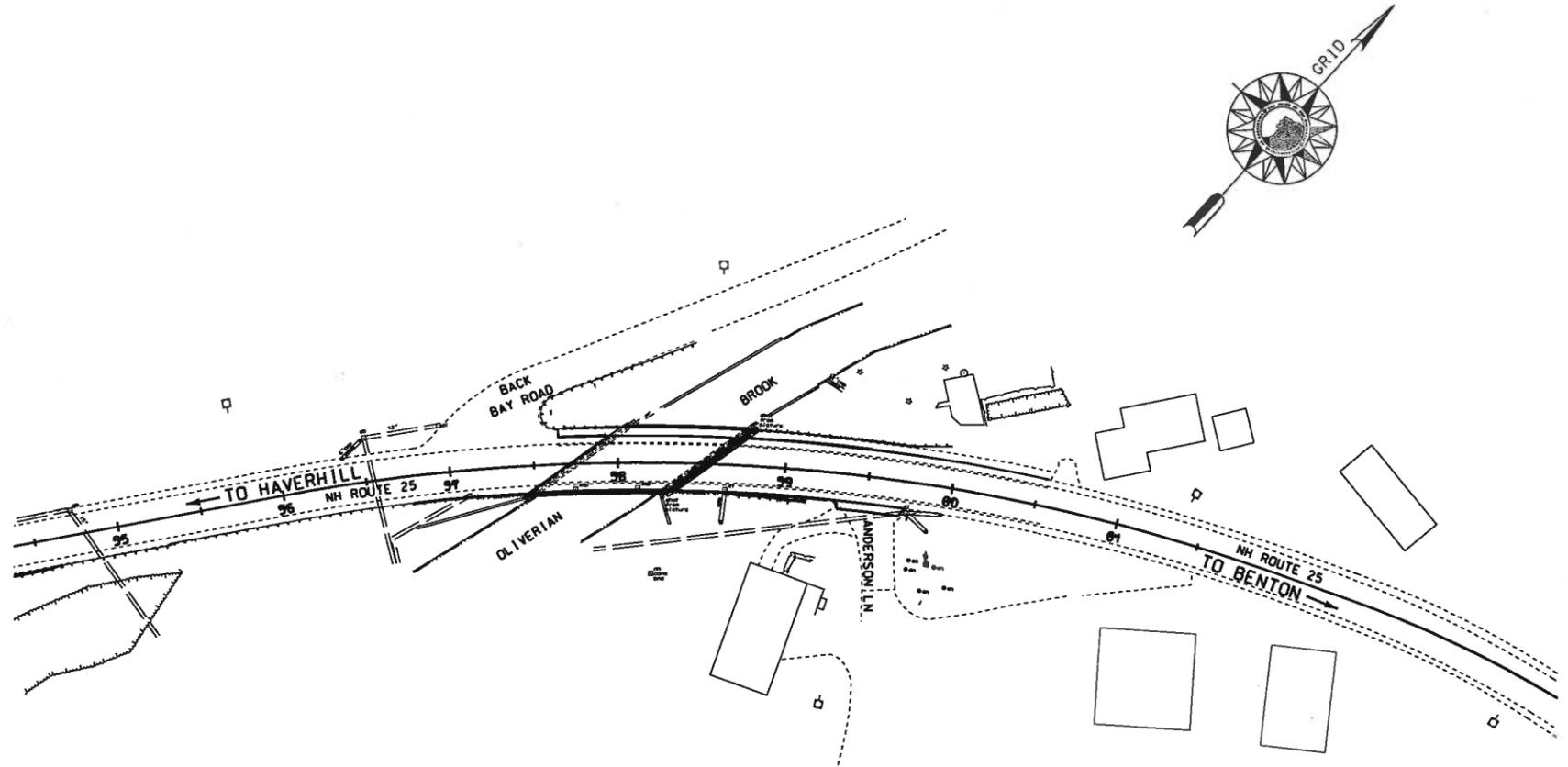
STATE OF NEW HAMPSHIRE  
DEPARTMENT OF TRANSPORTATION  
**WETLANDS PLANS**  
**FEDERAL AID PROJECT**

X-A004(587)  
N.H. PROJECT NO. 41297

DESIGN DATA	
AVERAGE DAILY TRAFFIC 20 <sub>13</sub>	1100
AVERAGE DAILY TRAFFIC 20 <sub>37</sub>	1628
PERCENT OF TRUCKS	4
DESIGN SPEED	35 mph
LENGTH OF PROJECT	200'



1 1/2 0 1 2 Miles  
**LOCATION MAP**



50 0 50 100  
**SCALE IN FEET**

**INDEX OF SHEETS**

- 1 FRONT SHEET
- 2-3 STANDARD SYMBOLS SHEETS
- 4 WETLAND IMPACT PLAN
- 5 EROSION CONTROL PLAN
- 6 EROSION CONTROL STRATEGIES

