


STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION

FROM:  Sarah Large
Wetlands Program Analyst

DATE: October 24, 2018

AT (OFFICE): Department of
Transportation

SUBJECT Dredge & Fill Application
Eaton, 41864

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 Maintenance for the subject major impact project. This project is classified as major per Env-Wt 303.02(p). The project is located on Brownfield Road in the Town of Eaton, NH. The proposed work consists of rehabilitating a metal pipe culvert spanning 16' by 72' long by installing a concrete invert lining. Proposed work will also include placing riprap along all the wingwalls and within the channel to protect the inlet and outlet of the structure and installing a downstream fish weir.

This project was reviewed at the September 18, 2018 and March 21, 2018 Natural Resource Agency Coordination Meetings. Copies of the minutes have 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>

No mitigation is proposed. Please see the Natural Resource Agency Meeting minutes and the mitigation narrative included within the application package for further details.

The lead people to contact for this project are Steve Johnson, Administrator, Bureau of Bridge Maintenance (271-3668 or steve.johnson@dot.nh.gov) or Sarah Large, Wetlands Program Analyst, Bureau of Environment (271-6916 or sarah.large@dot.nh.gov).

A payment voucher has been processed for this application (Voucher #546083) in the amount of \$737.20.

If and when this application meets with the approval of the Bureau, please send the permit directly to Sarah Large, Wetlands Program Analyst, Bureau of Environment.

SEL:sel
Enclosures

cc:
BOE Original
Town of Eaton (4 copies via certified mail)
David Trubey, NH Division of Historic Resources (Cultural Review Within)
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

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

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: 9 Day: 18 Year: 2018

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: **Brownfield Road over Snow Brook** TOWN/CITY: **Eaton**

TAX MAP: _____ BLOCK: _____ LOT: _____ UNIT: _____

USGS TOPO MAP WATERBODY NAME: **Snow Brook** NA STREAM WATERSHED SIZE: **4.05 sq. mi.** NA

LOCATION COORDINATES (If known): **43°54'48.8" 71°3'12.7"** Latitude/Longitude

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.

The proposed project is to rehabilitate the bridge carrying Brownfield Road over Snow Brook. The current structure is a metal pipe culvert spanning 16' by 72' long. The proposed work will include placing a concrete invert within the structure as well as riprap along all the wingwalls and within the channel to protect the inlet and outlet of the structure. A downstream fish weir will be constructed to back water through the pipe during low flow periods.

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 - 0771
- b. Designated River the project is in ¼ 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.: Johnson, Steve, W			
TRUST / COMPANY NAME: NHDOT-Bridge Maintenance		MAILING ADDRESS: PO Box 483	
TOWN/CITY: Concord		STATE: NH	ZIP CODE: 03302
EMAIL or FAX: Steve.Johnson@dot.nh.gov		PHONE: 271-3667	
ELECTRONIC COMMUNICATION: By initialing here: _____, 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.: NH Dept. of Transportation			
TRUST / COMPANY NAME: NH Dept. of Transportation		MAILING ADDRESS: PO Box 483	
TOWN/CITY: Concord		STATE: NH	ZIP CODE: 03302
EMAIL or FAX: Sarah.Large@dot.nh.gov		PHONE: 271-3226	
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.:		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			
11. PROPERTY OWNER SIGNATURE:			
See the Instructions & Required Attachments document for clarification of the below statements			
By signing the application, I am certifying that:			
<ol style="list-style-type: none"> 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) 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		Steve W. Johnson Print name legibly	10/18/18 Date

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 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	600 <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	1250 / 96 <input type="checkbox"/> ATF	721 / 46 <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	200 / 29 <input type="checkbox"/> ATF	915 / 106 <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
TOTAL	1450 / 125	2236 / 127

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) 3686 sq. ft. X \$0.20 = \$ 737.20

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

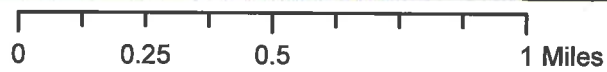
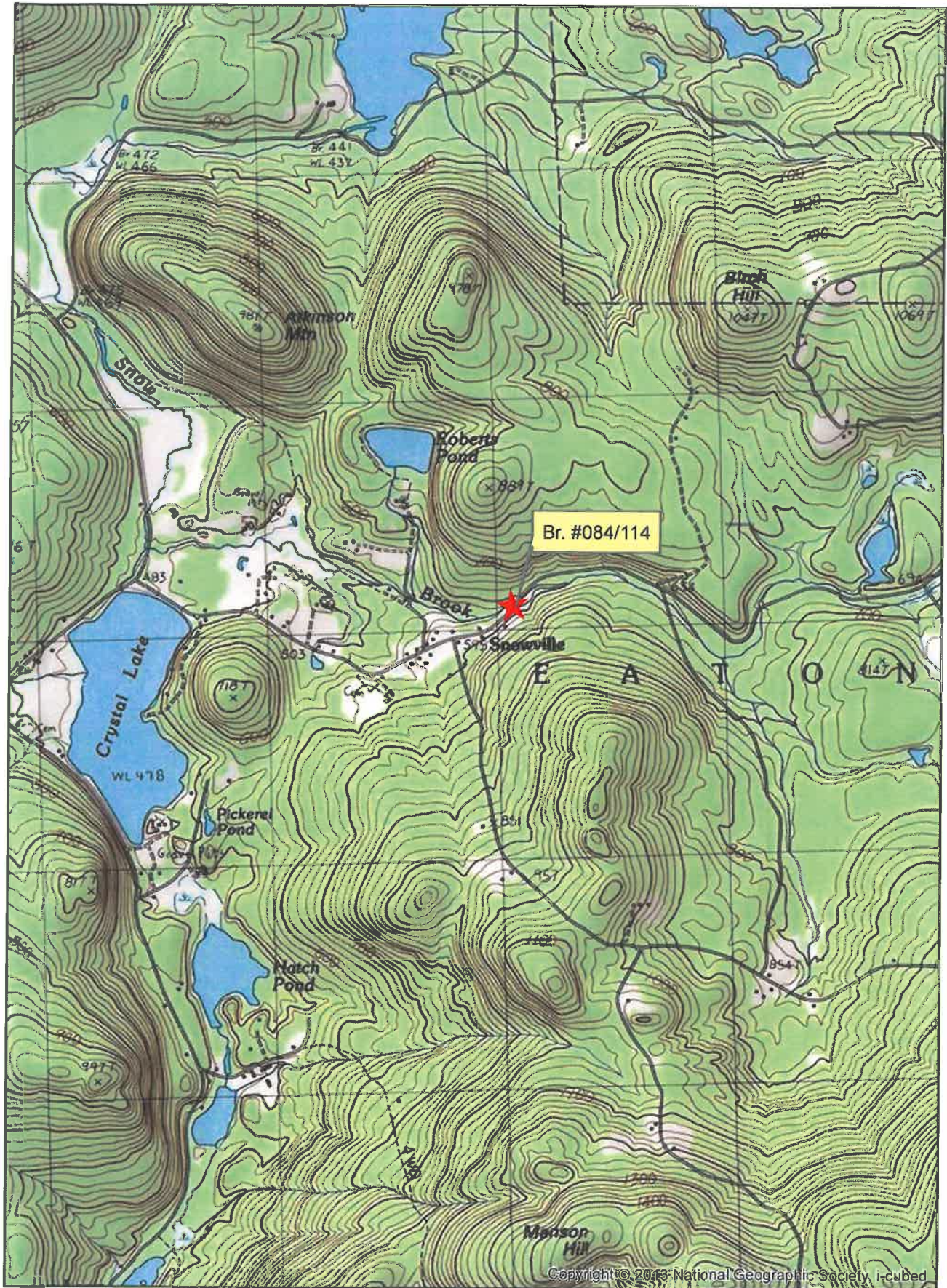
Permanent docking structure: _____ sq. ft. X \$2.00 = \$

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

Total = \$ 737.20

The Application Fee is the above calculated Total or \$200, whichever is greater = \$ 737.20

Eaton #41864



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

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 existing metal arch pipe carrying Brownfield Road over Snow Brook has reached the end of its design life. The current condition of the pipe shows holes and section loss and heavy rusting. It is necessary to impact jurisdictional areas in order to make the repairs. The impacts are for the temporary construction areas, the concrete invert within the pipe, and cut off walls, riprap at all four wings, and to construct a downstream fishweir. If the structure is not rehabilitated, it will eventually be load posted or closed.

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

The alternatives considered are as follows:

Replace structure with a new structure in compliance with the NH Stream Crossing Guidelines: According to the NH Stream Crossing Guidelines, if a new structure were to be constructed at this location it would require a span of 32'-0. A structure of this size would cost approximately \$700,000. Spending this much money on a structure that could be adequately preserved for approximately \$150,000 would not be a practicable use of resources.

Install Concrete Invert: This is the preferred alternative because it is the most effective way to repair and provide the necessary structural integrity a rusted metal pipe bridge needs. The project as proposed has an estimated cost of \$150,000. This is the most cost-effective solution and meets the stream crossing rules to the maximum extent practicable.

In the March 2018 and September 2018 Natural Resource Agency Coordination Meeting no concerns with opting to do this alternative were raised. The resource agencies suggest the DOT should improve connectivity at this location since the invert would likely perch the outlet of the pipe, which resulted in the addition of a downstream fish weir.

3. The type and classification of the wetlands involved.

R2UB12: Riverine, lower perennial unconsolidated bottom, cobble gravel and sand
PFO1E: Palustrine Forested, Broad-Leaved Deciduous, Seasonally Flooded/Saturated
Bank

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

Snow Brook eventually flows into Conway Lake.

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

Snow Brook has not been identified as a rare surface water.