**TOWN OF HAVERHILL**  
COUNTY OF GRAFTON  
SCALE: 1" = 50'

FOR CONSTRUCTION AND ALIGNMENT DETAILS - SEE CONSTRUCTION PLANS

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

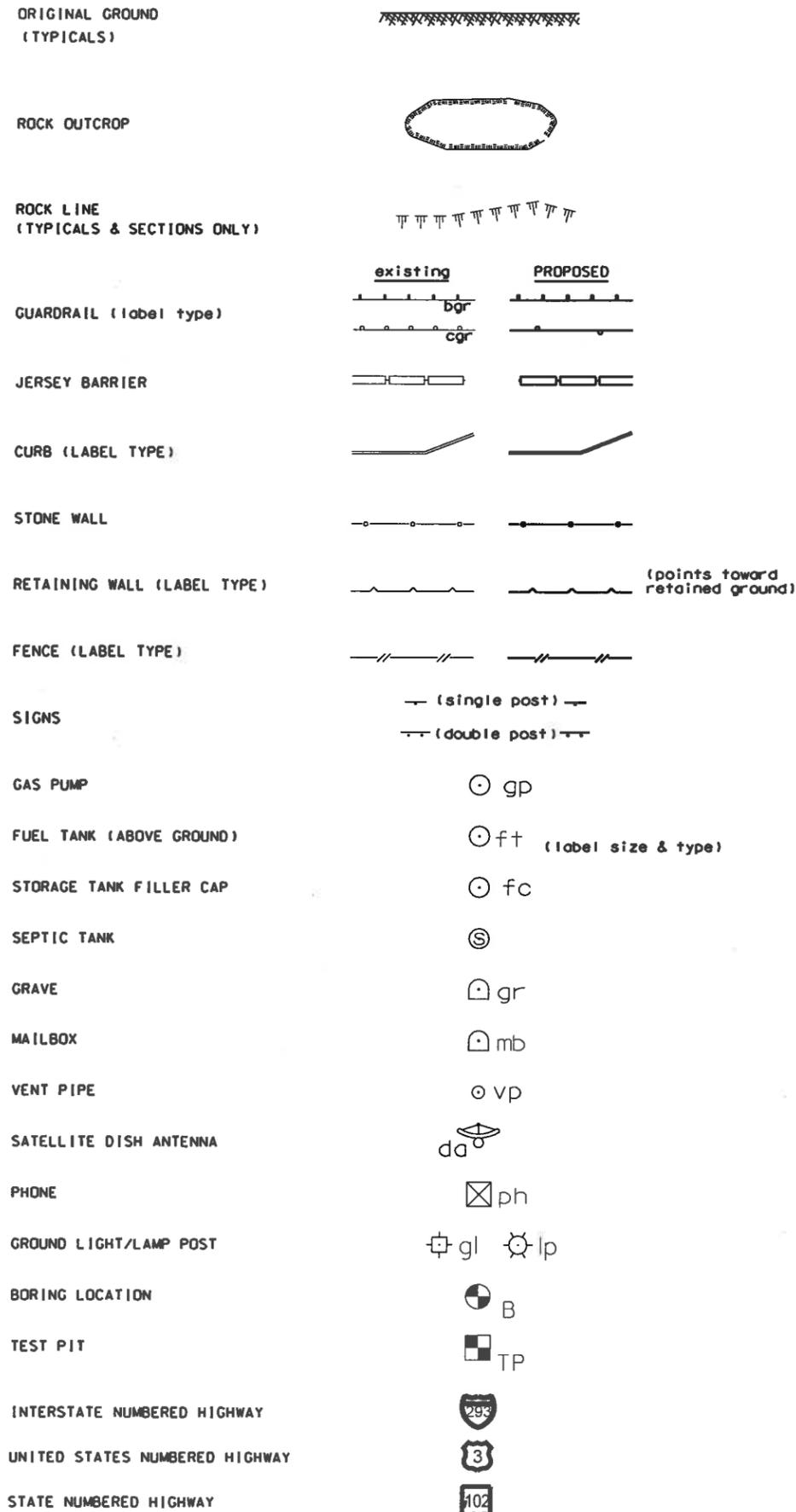
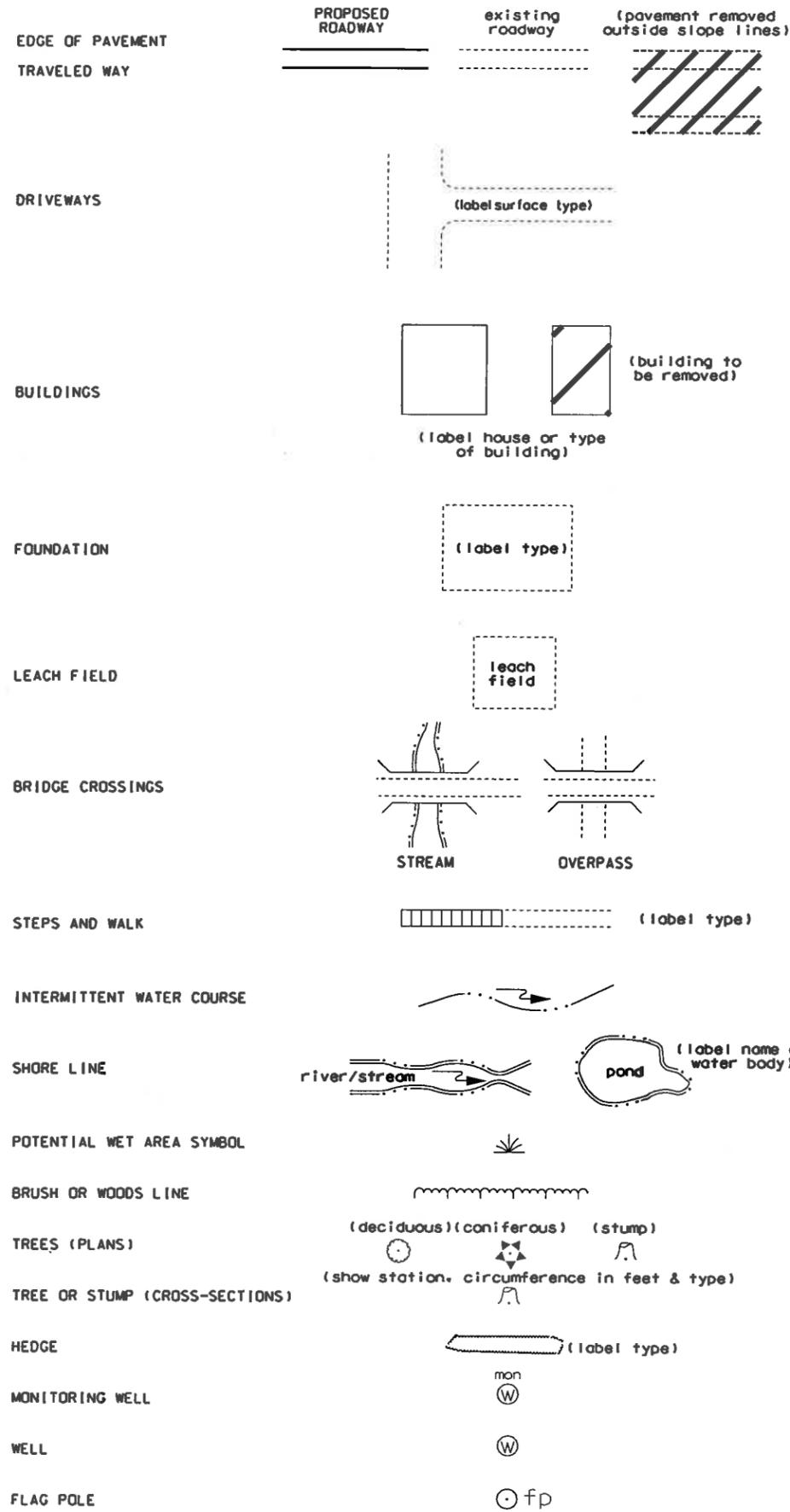
RECOMMENDED FOR APPROVAL:  
\_\_\_\_\_  
DIRECTOR OF PROJECT DEVELOPMENT DATE

APPROVED:  
\_\_\_\_\_  
ASSISTANT COMMISSIONER AND CHIEF ENGINEER DATE

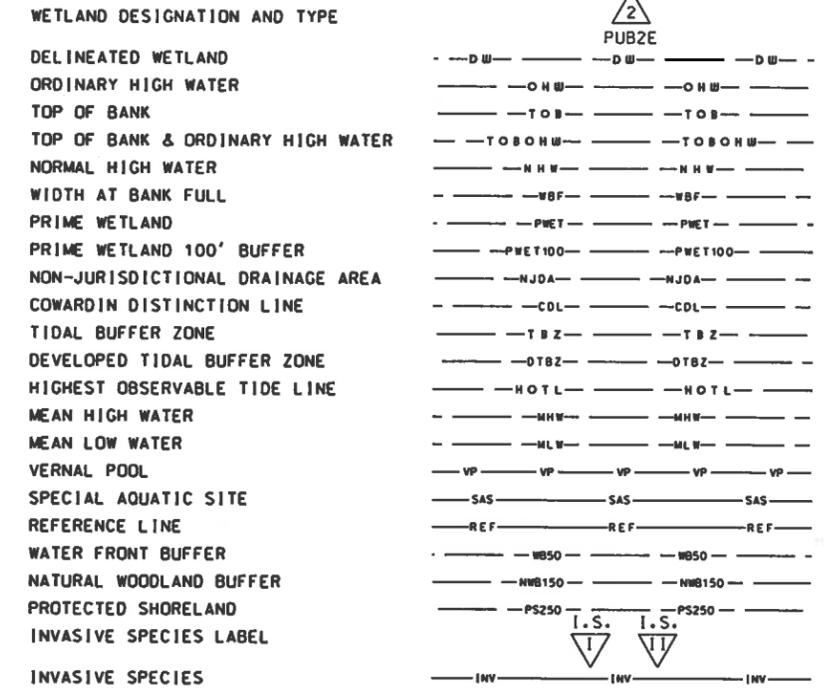
DRAWING NAME	FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
41297fsw	X-A004(587)	41297	1	6

DRAWN BY: SMG DATE: 6/18  
CHECKED BY: WFS DATE: 6/18

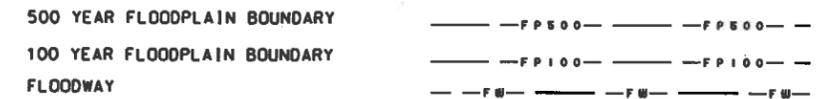
# GENERAL



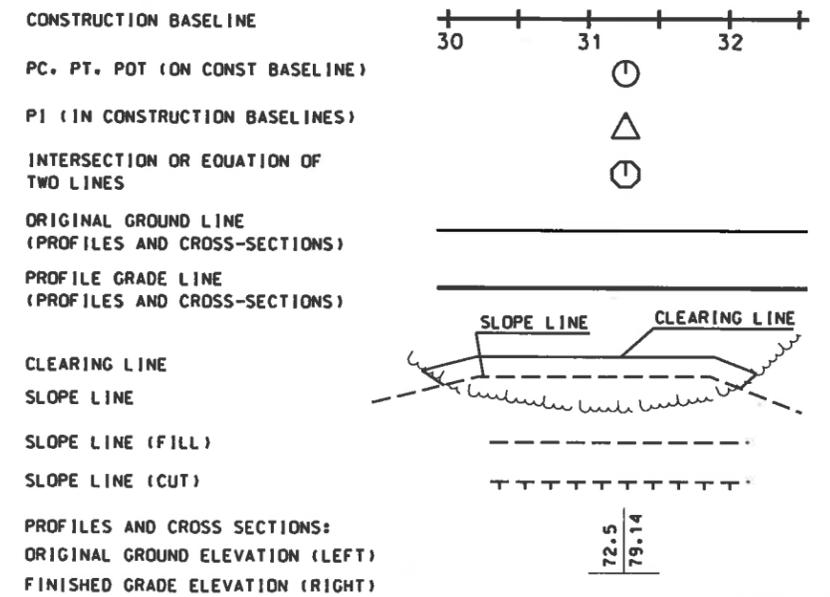
# SHORELAND - WETLAND



# FLOODPLAIN / FLOODWAY

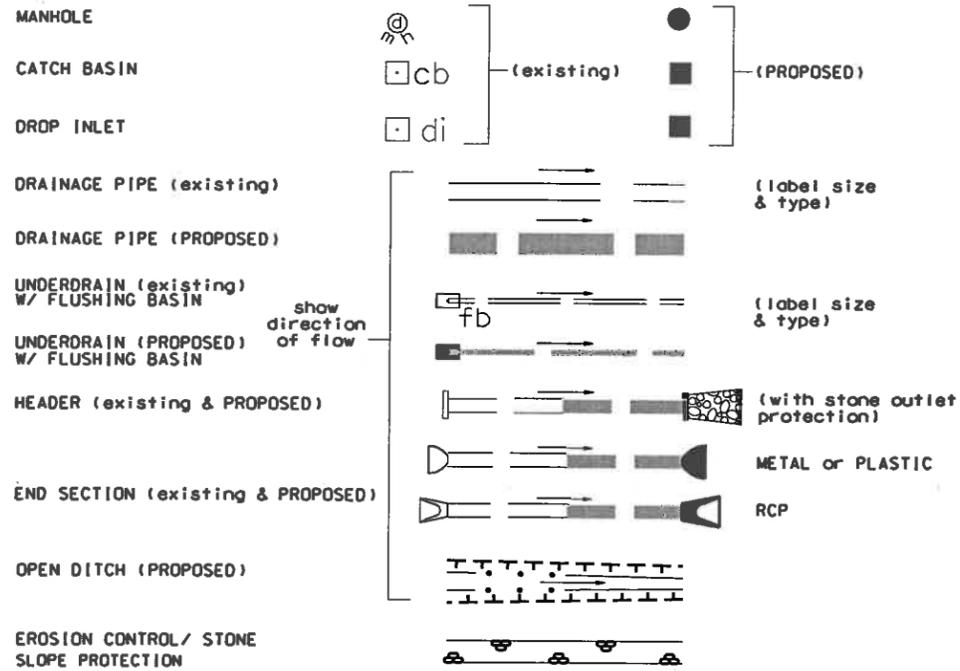


# ENGINEERING

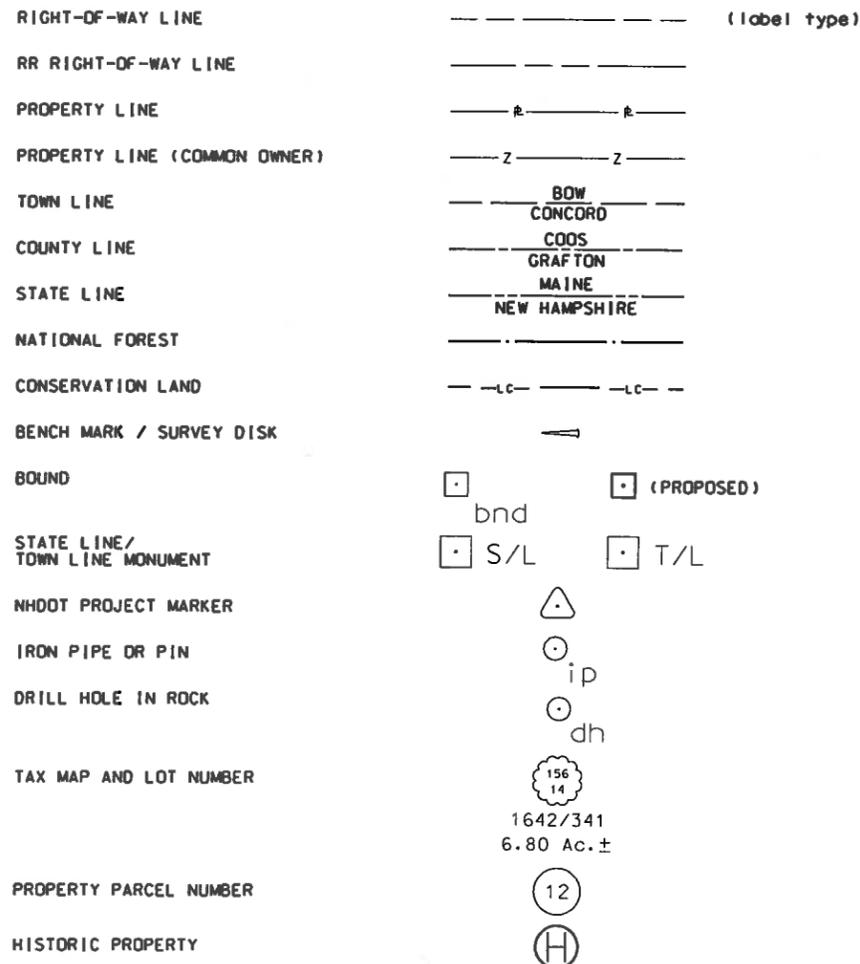


STATE OF NEW HAMPSHIRE			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
<b>STANDARD SYMBOLS</b>			
REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.
11-21-2014	stdsyml_2	41297	2
TOTAL SHEETS		6	