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

1971 sq. ft. Riverine (1250 sq. ft. permanent, 721 sq. ft. temporary)
600 sq. ft. Palustrine (600 sq. ft. temporary)
1093 sq. ft. Bank (200 sq. ft. permanent, 915 sq. ft. temporary)

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.

a) The Natural Heritage Bureau (NHB) did not have any record of species of special concern close to the project limits.

b) The US Fish and Wildlife Services (USFWS) IPaC tool identified the Northern Long-eared Bat (NLEB), a federally listed threatened species, as a species that may be present within the bounds of the project area. A streamlined 4(d) Rule consultation form has been submitted to the USFWS New England Field Office to notify the USFWS of the project and describe the activities that are accepted from incidental take prohibitions. A streamlined 4(d) Rule consultation form indicated that the project adheres to the conditions of the NLEB 4(d) Rule and the project's Section 7 consultation requirements are satisfied by submission of the form in accordance with January 5, 2016, Programmatic Biological Opinion (BO) on the final 4(d) rule for the NLEB. The project will not result in any prohibited take of NLEB.

The US Fish and Wildlife Services (USFWS) IPaC tool identified small whorled pogonia, a federally listed threatened species, as a species that may be present within the bounds of the project area. Based on USFWS and the New England Society's description of suitable habitat for the species, it was determined that the area immediately surrounding the culvert outlet, inlet and upstream of the inlet would not be suitable habitat for small whorled pogonia. The forest downstream of the outlet however was determined to have a higher likelihood of being suitable habitat and potentially supporting the species. Therefore, NHDOT Bridge Maintenance commits to keep equipment and machinery out of the forest downstream of the culvert in order to eliminate the potential of impacting the species.

c) There are no species known to be at the extremities of their ranges located in the project area.

Continue in section 20....

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

During construction all lanes of traffic will be maintained at all times. The existing structure is non-conductive to boaters. There are no recreational areas that have been identified in this area except for the possibility of fishing. During construction fishing activities from the banks of the Snow Brook will need to occur outside of the construction work zone. When construction is completed, the project as proposed will be a benefit to the public commerce.

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 project will not significantly interfere with the aesthetic interests of the general public. The proposed improvement will largely go unnoticed.

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 not interfere with or obstruct public rights of passage or access. During construction, traffic will be maintained at all times.

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.

The project is expected to have a positive impact on abutting properties. The rehabilitated structure will better serve the abutting properties if they need to travel the road.

The project as proposed will not alter the chance of flooding on abutting properties. The existing and proposed repaired structure will continue to pass the 100 year storm.

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

The project will provide a safer, longer lasting structure and roadway. If the structure is not rehabilitated, the bridge will eventually be load posted or closed. Keeping the roadway open benefits commerce, trade, emergency access, etc., for the general public.

13. The impact of a proposed project on quantity or quality of surface and groundwater. 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.

The surface water currently runs off the road, over natural vegetation. Upon completion of the project, surface water will drain in the same manner. This will have no adverse effects on the quality or quantity of surface and ground water. Best Management Practices will be used to prevent any adverse effect to water quality during construction.

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

Flooding: The culvert is not located within a mapped flood plain and the invert will not increase upstream or downstream flood levels.

Erosion: Placing a concrete invert will not have any effect on erosion. The riprap at the inlet and outlet will help prevent any erosion. The riprap's intent is to stabilize the structure's wings, banks, and the channel.

Sedimentation: The proposed project will not be a barrier to sediment transport.

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.

Surface water will not be reflected or redirected as a result of this project. Snow Brook does not have enough water for wave energy to be an issue.

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 the repair of an existing bridge structure. There are no similar structures in the vicinity owned by other parties that would require repair.

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

The project has minimized overall impacts and will not impact the values and functions of Snow Brook. Snow Brook will continue to convey water from higher elevation to lower elevation and provide habitat to aquatic and terrestrial organisms. The forested wetland adjacent to the outlet of the structure has the following functions: floodflow alteration and storage, nutrient removal/retention/transformation, shoreline stabilization, and wildlife habitat. The forested wetland will only be temporarily impacted and the functions and values it serves will not be impacted permanently.

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.

The project is not located in or near any Natural Landmarks listed on the National Register.

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.

The proposed project is not within any areas named in acts of Congress or presidential proclamations.

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

The project as proposed will not redirect water from one watershed to another.

Additional comments

Continuation of Question 7:

d) Migratory fish and wildlife will not be affected by this project.

e) The Department has coordinated with DRED and results of the NHB review revealed there was a record but it will not be expected to be impacted.

f) There were no vernal pools identified and/or delineated in the project area.

NOTES ON CONFERENCE:

Finalization of the December 20th and January 21st Natural Resource Agency Meeting Minutes.

Matt Urban ask the group if there were any other comments or edits for the December 20th and January 21st meeting minutes. We had received only a few comments for each. No one objected to finalizing both sets of minutes. The minutes were finalized and posted after the meeting.

Eaton, #41864 (Non-Federal)

Steve Johnson provided an overview of the project location, condition of the pipe, and the proposed work. The metal pipe located in Eaton carrying Brownfield road over Snow Brook was noted to have rust issues as well as scour concerns. The purpose of the project is to rehabilitate the metal pipe by placing a concrete invert with cutoff walls and toe walls and placing rip rap at either end of the pipe to protect the structure. It was also stated that the west side of structure would be used for access and the temporary impacts reflected that.

Lori Sommer asked about the perch at the site. S. Johnson said there was no perch at this time.

John Magee noted that through the fish survey that there were Brook Trout and Slimy Sculpin in the area. The concern for fish passage would be dependent on the depth of the water at the outlet. S. Johnson replied that it would be a 6 in. thick invert, enough concrete to cover the reinforcing.

Mike Hicks asked if the site was historic. Matt Urban responded by saying the Bureau of Environment would have the project looked at by the Cultural Resources Program.

M. Hicks asked if there would be any tree cutting done for the proposed project. S. Johnson said he did not know, but the Bureau of Environment would submit the 4(d) form once they knew.

L. Sommer asked what the profile of the stream would look like with the riprap in place. J. Magee said he would also be interested in seeing the profile.

L. Sommer expressed an interest in seeing the project again.

Gino Infascelli suggested using logs as a weir in this location. J. Magee mentioned that the purpose of logs would be defeated since they would have to be anchored using rocks.

G. Infascelli also corrected the location of the bridge on the location map.

L. Sommer said the new riprap would require mitigation, and asked if alternative designs would be explored.

S. Johnson said alternative designs would be included.

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

Madison, #40775 (Non-Federal)

Steve Johnson provided an overview of the project located in Madison. The proposed work includes the rehabilitation of the existing bridge carrying NH 153 over Purity Pond Brook. The existing bridge is a jack arch bridge with a concrete slab portion and an I-beam with concrete deck portion. The project will be replacing the steel portions with a concrete deck, and the project will only require temporary impacts.

DRAFT

NOTES ON CONFERENCE:**August 15, 2018 Minutes to be finalized at October 17, 2018 meeting**

Sarah Large stated that she had not been able to distribute the August 15th meeting minutes due to work load responsibilities. She advised she would get them out ASAP and would like to finalize the minutes at the October 2018 meeting. The resource agencies were understanding and agreed.

Eaton, #41864

Doug Locker provided an overview of the project. The project is the rehabilitation of an existing bridge carrying Brownfield Road over Snow Brook. The existing bridge is a metal pipe spanning 16' constructed in 1975. The drainage area is roughly 4 square miles. The rehabilitation will include placing a concrete invert within the pipe to increase the life of the structure. Slides were shown including the inlet and outlet as well as the proposed wetlands impacts. The project was presented back at the March 21st, 2018 Natural Resource Agency meeting. The resource agencies asked to see a longitudinal stream profile at that time. Data was collected this summer and the longitudinal stream profile was shown. The longitudinal profile showed there was a scour pool at the outlet of the structure that was approximately 40' in length, and that the tail water control was 60' downstream of the outlet. There was 0.4' of water through the pipe when the profile was taken on 7/27/2018. The channel dropped 1.5' at the outlet of the culvert and the water was 1.9' deep. The downstream tail water control was 60' downstream of the outlet and comprised of a cobble gravel riffle. The water depth 60' downstream of the outlet was 0.6'. There was 0.6' of water on average within the upstream channel. The channel gradually sloped towards the culvert's inlet invert at a slope of 3%. The inlet streambed is at grade with the culvert's inlet invert.

Lori Sommer asked if the crossing was perched. The culvert is currently not perched, however with the placement of the invert lining it is likely that it will perch the outlet. L. Sommer asked if anything could be done at the outlet to eliminate the perch. D. Locker advised that they could add a downstream fish weir to the design. Tim Boodey agreed that they could add a weir to the project design to help maintain water depth during low flow times. The placement of the weir will be determined in the field during construction. S. Large mentioned that the natural tailwater control is 60' downstream of the crossing.

Gino Infascelli stated that the invert lining will require an alternative design form (Env-wt 904.09). G. Infascelli mentioned to add a monitoring plan for three to five years to the application rather than him having to add it to the permit as a condition.

Lori Sommer mentioned adding a fish weir to the plan as mitigation for the impacts. It was agreed that the impacts from the fish weir would be added to the plans submitted with the wetlands permit application, and coordination with F&G would be done in order to determine the location of the weir. L. Sommer asked what the water diversion would be. D. Locker stated that this would be a bypass pipe as a result of the type of work.

Carol Henderson asked if the project could be done one half at a time. D. Locker replied that because of the size of the pipe and the type of work being done it was not possible. D. Locker said that the work would be done during the winter time.

T. Boodey stated that they would be replacing the existing rock along the banks and channel for protection of the existing infrastructure. Matt Urban stated that the riprap is needed for protection of existing infrastructure and would not require mitigation. L. Sommer agreed and asked that a monitoring plan be submitted for the fish weir.

Sarah Large stated that a 4(d) consultation form will be submitted to USF&WS and ACOE to coordinate on the Northern Long-eared bats.

This project was previously discussed at the March 21, 2018 Monthly Natural Resource Agency Coordination Meeting.