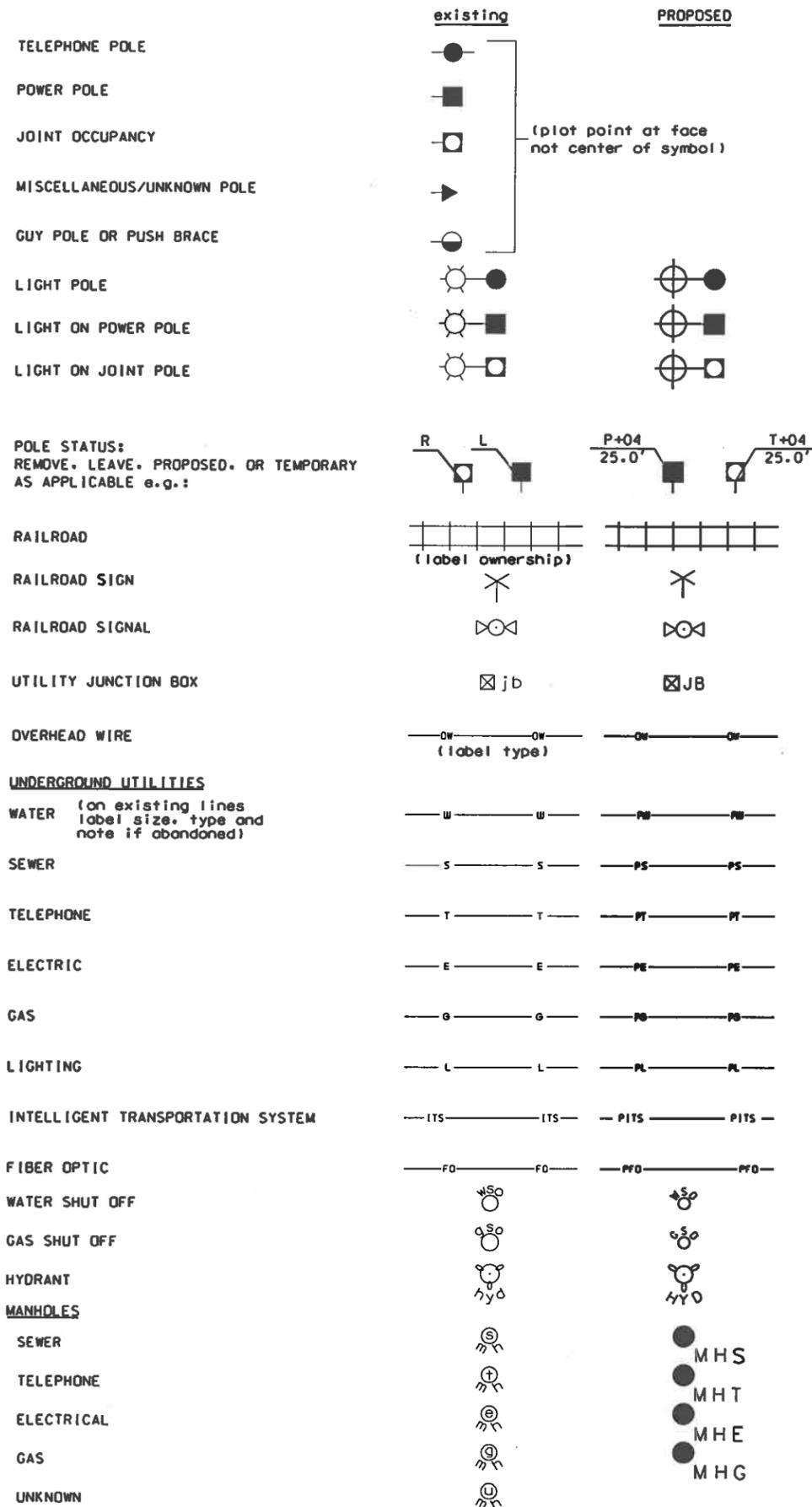
## DRAINAGE



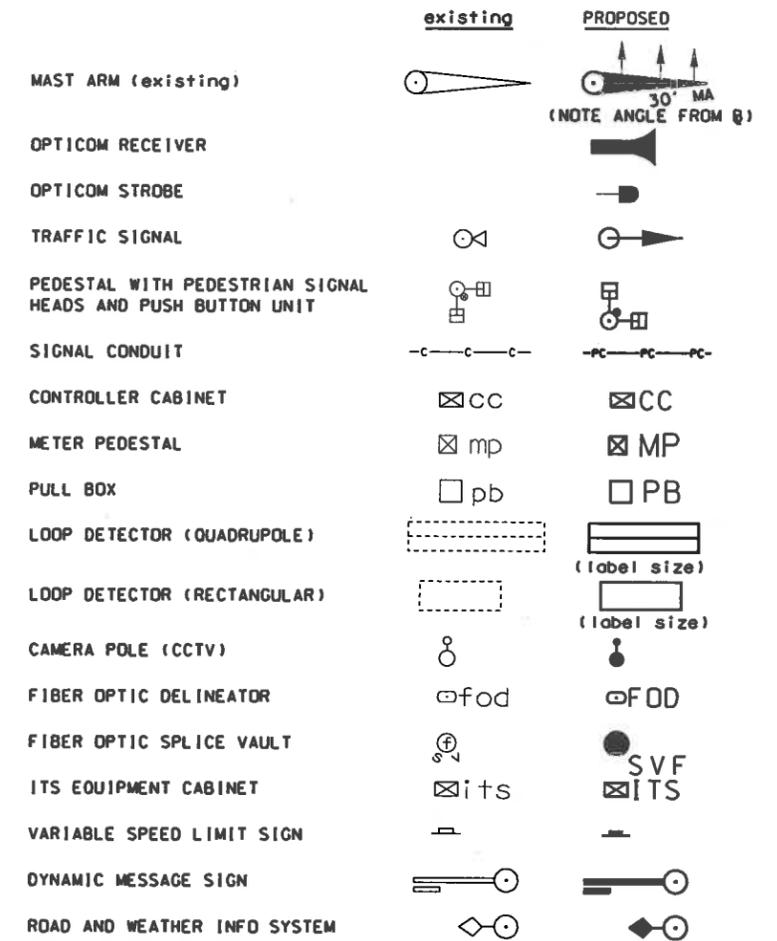
## BOUNDARIES / RIGHT-OF-WAY



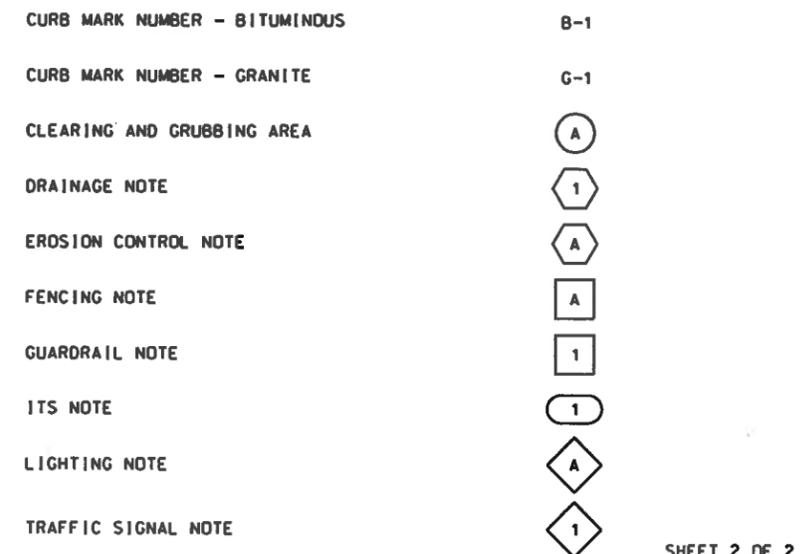
## UTILITIES



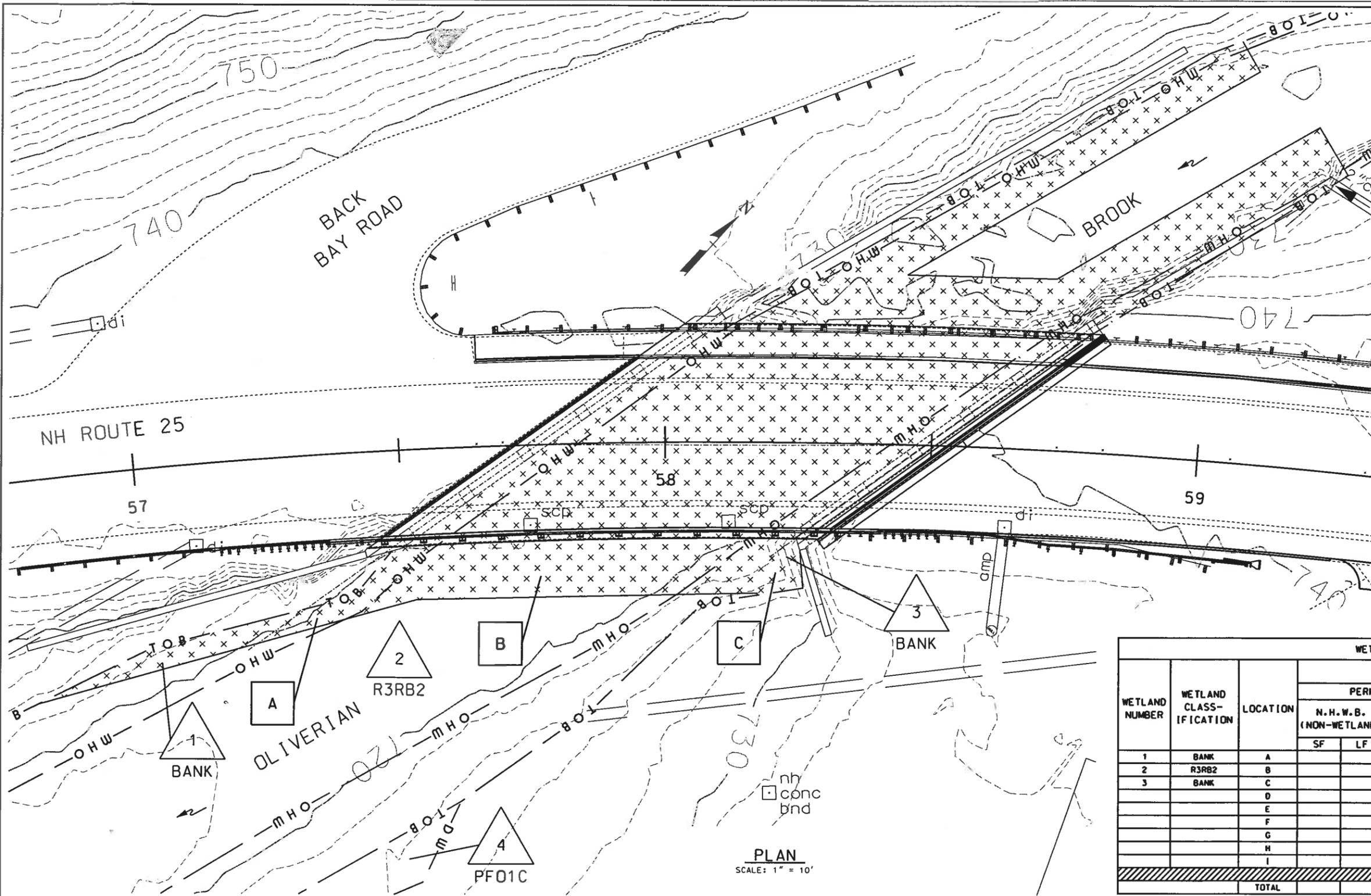
## TRAFFIC SIGNALS / ITS



## CONSTRUCTION NOTES



STATE OF NEW HAMPSHIRE				
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN				
<b>STANDARD SYMBOLS</b>				
REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
9-1-2016	stdsyml_2	41297	3	6