Keene, #15854

Christine Perron provided an overview of the project. This is a municipally-managed State Aid Bridge project in the City of Keene. The project will address the existing Roxbury Street Bridge over Beaver Brook (Bridge No. 140/077) located in downtown Keene. This is a Tier 3 stream crossing based on its watershed of 8.28 square miles. Beaver Brook has been fully channelized with a concrete channel and vertical concrete walls upstream and downstream of the bridge since at least the 1960s. The channel width is approximately 16' at the bridge. Nearly 1 mile of the stream through Keene has been channelized or modified, and a portion downstream of the project is located within the Army Corps Beaver Brook Local Protection Project that was completed in the 1980s to address flooding concerns in Keene.

Josh Lund provided details on existing conditions and proposed work. The bridge was constructed in 1950 and consists of a cast-in-place concrete deck slab supported by concrete abutments. The bridge abutments are supported on a concrete slab spanning the entire length and width of the bridge. The bridge has a span of 16'-0" and is 50'-0" wide including 30'-0" curb-to-curb, two 6'-0" sidewalks, and a grass strip. Beaver Brook is contained within a 16'-0" wide three-sided concrete channel for several hundred feet upstream and downstream of the bridge. The bridge is on the State's Municipal 'Red List' with a condition rating of '3' (serious). An existing 6" sewer line is encased in concrete as it crosses Beaver Brook, and its elevation is above the streambed elevation, causing a 15" high dam within the bridge.

Due to the poor overall condition, the existing structure will be replaced. The proposed bridge would have a 22-foot span. The concrete walls and floor of the channel will be retained in the same footprint; however, the new bridge would be slightly longer to accommodate any potential future channel widening. The sewer line under the channel will be replaced and lowered to remove the existing dam at the bridge.

C. Perron noted that a major impact wetlands permit would be required for the project since this is a Tier 3 stream crossing. The only impacts that are anticipated are temporary impacts for water diversion and for repairs to the existing concrete channel. Eliminating the rise in the channel bottom caused by the sewer line was recommended in the Beaver Brook Restoration Plan. The project will eliminate this rise, which is expected to benefit fish passage.

Lori Sommer and Jessica Bouchard asked if the bottom of the channel would remain concrete, if there is any natural substrate on the bottom now, and if any natural substrate was proposed. J. Lund stated that the channel is currently concrete with some natural substrate that gets deposited during higher flows. The channel would remain concrete since approximately a ¼ mile of the channel is currently concrete. No channel substrate will be placed on top of the concrete because it would be washed away during flood events.

Mike Hicks asked if the project would have any federal funding. C. Perron answered that the project has no federal funding, and that coordination on historic resources and rare species was just getting underway. Jessica Bouchard asked if there are any historic resources in the project area. C. Perron noted that the bridge is over 50 years old and located at the edge of a historic district, so coordination with NHDHR would be necessary.

Eaton, #41864 Mitigation Report

At the September 19, 2018 Natural Resource Agency meeting mitigation was discussed. It was agreed that constructing the downstream fish weir would serve as mitigation for the proposed maintenance/rehabilitation work and that the impacts needed to construct the weir were self-mitigating. The riprap along the banks and channel were discussed; the impacts are needed for protection of existing infrastructure and it was agreed upon that mitigation was not required.

A monitoring plan for the fish weir is included with the application.

Eaton, #41864 Fish Weir Monitoring Plan

In order to establish if the fish weir serves its purpose of backwatering water through the rehabilitated pipe, the condition of the weir and water depths upstream of the weir and through the pipe will be collected for three years.

Monitoring Protocol:

Monitor during "low flow" stream conditions (July 1 through October 1) and for 3 years post construction.

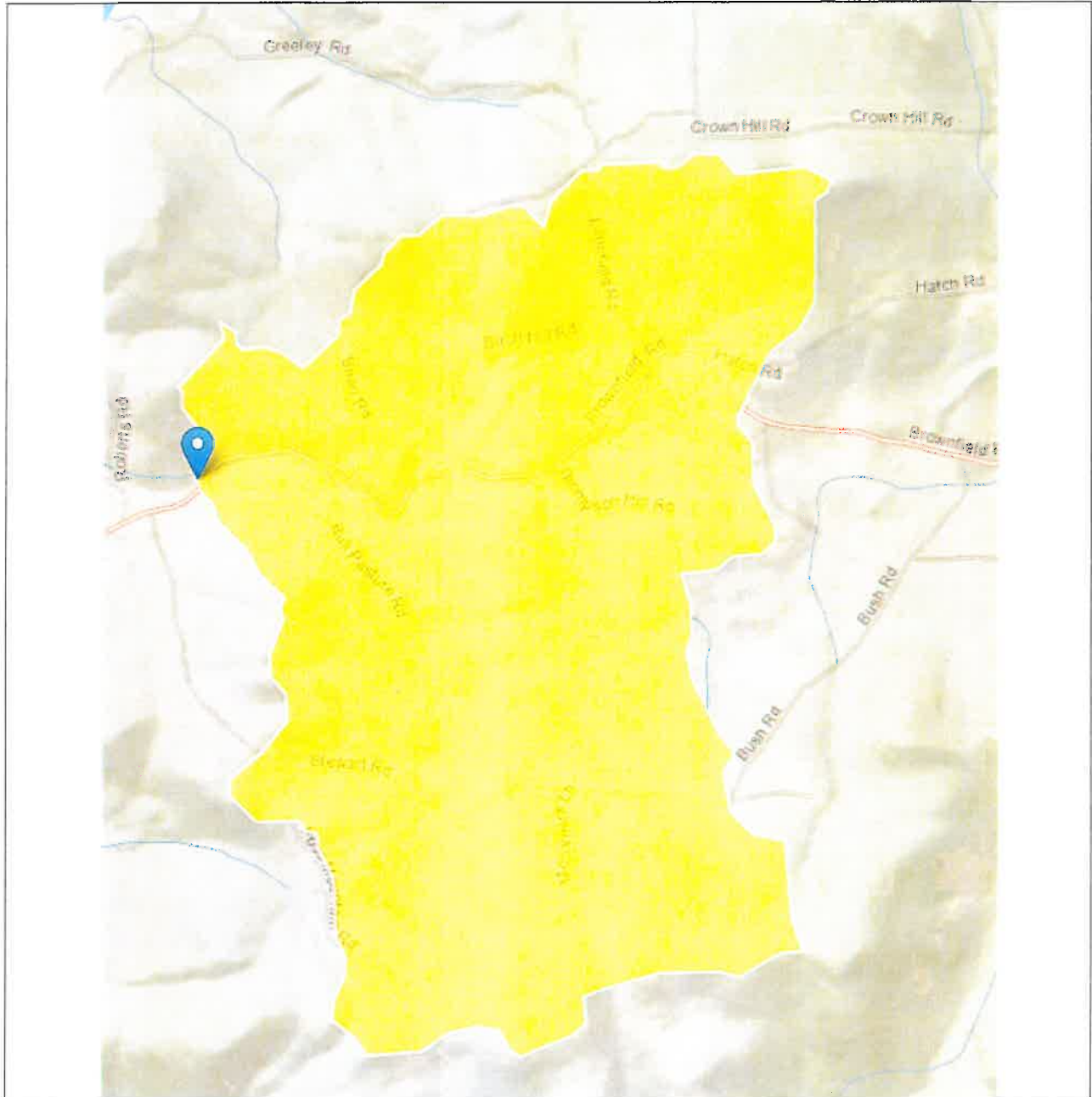
1. Check the condition of the weir to ensure it is structurally intact and in good condition.
 - a. Weir is still in place
 - b. Weir is not missing any rocks that make up the structural integrity
 - c. Initial monitoring year measure the distance from the outlet invert to the weir
2. Measure the water depth within the stream channel upstream of the fish weir but before the outlet of the structure
3. Measure the water depth within the structure
4. Observations of water flow
5. Observations of aquatic life

Hydraulic Data

Drainage Area – 4.05 square miles

Flow – Q 100 = 1210 cfs

The proposed structure will pass the 100 year flood.



Watershed Boundaries Map

**NH Department of Transportation
Bureau of Bridge Maintenance
Project, # 31864
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.*)

Snow Brook has a drainage area of 4.05 square miles which qualifies this stream as a Tier 3 crossing. The required span for a compliant crossing in accordance with the NH Stream Crossing Guidelines and based on the regional hydraulic curve calculation would be 32'. A structure of this size would cost approximately \$700,000. Spending this much money on a structure that could be adequately preserved for approximately \$150,000 would not be a practicable use of resources.

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 proposed improvements have been developed in accordance with the NH Stream Crossing Guidelines. The Department has considered numerous design alternatives based on general considerations that take the geomorphic conditions of the stream into account as it relates to the structure. The Department has collected data in the field and in the office to aid in the design of the proposed crossing. Using information that was available the Department has determined that a full bridge replacement would not be practicable. As such, the Department has proposed an alternative design that meets the intent of the stream crossing guidelines to maximum extent practicable

(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.

The proposed project will not significantly change the existing waterway opening and structure alignment, and therefore, it will not change the depths or velocities at the crossing. The existing structure is a closed bottom metal pipe arch. The repaired structure will remain a closed bottom structure; however, the invert will be concrete rather than the existing deteriorated metal invert. The proposed alternative, although not an upgrade, does not diminish the existing conditions at the crossing.

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

The existing structure does not have banks through the pipe, nor will it after the repair. The banks abutting both sides of Snow Brook are currently vegetated. Although there are temporary impacts in those areas the vegetation and existing conditions are not expected to be changed permanently. Wildlife can pass through the crossing; however, it will be in a wet/aquatic environment.

(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 project will not significantly change the existing waterway opening nor the structure alignment, and therefore the current alignment and gradient of the stream channel will not change as a result of this project.

(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.

Flow data taken from the New Hampshire StreamStats was input into Federal Highway Authority HY-8. Analysis was done on the existing structure and the proposed structure with the concrete invert and it was determined that the structure will still adequately accommodate the 100-year flood. Abutting property owners will not see an increase in flooding since the structure will not compromise the channel's stability. The proposed design will continue to accommodate sediment through the crossing.