PLAN  
SCALE: 1" = 10'

WETLAND NUMBER	WETLAND CLASSIFICATION	LOCATION	AREA IMPACTS				LINEAR STREAM IMPACTS FOR MITIGATION				
			PERMANENT		TEMPORARY		PERMANENT				
			N.H.W.B. (NON-WETLAND) SF	LF	N.H.W.B. & A.C.O.E. (WETLAND) SF	LF	SF	LF	BANK LEFT LF	BANK RIGHT LF	CHANNEL LF
1	BANK	A					641	260			
2	R3RB2	B					4522	200			
3	BANK	C					485	148			
		D									
		E									
		F									
		G									
		H									
		I									
TOTAL							5648	608			

PERMANENT IMPACTS: 0 SF  
 TEMPORARY IMPACTS: 5648 SF  
 TOTAL IMPACTS: 5648 SF

LEGEND

TYPE OF WETLAND IMPACT	SHADING/HATCHING	WETLAND DESIGNATION NUMBER
NEW HAMPSHIRE WETLANDS BUREAU (PERMANENT NON-WETLAND)	[Diagonal Hatching]	#
NEW HAMPSHIRE WETLANDS BUREAU & ARMY CORP OF ENGINEERS (PERMANENT WETLAND)	[Solid Grey]	#
TEMPORARY IMPACTS	[Cross-hatching]	#
	[White Box]	MITIGATION

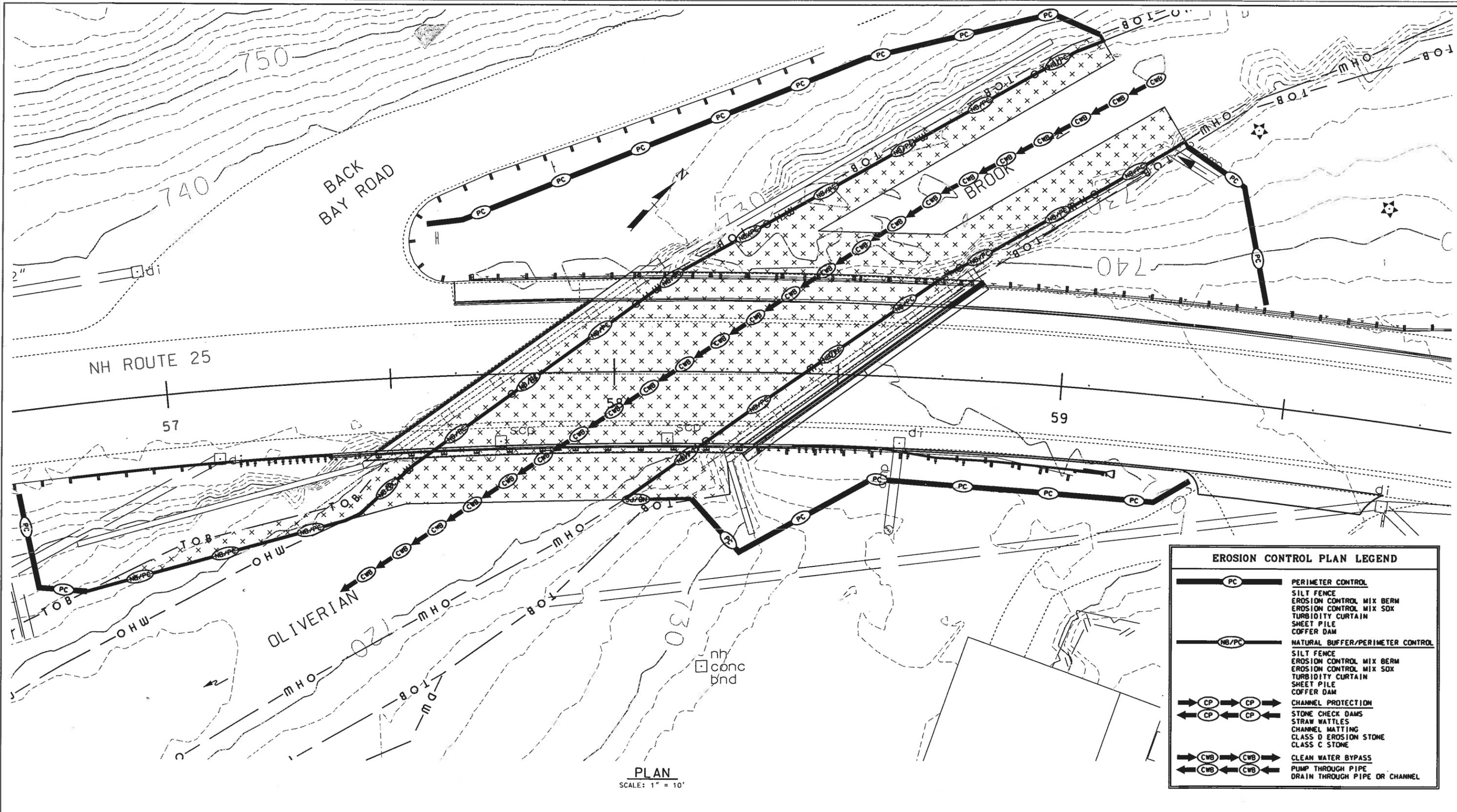
WETLAND CLASSIFICATION CODES	
BANK	BANK
R3RB2	RIVERINE UPPER PERENNIAL ROCK RUBBLE
PFO1C	PALUSTRINE FORESTED BROAD-LEAVED DECIDUOUS SEASONALLY FLOODED

STATE OF NEW HAMPSHIRE  
 DEPARTMENT OF TRANSPORTATION \* BUREAU OF BRIDGE DESIGN

TOWN HAVERHILL BRIDGE NO. 067/092 STATE PROJECT 41297  
 LOCATION N.H. ROUTE 25 OVER OLIVERIAN BROOK

WETLAND IMPACT PLAN

SUBDIRECTORY	REVISIONS AFTER PROPOSAL	BY	DATE	BY	DATE	BRIDGE SHEET
BRC/Haverhill-067/092		DESIGNED	SMG 6/18	CHECKED	WPS 6/18	--- OF ---
.DGN LOCATOR		DRAWN	SMG 6/18	CHECKED	WPS 6/18	FILE NUMBER
Haverhill 067092Wetland		QUANTITIES	SMG 6/18	CHECKED	WPS 6/18	
SHEET SCALE		ISSUE DATE		FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
1" = 10'		REV. DATE			4	6



PLAN  
SCALE: 1" = 10'

EROSION CONTROL PLAN LEGEND	
	<b>PERIMETER CONTROL</b> SILT FENCE EROSION CONTROL MIX BERM EROSION CONTROL MIX SOX TURBIDITY CURTAIN SHEET PILE COFFER DAM
	<b>NATURAL BUFFER/PERIMETER CONTROL</b> SILT FENCE EROSION CONTROL MIX BERM EROSION CONTROL MIX SOX TURBIDITY CURTAIN SHEET PILE COFFER DAM
	<b>CHANNEL PROTECTION</b> STONE CHECK DAMS STRAW WATTLES CHANNEL MATTING CLASS D EROSION STONE CLASS C STONE
	<b>CLEAN WATER BYPASS</b> PUMP THROUGH PIPE DRAIN THROUGH PIPE OR CHANNEL

STATE OF NEW HAMPSHIRE										
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN										
TOWN	HAVERHILL			BRIDGE NO.	067/092		STATE PROJECT	41297		
LOCATION	N.H. ROUTE 25 OVER OLIVERIAN BROOK									
<b>EROSION CONTROL PLAN</b>										
SUBDIRECTORY	REVISIONS AFTER PROPOSAL			BY	DATE	BY	DATE	BRIDGE SHEET		
BRC/Haverhill-067/092				DESIGNED	SMG	6/18	CHECKED	WPS	6/18	--- OF ---
.DGN LOCATOR				DRAWN	SMG	6/18	CHECKED	WPS	6/18	FILE NUMBER
Haverhill 067092Erosion				QUANTITIES	SMG	6/18	CHECKED	WPS	6/18	
SHEET SCALE				ISSUE DATE			FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS	
1" = 10'				REV. DATE				5	6	

# EROSION CONTROL STRATEGIES

## 1. ENVIRONMENTAL COMMITMENTS:

- 1.1. THESE GUIDELINES DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH ANY CONTRACT PROVISIONS, OR APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
  - 1.2. THIS PROJECT WILL BE SUBJECT TO THE US EPA'S NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER CONSTRUCTION GENERAL PERMIT AS ADMINISTERED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THIS PROJECT IS SUBJECT TO REQUIREMENTS IN THE MOST RECENT CONSTRUCTION GENERAL PERMIT (CGP).
  - 1.3. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE NHDES WETLAND PERMIT, THE US ARMY CORPS OF ENGINEERS PERMIT, WATER QUALITY CERTIFICATION AND THE SPECIAL ATTENTION ITEMS INCLUDED IN THE CONTRACT DOCUMENTS.
  - 1.4. ALL STORM WATER, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION (DECEMBER 2008) (BMP MANUAL) AVAILABLE FROM THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (NHDES).
  - 1.5. THE CONTRACTOR SHALL COMPLY WITH RSA 485-A:17, AND ALL PUBLISHED NHDES ALTERATION OF TERRAIN ENV-WO 1500 REQUIREMENTS ([HTTP://DES.NH.GOV/ORGANIZATION/COMMISSIONER/LEGAL/RULES/INDEX.HTM](http://des.nh.gov/organization/commissioner/legal/rules/index.htm))
  - 1.6. THE CONTRACTOR IS DIRECTED TO REVIEW AND COMPLY WITH SECTION 107.1 OF THE CONTRACT AS IT REFERS TO SPILLAGE, AND ALSO WITH REGARDS TO EROSION, POLLUTION, AND TURBIDITY PRECAUTIONS.
2. STANDARD EROSION CONTROL SEQUENCING APPLICABLE TO ALL CONSTRUCTION PROJECTS:
    - 2.1. PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO EARTH DISTURBING ACTIVITIES. PERIMETER CONTROLS AND STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AS SHOWN IN THE BMP MANUAL AND AS DIRECTED BY THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARER.
    - 2.2. EROSION, SEDIMENTATION CONTROL MEASURES AND INFILTRATION BASINS SHALL BE CLEANED, REPLACED AND AUGMENTED AS NECESSARY TO PREVENT SEDIMENTATION BEYOND PROJECT LIMITS THROUGHOUT THE PROJECT DURATION.
    - 2.3. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT AND SECTION 645 OF THE NHDOT SPECIFICATIONS FOR ROAD AND BRIDGES CONSTRUCTION.
    - 2.4. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
      - (A) BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
      - (B) A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
      - (C) A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP-RAP HAS BEEN INSTALLED;
      - (D) TEMPORARY SLOPE STABILIZATION CONFORMING TO TABLE 1 HAS BEEN PROPERLY INSTALLED
  - 2.5. ALL STOCKPILES SHALL BE CONTAINED WITH A PERIMETER CONTROL. IF THE STOCKPILE IS TO REMAIN UNDISTURBED FOR MORE THAN 14 DAYS, MULCHING WILL BE REQUIRED.
  - 2.6. A WATER TRUCK SHALL BE AVAILABLE TO CONTROL EXCESSIVE DUST AT THE DIRECTION OF THE CONTRACT ADMINISTRATOR.
  - 2.7. TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL REMAIN UNTIL THE AREA HAS BEEN PERMANENTLY STABILIZED.
  - 2.8. CONSTRUCTION PERFORMED ANY TIME BETWEEN NOVEMBER 30<sup>th</sup> AND MAY 1<sup>st</sup> OF ANY YEAR SHALL BE CONSIDERED WINTER CONSTRUCTION AND SHALL CONFORM TO THE FOLLOWING REQUIREMENTS.
    - (A) ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15<sup>th</sup>, OR WHICH ARE DISTURBED AFTER OCTOBER 15<sup>th</sup>, SHALL BE STABILIZED IN ACCORDANCE WITH TABLE 1.
    - (B) ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15<sup>th</sup>, OR WHICH ARE DISTURBED AFTER OCTOBER 15<sup>th</sup>, SHALL BE STABILIZED TEMPORARILY WITH STONE OR IN ACCORDANCE WITH TABLE 1.
    - (C) AFTER NOVEMBER 30<sup>th</sup> INCOMPLETE ROAD SURFACES, WHERE WORK HAS STOPPED FOR THE SEASON, SHALL BE PROTECTED IN ACCORDANCE WITH TABLE 1.
    - (D) WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE PROJECT IS WITHOUT STABILIZATION AT ONE TIME, UNLESS A WINTER CONSTRUCTION PLAN HAS BEEN APPROVED BY NHDOT THAT MEETS THE REQUIREMENTS OF ENV-WO 1505.02 AND ENV-WO 1505.05.
    - (E) A SWPPP AMENDMENT SHALL BE SUBMITTED TO THE DEPARTMENT, FOR APPROVAL, ADDRESSING COLD WEATHER STABILIZATION (ENV-WO 1505.05) AND INCLUDING THE REQUIREMENTS OF NO LESS THAN 30 DAYS PRIOR TO THE COMMENCEMENT OF WORK SCHEDULED AFTER NOVEMBER 30<sup>th</sup>.

## GENERAL CONSTRUCTION PLANNING AND SELECTION OF STRATEGIES TO CONTROL EROSION AND SEDIMENT ON HIGHWAY CONSTRUCTION PROJECTS