(f) To simulate a natural stream channel.

The existing culvert has a metal invert. The repaired culvert will have a concrete invert. Simulating a natural stream channel is not feasible with this type of maintenance activity and type of pipe. The concrete invert is the only repair to extend the life of the pipe while providing the stabilization needed.

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

The proposed project will not impact the crossing's ability to transport sediment. Flow rates and transport competency will remain the same as the existing conditions.

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;

There will be no barriers to sediment transport as a result of the structure modification/ repair. The crossing currently transports sediment and the proposed repairs will not alter the crossing's ability to continue this function. The crossing will maintain the existing opening and therefore is anticipated to continue to pass everything it is currently passing.

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

The proposed crossing will maintain the existing waterway opening. High flows and low flows will not be changed as a result of this project. The existing culvert is not perched, however with the installation of the concrete invert it is anticipated that during low flow periods the outlet will be perched. To address this, a downstream fish weir will be installed in order to backwater through the pipe.

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

Aquatic life indigenous to the water body will not be obstructed or otherwise disrupted as a result of this project. The stream will maintain its ability to successfully provide adequate aquatic organism and fish passage by installing a fish weir downstream to backwater water through the pipe during low flow periods. During low flows small mammal species s are expected to be able to utilize the crossing as a means of crossing the road as well.

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

The existing crossing has no history of flooding or overtopping the banks of the stream. The proposed project will not increase the frequency of flooding or overtopping of banks. The project will maintain the existing waterway opening. This crossing will accommodate 100yr flood events.

(e) Preserve watercourse connectivity where it currently exists;

The watercourse is currently connected.

(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;

The watercourse is currently connected. The invert lining is expected to raise the elevation of the watercourse through the pipe to an elevation that would perch the culvert at the outlet during low flow periods. To address the perch a downstream fish weir will be installed to backwater during low flows to maintain watercourse connectivity during low flow periods.

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

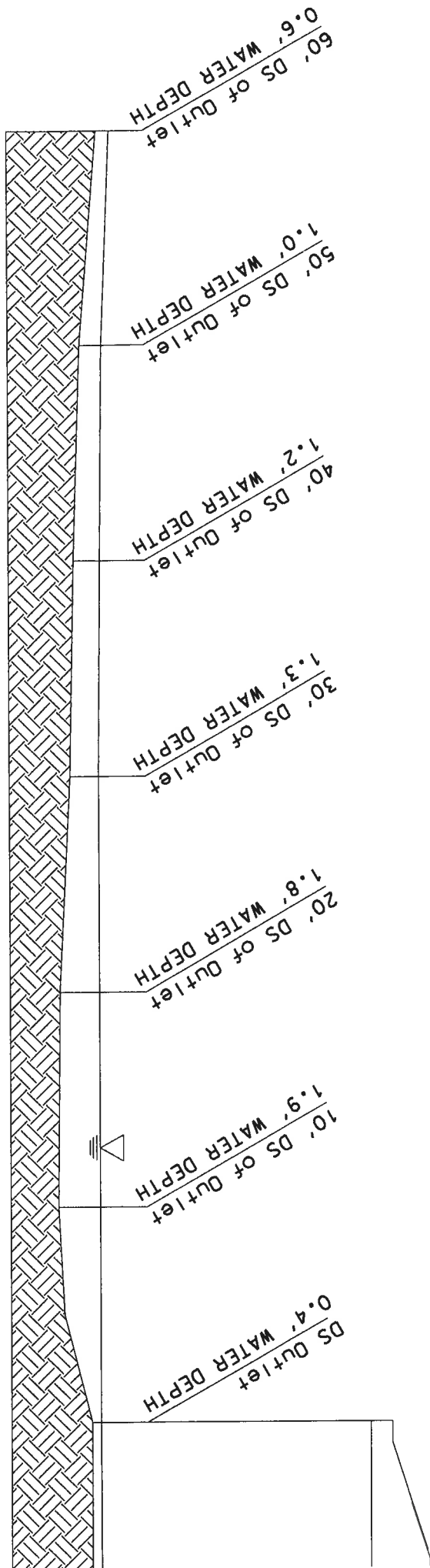
The intent of the proposed project will not cause erosion, aggradation or scouring upstream or downstream of the crossing. Appropriate BMP's will be in place to ensure that the construction site is stable at all times. Riprap will be placed along each of the wingwalls, banks, and within the channel at the inlet and outlet for erosion protection and stabilization in order to maintain the structural integrity of the bridge during all flow conditions. Appropriate BMP's will be in place to ensure that the construction site is stable at all times.

(h) Not cause water quality degradation.

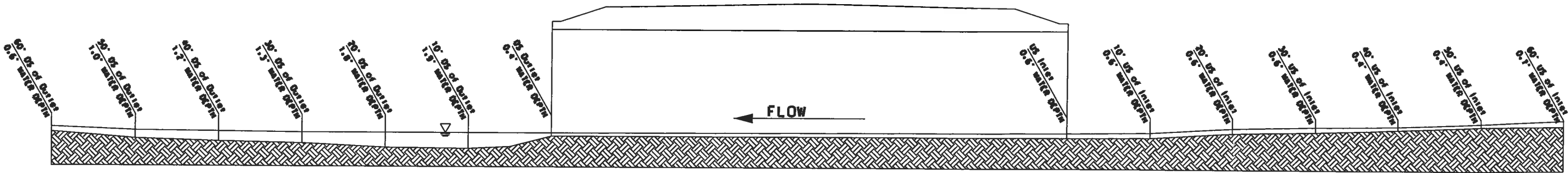
The proposed project will not cause water quality degradation. The project will utilize appropriate BMP's throughout construction to ensure that the construction site is stable at all times.

*****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*.**

Downstream Longitudinal Profile



Longitudinal Profile



Streambed Channel Elevation and Water Depth Profile Data Collection

Location: Eaton Br. 084/114

Date: 7/27/2018

Elevation ID to ID & Notes <small>(E) us elev #, ds elev #, Invert, etc</small>	Collection Point (ft.)	Distance (ft.)	Shooting From	Shooting To	Difference (+ / -)	Elevation (ft.)	Water Depth (ft.)
Inlet Invert + 60	60	122	5	-	3.3 = 1.7	101.7	0.7
Inlet Invert + 50	50	112	5	-	3.4 = 1.6	101.6	0.4
Inlet Invert + 40	40	102	5	-	3.8 = 1.2	101.2	0.4
Inlet Invert + 30	30	92	5	-	4.1 = 0.9	100.9	0.6
Inlet Invert + 20	20	82	5	-	4.3 = 0.7	100.7	0.6
Inlet Invert + 10	10	72	5	-	4.9 = 0.1	100.1	0.6
Outlet Invert to Inlet Invert	62	62	5	-	5 = 0	100	0.6
Outlet Invert	0	0		-	=	100	0.4
Outlet Invert - 10	-10	-10	5	-	6.5 = -1.5	98.5	1.9
Outlet Invert - 20	-20	-20	5	-	6.4 = -1.4	98.6	1.8
Outlet Invert - 30	-30	-30	5	-	5.9 = -0.9	99.1	1.3
Outlet Invert - 40	-40	-40	5	-	5.7 = -0.7	99.3	1.2
Outlet Invert - 50	-50	-50	5	-	5.4 = -0.4	99.6	1
Outlet Invert - 60	-60	-60	5	-	4.6 = 0.4	100.4	0.6



New Hampshire Natural Heritage Bureau

To: Douglas Locker
7 Hazen Drive
Concord, NH 03302

Date: 3/8/2018

From: NH Natural Heritage Bureau

Re: Review by NH Natural Heritage Bureau of request dated 3/8/2018
NHB File ID: NHB18-0771

Applicant: Doug Gosling

Location: Tax Map(s)/Lot(s):
Eaton

Project Description: This project involves rehabilitating the metal pipe carrying Brownfield Road over Snow Brook. The proposed work will include installing a concrete invert to the metal pipe, toe walls, cutoff walls at each end, and rip rap placement at the inlet and outlet of the metal pipe.

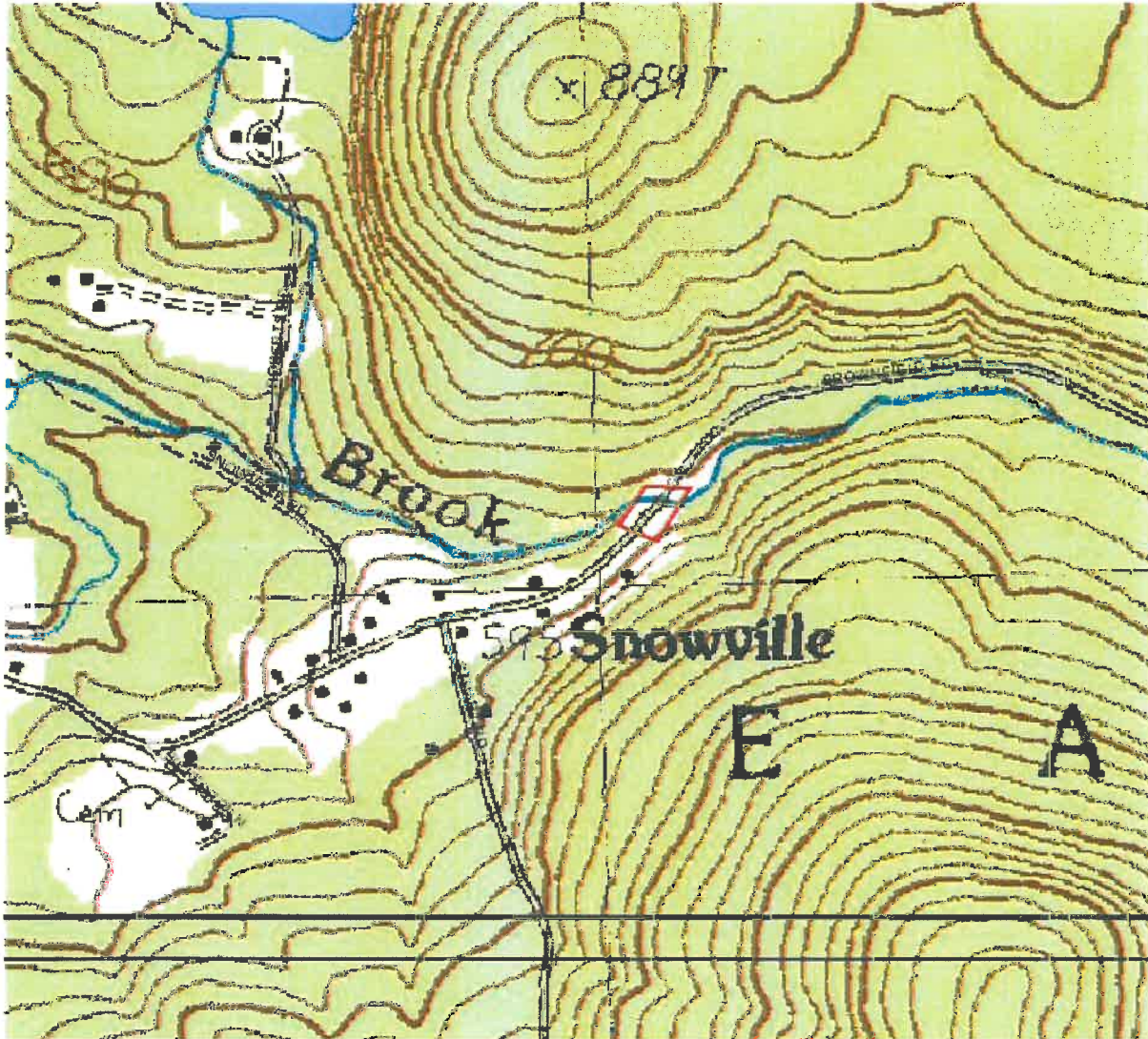
The NH Natural Heritage database has been checked for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government. We currently have no recorded 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 3/7/2019.



MAP OF PROJECT BOUNDARIES FOR NHB FILE ID: NHB18-0771





United States Department of the Interior



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

In Reply Refer To:
Consultation Code: 05E1NE00-2018-SLI-3230
Event Code: 05E1NE00-2018-E-07563
Project Name: Eaton 084/114

September 27, 2018

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). 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-3230

Event Code: 05E1NE00-2018-E-07563

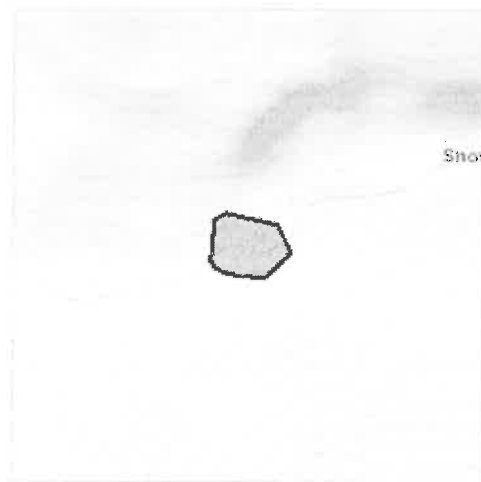
Project Name: Eaton 084/114

Project Type: COMMUNICATIONS TOWER

Project Description: Install concrete invert within existing metal pipe culvert in order to rehabilitate the structure.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/43.913653707143894N71.05345088134513W>



Counties: Carroll, NH

Endangered Species Act Species

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

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, 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: https://ecos.fws.gov/ecp/species/9045	Threatened

Flowering Plants

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

Critical habitats

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

Locker, Douglas

From: Large, Sarah
Sent: Monday, October 08, 2018 7:28 AM
To: Locker, Douglas
Subject: FW: NHDOT Eaton, #41864 Suitable Habitat for Small Whorled Pogonia

Follow Up Flag: Follow up
Flag Status: Flagged

Good morning Doug,

Please see Amy's response below. If you can commit to keeping equipment/ machinery out of the forest downstream of the culvert there will be a low likelihood of impacting any possible presence of the small whorled pogonia.

Will that be possible with installing the fish weir downstream?

Sarah

From: Lamb, Amy
Sent: Friday, October 05, 2018 3:35 PM
To: Large, Sarah
Subject: RE: NHDOT Eaton, #41864 Suitable Habitat for Small Whorled Pogonia

Hi Sarah,

I would agree that the areas immediately surrounding the culvert inlet and outlet would not provide ideal habitat for small whorled pogonia for the reasons you noted. I also agree that the forest downstream looks like it would have a higher likelihood of potentially supporting the species.

Provided that Bridge Maintenance commits to keeping equipment/machinery out of the forest downstream of the culvert, I would not expect the project to impact small whorled pogonia.

Thank you,
Amy

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

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

From: Large, Sarah
Sent: Tuesday, October 02, 2018 11:48 AM
To: Lamb, Amy

Cc: Locker, Douglas

Subject: NHDOT Eaton, #41864 Suitable Habitat for Small Whorled Pogonia

Hi Amy,

The US Fish & Wildlife Service's IPaC search came back with a hit for small whorled pogonia for the NHDOT Bridge Maintenance Project Eaton, #41864. I am hopeful that you could help us determine if the site is suitable habitat for the species and if you have concerns.

Unfortunately, I didn't realize that there was a hit in the area when I went out to do field work at the crossing so a survey has not been completed on site and we do not have time to complete one this field season prior to submitting for the wetlands permit application. From reviewing the photos and my memory of the site the habitat at the inlet does not seem to match the description of small whorled pogonia's suitable habitat*. The banks at the inlet are previously-disturbed and mostly vegetated by shrubs and is very exposed to sunlight. However, the forest downstream of the outlet (beyond the structure) seems to be more suitable; the canopy was dense and the understory was open. The forest comprised of hemlock, oak, and maple. There are previously disturbed road slopes immediately adjacent to the outlet of the crossing and then the forest habitat begins.

Bridge Maintenance plans to access the pipe from the inlet and can commit that no heavy machinery will be placed within the forested area at the outlet of the crossing.

It is my thought that even though the forest downstream of the outlet is potentially suitable habitat since permanent impacts to and machinery will remain out of that area the project is likely to not adversely affect any potential small whorled pogonia/ habitat.

What are your thoughts?

Best wishes,

Sarah Large
Wetlands Program Analyst
NH Department of Transportation
Bureau of Environment

** The New England Wildflower society states that small whorled pogonia is typically found in anthropogenic/ human influenced areas, forests, and forest edges but particularly in open-canopy forests. US Fish and Wildlife Services lists that the small whorled pogonia grows in hardwood forests around stands of beech, birch, maple, oak, and hickory that have an open understory; sometimes in stands of softwoods such as hemlock.*

Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form

Federal agencies should use this form for the optional streamlined consultation framework for the northern long-eared bat (NLEB). This framework allows federal agencies to rely upon the U.S. Fish and Wildlife Service’s (USFWS) January 5, 2016, intra-Service Programmatic Biological Opinion (BO) on the final 4(d) rule for the NLEB for section 7(a)(2) compliance by: (1) notifying the USFWS that an action agency will use the streamlined framework; (2) describing the project with sufficient detail to support the required determination; and (3) enabling the USFWS to track effects and determine if reinitiation of consultation is required per 50 CFR 402.16.

This form is not necessary if an agency determines that a proposed action will have no effect to the NLEB or if the USFWS has concurred in writing with an agency's determination that a proposed action may affect, but is not likely to adversely affect the NLEB (i.e., the standard informal consultation process). Actions that may cause prohibited incidental take require separate formal consultation. Providing this information does not address section 7(a)(2) compliance for any other listed species.

IPaC Official Species List Consultation Code: **05E1NE00-2018-SLI-3230**

Information to Determine 4(d) Rule Compliance:

	YES	NO
1. Does the project occur wholly outside of the WNS Zone ¹ ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Have you contacted the appropriate agency ² to determine if your project is near known hibernacula or maternity roost trees?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Could the project disturb hibernating NLEBs in a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Could the project alter the entrance or interior environment of a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Does the project remove any trees within 0.25 miles of a known hibernaculum at any time of year?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Would the project cut or destroy known occupied maternity roost trees, or any other trees within a 150-foot radius from the maternity roost tree from June 1 through July 31.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

You are eligible to use this form if you have answered yes to question #1 **or** yes to question #2 **and** no to questions 3, 4, 5 and 6. The remainder of the form will be used by the USFWS to track our assumptions in the BO.

Agency and Applicant³ (Name, Email, Phone No.): Sarah Large (Bureau of Environment); Sarah.Large@dot.nh.gov ; 603-271-6916 & Doug Locker (Bridge Maintenance) Doug.Locker@dot.nh.gov

Project Name: Eaton, #41864

Project Location (include coordinates if known): 43.91360° / -71.05356°

Basic Project Description (provide narrative below or attach additional information):

The proposed work is to rehabilitate 16’ metal plate pipe arch carrying Brownfield road over Snow Brook in Eaton, NH. The proposed rehabilitation includes installing a concrete invert lining within the existing structure & cut off walls, place riprap at along each of the wings, banks, and channel to stabilize and protect the structure, and install a downstream fish weir. No trees greater than 3” diameter at breast height will be removed.

¹ <http://www.fws.gov/midwest/endangered/mammals/nleb/pdf/WNSZone.pdf>

² See <http://www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html>

³ If applicable - only needed for federal actions with applicants (e.g., for a permit, etc.) who are party to the consultation.