3. PLAN ACTIVITIES TO ACCOUNT FOR SENSITIVE SITE CONDITIONS:
  - 3.1. CLEARLY FLAG AREAS TO BE PROTECTED IN THE FIELD AND PROVIDE CONSTRUCTION BARRIERS TO PREVENT TRAFFICKING OUTSIDE OF WORK AREAS.
  - 3.2. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS.
  - 3.3. PROTECT AND MAXIMIZE EXISTING NATIVE VEGETATION AND NATURAL FOREST BUFFERS BETWEEN CONSTRUCTION ACTIVITY AND SENSITIVE AREAS.
  - 3.4. WHEN WORK IS PERFORMED IN AND NEAR WATER COURSES, STREAM FLOW DIVERSION METHODS SHALL BE IMPLEMENTED PRIOR TO ANY EXCAVATION OR FILLING.
  - 3.5. WHEN WORK IS PERFORMED WITHIN 50 FEET OF SURFACE WATERS (WETLAND, OPEN WATER OR FLOWING WATER), PERIMETER CONTROL SHALL BE ENHANCED CONSISTENT WITH SECTION 2.1.2.1. OF THE 2012 NPDES CONSTRUCTION GENERAL PERMIT.
4. MINIMIZE THE AMOUNT OF EXPOSED SOIL:
  - 4.1. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS. MINIMIZE THE AREA OF EXPOSED SOIL AT ANY ONE TIME. PHASING SHALL BE USED TO REDUCE THE AMOUNT AND DURATION OF SOIL EXPOSED TO THE ELEMENTS AND VEHICLE TRACKING.
  - 4.2. UTILIZE TEMPORARY MULCHING OR PROVIDE ALTERNATE TEMPORARY STABILIZATION ON EXPOSED SOILS IN ACCORDANCE WITH TABLE 1.
  - 4.3. THE MAXIMUM AMOUNT OF DISTURBED EARTH SHALL NOT EXCEED A TOTAL OF 5 ACRES FROM MAY 1<sup>st</sup> THROUGH NOVEMBER 30<sup>th</sup>, OR EXCEED ONE ACRE DURING WINTER MONTHS, UNLESS THE CONTRACTOR DEMONSTRATES TO THE DEPARTMENT THAT THE ADDITIONAL AREA OF DISTURBANCE IS NECESSARY TO MEET THE CONTRACTORS CRITICAL PATH METHOD SCHEDULE (CPM), AND THE CONTRACTOR HAS ADEQUATE RESOURCES AVAILABLE TO ENSURE THAT ENVIRONMENTAL COMMITMENTS WILL BE MET.
5. CONTROL STORMWATER FLOWING ONTO AND THROUGH THE PROJECT:
  - 5.1. DIVERT OFF SITE RUNOFF OR CLEAN WATER AWAY FROM THE CONSTRUCTION ACTIVITY TO REDUCE THE VOLUME THAT NEEDS TO BE TREATED ON SITE.
  - 5.2. DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM DISTURBED AREAS, SLOPES, AND AROUND ACTIVE WORK AREAS AND TO A STABILIZED OUTLET LOCATION.
  - 5.3. CONSTRUCT IMPERMEABLE BARRIERS AS NECESSARY TO COLLECT OR DIVERT CONCENTRATED FLOWS FROM WORK OR DISTURBED AREAS.
  - 5.4. STABILIZE, TO APPROPRIATE ANTICIPATED VELOCITIES, CONVEYANCE CHANNELS OR PUMPING SYSTEMS NEEDED TO CONVEY CONSTRUCTION STORMWATER TO BASINS AND DISCHARGE LOCATIONS PRIOR TO USE.
  - 5.5. DIVERT OFF-SITE WATER THROUGH THE PROJECT IN AN APPROPRIATE MANNER SO NOT TO DISTURB THE UPSTREAM OR DOWNSTREAM SOILS, VEGETATION OR HYDROLOGY BEYOND THE PERMITTED AREA.
6. PROTECT SLOPES:
  - 6.1. INTERCEPT AND DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM UNPROTECTED AND NEWLY ESTABLISHED AREAS AND SLOPES TO A STABILIZED OUTLET OR CONVEYANCE.
  - 6.2. CONSIDER HOW GROUNDWATER SEEPAGE ON CUT SLOPES MAY IMPACT SLOPE STABILITY AND INCORPORATE APPROPRIATE MEASURES TO MINIMIZE EROSION.
  - 6.3. CONVEY STORMWATER DOWN THE SLOPE IN A STABILIZED CHANNEL OR SLOPE DRAIN.
  - 6.4. THE OUTER FACE OF THE FILL SLOPE SHOULD BE IN A LOOSE RUFFLED CONDITION PRIOR TO TURF ESTABLISHMENT. TOPSOIL OR HUMUS LAYERS SHALL BE TRACKED UP AND DOWN THE SLOPE, DISKED, HARROWED, DRAGGED WITH A CHAIN OR MAT, MACHINE-RAKED, OR HAND-WORKED TO PRODUCE A RUFFLED SURFACE.
7. ESTABLISH STABILIZED CONSTRUCTION EXITS:
  - 7.1. INSTALL AND MAINTAIN CONSTRUCTION EXITS, ANYWHERE TRAFFIC LEAVES A CONSTRUCTION SITE ONTO A PUBLIC RIGHT-OF-WAY.
  - 7.2. SWEEP ALL CONSTRUCTION RELATED DEBRIS AND SOIL FROM THE ADJACENT PAVED ROADWAYS AS NECESSARY.
8. PROTECT STORM DRAIN INLETS:
  - 8.1. DIVERT SEDIMENT LADEN WATER AWAY FROM INLET STRUCTURES TO THE EXTENT POSSIBLE.
  - 8.2. INSTALL SEDIMENT BARRIERS AND SEDIMENT TRAPS AT INLETS TO PREVENT SEDIMENT FROM ENTERING THE DRAINAGE SYSTEM.
  - 8.3. CLEAN CATCH BASINS, DRAINAGE PIPES, AND CULVERTS IF SIGNIFICANT SEDIMENT IS DEPOSITED.
  - 8.4. DROP INLET SEDIMENT BARRIERS SHOULD NEVER BE USED AS THE PRIMARY MEANS OF SEDIMENT CONTROL AND SHOULD ONLY BE USED TO PROVIDE AN ADDITIONAL LEVEL OF PROTECTION TO STRUCTURES AND DOWN-GRADIENT SENSITIVE RECEPTORS.
9. SOIL STABILIZATION:
  - 9.1. WITHIN THREE DAYS OF THE LAST ACTIVITY IN AN AREA, ALL EXPOSED SOIL AREAS, WHERE CONSTRUCTION ACTIVITIES ARE COMPLETE, SHALL BE STABILIZED.
  - 9.2. IN ALL AREAS, TEMPORARY SOIL STABILIZATION MEASURES SHALL BE APPLIED IN ACCORDANCE WITH THE STABILIZATION REQUIREMENTS (SECTION 2.2) OF THE 2012 CGP. (SEE TABLE 1 FOR GUIDANCE ON THE SELECTION OF TEMPORARY SOIL STABILIZATION MEASURES.)
  - 9.3. EROSION CONTROL SEED MIX SHALL BE SOWN IN ALL INACTIVE CONSTRUCTION AREAS THAT WILL NOT BE PERMANENTLY SEEDED WITHIN TWO WEEKS OF DISTURBANCE AND PRIOR TO SEPTEMBER 15, OF ANY GIVEN YEAR. IN ORDER TO ACHIEVE VEGETATIVE STABILIZATION PRIOR TO THE END OF THE GROWING SEASON.
  - 9.4. SOIL TACKIFIERS MAY BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND REAPPLIED AS NECESSARY TO MINIMIZE SOIL AND MULCH LOSS UNTIL PERMANENT VEGETATION IS ESTABLISHED.
10. RETAIN SEDIMENT ON-SITE AND CONTROL DEWATERING PRACTICES:
  - 10.1. TEMPORARY SEDIMENT BASINS (CGP-SECTION 2.1.3.2) OR SEDIMENT TRAPS (ENV-WO 1506.10) SHALL BE SIZED TO RETAIN, ON SITE, THE VOLUME OF A 2-YEAR 24-HOUR STORM EVENT FOR ANY AREA OF DISTURBANCE OR 3,600 CUBIC FEET OF STORMWATER RUNOFF PER ACRE OF DISTURBANCE, WHICHEVER IS GREATER. TEMPORARY SEDIMENT BASINS USED TO TREAT STORMWATER RUNOFF FROM AREAS GREATER THAN 5-ACRES OF DISTURBANCE SHALL BE SIZED TO ALSO CONTROL STORMWATER RUNOFF FROM A 10-YEAR 24 HOUR STORM EVENT. ON-SITE RETENTION OF THE 10-YEAR 24-HOUR EVENT IS NOT REQUIRED.
  - 10.2. CONSTRUCT AND STABILIZE DEWATERING INFILTRATION BASINS PRIOR TO ANY EXCAVATION THAT MAY REQUIRE DEWATERING.
  - 10.3. TEMPORARY SEDIMENT BASINS OR TRAPS SHALL BE PLACED AND STABILIZED AT LOCATIONS WHERE CONCENTRATED FLOW (CHANNELS AND PIPES) DISCHARGE TO THE SURROUNDING ENVIRONMENT FROM AREAS OF UNSTABILIZED EARTH DISTURBING ACTIVITIES.