General Project Information	YES	NO
Does the project occur within 0.25 miles of a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Does the project occur within 150 feet of a known maternity roost tree?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Does the project include forest conversion ⁴ ? (if yes, report acreage below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated total acres of forest conversion		
If known, estimated acres ⁵ of forest conversion from April 1 to October 31		
If known, estimated acres of forest conversion from June 1 to July 31 ⁶		
Does the project include timber harvest? (if yes, report acreage below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated total acres of timber harvest		
If known, estimated acres of timber harvest from April 1 to October 31		
If known, estimated acres of timber harvest from June 1 to July 31		
Does the project include prescribed fire? (if yes, report acreage below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated total acres of prescribed fire		
If known, estimated acres of prescribed fire from April 1 to October 31		
If known, estimated acres of prescribed fire from June 1 to July 31		
Does the project install new wind turbines? (if yes, report capacity in MW below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated wind capacity (MW)		

Agency Determination:

By signing this form, the action agency determines that this project may affect the NLEB, but that any resulting incidental take of the NLEB is not prohibited by the final 4(d) rule.

If the USFWS does not respond within 30 days from submittal of this form, the action agency may presume that its determination is informed by the best available information and that its project responsibilities under 7(a)(2) with respect to the NLEB are fulfilled through the USFWS January 5, 2016, Programmatic BO. The action agency will update this determination annually for multi-year activities.

The action agency understands that the USFWS presumes that all activities are implemented as described herein. The action agency will promptly report any departures from the described activities to the appropriate USFWS Field Office. The action agency will provide the appropriate USFWS Field Office with the results of any surveys conducted for the NLEB. Involved parties will promptly notify the appropriate USFWS Field Office upon finding a dead, injured, or sick NLEB.

Signature: Sarah E Large

Date Submitted: 10/22/18

⁴ Any activity that temporarily or permanently removes suitable forested habitat, including, but not limited to, tree removal from development, energy production and transmission, mining, agriculture, etc. (see page 48 of the BO).

⁵ If the project removes less than 10 trees and the acreage is unknown, report the acreage as less than 0.1 acre.

⁶ If the activity includes tree clearing in June and July, also include those acreage in April to October.



THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION



Victoria F. Sheehan
Commissioner

William Cass, P.E.
Assistant Commissioner

LETTER OF TRANSMITTAL

Date: 10/22/2018

TO: Susi von Oettingen
Endangered Species Biologist
US Fish and Wildlife Service
70 Commercial Street, Suite 300
Concord, NH 03301

Bureau: Environment
Project: Eaton
Project No.: 41864
Consultation Code: 05E1NE00-2018-SLI-3230

Susi:

WE ARE SENDING YOU [X] Attached [] Under separate cover via the following items:

Table with 3 columns: COPIES, DATE, DESCRIPTION. Rows include NLEB 4(d) Rule Streamlined Consultation Form, USGS Project Location Map, and USFWS Official Species List.

THESE ARE TRANSMITTED as checked below:

- Checkboxes for: For approval, For your use, As requested, For review and comment, Approved as submitted, Approved as noted, Returned for corrections, Returned for your use.

REMARKS: Enclosed is the NLEB 4(d) Rule Streamlined Consultation Form and backup information for the above referenced project in the town of Eaton, NH and involves no tree removal. The proposed work is to rehabilitate 16' metal plate pipe arch carrying Brownfield road over Snow Brook in Eaton, NH. The proposed rehabilitation includes installing a concrete invert lining within the existing structure & cut off walls, place riprap at along each of the wings, banks, and channel to stabilize and protect the structure, and install a downstream fish weir. The NHDOT has determined that this project may affect the NLEB, but that any resulting incidental take of the NLEB is not prohibited by the final 4(d) rule. The lead Federal Agency is the US Army Corp of Engineers

Your concurrence with this determination is requested. Please contact me if you have any questions.

Sarah Large (handwritten signature)

Sarah Large
Wetlands Program Analyst
Bureau of Environment, NHDOT
Room 160 - Tel. (603) 271-6916
E-mail: Sarah.Large@dot.nh.gov

Enc.
Mike Hicks, US ACOE

Wetland Application – NHDOT Cultural Resources Review

For the purpose of compliance with regulations of the National Historic Preservation Act, the Advisory Council on Historic Preservation's *Procedures for the Protection of Historic Properties* (36 CFR 800), the US Army Corps of Engineers' *Appendix C*, and/or state regulation RSA 227-C:9, *Directive for Cooperation in the Protection of Historic Resources*, the NHDOT Cultural Resources Program has reviewed the enclosed Standard Dredge and Fill Application for potential impacts to historic properties.

Proposed Project: The project proposes to rehabilitate the bridge carrying Brownfield Road over Snow Brook (084/114). The existing structure that carries Snow Brook is a 1975 corrugated steel arch pipe culvert with a 16 foot span and reinforced concrete abutments and headers. The proposed project will include placing a concrete invert within the structure as well as riprap to protect the inlet and outlet of the structure. Impacts are for the temporary construction areas, the concrete invert within the pipe, and cut off walls.

Above Ground Review
Known/approximate age of structure: 1975 corrugated steel arch pipe culvert with a 16 foot span and reinforced concrete abutments and headers
<input checked="" type="checkbox"/> No Potential to Cause Effect/No Concerns The drainage feature is less than 50 years old. Furthermore, if this were a federal project, it would comply with the Program Comment for Common Post-1945 Concrete & Steel Bridges.
<input type="checkbox"/> Concerns:

Below Ground Review
Recorded Archaeological site: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Nearest Recorded Archaeological Site Name & Number: 27-CA-0064 (no name) <input type="checkbox"/> Pre-Contact <input checked="" type="checkbox"/> Post-Contact
Distance from Project Area: 5.28 Miles (8.5 Km) northwest of project area
<input checked="" type="checkbox"/> No Potential to Cause Effect/No Concerns It is understood that proposed activities, focused on the installation of a concrete invert, are limited to the disturbed footprint of an area already impacted by road and culvert construction, and filling. Furthermore, cartographic review was conducted. The 1861 Walling map and the 1892 Hurd map do not depict any structures in the project area.

1861 Walling map



1892 Hurd Map



Concerns:

Reviewed by:

Shira Charles

10/17/2018

NHDOT Cultural Resources Staff

Date:



**US Army Corps
of Engineers**
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.

1. Impaired Waters	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm to determine if there is an impaired water in the vicinity of your work area.*		X
2. Wetlands	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, www.nhnaturalheritage.org , specifically the book Natural Community Systems of New Hampshire .		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?	3000sq. ft.	
2.7 What is the size of the proposed impervious surface area?	3000sq. ft.	
2.8 What is the % of the impervious area (new and existing) to the overall project site?	16%	
3. Wildlife	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 <small>No records</small>	
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"> • PDF: www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm. • Data Mapper: www.granit.unh.edu. • GIS: www.granit.unh.edu/data/downloadfreedata/category/databycategory.html. 	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	

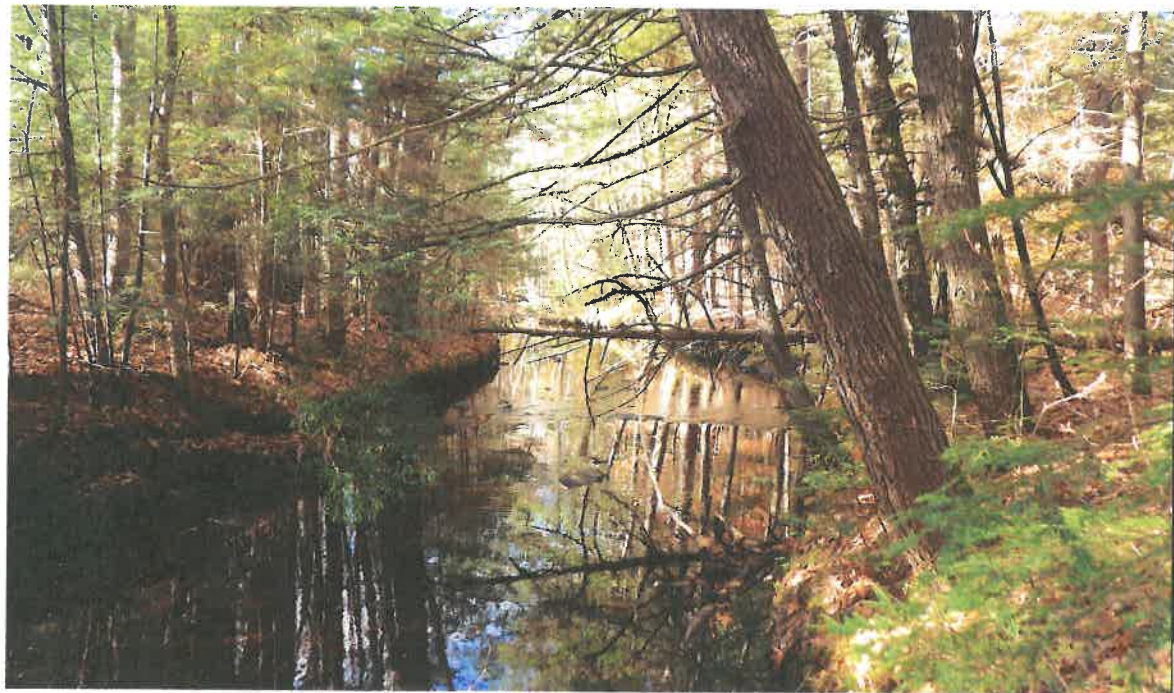
4. Flooding/Floodplain Values	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?		X
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?		X
5. Historic/Archaeological Resources		
If a minor or major impact project, has a copy of the Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) 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.



Outlet



Downstream Channel



Downstream Channel – Taken From the Outlet



Looking Downstream through Structure



Upstream Channel – Facing Downstream Towards the Inlet



Upstream Channel – Facing Upstream from Above the Inlet



Inlet

CONSTRUCTION SEQUENCE

1. Install temporary sandbag cofferdam in the brook, prepare sediment basin and divert flow through bypass pipe.
2. Dewater the work zone.
3. Place concrete invert and cutoff walls.
4. Place riprap and construct fish weir.
5. Remove cofferdams and restore the site.

Note: The Project will utilize BMP's from the Best Management Practices manual during all phases of construction.

Env-Wt 404 Criteria for Shoreline Protection

The rehabilitation of the bridge that carries Brownfield Road over Snow Brook proposes the placement of stone fill within areas under the jurisdiction of the NH Wetlands Bureau and the US Army Corps of Engineers. The stone fill will be located in the channel and along the bank of the proposed structure as shown on the plans.

Pursuant to PART Wt 404 Criteria for Shoreline Stabilization, the following addresses each codified section of the Administrative Rules:

Wt 404.01 Least Intrusive Method

The riverbank stabilization treatment proposed is the least intrusive construction method necessary to minimize the disruption to the existing shorelines. The stone treatment can be reasonably constructed utilizing general highway construction methods.

Wt 404.02 Diversion of Water

Proposed roadway drainage will allow storm water run-off to be diverted so that it will flow over vegetated areas, insofar as possible, prior to entering Sucker Brook. This will minimize erosion of the shoreline. Throughout the project clean water bypass will be maintained through a bypass pipe through the structure.

Wt 404.03 Vegetative Stabilization

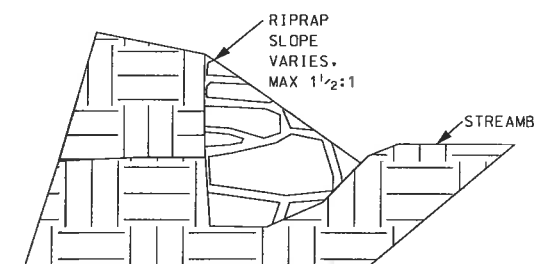
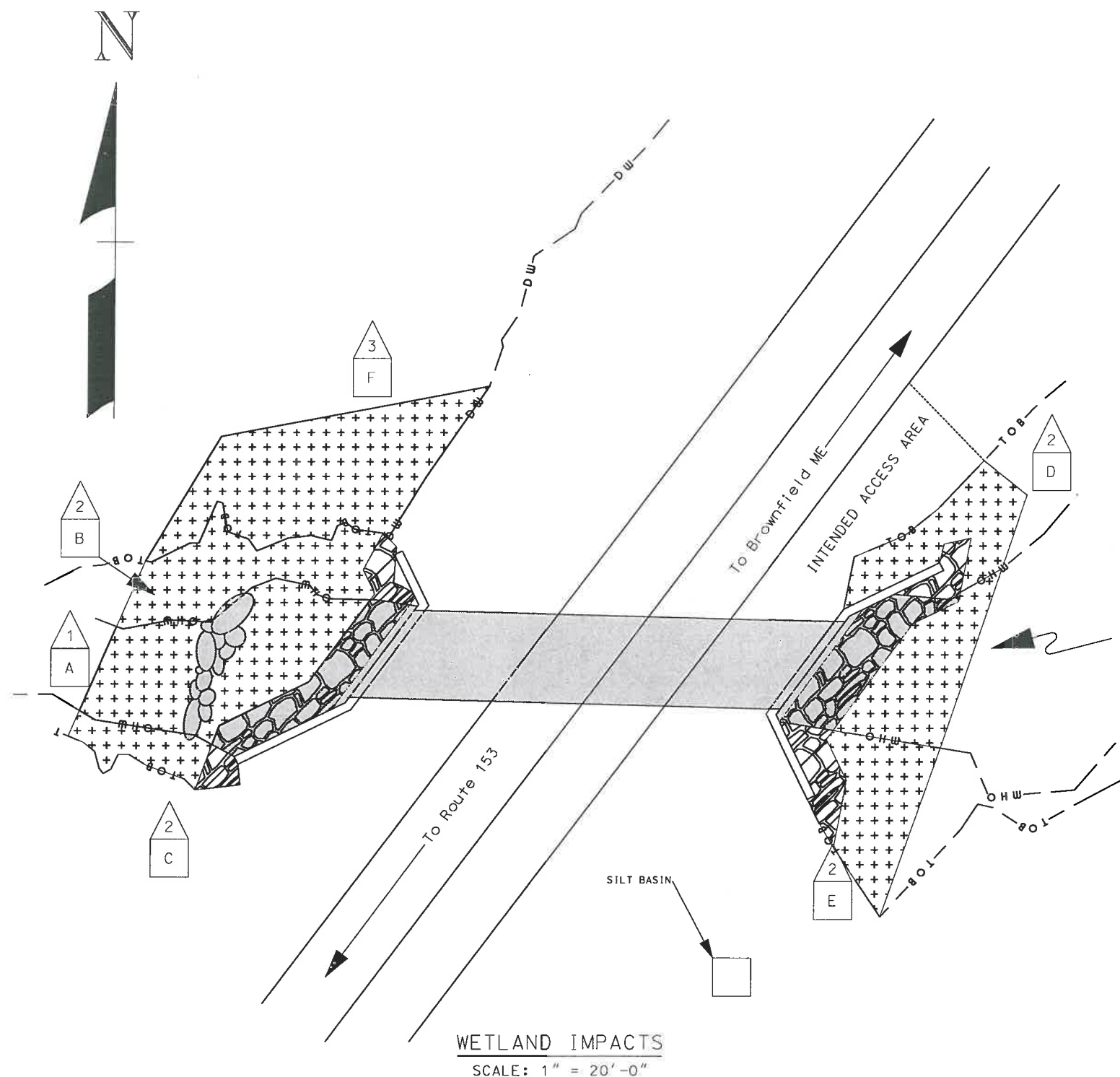
Natural vegetation will be left undisturbed to the maximum extent possible. The only locations being disturbed are the impacted areas on the plan for construction. All newly developed slopes and disturbed areas will have humus and seed applied for turf establishment, which will help stabilize the project area.

Wt 404.04 Rip-Rap

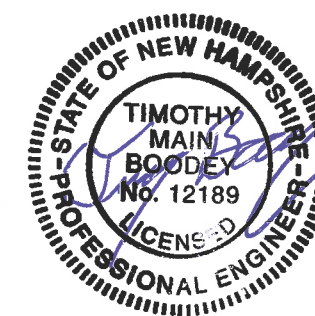
- (a) Stone fill, as proposed, is shown on the attached plans to protect the channel and bank as necessary. Stable embankments are necessary to maintain the structural integrity of the bridge during all flow conditions.
- (b) (1-5) The minimum and maximum stone size, the gradation, cross sections of the stone fill, proposed location, and other details have been provided on the attached plans. Bedding for the stone fill will consist of natural ground excavated to the proposed underside of the stone fill.
- (b) (6) Enclosed are plan sheets to sufficiently indicate the relationship of the project to fixed points of reference, abutting properties, and features of the natural shoreline.
- (b) (7) Stone fill is recommended for the limits shown on the attached plans to protect the banks from erosion during flood flows, from scour during all flows, and slopes greater than 2:1 have difficulty supporting vegetation.
- (c) This project is not located adjacent to a great pond or water body where the state holds fee simple ownership.
- (d) Stone fill is proposed to extend down to and adequately keyed into the channel bottom to prevent possible undermining of the slope.
- (e) The enclosed plan has been stamped by a professional engineer.

RIPRAP GRADATION
 D15 < 19"
 D50 < 24"
 D100 < 42"

RRIPRAP	
NEW HAMPSHIRE WETLANDS BUREAU (PERMANENT NON-WETLAND)	
NEW HAMPSHIRE WETLANDS BUREAU & ARMY CORP OF ENGINEERS (PERMANENT WETLAND)	
TEMPORARY IMPACTS	



SECTION A-A
 NOT TO SCALE



WETLANDS DELINEATED BY SARAH LARGE ON NOVEMBER 23, 2016



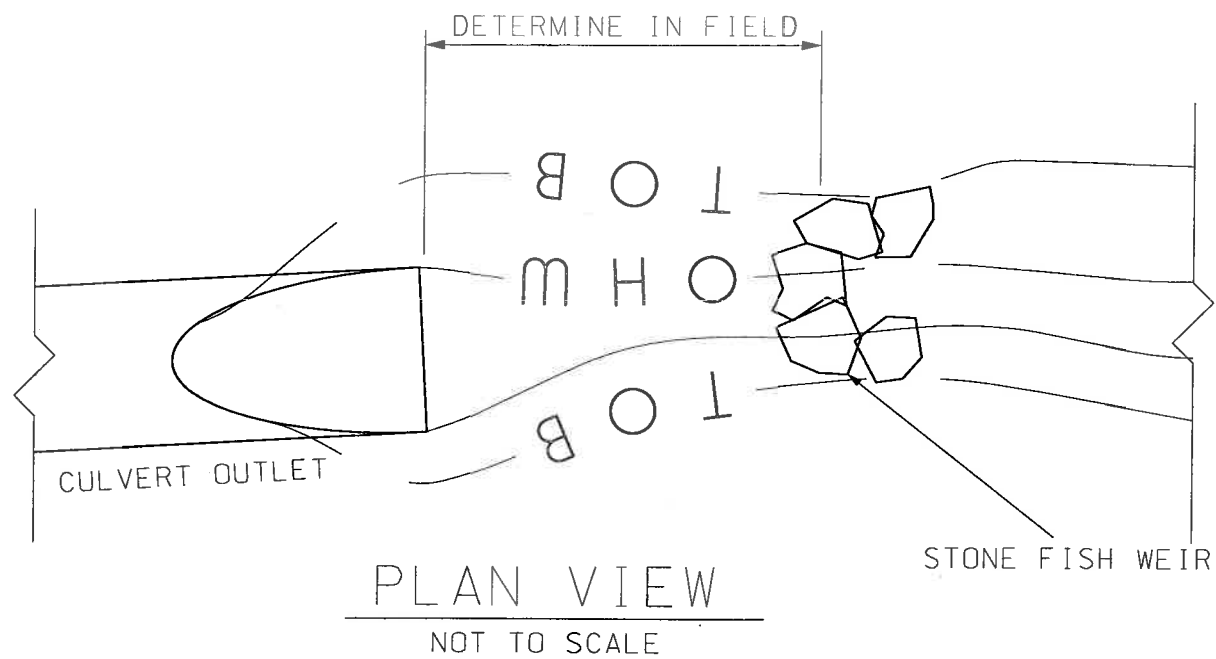
STATE OF NEW HAMPSHIRE									
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE MAINTENANCE									
TOWN	EATON			BRIDGE NO.	084/114		STATE PROJECT	41864	
LOCATION BROWNFIELD ROAD OVER SNOW BROOK									
WETLAND IMPACTS									
REVISIONS AFTER PROPOSAL				BY	DATE	CHECKED	BY	DATE	BRIDGE SHEET
				DESIGNED	DBL	9/26/18	CHECKED		1 OF 4
				DRAWN	DBL	9/26/18	CHECKED		FILE NUMBER
				QUANTITIES					EATON
				ISSUE DATE					084/114
				REV. DATE					TOTAL SHEETS
SHEET SCALE				FISCAL YEAR		CREW	SHEET NO.		
AS NOTED				2019		8	1	4	