## 11. ADDITIONAL EROSION AND SEDIMENT CONTROL GENERAL PRACTICES:

- 11.1. USE TEMPORARY MULCHING, PERMANENT MULCHING, TEMPORARY VEGETATIVE COVER, AND PERMANENT VEGETATIVE COVER TO REDUCE THE NEED FOR DUST CONTROL. USE MECHANICAL SWEEPERS ON PAVED SURFACES WHERE NECESSARY TO PREVENT DUST BUILDUP. APPLY WATER, OR OTHER DUST INHIBITING AGENTS OR TACKIFIERS, AS APPROVED BY THE NHDES.
- 11.2. ALL STOCKPILES SHALL BE CONTAINED WITH TEMPORARY PERIMETER CONTROLS. INACTIVE SOIL STOCKPILES SHOULD BE PROTECTED WITH SOIL STABILIZATION MEASURES (TEMPORARY EROSION CONTROL SEED MIX AND MULCH, SOIL BINDER) OR COVERED WITH ANCHORED TARPS.
- 11.3. EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSPECTED IN ACCORDANCE WITH SECTION 645 OF NHDOT SPECIFICATIONS, WEEKLY AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.25 IN. OF RAIN PER 24-HOUR PERIOD. EROSION AND SEDIMENT CONTROL MEASURES WILL ALSO BE INSPECTED IN ACCORDANCE WITH THE GUIDANCE MEMO FROM THE NHDES CONTAINED WITHIN THE CONTRACT PROPOSAL AND THE EPA CONSTRUCTION GENERAL PERMIT.
- 11.4. THE CONTRACTOR SHOULD UTILIZE STORM DRAIN INLET PROTECTION TO PREVENT SEDIMENT FROM ENTERING A STORM DRAINAGE SYSTEM PRIOR TO THE PERMANENT STABILIZATION OF THE CONTRIBUTING DISTURBED AREA.
- 11.5. PERMANENT STABILIZATION MEASURES WILL BE CONSTRUCTED AND MAINTAINED IN LOCATIONS AS SHOWN ON THE CONSTRUCTION PLANS TO STABILIZE AREAS. VEGETATIVE STABILIZATION SHALL NOT BE CONSIDERED PERMANENTLY STABILIZED UNTIL VEGETATIVE GROWTH COVERS AT LEAST 85% OF THE DISTURBED AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL FOR ONE YEAR AFTER PROJECT COMPLETION.
- 11.6. CATCH BASINS: CARE SHALL BE TAKEN TO ENSURE THAT SEDIMENTS DO NOT ENTER ANY EXISTING CATCH BASINS DURING CONSTRUCTION. THE CONTRACTOR SHALL PLACE TEMPORARY STONE INLET PROTECTION OVER INLETS IN AREAS OF SOIL DISTURBANCE THAT ARE SUBJECT TO SEDIMENT CONTAMINATION.
- 11.7. TEMPORARY AND PERMANENT DITCHES SHALL BE CONSTRUCTED, STABILIZED AND MAINTAINED IN A MANNER THAT WILL MINIMIZE SCOUR. TEMPORARY AND PERMANENT DITCHES SHALL BE DIRECTED TO DRAIN TO SEDIMENT BASINS OR STORM WATER COLLECTION AREAS.
- 11.8. WINTER EXCAVATION AND EARTHWORK ACTIVITIES NEED TO BE LIMITED IN EXTENT AND DURATION, TO MINIMIZE POTENTIAL EROSION AND SEDIMENTATION IMPACTS. THE AREA OF EXPOSED SOIL SHALL BE LIMITED TO ONE ACRE, OR THAT WHICH CAN BE STABILIZED AT THE END OF EACH DAY UNLESS A WINTER CONSTRUCTION PLAN, DEVELOPED BY A QUALIFIED ENGINEER OR A CPESC SPECIALIST, IS REVIEWED AND APPROVED BY THE DEPARTMENT.
- 11.9. CHANNEL PROTECTION MEASURES SHALL BE SUPPLEMENTED WITH PERIMETER CONTROL MEASURES WHEN THE DITCH LINES OCCUR AT THE BOTTOM OF LONG FILL SLOPES. THE PERIMETER CONTROLS SHALL BE INSTALLED ON THE FILL SLOPE TO MINIMIZE THE POTENTIAL FOR FILL SLOPE SEDIMENT DEPOSITS IN THE DITCH LINE.

## BEST MANAGEMENT PRACTICES (BMP) BASED ON AMOUNT OF OPEN CONSTRUCTION AREA

12. STRATEGIES SPECIFIC TO OPEN AREAS LESS THAN 5 ACRES:
  - 12.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485A:17 AND ENV-WO 1500:1 ALTERATION OF TERRAIN FOR CONSTRUCTION AND USE ALL CONVENTIONAL BMP STRATEGIES.
  - 12.2. SLOPES STEEPER THAN 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING.
  - 12.3. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT ALONE.
  - 12.4. AREAS WHERE HAUL ROADS ARE CONSTRUCTED AND STORMWATER CANNOT BE TREATED THE DEPARTMENT WILL CONSIDER INFILTRATION.
  - 12.5. FOR HAUL ROADS ADJACENT TO SENSITIVE ENVIRONMENTAL AREAS OR STEEPER THAN 5%, THE DEPARTMENT WILL CONSIDER USING EROSION STONE, CRUSHED GRAVEL, OR CRUSHED STONE BASE TO HELP MINIMIZE EROSION ISSUES.
  - 12.6. ALL AREAS THAT CAN BE STABILIZED SHALL BE STABILIZED PRIOR TO OPENING UP NEW TERRITORY.
  - 12.7. DETENTION BASINS SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE A 2 YEAR STORM EVENT.
13. STRATEGIES SPECIFIC TO OPEN AREAS BETWEEN 5 AND 10 ACRES:
  - 13.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485A:17 AND ENV-WO 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL TREATMENT OPTIONS USED FOR UNDER 5 ACRES WILL BE UTILIZED.
  - 13.2. DETENTION BASINS WILL BE CONSTRUCTED TO ACCOMMODATE THE 2-YEAR 24-HOUR STORM EVENT AND CONTROL A 10-YEAR 24-HOUR STORM EVENT.
  - 13.3. SLOPES STEEPER THAN A 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS. OTHER ALTERNATIVE MEASURES, SUCH AS BONDED FIBER MATRIXES (BFMS) OR FLEXIBLE GROWTH MEDIUMS (FGMS) MAY BE UTILIZED, IF MEETING THE NHDES APPROVALS AND REGULATIONS.
  - 13.4. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS.
14. STRATEGIES SPECIFIC TO OPEN AREAS OVER 10 ACRES:
  - 14.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485A:17 AND ENV-WO 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL TREATMENT OPTIONS USED FOR UNDER 5 ACRES AND BETWEEN 5 AND 10 ACRES WILL BE UTILIZED.
  - 14.2. THE DEPARTMENT ANTICIPATES THAT SOIL BINDERS WILL BE NEEDED ON ALL SLOPES STEEPER THAN 3:1, IN ORDER TO MINIMIZE EROSION AND REDUCE THE AMOUNT OF SEDIMENT IN THE STORMWATER TREATMENT BASINS.
  - 14.3. THE CONTRACTOR WILL BE REQUIRED TO HAVE AN APPROVED DESIGN IN ACCORDANCE WITH ENV-WO 1506.12 FOR AN ACTIVE FLOCCULANT TREATMENT SYSTEM TO TREAT AND RELEASE WATER CAPTURED IN STORM WATER BASINS. THE CONTRACTOR SHALL ALSO RETAIN THE SERVICES OF AN ENVIRONMENTAL CONSULTANT WHO HAS DEMONSTRATED EXPERIENCE IN THE DESIGN OF FLOCCULANT TREATMENT SYSTEMS. THE CONSULTANT WILL ALSO BE RESPONSIBLE FOR THE IMPLEMENTATION AND MONITORING OF THE SYSTEM.

TABLE 1  
GUIDANCE ON SELECTING TEMPORARY SOIL STABILIZATION MEASURES

APPLICATION AREAS	DRY MULCH METHODS				HYDRAULICALLY APPLIED MULCHES <sup>2</sup>				ROLLED EROSION CONTROL BLANKETS <sup>3</sup>				
	HMT	WC	SG	CB	HM	SMM	BFM	FRM	SNSB	DNSB	DNSCB	DNCSB	
SLOPES <sup>1</sup>													
STEEPER THAN 2:1	NO	NO	YES	NO	NO	NO	NO	YES	NO	NO	NO	NO	YES
2:1 SLOPE	YES	YES	YES	YES	NO	NO	YES	YES	YES	NO	YES	YES	YES
3:1 SLOPE	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	NO	NO
4:1 SLOPE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO
WINTER STABILIZATION	4T/AC	YES	YES	YES	NO	NO	YES	YES	YES	YES	YES	YES	YES
CHANNELS													
LOW FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES
HIGH FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES

ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE
HMT	HAY MULCH & TACK	HM	HYDRAULIC MULCH	SNSB	SINGLE NET STRAW BLANKET
WC	WOOD CHIPS	SMM	STABILIZED MULCH MATRIX	DNSB	DOUBLE NET STRAW BLANKET
SG	STUMP GRINDINGS	BFM	BONDED FIBER MATRIX	DNSCB	2 NET STRAW-COCONUT BLANKET
CB	COMPOST BLANKET	FRM	FIBER REINFORCED MEDIUM	DNCSB	2 NET COCONUT BLANKET

- NOTES:
1. ALL SLOPE STABILIZATION OPTIONS ASSUME A SLOPE LENGTH  $\leq 10$  TIMES THE HORIZONTAL DISTANCE COMPONENT OF THE SLOPE, IN FEET.
  2. PRODUCTS CONTAINING POLYACRYLAMIDE (PAM) SHALL NOT BE APPLIED DIRECTLY TO OR WITHIN 100 FEET OF ANY SURFACE WATER WITHOUT PRIOR WRITTEN APPROVAL FROM THE NH DEPARTMENT OF ENVIRONMENTAL SERVICES.
  3. ALL EROSION CONTROL BLANKETS SHALL BE MADE WITH WILDLIFE FRIENDLY BIODEGRADABLE NETTING.

STATE OF NEW HAMPSHIRE			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
<b>EROSION CONTROL STRATEGIES</b>			
REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.
12-21-2015	067092erosstrat	41297	6
		TOTAL SHEETS	6