WETLAND IMPACT SUMMARY											
WETLAND NUMBER	WETLAND CLASSIFICATION	LOCATION	AREA IMPACTS						LINEAR STREAM IMPACTS FOR MITIGATION		
			PERMANENT				TEMPORARY		PERMANENT		
			N.H.W.B. (NON WETLAND)		N.H.W.B. & A.C.O.E. (WETLAND)				BANK LEFT	BANK RIGHT	CHANNEL
			SF	LF	SF	LF	SF	LF	LF	LF	LF
1	R2UB12	A			1250	96	721	46			
2	BANK	B	38	7			320	40			
2	BANK	C	27	4			107	20			
2	BANK	D	40	10			223	30			
2	BANK	E	95	8			243	16			
4	PFO	F					600				
		G									
		H									
		I									
		J									
		K									
		L									
		TOTAL	200	29	1250	96	2214	152	0	0	0

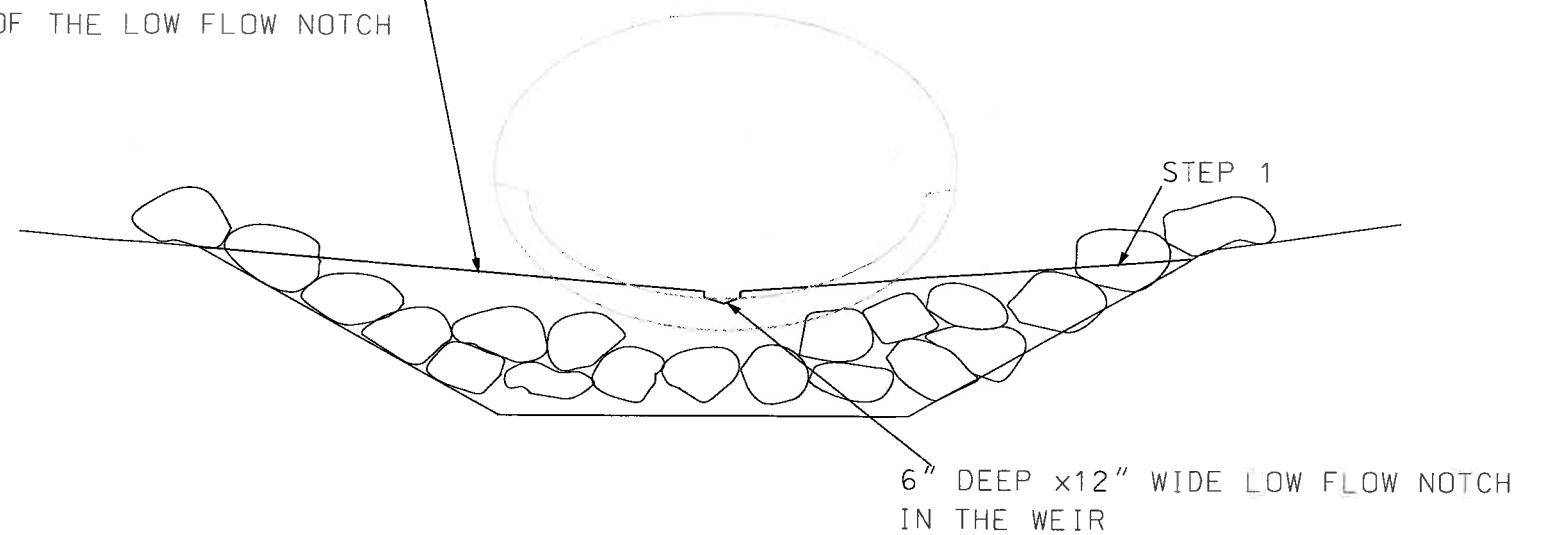
PERMANENT IMPACTS: 1450 SF
 TEMPORARY IMPACTS: 2214 SF
 TOTAL IMPACTS: 3664 SF

SUBTOTALS		PERMANENT				TEMPORARY	
		N.H.W.B. (NON WETLAND)		N.H.W.B. & A.C.O.E. (WETLAND)			
CLASS	DESCRIPTION	SF	LF	SF	LF	SF	LF
R2UB12	RIVERINE	0	0	1250	96	721	46
BANK	BANK	200	29	0	0	893	106
PFO	PALUSTRINE	0	0	0	0	600	0

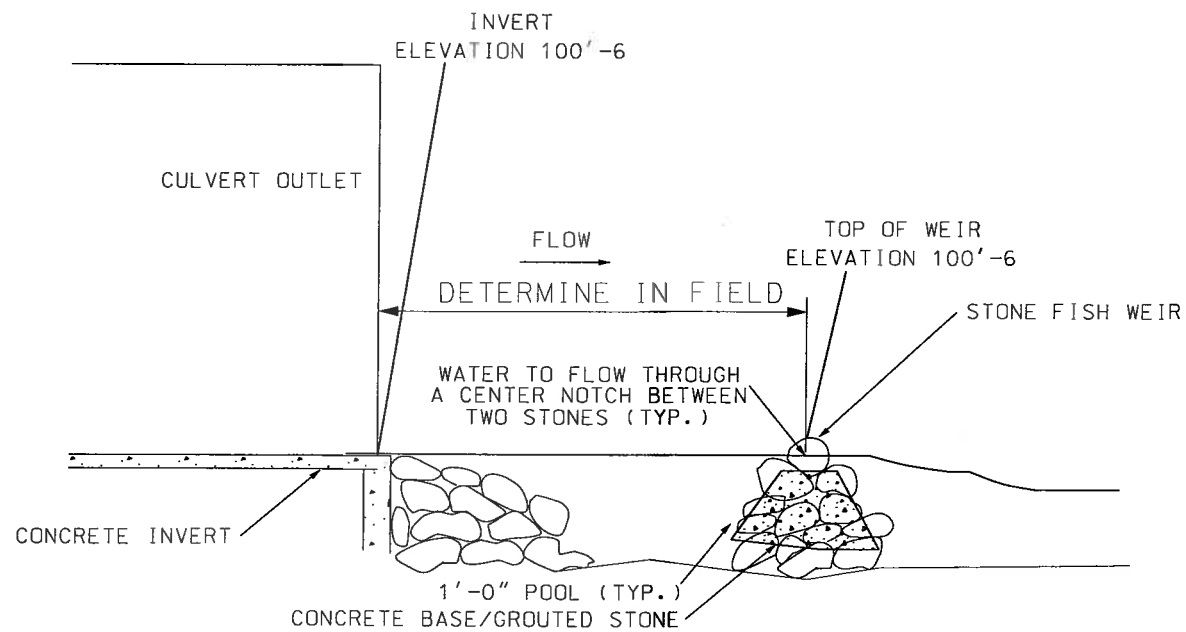
STATE OF NEW HAMPSHIRE										
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE MAINTENANCE										
TOWN	EATON	BRIDGE NO.	084/114	STATE PROJECT	41864					
LOCATION BROWNFIELD ROAD OVER SNOW BROOK										
WETLAND IMPACTS										
BRIDGE SHEET 2 OF 4										
REVISIONS AFTER PROPOSAL										
DESIGNED	DBL	9/26/18	CHECKED							
DRAWN	DBL	9/26/18	CHECKED							
QUANTITIES			CHECKED							
ISSUE DATE			FISCAL YEAR	2019	CREW	8	SHEET NO.	2	TOTAL SHEETS	4
REV. DATE										
SHEET SCALE	AS NOTED									



1'-0" MIN. DROP IN HEIGHT FROM EDGE OF THE BANK TO THE OUTER EDGE OF THE LOW FLOW NOTCH



WEIR CROSS SECTION B-B
NOT TO SCALE



NOTES:

1. LOW FLOW WATER LEVEL WILL BE EVEN WITH THE NEW INVERT WHEN THERE IS ENOUGH FLOW FOR 1/2" DEPTH IN THE PIPE
2. THE LOW FLOW NOTCH WILL BE CREATED BY PLACING TWO STONES SIDE BY SIDE, ALLOWING THE WATER TO FLOW BETWEEN THEM.
3. MAXIMUM DROP PER WEIR EQUALS 9" MAX. TO BE DETERMINED IN FIELD IN CONSULTATION WITH NH FISH AND GAME.

WEIR CROSS SECTION A-A
NOT TO SCALE

STATE OF NEW HAMPSHIRE									
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE MAINTENANCE									
TOWN	EATON	BRIDGE NO.	084/114	STATE PROJECT	41864				
LOCATION BROWNFIELD ROAD OVER SNOW BROOK									
ROCK FISH WEIR SYSTEM									
REVISIONS AFTER PROPOSAL		BY	DATE	CHECKED	BY	DATE	BRIDGE SHEET		4 OF 4
DESIGNED		DBL	10/10/18	CHECKED			FILE NUMBER		BENTON
DRAWN		DBL	10/10/18	CHECKED			BENTON		06/17/19
QUANTITIES				CHECKED			TOTAL SHEETS		4
SHEET SCALE	AS NOTED	ISSUE DATE		FISCAL YEAR	2019	CREW	6	SHEET NO.	4
		REV. DATE							